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Appendix 1 - Geologic Logs of Exploratory
Drill Holes

Index of Logs

LG200

LG201

LG202

LG203

LG205

LG206

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LG208

LG210

LG211

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LG218

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LG220

LG220A

LG221

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LG232A

LG235

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LG237

Description Marge Cashe, Cesterring Cashe, Cashe, Cesterr	HOLE NO. LG200 LOC	CATIOI ORDS. IISHED	nWa 12/8	rm springs k /80 DEPTI	oad (१६५२६.१) E ∔ of overburd	GROU	MD ELEV	104 es 10** 10**	TAL THL	Unit Title II. STATE Nevada. 950' DIP (ANGLE FROM HORIZ.). 165.0' BEARING.
Notes on water Losses and Experience of Notes of Particle Condition and Californian (Particle Condition) (Particle	DEPTH AND ELEY. OF WAT LEVEL AND DATE MEASU	TER IRED.	See N	lotes	Lo	GGED B	y D.A.Tr	udeau		LOG REVIEWED BY. D. Branstetter
Desiling Equipment 7.97 Failing Procedure 7.97 Failing Procedure 10- Desiling Procedure 10- Desiling Procedure 10- Tricone rockbit 0- Tricon	NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER	TYPE AND SIZE OF	CORE	PERCO	Loss W	LENGTH OF TEST				
Defilling Procedure 7. d75" Tricone rockbit 0- Iso.0". Mash samples every 5". Porlling Floid Barcid Lo-Loss About 5% subangular caliche gravel, max. size 1.25"; 75% poorly graded fine sand; 20% low plestic fines. Tal. Limy. Light dry strength. Role Stability Hole stable 0-165.0" About 5% subrounded caliche gravel, max. size 1.25"; 75% poorly graded fine sand; 20% low plestic fines. Tal. Limy. Light dry strength. Caliche bed encountered at the sur- face. 5.0'-10.0" Rockbits to Sandy Clay About 5% subrounded caliche gravel, max. size 1/2"; 40% mostly fine sand some coarse caliche sand; 55% medium plastic fines. Color tan. Limy. Low dry strength. 10.0'-15.0" Rockbits to Clayey sand About 70% mostly fine sand max. size 1/2"; 40% mostly fine sand some coarse caliche sand; 55% medium plastic fines. Color tan. Limy. Low dry strength. 10.0'-15.0' Rockbits to Clayey sand About 70% mostly fine sand max. size coarse sand, 30% medium plas- ticity fines. Color tan. Limy. Low dry strength. 15.0'-165.' Tertiary Muddy Creek Forma- tion Rockbits to Clayey sand, gravels, sandy clays, and mudstone. Description based or wash samples and 136-140' 38ck- filled with bea gravel and developed, well. 80 Some fine subrounded caliche gravel max. size 5/8", 30% poorly graded fine sand, 70% fines of medium plas- ticity. Color readish brown. Limy. Refettion to high dry strength. limy. Refettion to	•									
Tricone rockbit 0-	Orilling Procedure	10-						10-		sandy clay which are tan in color. Contac with underlying Muddy Creek Fm. is ten-
About 5% subangular caliche gravel, max. size 125%; 75% poorly graded fine sand; 20% low plastic fines. Tan. Limy. Light dry strength. Caliche bed encountered at the surface. 5.0'-10.0' Rockbits to Sandy Clay About 5% subrounded caliche gravel, max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size 172"; 40% mostly fine sand some coerse caliche sand; 55% max. size coerse sand, 30% medium plasticity fines. Color tan. Limy. Low dry strength. 50	Tricone rockbit O- 165.0'. Wash samples	-								0.0'-5.0' Rockbits to Silty Sand
Hole Stability Hole stable 0-165.0' Hater Levels 47.55' 2/23/80 Stickup 1.95'. Purpose of Hole Ubservation well for aquifier test. Drill Site Warm springs road east of Paradise Valley Country Club Hole Completion Set 2" galvanized steel casing 0-160' with backwasn valve on end. Set No. 50 sols screens, 35-37' 33-50', g1-63', 115-117', and 138-149'. Back-filled with bea gravel and daveloped well. Bot 100 set 100 sols and set No. 50 sols screens, 35-37' 33-50', g1-63', 115-117', and 138-149'. Back-filled with bea gravel and daveloped well. Bot 200 set 200 s		70-						70-		max. size 1.25"; 75% poorly graded fine sand; 20% low plastic fines.
About 5% subrounded caliche gravel, max. size 1/2"; 40% mostly fine sand some coarse caliche sand; 55% medium plastic fines. Color tan. Limy. Low dry strength. 10.0'-15.0' Rockbits to clayey sand About 70% mostly fine sand max. size coarse sand, 30% medium plasticity fines. Color tan. Limy. Low dry strength. 10.0'-15.0' Rockbits to clayey sand About 70% mostly fine sand max. size coarse sand, 30% medium plas- ticity fines. Color tan. Limy. Low dry strength. 15.0'-165.' Tertiary Huddy Creek Forma- tion Rockbits to clayey sand, gravels, sandy clays, and mudstone. Description based on wash samples. 15.0'-30' Rockbits to Sandy Clay, Rockbits to Clayey Sandy Rockbits to Clayey San		30-						30-		Caliche bed encountered at the sur- face.
Stickup 1.95'. Purpose of Hole Ubservation well for against springs road east of Paradise Valley Country Club Hole Completion Set 2" galvanized steel casing 0-160' with backwash valve on end. Set No. 50 slot screens, 38-37 sl-36', 31-33', 115-17', and 138-140'. Back-filled with bea gravel and developed well. Book and some coarse caliche sand; 55% medium plastic fines. Color tan. Limy. Low dry strength. 10.0'-15.0' Rockbits to clayey sand max. size coarse sand, 30% medium plasticity fines. Color tan. Limy. Low dry strength. 15.0'-165.' Tertiary Muddy Creek Formation Rockbits to clayey sand, gravels, sandy clays, and mudstone. Description based or wash samples. 15.0'-30' Rockbits to Sandy Clay, Full Full Full Full Full Full Full Ful		-						-		About 5% subrounded caliche gravel,
aguifier test. Drill Site warm springs road east of Paradise Valley Country Club ilole Completion Set 2" galvanized steel casing 0-160' with backwash valve on end. Set No. 50 Slot screens, 35-37' 33-60', 81-63', 115-117', and 138-140'. Back-filled with bea gravel and developed well. 80 80 80 80 About 70% mostly fine sand max. size coarse sand, 30% medium plasticity fines. Color tan. Limy. Low dry strength. 81 82 83 84 85 86 87 88 About 70% mostly fine sand max. size coarse sand, 30% medium plasticity fines. Color tan. Limy. Low dry strength. 88 88 88 88 88 88 88 88 88	stickup 1.95′.							40-		sand some coarse caliche sand; 55% medium plastic fines. Color tan.
prill Site warm springs road east of Paradise Valley Country Club Hole Completion Set 2" galvanized steel casing 0-160' with backwash valve on end. Set No. 50 slot screens, 35-37' s3-60', 81-63', 115-17', and 138-140'. Back- filled with bea gravel and developed well. 80- 80- 80- 80- 80- Size Coarse sand, 30% medium plasticity fines. Color tan. Limy. Low dry strength. 15.0'-165.' Tertiary Muddy Creek Forma- tion Rockbits to clayey sand, gravels, sandy clays, and mudstone. Description based or wash samples. 15.0'-30' Rockbits to Sandy Clay, Hudstone and Caliche Some fine subrounded caliche gravel max. size 5/8"; 30% poorly graded fine sand; 70% fines of medium plas- ticity. Color reddish brown. Limy. Medium to high dry strength. Hud- stone fragments encountered in cut- tings from 15-25'. Numerous platy caliche fragments encountered in cuttings from 25-30'. Caliche consist								50-		About 70% mostly fine sand max.
Valley Country Club itale Completion Set 2" galvanized steel casing 0-160' with backwash valve on end. Set No. 50 slot screens, 35-37' 53-60', 81-33', 115-17', and 138-140'. Back-filled with bea gravel and developed well. 80- 80- 80- 80- 80- 80- 80- 80	warm springs road									ticity fines. Color tan. Limy. Low
steel casing 0-160' with backwash valve on end. Set No. 50 slot screens, 35-37' 53-60', 81-33', 115-17', and 138-140'. Backfilled with bea gravel and developed well. 80- 80- 80- 80- 80- 80- 80- 80	Valley Country Club	1 .						60-		
slot screens, 35-37 15.0'-30' Rockbits to Sandy Clay, 33-60', 81-63', 115-117', and 138-140'. Backfilled with bea gravel and developed well. 80- 80-	steel casing 0-160'									clays, and mudstone. Description based or
gravel and developed well. 80- 80- 80- 80- 80- 80- 80- 80	slot screens, 35-37 58-60, 81-63, 115-1	1 .						70-		Mudstone and Caliche
tings from 15-25'. Numerous platy caliche fragments encountered in cuttings from 25-30'. Caliche consis	gravel and davelope	1						80-		max. size 5/8"; 30% poorly graded fine sand; 70% fines of medium plasticity. Solor reddish brown. Limy.
		90-						90-		stone fragments encountered in cut- tings from 15-25'. Numerous platy caliche fragments encountered in cuttings from 25-30'. Caliche consis
	Note: Cara			a available	on Hole	Ε	XPLAN	ATIO	<u>H</u>	Li

CORE LOSS CORE

Gamma Ray Log available on Hole. RB = Rockbit

SHEET.....2... OF.....2 5.0 (37.06-74) GEOLOGIC LOG OF DRILL HOLE water and Power BEGUN 2/8/80 ... FINISHED 2/8/80 ... DEPTH OF OVERBURDEN ... DEPTH 165.0' BEARING. SAMPLES FOR PERCOLATION TESTS CORE RECOVERY GRAPHIC LOG LENGTH OF TEST LOSSES AND LEYELS, CASING, CEMENTING, CAVING, AND OTHER AND SIZE OF HOLE DEPTH (FEET) CLASSIFICATION AND PHYSICAL CONDITION LOSS FROM (P, Cs, or Cm) DRILLING CONDITIONS то (P.S.I.) (%) (G.P.M.) ٦В 7.9" 30.0'-40.0' Rockbits to Clayey Sand and Gravels Clayey sand consists of about 10% 10 10fine subrounded basalt gravel, max. size 5/8"; 60% fine to coarse, mostly fine sand, coarse grains consists of rounded basalt; 30% fines with medium plasticity. Color light brown to brown. Limy. Gravels indi-20. γOcated by excessive drill bit chatter 35-37'. Gravels are fine subrounded basalt, caliche, and limestone, max. size 1/2". 40.0'-50.' Rockbits to Clayey Grave 30-30-About 40% fine subrounded limestone, basalt and caliche gravel, max. size 3/4"; 25% poorly graded fine sand; 35% fines with medium plasticity. Color reddish brown. Limy. Low to 40medium dry strength. 40-50.0'-70.0' Rockbits to Gravels and Sandy Clay Sandy clay consists of some subroun-50-5**U**ded caliche gravel, max. size 5/8". About 40% poorly graded fine sand; and 60% fines of medium plasticity. Gravels indicated by excessive drill chatter 58-60' and 63-64'. Gravels are fine subrounded basalt and platy caliche with max. size of 3/4". 60-60-Color brown. Limy. 70.0'-140.' Rockbits to Clayey Sand and Gravels TD=165.0' Clayey sands consist of about 60% /0-70well graded sands, coarser particles composed of subrounded basalt and caliche, 40% clays of medium plasticity. Color brown—tan brown. Limy. Gravels indicated by excessive drill bit chatter 81-84, 85-87, 90, 92, 95, 97-98, 100-103, 116-118, 130, 135, 138, 139, 140. Gravels consist 80-80of fine subrounded caliche and basalt , max. size 5/8". 140'-165' Rockbits to Sandy Clay 90-90-About 30% poorly graded fine sand, 70% clays of medium plasticity. Color brown. Limy. Drilling was slow and smooth. EXPLANATION RB = Rockbit CORE

CORE RECOVERY

Vater and Power								OFU			<u> </u>	Nevada
Explorator	y Wel	ls	 .		_			egas 🗀				
LG-201 LO	CATION	ıW.	arm.Spi	ings.	Road.T	22 S, R6	2E S	ec. An ND ELEY	aba 2	.Est.	19	950'. DIP (ANGLE FROM HORIZ.) 90°
2/06/80	ORDS.	2/0	 06/80		E			11/4	TO	TAL	1	125:0' BEARING
												D D
DEPTH AND ELEV. OF WAT LEVEL AND DATE MEASU	TER JRED		ee kema	irks b	erow.	LOG	GED B	Y				LOG REVIEWED BY
					LATION			T			Ta	~
NOTES ON WATER LOSSES AND LEVELS,	TYPE	RE VERY	DEF	TH	Ī	2	I-	ELEVA. TION (FEET)	OEPTH (FEET)	GRAPHIC LOG	١	CLASSIFICATION AND
CASING, CEMENTING,	SIZE	ECOR.	DEF (FE	ET)	1	RESSURE	TEST	리노	0.5	₹ <u>ŏ</u>	1	CLASSIFICATION AND PHYSICAL CONDITION
CAVING, AND OTHER DRILLING CONDITIONS	HOLE	œ	FROM (P, Cs, or Cm)	TO	LOSS		22	l		5	3	PHYSICAL CONDITION
		(%)	or Cm)		(G.P.M.)	(P.S.I.)	(MIN.)	<u> </u>			Ľ	1
B (11)		1							1	1	П	0 to 12.5' Quaternary Las Vegas Formation Rockbits to silty sand and
Drilling Equipment Schram T66B]			İ	1	l		gravelly sandy clay which is white to
Selliam 1000	7.94	1	ł					İ		}	П	tan. Contact with underlying Muddy
Drilling and	1	1						1	-	1		Creek Fm based on change in color. Description based on wash samples.
Sampling Procedure	10-					ļ			10-			
7.875 inch Tricone rockbit 0' to 125.0	,		Ì									0.5' Rockbits to silty sand.
ft. Wash samples	1 3		1									Consists of about 5% fine to coarse
collected every 5 f	ļ. <u>]</u>					1			-			mostly fine subangular caliche grave max size 1-1/4 inch; 75% poorly
D : 11: E1 44												graded fine sand; 20% low plastic
Drilling Fluid Air and foam.	70-		}		İ			į	20-			fines. Color white to tan. Violent
All and roum:								ļ	-		П	HCL reaction.
Hole Stability									1 3	1		5-8' Rockbits to gravelly sandy
Hole stable 0 to		.								1		clay. Consists of about 30% fine
125.0 feet.	1 1				1	1		1	:	1		to coarse mostly fine subangular
Water Levels	30-				1			1	30-	1		to subrounded caliche gravel, max
Depth in Ft. Date	1	ı] -	1		size 1-1/4 inch; 30% poorly graded sand; 40% medium plastic fines.
2/06/00		1							-	}		Color tan white. Violent HCL
41 2/06/80 43.15* 2/29/80									1	1	П	reaction. Low dry strength.
*stickup 1.7'	40								40	1		
	~		1							1		8.0-125.0' Tertiary Muddy Cr. Fm. Rockbits to sandy clay, clayey sandy
Purpose of Hole Observation well	1								1 :	1		gravel, gravelly clayey sand, sandy
for aquifer test.	1 4								:	1		gravel, and gravelly sand which are dark
tot aquiror coor.] =		1] :	1		gray to black to light brown in color.
Drill Site	50-		1			ŀ			50	1		Description based on wash samples.
Warm Springs Road east of Paradise	1		ł			Ī	İ			1		8-12.5' Rockbits to sandy clay.
Valley Country Club	, 1						Ì	ł		1		Consists of about 10% subrounded
10110) 0000000	7		1			ł			1 -	}		caliche gravel; max size 1 inch;
Hole Completion								İ		}		40% poorly graded fine sand; and 50% medium plastic fines. Color
Set 2 inch galvan- ized steel casing	60-							1	60-	}		red brown. Violent HCL reaction.
0 to 110 ft. with]		1					İ		1		Medium dry strength.
backwash valve at						1				1		
110. Set No. 50	1 1			ļ						1		12.5'-17.5' Rockbits to sandy clay. Consists of about 10% fine subrounde
slot screens 40-42,	1 4		1				1			1		caliche gravel, max size 7/8 inch;
54-56, 64-66, 108- 110. Backfilled	/0-		1						70-	‡		40% poorly graded fine sand; 50%
with pea gravel	1 1		1							1		medium plastic fines. Color reddish
5-125'. Grouted	4		1					1	-	1		brown. Violent HCL reaction. Medium dry strength.
0-5'.	1 7							l		1		meatum ary screngen.
	1 1		1					1	80-	}		17.5-38' Rockbits to clayey sandy
	80-		ł						80	3		gravel. Consists of about 60% fine
] -							i		1		subrounded platy sandstone, volcanic and caliche gravel, max size 3/4";
	1 3		1		1			1	-	1		25% well graded sand; 15% medium
	1 3							İ		1		plastic fines. Color reddish brown
	90-							1	90-	1		to black speckled to light brown.
	~ 1							1	1	1		Violent HCL reaction.
			1					1] :	1		
	-		1					1	-	}		
	1		1						1	}		
		Ц	١	1	1	<u> </u>		<u>i</u>	1 -	1	L	L

CORE CORE RECOVERY Note SP, Resistivity and Gamma ray logs available on this hole. Geologic Log problably not representative due to drilling equipment and procedures $\mathfrak{B}=\mathfrak{Rockbit}$

R3 = Rockbit

90-

CORE

RECOVERY

EXPLANATION

FEATURE					P	ROJECT		s Wash			Nevada
HOLE NO LG-202 CO	CATIOI ORDS.	н ₩.а 	rm Spr.	ings !	Koad 12 E.	ي KĐ و ک2: • • • • • • •	GROU	ND ELEY.	Es	t. 19	950'. DIP (ANGLE FROM HORIZ.)90°
1											
LEVEL AND DATE MEASE	TER JRED.		See Be	low.		LOC	GED B	D.A. Tr	udeau		LOG REVIEWED BY. D. Branstetter
NOTES ON WATER	TYPE	CORE			LATION		T	EVA ION EET)	DEPTH (FEET)	ي	200
LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER	SIZE OF	200 200 200 300	DEF (FE)	ET)	LOSS	RESSURE	NGTH TEST	34.5	DE (FI	GRAPHIC LOG	CLASSIFICATION AND PHYSICAL CONDITION
DRILLING CONDITIONS	HOLE	(%)	FROM (P, Cs, or Cm)	TO	(G.P.M.)	1 4	(MIN.)			5	CLASSIFICATION AND PHYSICAL CONDITION
Drilling Equipment	3B I	T	J	·····	 			<u> </u>			0'-8' Quarternary Las Vegas Formation
Schram T66B	7.9"										Rockbits to silty sand and gravelly clayey sand which are white to tan in
Drilling and Sampling Procedure]	1	color. Contact with underlying Muddy
Tricone rockbit	10-								10-		Creek Fm. tentative based on change in color . Descriptions based on
7.875 inch diameter											wash samples.
0-125 ft. Wash samples every 5 ft.]								-	ł	0.51 Postara i 112
samples every 5 ic.]								, ,	}	0-5' Rockbits to silty sand and caliche. Consists of about 5%
Drilling Fluid Air and Foam]										fine subangular caliche gravel,
All alid roam	20-								20-		max. size 1-½ inch; 75% poorly graded fine sand, and 20% low
Hole Stability]								3		plastic fines. Color white to
Hole stable					i	1	-		-		tan. Violent HCL reaction. Encountered sandstone like
Water Level									1		caliche at 5'.
Depth Date 2/5/80	30-								30-		5'-8' Poskhita ta amanalla alaman
*40.90' 2/29/80		1							-		5'-8' Rockbits to gravelly clayey sand. Consists of about 30% fine
*stickup 1.10'	-										subangular caliche gravel; max.
Purpose of Hole								l	1		size 1-inch; 40% poorly graded fine sand; and 30% medium plastic
Observation hole	40-								40-		fines. Color tan white. Violent
for pump test.									-		HCL reaction.
Drill Site									1		8'-125' Tertiary Muddy Creek Fm.
Unfinished portion of Warm Springs Rd.]								1		Rockbits to sandy clay, clayey sand, sandy gravel, gravelly sandy clay and
east of Paradise	50-								50-		clayey sandy gravel which are red
Valley Golf Course.]										brown, brown, black, and white speckled to dark gray to black in
Hole Completion									1		color. Description based on wash
Set 2" gal. steel casing 0-115' with]								1		samples.
backwash valve at	60-								60		8'-12.5' Rockbits to sandy clay;
115'. Set No. 50 slot screens 39-41'	1								1		consists of about 10% subrounded
51-53', 95-97',	,]				i				1		caliche gravel, max. size 1-inch; 40% poorly graded fine sand; and
113-115'. Back- filled with pea									4		50% medium plastic fines. Color
gravel 5-125.	/o-								70-		red brown. Violent HCL reaction. Medium dry strength.
Grouted 0-5'.									- 1		
]								3		12.5'-23' Rockbits to clayey sand; consists of about 10% subangular
									1		caliche gravel, max. size 3/4";
	80								80-		50% fine to coarse mostly fine sand; 40% medium plastic fines.
	~								••]		Color brown. Violent HCL
	3								- 1		reaction. Low dry strength. Coarser sand encountered at
	1]		12.5'.
	90-										23'-28' Rockbits to sandy gravel.
	~ 1								90-		Consists of abot 50% fine sub-
]								4		angular caliche and subrounded volcanic and limestone gravel;
									1		max. size 3/4"; 30% well graded
		$oldsymbol{ol}}}}}}}}}}}}}}}}}}$			Ll		<u> </u>		1		sand; 20% medium plastic fines. Color brown Violent HCL reaction
								PLANA			
			probla	bly no	t repre	genta	ti v e (due to a	(Tillin	s equ	uipment and procedures
¬B	= .4cc	koit									
Type of hole . Hole sealed . Approx. size of Approx. size of	hole (P = F	riamond, Packer, 1 1.1/2''	, n = Hay Cm = Cem Av =	stellite, ented, C 1-7/9"	s = Sho s = Bot R	r, ← = Chu tom of casi 2-3/8'' ►	rn ng (x = 3''		
RECOVERY Approx. size of Ourside dia. of	core ()	(-series (-series (X-serie	, Ex =) Ex = es) . Ex =	7/8'. 1-13/16	Ax =	1-1/8", 2-1/4".	8× =	2-3/8", N 1-5/8", N 2-7/8", N 2-3/8", N	ix = 2-1/1 ix = 3-1/	8′'	
Outside dia. of Inside dia. of c	asing (X-series) Ex =	1-1/2",	Ax =	1-29/32"	, 8× ≖	2-3/8", N	lx = 3"		

Cevada

FEATURE EXE	ploratory)2 LOCA 1	.ÿęļ	.ls	arm Sp	 rings	P	ROJECT		Vegas		<i></i>		STATENevada
HOLF NO						_		GRUU	NU ELEY.		TAL PTH	.125	. DIP (ANGLE FROM HORIZ.)
DEPTH AND ELEV	. OF WATER	R		Below				GED B	D.A.	Trudea			LOG REVIEWED BY. D Branstetter
LEVEL AND DAT	E MEASURE		>		PERCO	LATION		GED B	T	FC		, ,	
NOTES ON WAT LOSSES AND LEY CASING, CEMEN CAVING, AND OT DRILLING CONDI	TING, SIT	LE	& CORE	FROM (P. Cs, or Cm)	TH	LOSS (G.P.M.)	RESSURE	N OF TEST	ELEVA TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	SAMPLES FOR	CLASSIFICATION AND PHYSICAL CONDITION
712		10-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-				TD=1	25'	EX	PLAN	30- 30- 30- 30- 30- 30-			28'-38' Rockbits to gravelly sandy clay. Consists of about 30% fine subrounded caliche gravel, max. size \(\)-inch; 30% well graded sand; 40% medium plastic fines. Color brown. Violent HCL reaction. 38'-100' Rockbits to clayey sandy gravel. Consists of about 50% fine to coarse mostly coarse subrounded to subangular caliche, limestone, and volcanic gravel, max. size 1-\(\) inch; 30% well graded sand; 20% medium plastic fines. Color black and white speckled to brown and black. Violent HCL reaction. Larger percentage of gravel in 38'-64' interval. Little fines in 58'-64' interval. 100'-110' Rockbits to sandy gravel. Consists of about 80% well graded subrounded to subangular volcanic, limestone, and caliche gravel, max. size 1-3/8 inch; 20% well graded sand; trace of plastic fines. Color dark gray to black. Violent HCL reaction. 110'-125' Rockbits to clayey sandy gravel. Consists of about 60% well graded subangular to subrounded volcanic and limestone gravel, max. size 1-3/4 inch; 20% well graded sand; 20% medium plasti fines. Color brown. Violent HCL reaction.
CORE Hole Appro	of hole sealed	ole (X- ore (X-	series series series X-seri	P == .)Ex == .)Ex == es).Ex ==	Packer, : 1-1/2'' : 7/8'', : 1-13/16				ot, C = Chi from of cas = 2-3/8", = 1-5/8", = 2-7/8", = 2-3/8",		8'' 2''		

FEATURE Exploratory Wells CRRSCP Las Vegas Wash STATE Nevada SHEET 2 OF 2 HOLE NO. LG=202

3/19/89 CO			Remar									
DEPTH AND ELEY. OF WALLEYEL AND DATE MEASE	JRED		Nema r				GED B		 -	au.		LOG REYIEWED BY
NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	TYPE AND SIZE OF HOLE	S CORE	FROM (P, Cs, or Cm)	тн	LOSS (G.P.M.)	SY SY STATE	E LENGTH	ELEVA. TION (FEET)	0ЕРТН (FEET)	GRAPHIC LOG	SAMPLES FOR	CLASSIFICATION AND PHYSICAL CONDITION
Orilling Equipment Scham T66G and Failing 1250 Drilling and Sampl Procedure: Orilled pilot hole for geophysical logs using 7.875 inch Tricone rock bit O to 180 ft. Went to 180 rather than 160' to allow for slough. Sample description from these cuttings. Finished hole on the 10th. Reamed hole with 16 inch Tricone Rockbit. O to 155 feet. Drilling Fluid Schram-Baroid Quick Foam and Air Failing-Lo-Loss Hole Stability 10-20 ft of sloughing each run Water Level Depth Date in Ft 44.8 5/29/80 Stickup 0.7 ft. Purpose of Hole Pump test well. Drill Site Warm Springs Road east of Paradise Valley Country Clul Hole Completion Set 6.625 inch mild steel casing O to 150 feet. Set 100 feet of 50 slot, slottec casing 50 to 150 feet. Gravel packed well. Set surface seal 0 to 5 feet. Gravel pack has D502.40mm and C02.15.	(2) (3) (4) (5) (6) (7) (80) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1								10- 20- 30- 50- 90-			O to 13.0 Ft Quaternary Las Vegas Fm Rockbits to silty sands, sandy clay and clayey sand. Some Quaternary valley F might be included within. Contact based on color change. O to 3 Ft Silty Sand - Consists of about 5% of fine subangular caliche gravel, max size 1.25 inch; 75% poorly graded fine sand; 20% low plastic fine.Color tan. Violent HCL reaction. O to 8.0 Ft Rockbits to sandy clay. About 5% fine subangular caliche gravel, max size linch; 45% poorly graded fine sand, 50% medium plastic fines. Color Tan. Violent HCL reaction, gypsum crystals encountered in cuttings. O to 13.0 Ft Rockbits to clayey sand. Some caliche gravel max size 0.5 inch; about 20% poorly graded fine sand, about 20% medium plastic fines. Color light brown. Violent HCL reaction. O to 180.0 Ft. Tertiary Muddy Cr.Fm Rockbits to sandy gravels, and sand. Description based on wash samples. O to 30.0 Ft Rockbits to sandy gravels. About 50% fine subrounded to subangular caliche gravel, max size 0.75 inch. Caliche consists of CaCO3 and some fine to coarse grained sandstone. About 30% fine to coarse grained sandstone. About 30% fine to coarse grained sandstone. About 30% fine to coarse grained sandstone. About 30% fine to coarse grained sandstone. Violent HCL reaction. O to 40.0 Ft Rock bits to gravels. About 90% fine subrounded volcanic and some caliche gravel, max size 0.75 inch; 10% mostly coarse rounded volcanic sand, some fines. Color dark gray to black. Violent HCL reaction. O to 50.0 Ft Rock bits to clayey gravel. About 50% fine subrounded caliche gravel max size 0.375 inch; about 20% fine to coarse mostly fine sand; 30% medium plastic fines. Color brown. Violent HCL reaction.

CORE CORE RECOVERY Note Geophysical Logs available. RB = Rockbit

Exploratory Wells FEATURE

PROJECT Las Vegas Mash STATE Mevada SHEET 2 OF 3 HOLE NO. LG203

Water and Powe										11144			
FEATURE .	_G 203 Lo	CATIO	N Na	rm Spr	i,ngs, ,F	Road T	225,R6	GROU	ec. 08 ND ELEV.	aba 4	Est	1.950	it. state Neyada 90 ' dip (angle from Horiz.)
BEGUN .3/	10/80 FII	NISHED N	4/16	/80	DEPTH	OF OVE	RBURDE	\П. н	Α	TO-	TAL PTH	1.80′	BEARING
DEPTH AND	ELEV. OF WA	TER URED.		.			. LOG	GED B	ر <u>.</u>	A. Tru	deau		LOG REVIEWED BY. D. Branstetter
			RY			LATION "			EVA. 10N EET)				
CASING, C	ON WATER ID LEVELS, EMENTING, IND OTHER CONDITIONS	TYPE AND SIZE OF HOLE	CORE	PROM (P, Cs, or Cm)	TH ET)	LOSS (G.P.M.)	(F.S. O. P. P. P. P. P. P. P. P. P. P. P. P. P.	E LENGTH	ELEV Tion (FEE	DEPTH (FEET)	GRAPHIC LOG	SAMPLES FOR TESTING	CLASSIFICATION AND PHYSICAL CONDITION
		7.9" 10 30 40 40 50								10- 20- 30- 50- 80-			130.0 to 140.0 Ft Rockbits to sandy gravels. About 50% fine subrounded volcanic gravel, max size 0.5 inch; about 40% well graded subrounded volcanic sand; 10% medium plastic fines. Color brown black. Violent HCL reaction. 140.0 to 180.0 Ft Rockbits to gravelly sand. About 40% fine rounded to subrounded mostly volcanic (basalt) gravel, max size 0.75 inch, 60% well graded rounded volcanic sand. Trace of fines. Color gray black. Violent HCL reaction.
			Ц	1		1	L	ΕX	PLAN	ATION	 1	<u> </u>	
CORE	3B = 30	ckbit						<u> </u>	CLANA	<u> </u>	1		
CORE RECOVERY	Type of hole . Hole sealed . Approx. size of Approx. size of Outside dia. of	of hole (of core) of casing	X-series X-series (X-serie (X-serie	P = s)Ex = s)Ex = es).Ex =	Packer, : 1-1/2", : 7/8", : 1-13/10	Cm = Cen , Ax = , Ax = 5'', Ax = , Ax =	1-7/8", 1-1/8", 1-1/8", 2-1/4", 1-29/32	8x = 8x = 8x = 7. 8x =	2-3/8", 1 1-5/8", 1 2-7/8", 1 2-3/8", 1	ing Nx = 3'' Nx = 2-1/ Nx = 3-1/ Nx = 3''	8'' 2''	1.	2 (222
FEATURE	Explorate	ory Ne				. PROJE	CT . Las	Vega	s lash	STATE .	Hev	rada .	SHEET 3 OF 3 HOLE NO. LG203

FEATURE Exploratory	v.₩e]] cation	.S 1 T:	215,R61ESe	PR	OJECT.	CRBSC GROU	P Las V	egas W Est	ash l 194	ļņit O'	Title II STATE. Nevada DIP (ANGLE FROM HORIZ.) 90°
BEGUN . 2/22/79 FIN	ORDS. HSHED	2/23	3/79 DEPTI	E 1 OF OVER	BURDE	и	/A	TO:	TAL 1	55	. DIP (ANGLE FROM HORIZ.)
DEPTH AND ELEV. OF WAT LEVEL AND DATE MEASU			Pemarks Be	low	. LOG	GED B	YO.A.	Trudea			D. Branstetter
NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	TYPE AND SIZE OF HOLE	© CORE	PERCO	LOSS	RESSURE	E LENGTH	ELEVA. TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	SAMPLES FOR TESTING	CLASSIFICATION AND PHYSICAL CONDITION
Drilling Equipment	1									0	.0'-5.0' Quaternary Eolian Sand Deposit
Failing 1250	PB - 7.9"1					-		1.1.1.1		s	ockbits to 100% poorly graded fine ubrounded to rounded sand. Tan, white
Drilling and Samplir Procedure	10-							10-			n color. Very Limy0'-20.0'Quaternary Valley Fill
7.875" Tricone Rock- bit 0-165' Wash sample every 5' Drilling Fluid	1							70-		W	ockbits to sandy clay and gravelly clay hich are tanwhite in color. Contact ith underlying Muddy Creek Fm. is entative. This unit may include the
Baroid Lo-Loss	70-							70-] L	as Vegas Formation. Description based n wash samples.
Hole Stability	-							-			5.0'-10.0' Rockbits to Sandy Clay
Hole stable 0-165'	30-							30-			About 40% poorly graded fine sand, 60% medium plastic fines. Color
Water Levels								_			tan white. Limy. Medium dry strength.
1.8' 2/29/80 stickup 0.90'.	40-							40-			10.0'-15.0' Rockbits to gravelly clay. About 20% fine subrounded limestone and caliche gravel, max.
Purpose of Hole Observation well fo aquifer test.								1			size 1/2"; 30% poorly graded fine sand; 50% medium plastic fines. Color tan white. Limy. Medium to high dry strength.
Drill Site Along wash near Dor French school, corn of Pecos and Haci- enda.								50-			15.0'-20.0' Rockbits to Sandy Clay About 40% poorly graded fine sand; 60% medium plastic fines. Color tan white. Limy. Low to medium dry strength.
Hole Completion Set 2" galvanized steel casing 0-150 with backwash valve at 150.' No. 50 slo								70-			20.0'-30.0' Rockbits to sandy clay About 30% poorly graded fine sand, 70% medium to high plastic fines. Color red brown to white. Medium to high dry strength.
screens. Set screen at 37-39, 64-66, 83-85, 148-150. Bac filled with pea gra vel and developed to remove sand. Grouted upper 5'.								80-		i F	M. Rockbits to sandy clay and sands which are red brown to airc in color. Contact with overlying material tentative. Description based on wash samples.
	90-							90-			
	-							-			30.0'-165.0' Rockbits to sandy clay and sand. About 5% fine subrounded caliche and mudstone grave max. size 3/4", 40% poorly graded
		L.i	<u> </u>		······································	<u>E</u>)	(PLAN)	ATIO	l <u>Y</u>	Ш	
CORE SP EAS	rietiv	, i t ==	and Carms R	au Lago	avai.						•

LOSS CORE RECOVERY

RB = Rockbit

Exploratory Wells

CRBSCP Las Vegas Wash Unit. Title II SHEET 2.. OF .2 HOLE NO LG-205

NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER	TYPE AND SIZE OF HOLE	% CORE	DEP (FEI FROM (P, Cs, or Cm)	PERCO	LOSS (G.P.M.)	RESSURE STEE	LENGTH OF TEST	ELEVA- TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	D Branstetter LOG REVIEWED BY
Orilling Equipment Failing 1250 Orilling and Samplin Procedure 7.875" Tricone Rockl 0-125' Wash sample every 5'.	10-	(75)	or Cm)			(1)			10-		0.0'-35.0' Quaternary Valley Fill Rockbits to Gravelly clay, clayey gravel and sandy clay which is tan brown, tan, tan white, red brown, to white in color. Contact with underlying Muddy Creek Fm. is tentative. Portions of the Quaternary Las Vegas Wash Fm. may be included in this interval. Descriptions based on wash samples. 0.0'-5.0' Rockbits to sandy clay.
Orilling Fluid Baroid Lo-Loss Hole Stability	20-1								²⁰⁻		About 10% fine subrounded white to dark gray limestone and caliche gramax. size ½"; 40% poorly graded fir sand, about 50% medium plastic fine Color tan brown. Limy.
mstable, hole caving 0-25' Vater Levels	30-		de de la companya de						30-		5.0'-15.0' Rockbits to Clayey Grave About 50% fine subrounded mostly elongate white and dark gray limest gravel, max. size ½"; 30% fine to
9.2' 2/25/80 stickup 1.20'	40-								40		coarse sand, longer particles are subrounded white and dark gray lime stone; 20% medium plastic fines. Color tan. Very Limy.
Purpose of Hole Observation well for aquifer test Orill Site	50-								50-		15.0'-25.0' Rockbits to Gravelly Cl About 30% fine subrounded mostly elongate white and dark gray lime- stone gravel, max. size 5/8"; About 30% fine to coarse sand, 40% medium plastic fines. Color tan white Lim
Along wash near Doris French School. Pecos and Hacienda Hole Completion Set 2" galvanized	60-								60-		25.0'-35.0' Rockbits to Sandy Clay About 10% fine subrounded white and dark limestone gravel , max. size 5/8"; 40% poorly graded fine sand; 50% medium plastic fines. Color red brown to white. Limy.
steel pipe 0-120, with No. 50 slot screen 39-41, 53-55, 76-78, 86-88, and 118-120'. Backfilled with pea gravel 5-1, set concrete 0-5'									70-		35.0'-125.0' Tertiary Muddy Creek Fm. Rockbits to sandy clay and sands which are red brown to white in color. Contact with overlying valley fill is tentative Description based on wash samples.
	80-								80-		and sands. Some fine subrounded caliche gravel (max. size 3/4") encountered in cutting, about 30% poorly graded fine sand, 70% medium plastic fines. Color red brown to
	90-								90-	- -	white. Limy. Sand occurence indica by drill tailings, sand consist of fine to coarse limestone particles
Note: SP,	Resi			d Gam	ma Ray	Logs a	-	PLAN ble on		-	

CORE CORE RECOVERY RB = Rockbit

EXPLANATION

54337 :6-741 Waller and Power SHEET. . . 2. . . OF . . . 2. . . . GEOLOGIC LOG OF DRILL HOLE LOGGED BY. D.A.Trudeau LOG REVIEWED BY. D. Bransterter DEPTH AND ELEY. OF WATER LEVEL AND DATE MEASURED. . . CORE RECOVERY SAMPLES FOR PERCOLATION TESTS ELEVA. TION (FEET) TYPE AND SIZE OF HOLE GRAPHIC LOG NOTES ON WATER LENGTH OF TEST LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS CLASSIFICATION AND PHYSICAL CONDITION LOSS FROM (P, Cs, or Cm) (G.P.M.) (P.S.I.) (%) RB 7.8 10-10 20 ა0~ TD=12\$.0' 30-40-50-50-60-60-10-80-90-90-EXPLANATION RB = Rockbit CORE CORE RECOVERY

Water and Power				GEUI	-UGIU	LUC	OF D	KILL	חטנו	<u> </u>	SHEET OF
FEATURE Exploratory	Well	.s			ROJECT	CRBS	CP Las	Vegas '	Mash	Unit	Title II. STATE. Nevada DIP (ANGLE FROM HORIZ.) 900
TC208 LOCA	TION	T21	S , R62E	, Sec. 25	dad 4			F	10/0		. DIP (ANGLE FROM HORIZ.) 90°
HOLE NO COOR	DS.	N	.	ε		GROU	ND ELEV.	LSC	.19411		. DIP (ANGLE FROM HORIZ.)
BEGUN 3/11/80 . FINISE	HED.	3/.	16/80 . D	EPTH OF OVE	RBURDE	n !!,	/ <u>A</u>	DEI	PTH	. 160	BEARING
1											
LEVEL AND DATE MEASURE	ED.	See F	emarks	e∓oм.	LOG	GED B	r D. A.	Trudea	ů	<i>.</i>	. LOG REVIEWED BY. D Branstetter
				RCOLATION			. ~			ω .	, , , , , , , , , , , , , , , , , , ,
NOTES ON WATER TY	YPE	ER Y				T =:	EE'A	DEPTH (FEET)	<u></u>	ES FO	
LOSSES AND LEVELS, A	IZE	COR	DEPTH (FEET)	.	RESSURE	NGTH	F (FE	FF	GRAPHI	캶	CLASSIFICATION AND
CAVING, AND OTHER	OF	S :		Loss	ESS	LEN OF T			کے	75	PHYSICAL CONDITION
DRILLING CONDITIONS HO	OLE	œ	FROM (P, Cs, or Cm)	TO (C. D. V.	(P.S.I.)	70			٥	SAMPL	
		(%)	or Cm)	(G.P.M.)	(7.3.1.7	(MIN.)			<u> </u>	<u> </u>	
1	- 1							. 1	1	l lo.	0'-5.0' Quarternary Eolian Sand Deposit
Drilling Equipment R		1		!		ļ	}	1	i		
5	. 94	1				!	1	_	1		ckbits to sand. About 100% poorly
Schram Failing	i	1	1					-	ł	~	aded fine rounded sand. Tan white in
]	ì					!	,,,	1	Co	lor. Very limy.
Drilling and Sampling	107	Ì				į		10-	1	_	01 25 01 0 W-11 F:11
Procedure				į	ļ]	1	2:	O'-35.0' Quarternary Valley Fill
5 7/8" tricone rock				ŀ	į	İ			1	_P	ckbits to gravelly clay, clayey gravel,
bit 0-140', wash'	7	1			··	į .	İ	-	ł	an	d sandy clay which is tan, tan white,
samples every 5'.	7	1	!		į.	1			1	<i>1</i>	own, to white in color. Contact with
	20-1	1	•	1			1	20-	1		derlying Muddy Creek Fm is tentative.
17.25" bit. Reamed	- 1					:	<u> </u>		1		rtions of the Quarternary Las Vegas
0 to 160' with 7 7/8	4	1			ļ	1	<u>.</u>	-	1	Fπ	. may be included in this interval.
inch bit for Geo-					ļ	1	1	-	j	De	scription based on wash samples.
physical logging.	7		1		1	1.	:	-	-	11	
Completed by ream-	1	1				İ	<u> </u>		1		5.0'-15.0' Rockbits to Clayey Gravel
ing 0 to 133' ft. with	130-		1	ł			i ł	30-	1	11	
17.25 inch rockbit.						ŀ		-	1		About 50% fine subrounded mostly eloc gate white and dark gray limestone
brilling Fluid		1		į	i	1	1	-	1	11	gravel and subrounded to subangular
Drilling Fluid	-				-		1	-	1	П	caliche gravel, max. size 1"; 30%
0-140' with 5 7/8	7			į	1	i		-	ł	П	well graded sand; 20% medium plastic
	40-							40-	1	Ш	fines. Color tan. Violent Hcl re-
quick foam. Re-	1			ļ			İ	-	1	Н	action.
mainder of drilling	j			į	}			-	1	11	
done with quar gum.					1			-	j	Ш	15.0'-25.0' Rockbits to Gravelly Clay
1	7							-	ł	11	
Hole Stability	7			Ì			İ		1		About 30% fine subrounded mostly
1	50-			ŀ	1			50-	1	H	elongate white and dark gray lime-
Hole unstable.	- 1			j	1				1		stone gravel, max. size 5/8"; 30% well graded sand; 40% medium plastic
Sloughing in hole after each run.									1	Ш	fines. Color Tan white. Limy.
arcer each run.	- 1			į					<u> </u>		Times. Gotor ran whiteer bing.
Water Levels	1				1		1	-	ł		25.0'-35.0' Rockbits to Sandy Clay
	60-				1			60-	1	Ш	
Not measured.	- 1		1					1 -	1	П	About 10% fine subrounded white and
	- 1								1		dark gray limestone gravel, max. size
Purpose Hole	4						İ	-	1		5/8"; 40% poorly graded fine sand;
	- 1			l		1	1	-	1	11	50% medium plastic fines. Color
Production hole for	10-1	1			1			70-	}	Ш	red brown to white. Limy.
aquif er test.	~7					1		/0-	1	1 2	Ol. 160 Of Torriory Muddy Crook Em
Drill Site	- 1						1] -	1	112	.0'-160.0' Tertiary Muddy Creek Fm
Drill Site	4			1		1		_	1	Re	ockbits to sandy clay and sands which
Along wash near	1			İ	1			-	1		e redbrown to white in color. Contact
Doris French School	}					1	[_	1	1 1	th overlying Valley Fill is tentative.
hear corner of Pecos	80-							80-	1	4 1	scription based on wash samples.
and Hacienda.	7					1		-	1		
1	1							-	1	П	35.0'-160.0' Rockbits to Sandy Clay
Hole Completion	7							-	1		and Sands.
2 6 5 / 2 11	- 1			Ì			İ	-	1	П	0 64
Set 6 5/8" steel	90-	İ		1		i		90-	j	11	Some fine subrounded caliche gravels max. size 3/4" encountered in sandy
No. 50 slot screen	~1			!	Į	1		- 70	1	11	clay. Sandy clay composed of about
with a net 6 sq. in.			1	1			1		1	11	30% poorly graded fine sand and
per ft. open area.	4			:		-	1	-	}	$\ \cdot\ $	70% medium plastic fines. Color is
55-125ft. backfilled	- 1		!			-	1		1	11	redbrown to white. Limy. Sand
with gravel with a	- 1.				l	İ	1]	1	$\ \cdot\ $	occurence indicated by drill tailing
D===2 (0 i 2 2 i i			*	. ce:		FΥ	PLAN.	ATION	N		
D50=2.40mm and Cu=2.15						=-			-		
CORE Note: Suite	Rock	Geop	nysical	Logs avai	lable						+
Loss		-									
Type of hole			D = Die	mond, H = Ha	ystellite,	S = \$h	ot, C = Che	ırn			
CORE Hole sealed	ole ()	 (-serie:	P = Po- s)Ex = 1.	cker, Cm = Ce 1/2". Ax =	mented, (: 1-7/8''	.s ≈ Bo Bx =	ttom of cas = 2-3/8".	ing Nx = 3''			+
Approx. size of a	ore ()	(-serie:	s) Ex = 7	8'' Ax =	1-1/8",	Bx =	= 1-5/8'', = 2-7-8''	Nx = 2-1. Nx = 3-1	8''		
Inside dia, of cas	using sing ()	(∧-serie X-serie	s). Ex = 1-	1/2", Ax =	1-29/32	·, Bx	2-3/8'',	Nx = 3'''	-		

Water and Power					~			<u> </u>				
	ory Wel	ls.		62E - 9	р Sec 25	ROJECT	. La	s Vegas	Wash	Unit.	Ti	tle II STATE. Nevada
							GROU	ND ELEY.	Est	.1940. TAL		DIP (ANGLE FROM HORIZ.)
BEGUN . 3/11/80	FINISHED	,3 <i>/</i>	16/80	DEPTH	OF OVE	RBURDE	н	. : \ \	ĎĚI	ртй	TèÓ.	BEARING
DEPTH AND ELEV. OF	WATER ASURED.	See R	emarks.	Below		LOG	GED B	,		eau		LOG REVIEWED BY. D. Branstetter
NOTES ON WATER	TYPE	R.			LATION	TESTS		ET)	DEPTH (FEET)	U	a S	
LOSSES AND LEVELS, CASING, CEMENTING,	TYPE	∝≥	DEF (FEI	ET)		ESSURE	NGTH TEST	ELEVA. TION (FEET)	96. 19.	GRAPHIC	STE	CLASSIFICATION AND PHYSICAL CONDITION
CAVING, AND OTHER DRILLING CONDITIONS	i OF	~	FROM	то	LOSS	<u>~</u>	7.9			3,	SAMPLES FOR	
	_	(%)	(P, Cs. or Cm)		(G.P.M.)	(P.S.I.)	(MIN.)			<u> </u>	17	35.0' - 160'.0 (con't)
	RB 5.9					!					łl	Consist of fine to coarse grained
]			1		:		-			particles, largest clasts are rounded limestone.
		11										Todalded Timescons.
	10-	1							10-	1	П	
		11								1		
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	20-	11							20-	1	Ш	
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73 = 70	ockbit						<u> </u>	LAN	<u> </u>	<u></u>		
CORE												
Type of he	ole		D ==	Diamon	d, H = Ha	ystellite,	S = Sh	or, C = Ch	urn sina			
CORE Approx. Si	ze of hole	(X-serie		= 1-1/2' = 7/8'	Ax =	::1-7/8'', : 1-1/8''	Bx Bx	= 2-3/8'', = 1-5/8'',	Nx = 3" Nx - 2-1	/8''		

water and Powe	er					GLUL	.ouru	LUC	3 01 0	ILLL	IIOLI		4/1551 VF	
FEATURE .	Exploratory	Well	s v Fl	amingo	Wash	T215,	ROJECT	CRBS Sec.	CP Las 07 bbd1	Wegas	Wash.	Uni!	t Title II STATE Nevada	
HOLE NO		0006				=		GRUC	IND ELEY.	P	971, 5	YYY,	DIP (ANGLE FROM HORIZ.)	
j													į.	
LEVEL AN	DATE MEASI	JRED.	See r	iotes				GED B			<u> </u>		LOG REVIEWED BY D RUSSELL	
CASING, C	ON WATER ND LEVELS, CEMENTING, AND OTHER CONDITIONS	TYPE AND SIZE OF HOLE	CORE RECOVERY	DEF (FE: FROM (P, Cs, or Cm)	TH	LOSS (G P.M.)	RESSURE	E LENGTH	ELEVA. TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	SAMPLES FOR	CLASSIFICATION AND PHYSICAL CONDITION	
Drilling Failing l		PB 1										w i	.0'-45' Quarternary StreemAlluvium Contact ith underlying Muddy Creek Fm. s tentative Silty sands, gravelly sands and gravels from tan to dark gray and	
Drilling	Procedure	10-						!		10-		wi	hite in color. Description based upon ash samples.	
Tricone r 12.25" to 7.875" to	20';	1 1						1		1			0.0-15.0'Silty Sand	
Drilling	Fluid		.							20-			About 80% fine to coarse sand, mostly fine, coarse sand composed of subrounded dark gray and white,	
Baroid lo		1								1			limestone; 20% non plastic fines. Tan to white in color. Limy.	
0-40'	Intervals	RB 7.9"											15.0'-25.0' Gravelly Sand	
Water Lev	vels	30-								30-			About 10% subrounded fine dark gray and white limestone gravel, max size 1"; 80% fine to coarse, mostly coarse	
2.75' 7.50' 6.70' 9.25' 8.75'	1/21/80 1/22/80 1/23/80 1/25/80 1/29/80	40-1								40-			subrounded to subangular sand; 10% low to medium plastic fines. Coarse sand is primarily dark gray and gives this tan brown unit a speckled appearance. Limy.	
Purpose o		1								1 1 1			25.0'-30.0' Gravel	
Observati aquifier	on well for test.	50-			,					50-			About 90% fine subrounded dark gray and white limestone gravel, max size 1"; 10% fine to coarse sand; trace of	
Drill Sit		1								1			silty fines. Limy. 30'-45.0' Clayey Gravel	
Along F1 Wash, ne Boulder	xt to	60-								60-			About 60% fine subrounded to sub-	
Hole Comp	letion									- - - -			angular dark gray to white limestone gravel, max size 3/4"; 20% fine to coarse sand; 20% medium plastic	
set 2" ga steel cas		/0-								70-			fines. Brown in color. Limy.	
ground wi valve at	th backwash 155', set	1]				
33 to 35, 79-81, 10	ot screens 56 to 58, 2-104, 153-									1				
with pea	vel packed gravel to ft of sur-	30-								80-				
	aled upper concrete.	1			:					4				
		90-								90-				
CORE LOSS	available			ty and	Gamma	a Ray I	ags	ΕX	PLANA	. TION	l	1		
CORE RECOVERY	Type of hole										3"			

FEATURE Exploratory Wells PROJECT Las Vegas Wash STATE Nevada SHEET 1 OF 2 HOLE NO. LG210

Cater and Power	,,				<u> </u>		CDDS	CP Inc	Vogac	Mach	Unit Title II Nevada		
FEATURE . Explorator		. F1.	amingo	wasn	T215.1	(b2£.	sec. '	<i>) </i> 0002	Lot		Unit Title II STATE Nevada		
HOLE NO. LG211 CO	CATIOI ORDS.	1 N.,.	. : 544'''		E		GROU	40 ELEY. Za	 101	TAL ,	QS' BEARING		
DEPTH AND ELEV. OF WAT	TER JRED.	see	remarks	pelo	₩	. LOG	GED BY	rD	. Trud	eau .	LOG REVIEWED BY. D. Russell		
		>	1		LATION						IG R		
NOTES ON WATER LOSSES AND LEVELS,	TYPE	ONE OVER	DEP (FEE	тн	l		NG TH TEST	ELEVA. TION (FEET)	DEPTH (FEET)	υ <u>.</u>	CLASSIFICATION AND		
CASING, CEMENTING, CAVING, AND OTHER	SIZE	ပ္မ		T)	LOSS	RESSUR	LENG OF TE	m, =		GRAPH! LOG	PHYSICAL CONDITION		
DRILLING CONDITIONS	HOLE	oz (%)	FROM (P, Cs, or Cm)	то	(G.F.M.)	(P.S.i.)	(.HIM)			9	الْعُمْ الْعُمْ		
Duilling Equipment		1	5, 5, 5,						-		0.0'-35' Quarternary Stream Alluvium		
Drilling Equipment	RB 7.9"				1	١.			1				
Failing 1250	=					1]]		Contact with underlying Muddy Creek Fm tentative . Silty sand, clayey		
Drilling and Sampli	l _g 1]		gravel, and gravels are tan, brown to		
Procedure	10-		-!						10-		dark gray and white in color. Descrip- tion based on wash samples.		
Tricone Rockbit						ļ	•		1				
7.875". 0 to 105'									-		0.0'-15.0' Rockbits to Silty Sand		
Wash sample every 5'.	:								1		About 80% fine sand and 20% nonplast		
	70-							İ	70-		fines. Tan in color. Light reaction		
Drilling Fluid]							-	, 1		to Hcl.		
Baroid lo-loss											15.0'-30.0' Rockbits to Gravels		
Unstable or soft									1		About 90% fine subrounded to sub-		
angular dark gray and white limeston gravel, max size 1"; 10% fine to													
gravel, max size l"; 10% fine to coarse, mostly fine sand; some med-													
ium plastic fines. Dark gray to white to brown in color. Limy.													
Water levels 11.35' 1/22/80 40- 500gm sample collected for sieve analysis.													
10.10' 1/23/80 1 30 01 35 01 Parkh fra to Clause Const.													
10.30' 1/25/80		11									30.0'-35.0' Rockbits to Clayey Grave		
10.0' 1/29/80] [1	Î		İ					About 60% fine subrounded to sub-		
Purpose of Hole		1							-		angular dark gray and white limeston		
	50-]	1					ļ	50-		gravel; max size 3/4", 20% fine to coarse mostly fine sand; 20% medium		
Observation well for aquifer test.	' 1 :	1	1						-		plastic fines. Color brown. Limy.		
	-]							-				
Drill Site]							-				
Along Flamingo	60-	11					ľ		60]	1		
Wash near Boulder Highway.]						1		1			
Hole Completion													
Set 2" galvanized /0-													
steel casing to 100	1]						ļ		}			
put backwash valve 100' Set No. 10	4]						1	-	1			
slot screens at 20'	•	11						1		}			
to 22, 28-30, 56-58 and 98-100. Back-	80-]							80-	1			
filled with pea		1								1			
gravel.]	İ	ĺ						}			
		11						İ		1			
		11	1				1		90-]			
	90-]							70	1			
		11								1			
EXPLANATION													
CORE RB = Rockbit													
1022													
Type of hole Hole sealed			D =	Diamon Packer,	d, H = Ho Cm = Ce	ystellite mented,	, S = Sh Cs = Bo	ot, C = C)	sing				
CORE RECOVERY Approx. size Approx. size Outside dia. Inside dia. of	of hale of care	(X-seri (X-seri	es) Ex es) Ex	= 1-1/2' = 7/8''.	', Ax	= 1-7/8''. = 1-1/8''.	B× B×	= 2-3/8", = 1-5/8", = 2-7/8", = 2-3/8",	Nx = 3'' Nx = 2-1 Nx = 7-1	8''			
Outside dia. Inside dia. of	of casin casing	g (X-se (X-seri	ries) - Ex es) - Ex	= 1-13/1 = 1-1/2'	Ax	= 2-1/4" = 1-29/32	B×	= 2-3/8",	Nx = 3"				
Cunlarararu						7 7	a Vone	e Uach		Morre	ada t o teoti		

ater and Power															
											Unit Title II STATE. Nevada				
1.G211 LO	CATION	∙ Lia	uiudo 🖟	așn .	rais ke	2441.3	GROU	ND FLEV	Vet	180	OO! DIP (ANGLE FROM HORIZ)				
BEGUN . 1/41/99 FIN	IISHE D	! (4	149V	DEPTH	OF OVE	RBURDE	N	1	DE	TAL PTH	105' BEARING				
DEPTH AND ELEY. OF WAT	TER					1.00	GED BY	, D. A.	Trude	au	D. Russell				
LEVEL AND DATE MEASE	RED.		· · · · · · · · ·		LATION 1		025				~ !				
NOTES ON WATER	TYPE	ze Zery	DEP		LATION		I-	EVA- 10N EET)	DEPTH (FEET)	¥.	O S N				
LOSSES AND LEVELS, CASING, CEMENTING,	SIZE OF	000 000 V	DEP (FEI	ĒΤ)		ESSURI	NGTH TEST	EL 71 (FE	را ته	GRAPHIC LOG	CLASSIFICATION AND PHYSICAL CONDITION				
CAVING, AND OTHER DRILLING CONDITIONS	HOLE	ж я	FROM (P. Cs, or Cm)	то	(G.P.M.)	. 22	Ы.) (жіж.)			2	CLASSIFICATION AND PHYSICAL CONDITION				
	PB -	(%)	or Cm)		(G.P.M.)	(F.3.1.)	(MIT.)				 				
	7.9										35.0'-105.0' Tertiary Muddy Creek For-				
					TD-1	P5'		ļ							
]					 				1	Contact with overlying alluvium is tentative. Upper part of this unit may				
	10-						1		10-	İ	include portions of the Quarternary Las				
	1				; ;						Vegas Fm. Gravelly clays are brown, red				
]				! !	:	1		_		brown to white. Description based on wash samples.				
]								-						
	1								20-		35.0'-40.0' Rockbits to Gravelly Clay				
	70-								'-						
	=								-	1	About 30% fine subrounded dark gray to white limestone gravel, max size				
	7								-		1"; 30% poorly graded fine sand;				
								İ] :	1	40% medium plastic fines. Color brown. Limy.				
	30-								30-	1	brown. Liny.				
]								}	40.0'-105.0' Rockbits to Sandy Clay				
	=								-	1	About 5% fine subrounded dark gray				
	1	1	1							1	to white limestone gravel, max size				
	40-							ţ	40-	1	3/4"; 35% poorly graded fine sand; 60% medium plastic fines. Red				
	:	11	1						-	1	brown to white in color. Limy.				
	-]							-	}	· ·				
] :		1					1		1					
	50-	11			-				50-	1					
]								1					
	-	11							-	1					
		11	1							}					
	60-	1							60-	1					
		11								}					
		1							-	<u>.</u>					
] :	11	1	į				İ		1					
	/0-]							70-]	11				
	":	1	1							1	1				
		11]					
]	1							}					
		11	1							1					
	80-]							80-]					
	:	1								‡					
	-	1]					
		1								1					
	90-	11							90-	1					
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]								1					
			1		·		E)	(PLAN	ATIO	й					
1 23 = 30cV	hit									-					

CORE CORE

.1737 (6+74) arer and Power					GEOL	.OGIC	LOG	OF D	RILL I	HOLE		SHEET 1 OF 2
FEATURE Exploratory	. Well	s				ROJECT	CRBSC	P, Las	Vegas,	łash.	Unit Title II	. STATE Nevada
HOLE NO. LG212 CO	CATION ORDS.	нғ. <u>ца</u> М	mingo	wasn	E	, O.Z.C., .	GROU	ND ELEY.	es.t 101	.1,8,0,0 TAL) DIP (ANGLE I	FROM HORIZ.) ^{90°}
DEPTH AND ELEY. OF WALLEYEL AND DATE MEAS	TER URED.S.	ee no	tes be	low		. LOG	GED B	γ. D. A.		au	LOG REVIEWS	ED BY. D. Russell
NOTES ON WATER	TYPE	ERY			LATION	TESTS		EVA ION EET)	DEPTH (FEET)	ပ္	80 0 80 0	
LOSSES AND LEVELS, CASING, CEMENTING,	SIZE	80	DEP (FEI	ET)		RESSUR	NGTH TEST	ELE TIC	DE (FE	GRAPHIC LOG	STE	CLASSIFICATION AND PHYSICAL CONDITION
CAVING, AND OTHER DRILLING CONDITIONS	HOLE	(%)	FROM (P, Cs, or Cm)	то	(G.P.M.)	(P.S.I.)	(NIW.)			8	SAMPLES FOR TESTING	
		T	J. C.III,								0-2.0' Backfi	11 2.0'-33.0' Quarternary
Orilling Equipment	7.9"5								1	<u>s</u>	reom Alluvium;	Contact with underlying m tentative. Claye
Failing 1250	1 1								! 1		gravels, grav	el and sandy gravel are wh to tan. Description based
Orilling and Sampli Procedure: Rock	18 10 ±								10-		on Wash sampl	
oit 7.875 inch. to 10	\$ 1]		2.0'-10.0)' Clayey Gravel
Vash sample every 5 ft.	=								=			- S fine subrounded, dark gra
Drilling Fluid											to black	and white limestone gravel
	70-								70-		mostly fi	3/4"; 30% fine to coarse sine; 20% low to medium plas
Baroid lo loss	1								1		1 1	s. Color white, tan brown. U reaction.
Unstable or soft intervals			-									<u>O'</u> Gravels
Hole stable	30-								30-			% fine angular to subangular
Water levels				1					1		dark gray	y and white limestone grave
	1 1			İ			•		1			5/8"; 15% fine to coarse : ine; 5% plastic fines. Co
Depth Date	40-								40-		dark gray	y to white. Violent H ^{*1}
9.80' 1/25/8 9.45' 1/29/8	Կ − 1								"		1	. <u>0'</u> Clayey Gravel
Purpose of Hole												% fine rounded to angular
Observation Well fo	, 1										dark gray	y to white limestone grave
aquifer test.	50-								50-		mostly f	7/8"; 20% fine to coarse ine sand; 20% low to medi
Drill Site	1 1										1 1 '	fines. White to dark gray Violent HCL reaction.
Flamingo Wash near											20 0'-33	.O' Sandy Gravel
Boulder Highway	60								60		}	% fine subrounded dark gra
Hole Completion											to white	Limestone gravel, max siz
Set 2" galvinized								ļ 1				ut 20% fine to coarse sand oarse but some medium and
steel casing -1.5' to 100 ft. Set	/0-				!		1		70-			olor dark gray to white reaction to H CL.
backwash valve at 100 ft. Set No. 10	1 1			!					/ /			
slot screen 15-17, 25-27, 54-56, 98-1	1. 7					1			1			
Backfilled with pe				<u> </u> 	İ	1						
gravel.	80-			i	ļ		1		80-			
	90-							İ	90			
	"]			1					90			
												,
		<u></u>		·			E)	I (PLAN	ATION	<u> </u>		
CORE 33 =	Rockbi	t										
Type of hole			. n -	Diamos	4 H = H-	vstelli+=	S =s Sh	ot. C = C+	iurn			
1				n - 1			C B -	****		·9''		
CORE RECOVERY Approx. size Approx. size Outside dia. of	ot care (of casing casing	x∙serie j(X-ser (X-serie	is) Ex : ies) - Ex : :s) Ex :	= //8", = 1.13/1 = 1-1/2"	6", Ax = ', Ax =	: 2-1/4", : 1-29/32	Bx:	= 2.7/8", = 2.3/8",	Nx = 3-1 $Nx = 3'$	2"		
FATURE Exploratory	Wells	s									ada SHEET . 1	OF . 2 HOLE NO. LG212

HOLE NO LO	G212 LO	CATIO	н ^Р .	laming	,o. W	ash i	(12, . Ko	45,.50	GROUI	ND ELEV.	eșt.]8	300!.			Title II STATE Nevada
BEGUN . 1/2	co 23/80 Fi	ORDS. HISHED	N . 1	/23/8	 O	DEPTH	E OF OVE	 RBURDE	н?:	0!	TO:	TAL PTH	105	5 . '.	BEARING.
DEPTH AND LEVEL AND											Trud				LOG REVIEWED BY Q P Russell
NOTES ON	TYPE	J. 1	<u> </u>			ATION 1			EVA. ION EET)	DEPTH (FEET)	ō	E.	ادِ		
LOSSES AND CASING, CE CAVING, AN DRILLING C	MENTING, ID OTHER	AND SIZE OF HOLE	CORE	ER (FR	DEPT (FEE	T) TO	LOSS (G.P.M.)	in Pressure	E LENGTH	EL Ti (FE	<u>g</u> 7.	GRAPHIC LOG	SAMPLES FOR		CLASSIFICATION AND PHYSICAL CONDITION
		RB - 7-9"					rD=105	1						33.	O'-105.' Tertiary Muddy Creek Fm
		10-									10-		1 1	ime uni Las gra rec	ntact with overlying allowidm sedents is tentative. Upper part of this it may include portions of Quarternary vegas Fm. Sandy clay, caliche, avels and mudstone fragments generally i brown in color. Description based wash samples.
		70-									20-				33.0-40. Rock bits to sandy clay.
		30-									30-				About 5% subangular white limestone gravel max size 1/2"; 35% fine sand; 60% medium plastic fines. Color red brown. Violent Hft reaction. Medium to high dry strength.
		-													$\frac{40.0'-65.0'}{\text{with mudstone fragments.}}$
		40-									40-				About 30% fine sand with 70% medium plastic fines. Color red brown. Violent HCL reaction; medium, high dry strength. Occasional gravel streak in interval. Numerous subrounded white mudstone fragments maximum size 1/2".
		50-									50-				65.0-105. Rock bits to Sandv Clay caliche and gravel.
		60-									60				About 30% fine sand with 70% medium plastic fines. Color red brown to white in 60 to 70 ft. interval. Violent HCL reaction. Medium dry strength. Numerous caliche fragments occur as plates and nodules. Bed of caliche 70 to 72 ft. Bed of fine rounded white and dark gray
		/0-									70-				limestone gravel maximum size 1/2" at 95 ft.
		-									-				
		80-									80				
		90-					-			To determine the second	90-				
												1			
			1			-	L	l	EX	PLAN	L A TIO	1 <u>. </u>	LL.		**************************************
CORE	BB :	= Roc!	kbi1	t											

LOSS CORE RECOVERY

FEATURE . Explorator	CATIO	, Fl	amingo	 Wa s h	121S,	ROJECT ROZE,	Sec	07 bb3	. vegas .	1891. 1891	Unit STATE. Nevada
HOLE NO. LG-213. CO	ORDS.	N			Ε		GROU MZ	ND ELEV. 'A	. es ç.	TAL 1	P DIP (ANGLE FROM HORIZ.)
BEGUN . 6/4/80 FIN											
DEPTH AND ELEY. OF WAT LEVEL AND DATE MEASU	TER JRED.	. șee.	beļo w			. LOC	GED B	Y D A	Trude	au	LOG REVIEWED BY anstetter
		ERY		PERCO	LATION	TESTS		EVA. ION EET)	ET)	()	800
NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER	TYPE AND SIZE OF	COR	OEP (FEE	TH (T)	LOSS	RESSURE	LENGTH OF TEST	ELE' TIO (FEE	DEPTH (FEET)	GRAPHIC LOG	CLASSIFICATION AND PHYSICAL CONDITION
DRILLING CONDITIONS	HOLE	o∡ (%)	FROM (P, Cs, or Cm)	то	(G.P.M.)	۰.	(MIM.)			G	[\$]
Drilling Equipment: Failing 1250	DB] 12"-										D-300 ft. Quaternary Alluvium: Rockbits to clayey gravel, gravelly sand which are light brown in color. Contact with under
Drilling & Sampling Procedure: Drill 12-inch hole with	10-								10-		lying Muddy Cr. Fm based on change in lithology and drill characteristics.
Tricone Rock bit	2-1/	t									0'-10.0' Rockbits to Clayey Gravel
76-175, Reamed O- 12 5 with 16 inch tricone Rockbit.						; 			-		About 50% fine subrounded to sub- angular limestone gravel, max. size 5/8 inch; 30% fine and coarse sand
Wash samples every 5.ft	70-								70-		20% fines of medium plasticity. Color light brown. Violent Hcl reaction.
Drill Fluid: Baroid Lo-Loss	-										10.0'-15.0' Rockbits to Gravelly Sang
Hole Stability: wher changing bits had sluff to 30	30-								30-		About 30% fine subrounded to subang- ular caliche gravel, max. size 3/4", 50% fine to coarse mostly fine sand; 20% fines of low to medium plasticit
Water Level: Depth in ft. Date 11.3 9/2/80 stickup	40-								40-		Color light brown. Violent Hcl reaction. 15.0'-25.0' Rockbits to Gravel
Purpose of Hole Production well for aquifer test.	-										About 80% fine to coarse subrounded to subangular limestone gravel, max. size 1 3/4"; 10% fine to coarse
Hole Location: North side of Flamingo Wash above inter-	50-								50-		sand, 10% medium plastic fines. Color light brown to gray. Violent Hcl reaction.
section with Boulder Highway	60-								60		25.0'-30.0' Rockbits to Clayey Gravel
	-								-		About 50% fine subrounded to sub- angular limestone gravel, max. size 1/2"; About 30% fine to coarse mostl fine gravel; 20% fines of medium
	/0-								70-		plasticity. Color light Brown. Violent Hcl reaction.
	RB		<u> </u>						-		
	12,, 80-								80-		
	90-								90-		
	J	1_1		<u> </u>	1	J.,	E	XPLAN	ATIO	Й	J. A. C. C. C. C. C. C. C. C. C. C. C. C. C.
Note: Geor	obyci	cal 1	000 2112	ilah1	۵						

CORE CORE RECOVERY

Note: Geophysical logs available

CB = Dracbit

Type of hole D = Diamond, H = Haystellite, S = Shot, C = Churn
Hole sealed P = Packer, Cm = Cemented, Cs = Bottom of casing
Approx. size of hole (X-series) . Ex = 1-1/2", Ax = 1-1/8", Bx = 2-3/8", Nx = 3"
Approx. size of core (X-series) . Ex = 7/8", Ax = 1-1/8", Bx = 2-3/8", Nx = 2-1/8",
Outside dia. of casing (X-series) . Ex = 1-13/16", Ax = 2-1/4", Bx = 2-7.8", Nx = 3-1/2"
Inside dia. of casing (X-series) . Ex = 1-1/2", Ax = 1-29/32", Bx = 2-3/8", Nx = 3"

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FEATURE Explora	tory.	Wells Wells	interw	ond Gr	P	ROJECT	IS.RE	RBSCP L	as Veg	as Wa	ish Unit Title 2. STATE. Nevada				
HOLE NO. LC-215 LOCATION. Winterwood Gulf Course T21S, R62E. Sec. 04 dcdl GROUND ELEV. Est. 1710'. DIP (ANGLE FROM HORIZ.). 90° COORDS. N															
BEGUN1/28/80 FINISHED1/30/80 DEPTH OF OVERBURDEN															
DEPTH AND ELEV. OF WALLEYEL AND DATE MEASI	TER URED.	<u>s</u>	ee Bel			LOG	GED B	YDA	Trud	eau	LOG REVIEWED BY Branstetter				
		RY		PERCO	LATION	TESTS		₹z£	ĦÇ.		· · · · · · · · · · · · · · · · · · ·				
NOTES ON WATER	TYPE	CORE	DEF (FE	TH ET)		URE	EST	ELEVA. TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	CLASSIFICATION AND PHYSICAL CONDITION				
CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	SIZE OF HOLE		FROM		LOSS	RESSUR	LENGTH OF TEST			N N	PHYSICAL CONDITION				
DRIEDING CONTINUES		(%)	(P, Cs. or Cm)	TO	(G.P.M.)	(P.S.1.)	(MIM.)								
Drilling Equipment	!?B								1		0.0-117.0' Quarternary Stream Alluvium				
Schram T66 Band Failing 1250	7.0"								3	1	Rockbits to silty sand, clayey sand, sandy gravel, and gravels which vary				
	-								-	1	from whitish tan, tan, tan brown, to				
Drilling and Sampling Procedure	10-								10-		brown. Contact with underlying Muddy Creek based on change in lithology				
Tricone rockbit	``:								10	1	and drilling characteristic but is				
7.875 in dia. 0-125 feet. Wash sample	1 :							}	`:	İ	tentative. Descripton is based on wash samples.				
every 5 ft. Drille		1					}			İ	wasu samples.				
0-80 ft. with Schra	1 -		1								0.0-10.0' Rockbits to Silty				
Drilled 80-125 ft. with failing.	70-								70-	1	Sand. About 95% poorly graded fine sand, 5% low plastic				
]						1		1	fines. Color whitish tan, Limy.				
Drilling Fluid Schram: air and	-								-		10.0'-20.0' Rockbits to Silty				
foam failing:							ĺ		-		Sand and Clayey Sand. Silty				
Baroid LoLoss.	30-							1	30-		sand is about 95% poorly graded fine and 5% low plastic				
Hole Stability	-										fines. Color tan. Limy.				
Hole open 0-124 ft.	1 -										Clayey sand occurs as rounded nodules up to 1-inch diameter				
Water Levels											in cutting. Consists of 70%				
Depth in ft. Date 2/29/79	40								40-	•	poorly graded fine sand and 30% medium plastic fines.				
Stickup 1.4 ft.	1 :								-		Color tan brown. Limy.				
Durana of Wala] =	11			[20 01-45 01 Probbits to				
Purpose of Hole Observation well]								20.0'-45.0' Rockbits to Clayey Sand. About 5%				
for aquifer test.	50-								50-	1	fine subangular sandstone and				
Drill Site							-			}	limestone gravel, max. size 7/8 inch, 60% poorly graded fine				
Winterwood] _						İ		-		sand, 35% medium plastic fines.				
Golf Course										}	Color tan brown to whitish tan. Limy.				
Hole Completion	60-						į	İ	60	1					
Set 2-inch galvanized steel							l				45.0'-60.0' Rockbits to Sandy Clay. Some fine				
pipe 0-117 ft. with	1 -							l			subangular sandstone gravel,				
backwash valve at bottom. Set No.								1		1	max. size 1-inch, 40% poorly				
10 slot screen at	10-		}				İ		70-	1	graded fine sand; 60% medium plastic fines. Color tan to				
36-38, 59-61,	:										brown. Limy. Medium dry strength				
82-84, and 115-117 ft. Backfilled											60.0'-85.0' Rockbits to sandy				
with pea gravel,	:		1				ļ	ł	-	1	gravel. About 70% fine rounded				
5-125 ft. Set concrete 0-5 ft.	80-							1	80-	1	to subrounded limestone grave. max. size 1.0-inch, 25% fine and				
	**								"		coarse sand (little medium grained				
	:								-		about 5% plastic fines. Color whitish tam. Violent HCL reaction				
	1 3							1			Gravels at 85 ft. as indicated by				
	:								:		drill bit chatter.				
	90-								90-]					
	:								=						
								<u></u>							
1275	_ >-	lob i 6					E)	CPLAN	ATION	4					
CORE	= 3ac	K015													

CORE LOSS CORE RECOVERY

1 9 1

CORE

RB = Rockbit

EXPLA

FEATURE Exploratory Wells											
HOLE NO. LG216. LOCATION. Winterwood. GC: T215, R62E. Sec. 04 dcd2 GROUND ELEV. est 1710 DIP (ANGLE FROM HORIZ.)											
BEGUN 1/28/80. FINISHED1/28/80 DEPTH OF OVERBURDEN MA DEPTH 145.01. BEARING											
DEPTH AND ELEY OF WATER See Below LOGGED BY . D A. Trudeau LOG REVIEWED BY Q &ranstetter											
		۲		PERCO	LATION	TESTS		₹ :	Ξ£		œ l
NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER	TYPE AND SIZE OF	COR ECOV	DEP (FEE	TH (T)	LOSS	RESSURE	LENGTH OF TEST	ELEVA. TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	CLASSIFICATION AND PHYSICAL CONDITION
DRILLING CONDITIONS	HOLE	2 (%)	FROM (P, Cs, or Cm)	TO	(G.P.M.)	(P.S.J.)	(MIN.)			5	[3]
Drilling Equipment	PB I										0.0 to 118.0 Ft. Quaternary Stream
Schram T66B Failing 1250	7.9"										Alluvium Rockbits to sand, gravelly sand, clayey sand, sandy clay, gravels and mudstone which vary from brown, to tan brown, to reddish brown to whitish
Drilling and Sampling Procedure	10-								10-		tan. Contact with underlying Muddy Cree Fm. Tentative.
Tricone Rockbit, 7.875 in. 0 to									1		O to 12 ft Rockbits to silty sand. About 95% fine sand, and 5% low
145 ft. Wash	-	H	1 1					1	-		plastic Fines. Color tan brown.
samples every 5 ft.	70-	Н	1 1		i		1	1	20-		Limy.
Schram 0 to 60 ft. Failing 60 to 145.	-				1		ļ		1		12 to 20 ft. Rockbits to
Drilling Fluid									-		Sandy Clay. About 30% poorly graded fine sand,
2,1111111111111111111111111111111111111	-		1						-		70% medium plastic fines.
Schram: Air Foam	30-								30-		Color brown. Limy.
and Failing: Baroid Lo	30-								30-		Medium dry strength.
LO55.											20 to 50 ft. Rockbits to Clayey Sand and Mudstone.
Hole Stability											About 5% fine subrounded to
Hole open	40-								40-		subangular sandstone gravel,
0 to 145 ft.									1		and subrounded gray lime-
									-		stone gravel, max. size in; 65% poorly graded fine
Water Levels Depth in Ft Date									1		sand; about 30% medium plastic fines. Color reddish
24.05' 2/29/80	50-								50-		brown. Limy. Mudstone
Stickup 1.2 ft.]		plates up to 1½ in. dia. from 45 to 50 ft.
Purpose of Hole									-		50 to 65 ft. Rockbits to
Observation Well for aquifer test.									}		Clayey Sand and Mudstone. About 10% fine to coarse
Tor additer test.	60-								60-		subrounded limestone,
Drill Site									1		sandstone and caliche gravel,
Winterwood Golf	-								1		max size 1½ in; 60% fine to
Course	-										coarse sand: 30% medium plastic fines. Color brown.
Hole Completion]										Limy. Find elongate mudstone
Set 2 in. galvanize	<u> </u>								70-		plates up to 1 in. dia.
steel casing 0 to 1			1 1						1		reddish brown color in
with backwash valve]	1		cuttings.
on the bottom. Set No. 10 slot screen	1				1			l	1		(5 + 20 0 5 P 1)
30 to 32', 58 to	:		1						1		65 to 90.0 ft. Rockbits to Gravelly Sand, Mudstone and
60', 80 to 82', and	80-								80-		Gravels. About 30% fine
113 to 115 ft.	1							l	1		subrounded chert, limestone
Backfilled with	:										and sandstone gravel, max.
gravel to 145.	1				-				1		size 3/4 in.; 50% coarse to
Set concrete from 0 to 5 ft.								1	}		fine, mostly fine sand; 20%
0 CO J LC.	90-								90-		medium plastic fines. Color brown to whitish tan. Limy.
	1 -					1			1		Red brown, elongate mudstone
	}		1 1				1		1		chunks, max. size \(\frac{1}{2} \) in.
	1 3								1		encountered in cuttings
	}						}		1		from 80 to 85 ft. Gravels
		Ц	11				<u> </u>		1		were encountered at depths
							<u>t X</u>	PLAN	4 T I O N	!	

CORE

Mote: Sp, GammaRay and Resistivity logs available on this hole. ${\mathfrak {B}} = {\tt Rockbit}$

.1337 (6-74) later and Power					GEOL	OGIC	LOG	OF D	RILL I	HOLE	SHEET OF	
Explorator	v Wel	1s				OUECT	CRES	CB Las	Vegas	Wash	Unit Nevada	
FEATURE EXPloratory Wells PROJECT CRESCE Las Vegas Wash Unit STATE. Nevada HOLE NO. LG216 COORDS. N. E. TOTAL 145.0' BEARING. BEGUN 1/28/80 FINISHED 1/28/80 DEPTH OF OVERBURDEN . 1/4 DEPTH 145.0' BEARING.												
HOLE NO LGZJD CO	ORDS.	N			ε		GROU	NO ELEY.	TO	TAL 1	45.0'	
BEGUN 1/28/80 FIN	IISHED.	! / 48	ġγ.ġġ	DEPTH	OF OVE	RBURDE	N1/	.4	DEF	γтн	BEARING	
DEPTH AND ELEY. OF WAT LEVEL AND DATE MEASU	TER JRED.	Ş	ee Belo	w		. LOG	GED B	, Q A .		au	LOG REVIEWED BY. D. Branstetter	
		ERY	L	PERCO	LATION	rests		₹zÊ	DEPTH (FEET)	.	CLASSIFICATION AND PHYSICAL CONDITION	
NOTES ON WATER LOSSES AND LEVELS.	AND	CORE	DEF (FE)	TH ET)		Z.	TEST	ELEVA. TION (FEET)	PE (FE	Eg	CLASSIFICATION AND PHYSICAL CONDITION	
CASING, CEMENTING, CAVING, AND OTHER	SIZE	REC	FROM		LOSS	RESSURE	35	_		GRAPHIC LOG	THE PARTY OF THE P	
DRILLING CONDITIONS	HOLE	(%)	(P, Ca, or Cm)	TO	(G.P.M.)	(P.S.I.)	(MIN.)				*/	
		T									65 to 90.0 ft. (con't)	
	RB]						-		1		of 80 to 82, 85 to 87 ft. as indicated by drill bit	
	7.97	1							1		chatter.	
	1								1			
	10-								10-		90.0 to 105.0 ft. Rockbits to Clayey Sand and Gravels.	
]								-		About 10% fine subrounded to	
]							•]		subangular limestone,	
									7		chert, and sandstone gravel, max. size 3/8 in.; about	
						,		1	20-		65% poorly graded fine sand;	
	70-								"		25% medium plastic fines. Color whitish tan. Limy.	
	:								-		Gravels encountered from	
	-		ļ								100 to 103.0 as indicated	
I 	-						ŀ				by drill bit chatter.	
	30-								30-		105.0 - 118.0 ft. Rockbits	
	:								-	1	to Gravelly Sand and Gravels.	
	=						1		-		About 30% fine subrounded limestone gravel, max. size	
	-		-								3/8 in.; 50% fine to coarse	
	40-		1						40-	1	sand; and 20% medium plastic	
	":								:	1	fines. Color White. Limy.	
	:					145' -				1	118.0 to 145.0 ft. Tertiary Muddy	
					T .	[.,5] :	1	Creek Formation Consists of sandy clay which is red	
	:								:	1	brown in color. Materials drill	
	50-	11		ļ					50-	1	like a good clay, slow smooth	
		11			1					}	drilling. Contact based on change in drilling character-	
]	1		1				-	1	istics. Description based on	
	:	1						1		1	wash samples.	
	60-	11						1	60-	}	118.0 - 145.0 ft. Rockbits	
			1					1		1	to Sandy Clay. Consists of	
	-	11					1		-	1	20% fine subrounded limestone gravel, max.	
		1								1	size 3/8 in.; 30% poorly	
	/0-] [1					1	70-	1	graded fine sand; and 50%	
		1	1							1	medium plastic fines. Color red brown. Violent HCL	
		11								3	reaction. Materials drill	
]								}	slow and smooth. Gravels	
		11							.	1	may be from above intervals.	
	80-	1							80-	1		
		11								}		
	-]							-	1		
		1								1		
	90-	1						1	90-	-		
]								1		
		<u> </u>			1			1		1		

EXPLANATION

CORE CORE RECOVERY ଅ = Rockbit

CORE

EXPLANATION

RB = Rockbit

CORE CORE

7-1397 (6-74) Water and Power					GEOL	<u>OGIC</u>	LOG	OF D	RILL	HOL	<u>E</u>	SHEET OF
FEATURE Explora	tory !	ells	.	.	Ci	RBSCP	Las V	egas Wa	sh Unit	: .,		
HOLE NO. LG218 LG	CATION	Wit	nterwoo	od.Çol	f.Çour	șe.Ț?ļ	S,R62 GROU	E, Sec. NO ELEY .	Est	34 517	10!	DIP (ANGLE FROM HORIZ.)
HOLE NO	ORDS.	м		DEST	E	PRUPOS	. II	/A	TO-	TAL PTH	. 1	L50.0' BEARING
1												D. Branstetter
DEPTH AND ELEY. OF WA	TER URED	See.	Remark	s Belo	¥	LOG	GED B	Y	A. IIU			LOG REVIEWED BY
		Σ		PERCO	LATION	TESTS		EVA ION EET)	E.C.	u	ES FOR	3
LOSSES AND LEVELS,	AND	CORE	DEF (FE	TH ET)	-	URE	NOT HEST	FE (DEPTH (FEET)	GRAPHIC LOG	SE	CLASSIFICATION AND
CASING, CEMENTING, CAVING, AND OTHER	1 0 - 1	REC	FROM		Loss	RESSUR	P. P.	-		ZY.	ا تري	mi Fritzicae Condition
DRILLING CONDITIONS	HOLE	(%)	(P, Cs, or Cm)	TO	(G.P.M.)	(P.S.I.)	(MIH.)				SAMI)
Drill Equipment	PB	T			1						11	0.0'-120.0' Quaternary Alluvium
Failing 1250	7.9	1				ļ		j				Rockbits to clayey sands, clayey
Drilling and	-								=		1 1	gravels and gravelly sands which are tan to tan brown to cream to
Sampling Procedure	1 1								-		1 1	white in color. Contact with
7-7/8" tricone	10-	ļ							10-		1 1	Muddy Creek Fm. not reached.
rockbit 0-140'.	1 1		Ì					1	1 7	l	\prod^{i}	Description based on wash samples.
Reamed 0-150' with 16" tricone rock-	1 1	1						1]		П	0.0'-20.0' Rockbits to clayey
bit. Reamed	1 7	1			i i	į		1	1 3		Ш	sand. A trace of fine subrounded
0-120' with			1		ļ			}]		П	caliche gravel, max. size k in.;
19' rockbit. Wash sample	70-		1			ļ		}	20-	ł	Ш	70% poorly graded fine sand; 30% low to medium plastic fines.
every 5'.	1 3		i						-		Ш	Color tan to tan brown. Violent
	1 4		1			ļ			-		Ш	HCL reaction.
Drill Fluid	1 1		l					İ	-	1	$\ \ $	20.0'-60.0' No sample recovery
Quar Gum	1.4		1					1	30-	1		because of lost circulation.
Hole Stability	30-					-		1	3.0]	Ш	
Minor sluffing	1 3							1	-	1		60.0'-80.0' Rockbits to clayey sands. About 5% fine subrounded
in hole.	1 =								-	1		angular limestone and caliche
Water Level	1 1	1							:		Ш	gravel, max. size ½ in.; 70%
Depth in ft. Date						1		1	40-	1		fine to coarse mostly fine
24.0'* 10/31/8 *Stickup about 2'	9 1		1					İ	-	1		sand; 25% low to medium plastic fines. Color tan
Science about 2	1 7					1.				}	Π	brown. Violent HCL reaction.
Purpose of Hole	1 3		1							1	Ш	
Pump Well for Aguifer Test.	1 3		1						:	1	П	80.0'-100.0' Rockbits to Clayey gravels. About 30% fine subrounded
Aquirer lest.	50-		1						50-	1	Ш	to rounded limestone gravel, max.
Drill Site	1 1	1	1							1		size % in.; 30% poorly graded fine
East of Las Vegas	1 4	1	1			İ			_	1		sand; 40% medium plastic fines. Color cream to white. Violent
Wash inside Winterwood Golf	1 1		1				1			}		HCL reaction.
Course.	60								60	1		
	1 23	1						1		1		100.0'-120.0' Rockbits to
Hole Completion Set 48' of 12" bla	1	-								1	Ш	gravelly sands. About 30% fine rounded black and white
steel-casing with	-	1	1							3	Π	limestone gravel, max. size
of 12" No. 100	1 1									}	Π	in.; 60% fine to coarse
slotted steel casi	™8 /o-]	-	1						70-	}	П	sand; 10% low to medium plastic fines. Color tan.
below that with a steel plate on the	.]							1		1	Ш	Violent HCL reaction.
bottom. Gravel	1 1									1	Π	
packed with local	1 1	l	1						:	1	П	120.0-150.0' No samples available.
pea gravel 5-130'. Grouted 0-5'.	1 4		1							1	Π	avallable.
	80-]							80-	}		
Special Note	1	1								1		
This hole drilled within 5' of a	-							1	-	1	11	
60'-80' hole	1 1				j					1	$\parallel \parallel$	
abandoned because	90-								90-	1		
Schram washed too large a hole to	1 1	1			1]		
complete.	1 1	l				1	1	1		1	11	

CORE CORE RECOVERY

Contractor

EXPLANATION

Geophysical Logs available on this hole. Contractor drilled this hole 5' away from where he attempted to drill hole in 1/81. That hole abandoned because too large a dia. to complete. Abandoned hole partially filled in with pea gravel and cuttings. Above Geologic Log may not be representative.

FB = Rockbit

FEATURE Explora	tory.	√ells u	incerwo	ond Co	P	ROJECT	rais :	R62E Sec	ash Uni	i t :d4		STATE. Nevada				
LG218 LOCATION Vinterwood .Golf .Course T218 R62E Sec .04 dcd4 HOLE NO																
1																
DEPTH AND ELEY. OF WA LEVEL AND DATE MEASI	URED.		ee Rema	rks B	elow	LOG	GED B				LOG REVIEWED BY. D. Branstetter					
NOTES ON WATER	TYPE	CORE RECOVERY			LATION		Fb	ELEVA. TION (FEET)	DEPTH (FEET)	ñ	SAMPLES FOR TESTING					
LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	TYPE AND SIZE OF	200 200 200	DEF (FE	ET)	LOSS	RESSURE	LENGTH OF TEST	375	9.5	GRAPHIC LOG	STE	CLASSIFICATION AND PHYSICAL CONDITION				
DRILLING CONDITIONS	HOLE	∝ (%)	FROM (P, Cs, or Cm)	то	1	(P.S.I.)	(WIN')			5	SAME					
Special Note (con't		П				†					\prod					
partiarlly filled in abandoned hole	RB -															
with pea gravel and cuttings.									-							
Lost circulation	10-								10-		$\ \cdot \ $					
in LG218 probably due to this									1		Ш					
situation. Geologic logs may	-								-							
not be representati	ive.								-							
	20-								20-							
									-		\prod					
									1							
	30-								30-							
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	40-								40-							
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		Ш_			1	<u> </u>		L	3	L	Ц_					
							EX	PLAN	ATION	<u> </u>						

CORE CORE

Geophysical Logs available on this hole. Contractor drilled this hole 5' away from where he attempted becophysical Logs available on this hole. Contractor drilled this hole 5' away from where he attent to drill hole in 1/81. That hole abandoned because too large a dia. to complete. Abandoned hole partially filled in with pea gravel and cuttings Chorn be according to the property of hole with pea gravel and cuttings Chorn be according to the scaled series between the peaceter, the peaceter of peacete

FEATURE Exploratory	Well	s 			P	ROJECT	CRBS	CP Las	Vegas	Wash	Uni	STATE
HOLE NO HOTELS	CATIO	v. Cla	rk Cou	nty Si	F. T21	5,R62F	GROU	. 2 2 bc ND ELEV.	dl Est	 166	5	DIP (ANGLE FROM HORIZ.)900
5/24/80	HISHED.	5 /	27/80	DEPTH	OF OVE	RBURDE	N HV.	<u>``</u>	DE	TAL PTH	103	.5 BEARING.
DEPTH AND ELEY. OF WA	TER URED.	S	ee Bel	ow		400	GED 8	y . D A.	Trude	au		LOG REVIEWED BY D Branstetter
NOTES ON WATER		> <u>></u>		PERCO	LATION	TESTS		EVA-	F.C.	, ,	ð,	
LOSSES AND LEVELS. CASING, CEMENTING,	TYPE AND SIZE	CORE	DE! (FE	PTH ET)	ļ	RESSURE	LENGTH OF TEST	TIO TIO	OEPTH (FEET)	GRAPHIC LOG	STS.	CLASSIFICATION AND PHYSICAL CONDITION
CAVING, AND OTHER DRILLING CONDITIONS	HOLE	~	FROM (P, Cs, or Cm)	τo	LOSS	(F.S.I.)	9.E			GRA	SAMPLES FOR TESTING	THISICAL CONDITION
		(%)	or Cm)		(G.P.M.)	(P.S.I.)	(MIN.)	!			17	************************************
Drilling Equipment	DB 12"					'			1			0-95.0' Quarternary Stream Alluvium
Failing 1250							-					Rockbits to clayey sands and caliche which are whitish tan to tan brown in
Drilling and Sam- pling Procedure:	10-								10-			color. Contact with underlying Muddy Creek Fm. based on change in lithology
	1 1								,,,,			Description based on wash samples.
12.0 inch drag bit 0 to 103.5' Wash									1			0.0'-95.0' Rockbits to clayey
sample every 5 ft.									1			sands and caliche. Clayey sand consists of about 70% fine to
Drill Fluid	70-				:				70-			coarse mostly fine sand; 30%
Baroid Lo Loss and					:				1			low to medium plastic fines. Color brown, tan brown, whitish
water.	1								=			tan, whitish brown and dark brown. Violent Hcl reaction.
Hole Stability	30-								30-			Caliche indicated by excessive drill, bit chatter 30-35', and
Hole Stable	"								3,4			60-65'.
Water Level									1			95.0'-103.5' Tertiary Muddy Creek Fm.
5.25' 5/15/80	40-								40-			Consists of sandy clays which are blue to green in color. Description based
Purpose of Hole									1			on wash samples.
Shallow observatio well.	h =								1			95.0'-100' Rockbits to sandy cla About 10% poorly graded fine sand
Description of Are	a 50-				i				50-			and 90% high plastic fines. Color blue to blue green. Violent Hcl
In field south of]			reaction.
Clark Co. STP along Monsoon Rd.	-								4			
Floodway									1			
Hole Completion	60-								60-1			
Set 90' of 6" mild	1								1			
steel casing with 5ft. field slotted									1			
30-35', 85-90', an									70-			
plate on bottom. Backfilled with									-			
pea gravel and grouted 0-5'.	=								4			
	80-											
	"								80-			
									4			
]								1			
	90-								90-			
	1								1			
									1			
											\perp	
98 = 5 r a	e 315						ΕX	PLANA	TION			

CORE

SHEET. OF.

Water and Power	·								UFU				3nEE1 UP
	Explora	tory	Wells						Vegas ₩				Gevada
FEATURE													STATE
HOLENO	LC-220ALO	CATIO	N. CCS	TP. T21	5, K62L	,. Sec.	. 22. bc	d GROU	ND ELEY.	t.st	1002		DIP (ANGLE FROM HORIZ.)
MOLE NO	4/23/81 CO	ORDS.	N			E				TO	TAL a	100	
BEGUN	FIN	HISHED		. 67.057	DEPTH	OF OVE	RBURDE	н	N/A	DEF	PTH.	30	BEARING
DEDTU AND	ELEV OF WA	TED	_	_									
LEVELAN	D DATE MEASE	JRED.	^Ş	ee Re	marks.	Below.	LOG	GED B	, D.A.	Trudea	μ		. LOG REVIEWED BYD Branstetter
			>-	T	DEDCO	LATION	75575			ΙC		æ	
NOTES	N WATER	TYPE	ERY	<u> </u>	PERCO	LATION	1 2313	,	EVA- ION EET)	DEPTH (FEET)	U	ES FO	
LOSSES AN	ID LEVELS,	AND	800	DE! (FE	TH ET)		3	NGTH TEST	355	35	Ēυ	SZ.	CLASSIFICATION AND
CASING, C	EMENTING, IND OTHER	SIZE	88	1 "	= 1 /		ESSU	52	71 F	"-	40	SE	PHYSICAL CONDITION
DRILLING		HOLE	RE	FROM		LOSS	1 22	, m, m,			GRAPHIC LOG	TES	
			(%)	FROM (P, Cs, or Cm)	TO	(G.P.M.)	(P.S.I.)	(MIN.)				ر خا	
			—	 		-		 				1	
	Equipment			l			ĺ			-		0	.0' - 100.0' Quaternary Stream
Failing 1	250 BuCyru	\$ 127	11	1		İ	ŀ	1		1			
Erie Cabl	e Tool.	1 3					1	1		-		A1	luvium Rockbits and cores to clayey
•		1 7	i I	İ			1]		sa	nds, sandy clays, and caliche which
Drilling	and Sampli	ng i	1 1	1			}	l		1	ĺ	ar	e tan to brown to tan brown to dark
Procedure		10-		l		1]			10-		br	own. Contact with underlying Muddy
12 inch t	****			1						1		Cr	eek Fm. based on appearance of
rockbit 0	-230'. 4"	-	} }	1				}		-	}		eenish blue clays and gypsum. Materials
Core 50'			11	l					1	1	1		lled stream alluvium based on
recovery;			l I ·	1		İ			1	-	l		cation. Description based on wash
1		1 -				i]]	ŀ		mples and core.
100-104',	1007	70-	11	l		ì				20-		"	mpres and core.
	12" per-	*+	1 1	Ì		1				-	1	11	0.0 - 100.0' Rockbits to clayey
			11	1		1	Ì		}	1		11	sands, sandy clays, and caliche.
	it attempt	ea -				1		Ì		-		Ш	
1 .	ole. Wash	-	1 1	i		Ì		1			İ	11	Clayey sands occured in interval
sample ev	ery 5.	1 1	11	I		-		1		-	ł		0' - 20', 30' - 40', 65'- 100'.
		1	11				1]	•			11	Consists of about 60% fine to
Drill Flu		30		l				ĺ		30-	İ	11	coarse mostly fine rounded sand
Failing-B		1 1	il	l	}					-	İ		and 40% low to medium plastic fines
Lo Loss &		1 1		Į					 	1		11	Colors ranged from tan to brown
	on materia	ֈ. ქ		1		1			·	-		11	to tan brown to dark brown. Sandy
Cable Too	l-Water	1 -	11	l		1				1			clay occurs in interval 20' - 30',
		1 1	i	ł		İ	1			1		11	and 40' - 65'. Consists of about
Hole Stab	ility	40-		1			1			40-	i	Ш	40% fine to coarse mostly fine
Extreme c	aving con-	1 7		1						1			sand, coarser particles are
ditions f	rom 70'-	lj		1				1		1		11	limestone and some gypsum; and
TD. Lost	circulatio	h -				}			1]		11	60% medium plastic fines. Color
at 140'.		1 1		Ì			İ			1		Ш	tan to brown to tan brown. Sandy
		1 -		1		1	ĺ			-		H	clay and clayey sand both have
Water Lev	els	50	1	↓						50-	į	11	violent HCL reaction. Caliche
	Ft. Date	4"	50	1						1			encountered in interval 55' -
8'	5/7/80	C		1		1	ļ			-		H	65'. Caliche indicated by the
641	5/8/80			1				l				11	rough drilling and by subangular
60'	5/25/80	1 1		l									caliche fragments recovered in the
1	-,,	1 1	1	l		İ		İ		-		П	drill cuttings.
Purpose o	of Hole	60-		ł						امر		11	
		1		ł						1			50.0' - 54.0' Sandy
Deep aqui	fer	1 1		ł								Ш	clay. Consists of 40% fine to
observati		1 4		İ]		- 1		! !	coarse, mostly fine sand, and
		1 1		1		1				Ŀ			60% medium plastic. Fines.
Drill Sit	Α.	1 1		l						1		Н	Color tan brown. Violent HCL
	ited 280 yd	1/0-1		ł						70-		11	reaction.
	ntersectio			1						~			reaction.
of Monson		r 1								1		11,0	0.0' - 230.0' Tertiary Muddy Creek
floodway		L l		1		1		i l		1			
1 '] -{				1				7			rmation Rockbits and cores to gravelly
1	ch passes	1		1		1				1			ndy clay, clayey gravel, gravel, gypsum
by Clark		80-		l		1				ا ہے			aystone, sand stone, and sandy clay
Sewage Tr		1 4				1				80-			ich are green to brown in color.
	ll located	1 1	1			1							scription based on wash sample and
in field	south of	1 1	ı					} .		1		co	re.
CCSTP.		7		1		[4			100.01
1		į į										11	100.0' - 110.0' Rockbits to
1		I 1											sandy clay. Consists of a
		90-	ı	1		İ				90-]		11	trace of rounded to subrounded
			1							1			caliche gravel, max. size
l		7	1	[- 1			3/16"; 20% fine to medium,
1		1	1]						- 1		11	mostly fine grained sand;
Ì				1					. 1	- 1		11	80% medium to high plastic
L		<u> </u>		l			i			1		11	Fines. Color green to brown
								FY	PLANA	TION			Violent HCL reaction.
1			ckbit	ţ				<u>- ^</u>	, <u> </u>	U N			
CORE	C	=Cor	e										1
LOSS													}
	_			_					<u> </u>				1
CORE	Type of hole .			• -	D I								
RECOVERY	Hore sealed . Approx. size o Approx. size o	fhole (X-series	i) Ex =	1-1/2",	Ax =	1-7/8",	B× =	2.3/8",	1x = 3"			j
1	Approx. size o	f core (X-series	s)Ex =	7/8",	Ax =	1-1/8'', 2-1/4''	Bx ≖ Av ≃	1-5/8", h	$4x = 2 \cdot 1/3$ $4x = 3 \cdot 1/3$	8'' 2''		
<u> </u>	Approx. size of Approx. size of Outside dia. of Inside dia. of	casing (X-serie:	s) . Ex =	1-1/2",	Ax =	1-29/32"	, Bx =	2-3/8", N	1x = 3"			

90

EXPLANATION

two then repeat. Sample recovered from bit showed fibrous gypsum

and green clay.

RB=Rockbit

C=Core

90-

Type of hole D = Diamond, H = Haystellite, S = Shot, C = Churn Hole sealed . . . P = Packer, Cm = Cemented, Cs = Bottom of casing Approx. size of hole (X-series) . Ex = 1-1/2", Ax = 1-7/8", Bx = 2-3/8", Nx = 3". Ax = 1-1/8", Bx = 1-5/8", Nx = 3". Outside dia of casing (X-series). Ex = 7/8", Ax = 1-1/8", Bx = 1-5/8", Nx = 31. Bx = 3-7/8", Nx = 3-1-8", Ax = 3-1-8", Bx = 3-7/8", Nx = 3-1-8", Nx =

CORE CORE

ater and Power								OF D				31021
FEATURE EXPLORATO	RY. WE	LLS.	crp ro	is 862	p	ROJECT	CRB	SCP.Las	.Vegas	. Wash		DIP (ANGLE FROM HORIZ.) 90°
HOLE NO. LG220A CO	OCATIO OORDS.	N ??			E	: . . 	GROU	NO ELEV.	то: ТО	665'. Tal		DIP (ANGLE FROM HORIZ.) . 90°
BEGUN 4/23/81 FI	NISHED											BEARING
DEPTH AND ELEV. OF WA	TER URED.	S	ee Rem	arks B	Selow	LOC	GED B	YD	ATru	deau.		LOG REVIEWED BY. D. Branstetter
				PERCO	LATION	TESTS		EVA- ION EET)	DEPTH (FEET)		FOR	
NOTES ON WATER LOSSES AND LEVELS,	AND SIZE	1 × >	DE (FE	PTH ET)		RESSURE	NGTH	FLE TIO	DEF (FE	GRAPHIC	l si 🗄 l	CLASSIFICATION AND PHYSICAL CONDITION
CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	OF	REG	FROM (P, Cs, or Cm)	то	Loss	PRES	115			GRA	SAMPLI	
	 	(%)	or Cm)		(G.P.M.)	(P.S.I.)	(MIN.)	ļ	 		17	
l	RB -											160.0 - 200.0 Rockbits to gypsum
	124]							-			claystone, and sand stone. Gypsum composes 50% of sample 160' - 170',
		1								}		80% 170' - 175', and 90% 175' - 200'
	10-	1				-		1	10-	1		Mostly translucent to white crystal- line form but some fibrous. Remainin
		11			1					1		portion of sample is claystone which is composed of sandy clay
]			!		i			1		occuring as blocky fragments and
	20-	1					:		20-	}		consisting of about 20% mostly fine sand and 80% medium to high plastic
]					:			1		fines. Color green to red brown.
		11							-	1		Violent HCL reaction. Can be broken with intermediate finger pressure.
]								1		Find reddish tan fine grained sand- stone particles in zone 170'-175'.
	-30-	1		T.	D=230.0) .	 	 	30-	}	+1	
		<u> </u>				1				1		200.0' - 230.0' No sample recovery.
	-	11				`			-	1		
]					:		40-	1		
	40-]			1		1		40]		
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1 1							<u> </u>	XPLAN	A 110	N		

RB=Rockbit

CORE

CORE RECOVERY

FEATURE Exploratory Wells PROJECT CRBSCP Las Vegas Wash Unit STATE. Nevada
HOLE NO. LG 220 LOCATION. Clark County STP 1215, R62E, Sec. 22 bed 2
GROUND ELEV. Est 1665' DIP (ANGLE FROM HORIZ). 90°
COORDS. N. 7714/80 DEPTH OF OVERBURDEN N/A. DEPTH. 305.0' BEARING. DEPTH AND ELEY. OF WATER See Below LOGGED BY D. A. Trudeau LOG REVIEWED BY D. Branstetter SAMPLES FOR CORE PERCOLATION TESTS ELEVA TION (FEET) NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS GRAPHIC LOG TYPE AND SIZE LENGTH OF TEST DEPTH (FEET) CLASSIFICATION AND PHYSICAL CONDITION OF LOSS FROM (P, Cs, or Cm) ~ τo (P.S.1.) (MIN.) (%) (G.P.M.) 0-78.0' Quarternary Stream Alluvium Rockbits to sandy clay and clayey sand Drilling Equipment DB 3 which are brown to light brown to red-7.9 dish brown. Contact with Muddy Cr. Fm Failing 1250 · based on lithologic change. Descrip-10tions based on wash samples. Drilling and Sam-10pling Procedure O'-15.0' Rockbits to sandy clay. 7 7/8 inch dragbit About 40% mostly fine sand; 60% medium plastic fines. Color light 0-305.0 ft. Reamed with 12 inch dragbrown. Violent Hcl reaction. bit 0-305.0 ft.4 20. ა0-Core 250'-254' 15.0'-25.0' Rockbits to clayey sand About 80% fine to coarse mostly 100% recovery; fine sand; 20% medium plastic 300'- 304 with 100% fines. Color brown. Violent Hcl recovery. reaction. 30-Drilling Fluid 30-25.0'-65.0' Rockbits to sandy clay and mudstone and some gravel. Baroid Lo-Loss Sandy clay is about 40% mostly fine sand; 60% medium to high Hole Stability plastic fines. Color brown to red-40 dish brown. Violent Hcl reaction. Hole stable 40-Mudstone chunks encountered in cutting. Fine subrounded caliche Water Level gravel encountered 45'-50'. Depth Date 65.0'-78.0' Rockbits to clayey in ft. sand. About 60% fine to coarse 50-50mostly fine sand; 40% medium Not measured plastic fines. Color light brown. Violent Hcl reaction. Purpose of Hole 78.0'-305.0' Tertiary Muddy Creek Fm Deep aquifer obser-60-Rockbits to clay, claystone, gypsum vation well. 60and sandy clay which are green to blue Well Location green to blue to cream to brown to white to red brown. Description based on wash samples and core. In field south of Clark Co. STP 70-78.0'-96.0' Rockbits to clay and /0claystone. About 100% high plastic Hole Completion fines. Particles of claystone encountered in the cuttings. Color Set 6" mild steel green to bluegreen to blue to cream casing 0-300 ft. Little Hcl reaction. with a plate on the 80bottom field slotted 80-96.0'-175.0' Rockbits to gypsum with 290'-300'. Backfilled with pea some claystone and clays. Gypsum gravel 150'-305' occurs as crystals and sand sized and grouted 0'-150' particles. Clay and claystone encountered to a lesser extent in Presented here is the log of the cuttings. Color blue to brown 90second attempted 90to white. Little or no Hcl reaction hole at this site. There were a total 173.0'-305.0' Rockbits to gypsum of 3 holes drilled. and sandy clay. Gypsum occurs as crystals and sand sized particles. EXPLANATION

CORE CORE

Note: Geophysical logs available on this hole. Also, this is the second attempt at drilling this hole. The first attempt was logged LG220A. The third attempt was not logged. DE=Dragbit

Water and Power					GLUL	.0010	LUC	0. 5			-		
FEATURE Exploratory HOLE NO. COO	ATION	, Cla	rk Co.	STP	T215.E6	52E. S	ec. 22	SCP Las 2 bcd2 nd elev.	1	Est l	992.	STATE. Nevada DIP (ANGLE FROM HORIZ.) 90° BEARING.	
BEGUN	ISHED.		14/80	DEPTH	OF OVE	RBURDE	и		DĚI	PTH.3	05.0	BEARING.	
DEPTH AND ELEY. OF WAT LEVEL AND DATE MEASU	ER RÉD.	S-	ee Belo			LOG	GED B	۲Þ.	A. Țri	udea.		. LOG REVIEWED BY D. Branstetter	
CE, CE AND DATE METERS		Α.	Γ	PERCO	LATION	TESTS		4 C	ΞĒ	<u> </u>	œ		
LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER	TYPE AND SIZE OF HOLE	% CORE	FROM (P, Cs, or Cm)	TH	LOSS (G.P.M.)	PRESSURE	E LENGTH	ELEVA Tion (FEET	DEPTH (FEET)	GRAPHIC	SAMPLES FOR TESTING	CLASSIFICATION AND PHYSICAL CONDITION	
Hole Completion (con The second Hole was drilled approx. 500' east of first hole starting 6/05/80 and was geophysical logged and cored but was abandoned on 6/18/80 when hole collapsed on bit. The log of this well is presented her LG220. The completed hole was started on 6/27/80 and cased and gravel packed a short time later. It is located between the two abandoned holes. The completed wells log was so similar to the second attempted hole that only one log was prepared. LG 219 is 107 west of the second hole whose geologic log is presented here.	DB 12" 10 1y 10 66.						E	PLAN	30- 30- 40- 80- A T I O I			Sandy clay consists of 30% poorly graded fine sand; and 70% medium plastic fines. Color brown. Little Hcl reaction. 250'-251.6' Cypsum and sandy clay. About 95%. crystalline gypsum. Crystals for most part are not well formed. About 5% sandy clay occurs between individual crystal masses. Color light brown to white. Some light Hc reaction. 251.6'-254.0' Sandy clay and gypsum. About 80% occurs as sandy clay. Sandy clay is about 20% poorly graded fine sand and about 80% medium plastic fines. Color brown to red brown. Violent Hcl reaction. Gypsum occurs as crystals interspersed throughout. A 1 inch bed of crystals occurs at 252.6 ft. 300'-304' Gypsum and sandy clay. About 80% mostly large massive crystalline gypsum occurs in masses interspersed with 20% sandy clay. Sandy clay is about 20% poorly graded fine sand; 80% medium plastic fines. Color brown to red brown from 300' to 303' and green from 303' to 304'.	
CORE RECOVERY Approx. size o Outside dia. of c	Type of hole												
Exclorator	יש גורי	11 <				C1	RBSCP			,4A		rueer 2 as 3 unie un LG220	

(337 (6-74) iter and Power									OF D	KILL I	HULI		sheet 3 of 3.
FEATURE . EX	ploratory.	Well	s			P	ROJECT	CRE	SCP				STATE. Nevada
HOLE NO	220 LOCA	ATION RDS.	· · ċ i ġ	rtk'éó	'sir'	الموكلاكنا.	.b2E,	GROUĪ	ID ELEV.		Est l	1665'	DIP (ANGLE FROM HORIZ.) 9.0°
BEGUN 6/5	1/89 FINIS	HED.	7/1	4/80.	DEPTH	OF OVE	RBURDE	Ии	/. 2	DĚF	ŶŦЙ	305	Q. BEARING
EPTH AND E	LEV. OF WATE	R	See	Below			. LOG	GED BY	DA.	.Trude	au		. LOG REVIEWED BY D Branstetter
CEVEL AND	DATE MEASUR					LATION							
NOTES ON		YPE	RE VERY	DE F				Ξ'n	ELEVA- TION (FEET)	DEPTH (FEET)	Ξ.c	SAMPLES FOR TESTING	CI ASSIEICATION AND
CASING, CE	AENTING, S	OF	RECOVE		ET)	Loss	RESSURE	LENGTH OF TEST	⊒_£	٥٥	GRAPHIC LOG	PLE	CLASSIFICATION AND PHYSICAL CONDITION
DRILLING CO	H SHOITIONS	OLE	~ (%)	FROM (P, Cs, or Cm)	TO	(G.P.M.)	(P.S.1.)	(.MIW.)			ပ	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
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		· -						EΧ	PLAN.	TION	1		
CORE		DB=D C=Co	ragb re	ıt						3			
LOSS													
CORE	Type of hole tole sealed			P =	Diamond Packer,	I, H = Ha Cm = Cer	stellite, nented, (1-7/01	S = Sho s = Bo	t, C = Chi tom of cas	irn ing			
ECOVERY	type of hole tole sealed Approx. size of Approx. size of Outside dia. of o	nate () core () casino	√series (-series (X-seri	s) Ex : s) Ex : ies) . Ex :	= 1-1/2" = 7/8", = 1.13/1:	, Ax = Ax = 6", Ax =	1-1/8", 2-1/4".	Bx = Bx =	2-3/8", 1-5/8", 2-7/8", 2-3/8",	Nx = 3-1/ Nx = 3-1/	8''		
	nside dia. of co	sing (X-serie	s) Ēx	= 1-1/2"	, Ax =	1-29/32	", Bx =	2-3/8**,	Nx = 3"			

	y.Wel	, Ņeva	ada Pov	ver (¢	р ļaŗķ Ş	ROJECT tation	CRBS(CPLas 5,R62E,	Vegas Sec. 2	Wash 8 cc	Unit STATE. NV
HOLE NO. LG221 LO	ORDS.	N			E	Dauge A	GROU :N	nd elev. N/A	TO	St	1.740 DIP (ANGLE FROM HORIZ.)
1											u LOG REVIEWED BY D . Branstetter
LEVEL AND DATE MEASE	JRED.		\$10W				GEO B			uuea	
NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	TYPE AND SIZE OF HOLE	COR	DEF (FE	'TH	LOSS	RESSURE	LENGTH OF TEST	ELEVA TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	CLASSIFICATION AND PHYSICAL CONDITION
DRIELING CONTITIONS		(%)	(P, Cs, or Cm)	то	(G.P.M.)	(P.S.1.)	(MIN.)				
Drilling Equipment: Failing 1250	.RB 123'''					: :			-		0.0 to 5.0 ft. Quaternary Valley Fill: Consists of thin mantle of gravelly silty sand overlying the Muddy Cr. Fm.
Procedure: 12.25 inch tricone Rock bit o'to 105.A Wash	10-			:					10-		0.0 to 2.0 ft. Cobbles in gravelly sand. Rounded black basalt cobbles up to 1 1/2 ft, caliche cobbles up to 0.75 ft. Gravelly sand is
Sample every 5 ft. Drill Fluid: Quar-	-						<u> </u>				40% fine subrounded basalt, sub- angular caliche gravel, max size 3 inches; 40% well graded subrounded
Gum	70-				İ				20-		to subangular caliche basaltic, and guartz sand; 20% low plastic fines. Color tan. Limy.
Hole Stability: Hole stable, TD.]								1		2.0 to 5.0 ft. Rock bits to silty
Nater Levels Depth in ft. Date	30-								30		sand. About 10% fine subrounded caliche gravel, max size 1.0 inch; 60% fine to coarse subrounded to
21.75 3/26/80							!		1		subangular basalt, caliche, and quartz sand (mostly fine); 30% low plastic fines. Color tan. Limy.
Purpose of Hole: Shallow aquifer observation hole.						, , , , , , , , , , , , , , , , , , ,					5.0 to 100 ft Tertiary Muddy Creek Fm. Rock bits to Mudstone, Gypsum, Sandy
Drill site: 1/4 mi						•			40-		Clay, Clayey Sands and Sandstone.
Clark Station. Hole Completion:	-								1111		5.0 to 10.0 ft. Rock bits to Mud- stone, Gypsum, and Sandy clay. Sand clay consists of 40% poorly graded fine sand; 60% medium plastic fines.
6 5/8 in casing with 5 ft of slots at bottom set to 100 ft Back filled with pe									50-		Color red brown. Limy. Crystalline gypsum (selenite) and mudstone fragments encountered in the cutting
gravel. Grouted 0-5'.	60-								60-		10.0 to 20.0 ft. Rock bit to clayey sand. A trace of subrounded caliche gravel, max. size 0.5 inch, 80%
									1,1,1,1		poorly graded fine sand; 20% clays of low plasticity. Color brown. Limy.
	/0-								70		
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		<u> </u>	<u></u>								Ц
CORE RB = Roc	kbit						ŁΧ	PLANA	TION	!	

CORE

Water and Power BEGUN 3/25/80 FINISHED 3/25/80 DEPTH OF OVERBURDEN NA DEPTH 105 BEARING BEARING DEPTH AND ELEV. OF WATER
LEVEL AND DATE MEASURED.... See Below..... LOGGED BY...D. A. Trudeau.... LOG REVIEWED BY.... SAMPLES FOR CORE RECOVERY DEPTH (FEET) PERCOLATION TESTS ELEVA-TION (FEET) GRAPHIC LOG NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS LENGTH OF TEST CLASSIFICATION AND PHYSICAL CONDITION DEPTH (FEET) SIZE OF HOLE LOSS FROM (P, Cs, or Cm) TO (G.P.M.) (P.S.I.) (MIN.) (%) 20.0 to 25.0 ft. Rock bits to PB sandy clay. Some fine subrounded 123 caliche gravel, max. size 1/2 in; TD=105 20% poorly graded fine sand; 80% medium plastic fines. Color brown. Limy. 10-10-25.0 to 48.0 ft. Rock bits to clayey sand and sandstone. Clayey sand is about 60% poorly graded fine sand; 40% low to medium plastic fines. Cuttings include chunks of poorly 20-۰0° calcium carbonate cemented sandstone. 30 30-48.0 to 65.0 ft. Rock bits to Sandy Clay. About 40% poorly graded fine sand; 60% large to medium plastic fines. Color red brown to brown. Limv. 40-40 65.0 to 70.0 ft. Rock bits to Clayey Sand and Sandstone. About 80% fine to medium grained sand; 20% low to medium plastic fines. Color brown. Limy. Encountered some well cemented well graded sand composed of rounded 50-50volcanics in cutting. 60 60-70-/O-80-80-90-90 EXPLANATION 3 = Rockbit

CORE CORE

Vater and Power			<u> </u>	<u> </u>						VIII
FEATURE Exploratory. HOLE NO. LG221 COORDS	Wells. onWe	vada Power		ROJECT. tation	CRBS 1) T21 GROUI	CPLas S,R62E, ND ELEV.	Vegas Sec.	.Wash 28 co .Est	. Uni di .1740	DIP (ANGLE FROM HORIZ.) 90°
3/25/80 FINISHE	n3/25/	80 DEI	PTH OF OVE	RBURDE	м .∃//:	۱	DEF	ŤĤ	105.	BEARING.
DEPTH AND ELEV. OF WATER	Şe e	.Below	<i>.</i>	. LOG	GED BY	, Þ A.	.Trude	au		. LOG REVIEWED BY. D. Branstetter
NOTES ON WATER LOSSES AND LEVELS, AND CASING, CEMENTING, SIZ CAVING, AND OTHER DRILLING CONDITIONS	CORE	PER DEPTH (FEET)	LOSS (G.P.M.)	RESSURE 2	E LENGTH	ELEVA. TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	SAMPLES FOR TESTING	CLASSIFICATION AND PHYSICAL CONDITION
		or Cm)			E	X P L A N	10- 30- 40- 50- 80- 80-			70.0 to 105.0 ft. Rock bits to Sandy Clay with some Clayey Sand. Sandy clay has about 5% fine subrounded caliche and basalt gravel, max. size 3/4 inch; 40% poorly graded fine sand; 55% low to medium plastic fines. Color brown. Limy. Clayey sand occurs as elongate plates in cuttings. Consist of 80% poorly graded fine sand and 20% medium plastic fines.
CORE CORE RECOVERY CORE RECOVERY		D = Did P = Pa ies) . Ex = 1. ies) . Ex = 7.	amand, H = Ho licker, Cm = Co -1/2", Ax: /8", Ax:	aystellite emented, = 1-7/8" = 1-1/8"	;, \$ = \$1 Cs = B , Bx	not, C = Cl ortom of co = 2-3/8", = 1-5/8", = 2-7/8"	nurn sing Nx = 3'' Nx 2-	• 1/8"		

Outside dia. of casing (X-series). Ex = 1.13/16°, Ax = 2.1/4°, Bx = 2.7/8°, Nx = 3.1/2° Inside dia. of casing (X-series). Ex = 1.1/2°, Ax = 1.29/32°, Bx = 2.3/8°, Nx = 3°

Explorate	orv W	ells			00155	CRESC	P Las V	egas Wa	ash t	nit	_	Sevaga
HOLE NO. 10222 COO	CATIO	. Nev.	ada Power		E, Sec	. 28	ecd2	 Fe+	17/.0	٠ ۱'		DIP (ANGLE FROM HORIZ.) . 90°
HOLE NO LC222 LOC	CATIOI	4. 145.71 N	nga, i ywri.	.		GROU	ND ELEV.	st	. ! / 4!			DIP (ANGLE FROM HORIZ.)
COC	UKDS.	3/2	8/80 nep	TH OF OVE	 RBURDF	N	N/A	TO: DEF	TAL PTH	. 20	25.	BEARING.
BEGUN V. W FIN	וואמנט			51 012								
DEPTH AND ELEV. OF WAT	FER IRED.	Se	e Remarks	Below	LOG	GED B'	7 D. A	Trud	eau			. LOG REVIEWED BY D Stadetetter
CE YEL AND DATE MEADO				COLATION						œ	٦	
NOTES ON WATER	TYPE	ER Y		COLATION		T	ELEVA. TION (FEET)	DEPTH (FEET)	ñ	ES FOR	ا چ	
LOSSES AND LEVELS.	AND	CORE	DEPTH (FEET)		RESSURE	NGTH TEST	13.19	9.5	GRAPHIC LOG	S	١	CLASSIFICATION AND PHYSICAL CONDITION
CASING, CEMENTING, CAVING, AND OTHER	SIZE	<u> </u>		Loss	S	OF T			¥,7	15	ات	FRISICAL CONDITION
DRILLING CONDITIONS	HOLE	<u>~</u>	FROM (P, Cs, TO		æ (₽.\$.1.)	(MIN)			٥	SAMPL	J	
Brilling Equipment		(%)	or Cm)	(G.P.M.)	(F.3.1.)	1,000	ļ		<u> </u>		_	0'-5.0' Quarternary Valley Fill
Failing 1250	RB -							1				ockbits to cobbly gravelly
	-						l	1				and and silty sand which are
Drilling and Sampli	ng -							-	l	11	ta	n in color. These deposits
Procedure	12.3				1		l		l			orm a thin mantle over the
12½" tricone rockbi	t.				ļ		1	10-	1			addy Creek Formation. Contact
0'-205'. 4-inch	10-											th Muddy Creek Fm. based on
core 160'-175'			1				1] -	}	1 1		rst appearance of reddish
with following	:				ļ			-	1			own sandy clay and gypsum. escription based on wash samples.
recovery. 160'-164'100%	1 -	1					1	:	1		υe	secreption based on wash samples.
164'-167' 0%	-	11			1 .		1		i			0.0'-2.0' Rockbits to cobbly
Core had to	20-	1					1	70-	1			gravelly sand. Basalt cobbles
be dug out of	*:	1					1	1	1	11		up to 1.5' dia. and caliches
barrel.		11					i		1	$\parallel \parallel$		9" in diameter exposed at
167'-172' 100%	-	1	1		1		1	-	1			surface in gravelly sandy
172'-175' 100%		11			1		1		1	11		matrix. Matrix consists
		11	1		1	1	1		-	11		of 40% fine subrounded
Drill Fluid	30-	<u> </u>				1		30-	1			basaltic and subangular
Baroid Lo Loss	-	}			1	1	1		1	-11		caliche gravel, max size
1	:	11			i				1	11		3"; 40% well graded sand;
Hole Stability	7	11							7	- 1		20% low plastic fines. Color
Hole collapsed at	1	1	1			1			7			tan. Violent HCL reaction.
86' and 106'	40-	1				1	1	40-	1			2.0'-5.0' Rockbits to silty
Water Levels	1 40-	11					1		1			sand. About 10% fine subrounded
Flowing Well. Water		1							<u> </u>			caliche gravel, max size l";
is 1.5' above land	1 .	11	1		1	1	1		7	-		60% fine to coarse mostly fine
surface.	١.	11	1				1		7	- []		sand; 30% low plastic fines,
11/12/80	1	1 1					1		1	-11		Color tan. Violent HCL reaction.
	50-	11					1	50-	1	-11		
Purpose of Hole	1	11			1	1			1	-11	5.	.0-205.0' Tertiary Muddy Creek Fm.
Deeper aquifer	1	11			1	1	ļ		1			ockbits and cores to mudstone,
observation well.	'	11	1			-		•	7	-11		ypsum, sandy clay, silty sand,
	1	<u> </u>				1			1			layey sand and sandstone which
Drill Site		7				1	İ	60	1	- 11	1	re red brown to brown to white
法 mi. west of	60]					1	~	1			o light green in color.
Nevada Power	1	11					1		1		۳	escription based on wash samples.
Clark Station.		11		.					4			5.0'-10.0' Rockbits to
Hole Completion	1	11							1		1	mudstone, gypsum and sandy
Set 6 5/8" on casir	1	11		1					1			clay. Sandy clay consists
0'-200' with plate		41				1		70	1			of 40% poorly graded fine
on bottom. Field	1	11							1			sand and 60% medium plastic
slotted lower 5'.		11			1		1		1			fines. Color red brown.
Hole back-filled	1	11					1		1			Violent HCL reaction.
with peagravel to		<u> </u>		1			t		1			Crystalline gypsum, mudstone,
150'. Hole		11						80	±			and basalt fragments also
cemented by pouring	- 1	7						80	1			recovered in cuttings.
cement from surface	2	11					1		}			10 01-15 01 Packhik- *-
0'-150'(?).		11					1		7		1	10.0'-15.0' Rockbits to silty sand. Consists of
		11					1		1		1	5% fine subrounded caliche
	1	}		1					1			gravel; max size 3/4"; 85%
	90	-						90	-	- [poorly graded fine sand; and
	1	11					1		1	1		10% low plastic fines. Color
		11							1	-		brown. Violent HCL reaction.
		11						1	7	-		
		11							1			
		<u>1</u>					ــــــــــــــــــــــــــــــــــــــ		1		L	
						<u>E</u>	XPLAN	IA TIO	<u> </u>			
C085												
CORE		2.5	n = = l- l- i d									

CORE

RB=Rockbit

CORE LOSS CORE RECOVERY

PB = Tencuscion 2it

SHEET. GEOLOGIC LOG OF DRILL HOLE FEATURE Exploratory Wells CRBSCP, Las Vegas Wash Unit FEATURE EXPLORATION Well'S PROJECT CRBSCP, Las Vegas Wash Unit STATE. Sevada

FOLE NO. 1.G-224 LOCATION A.W.T. Plant T21S, R6.2E, Sec. 24 cab' FSt. 1660' DIP (ANGLE FROM HORIZ) 3/G²

COORDS. N. E. TOTAL 304.0' BEARING. See Remarks Below LOGGED BY D. A. Trudeau LOG REVIEWED BY ... Remarks tetter ... DEPTH AND ELEY. OF WATER LEVEL AND DATE MEASURED. PERCOLATION TESTS CORE RECOVERY ELEVA TION (FEET) SAMPLES FOR NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS TYPE AND SIZE OF HOLE GRAPHIC LOG 7022 SURE SOURE TEST DEPTH (FEET) CLASSIFICATION AND PHYSICAL CONDITION ΤO (%) 0-5.0' Quarternary Valley Fill Drilling Equipment RB 12. Rockbits to silty sand which is tan Failing 1250 brown. Contact with underlying Muddy Creek Fm. based on lithologic change. Drill and Sampling 10-10procedure 0.0-5.0' Rockbits to silty sand.

About 20% subrounded to subangular 12.25 inch tricone caliche gravel; 70% fine to coarse, rockbit 0'-303.5' mostly fine gypsiferous sand; and wash samples every 10% low plastic fines. Color tan 5ft. Cored with 4" 20~ brown. Limv. core barrell follow-20ing intervals with 5.0'-304.0' Tertiary Muddy Creek Fm recovery. 30% ((05+)+ 5.0'-10.0' Rockbits to gypsum. Non 25.0'-28.0' 30 crystalline. Color white. 100.0-104.0' 100% -150.0-153.5' 30-100% 30-10.0'-20.0' Rockbits to sandy clay and gypsum. Sandy clay is about 20%200.0-204.0' 100% 250.0-254.0' 6% poorly graded fine sand; 80% low to 300.0-304.01 100% medium plastic fines. Crystalline gypsum (selenite) encountered Drill Fluid 40in cuttings. Color white to light 40green. Violent Hol reaction. Soda ash, baroid Lo Loss, baroid CC-16 20.0'-25.0' Rockbits to sandy clay dispersant using About 40% mostly fine sand, 60% low natural mud from to medium plastic fines. Color about 150' to TD. red brown. Violent Hcl reaction. 50-50-Hole Stability 25.0'-175.0' Rockbits to sandy clay and gypsum with minor amounts of Sluff 0-150' Depth to Water approx. 40ft. 4/8/80 clayey sand and gravel. Sandy clay 11/10/80 is about 30% coarse to fine mostly 38ft. fine sand; 70% low to medium plas-60tic fines. Color mostly red brown Purpose of Hole some white and green. Violent Hol reaction. Gypsum encountered in deep aquifer obsercuttings as crystals throughout vation well. interval. Crystals up to 3 inches. long, found in interval. 25.0'-70-/0-Drill site 28.0. Clayey sand encountered as chunks up to 2 inches throughout East of Las Vegas intervals. Consists of about 60° Wash along Las Vegas fine to coarse, mostly fine sand: Valley Lateral near 40% low to medium plastic fines. Gravel encountered 97-98' as indi-A.W.T. Plant 80-80cated by hard drilling and drill bi Hole Completion chatter. Consists of fine to coarse subrounded to rounded limestone Set 6" mild steel gravel, max. size 2 inch. Color casing 0-300' with gray. plate on bottom. 90-90 Field slotted 290'-100.0'-104.0' Sandy

C=Core

EXPLANATION

clay and gypsum. Sandy clay

consists of about 30% poorly graded fine sand, 70% medium

to high plastic fines. Color

RB=Rockbit

Note suite of Geophysical logs available on this hole.

CORE

300' backfilled

with pea gravel110'

305' grouted 0-110'

on and Power					GEOL	<u>.OGIC</u>	LOG	OF D	RILL	HOL	E	SHEET OF '
Fyrlorato	ry.We	Hs.			P	ଜ୍ୟାହେନ	Las	Yegaş (Jash Cu	ijţ.		state. Herada
FOLE NO	CATIO	4 : _/ :	. W. Fr. I	Jant.	151912	646*13	GROU	ND ELEV.		St.	660 <u>'</u> .	DIP (ANGLE FROM HORIX)
3/29/80 FI	NISHED			DEPT	OF OVE	RBURDE	1N	1/4	DEF	TH		D. Propertor
DEPTH AND ELEV. OF WALEVEL AND DATE MEAS	URED.		ee Kema	arks b	serow .	LOC	GED B	I i	1			D. Branstetter
NOTES ON WATER	TYPE	ER Y			LATION		1 75	EVA- ION EET)	DEPTH (FEET)	ũ	ES FOR	
LOSSES AND LEVELS. CASING, CEMENTING,	SIZE	α×>	DEF (FE	ET)		RESSURE	NGTH TEST	EL!	9. F.	GRAPHIC LOG	PLES ESTI	CLASSIFICATION AND PHYSICAL CONDITION
CAVING, AND OTHER DRILLING CONDITIONS	HOLE	(%)	FROM (P, Cs, or Cm)	то	(G.P.M.)	(P.S.I.)	(XIX.)			15	SAMPLE	
	4 12	T	er cm)				<u> </u>				H^-	red brown. Little or no Hcl
	C I	100	1						-			reaction. Gypsum which makes up 20% of sample occurs as
	RB								-		11	coarse sand sized crystals interspersed throughout Motable
	10-								10-			exception is at 100.5' where
	12.3											large crystals up to 3 inches long occur. Note coarse subangula
	=								_			limestone and sandstone gravel
								ļ				encountered on top of core.
	20-								20-	1		$\frac{150.0'-153.5'}{\text{clay}}$ Eandy
									-			medium grained sand and
	-							ĺ	-			about 60% medium to high plas- tic fines. Color brown.
											\parallel	little or no Hcl reaction.
	30-								30-	1		Some minor gypsum.
									-			175.0'-210.' Rockbits to sandy cla and gypsum and some sandstone. Sand
										}		clay consists of 40% fine to coarse
	40-	1							40-	1		mostly fine sand; and 60% low to medium plastic fines. Color brown.
		11								1		Moderate Hol reaction. Up to 40% of cuttings are crystaline gypsum
]							-			with some fine grained well cemente
		1							-			sandstone fragments.
	<u>50</u> -	1-1	-				ļ		50-	1		200'-204' Claystone sandy clay and sandstone. Clay
	C	100								1		stone occurs from 200'- 201.1
			-						-	1	11	Sandy clay consisting of about 20% poorly graded fine sand
]										and 80% of medium to high plas tic fines occur from 201.1'-
	60-	1							60-	1		202.3' and 203.7'-204', S andy
		1								1		clay is believed to be weather claystone. Sandstone occurs
]								1	11	from $202.3'-203.7'$ is fine
	/0-]							70-]		grained sand in a clay matrix and is lightly consolidated.
		1					1			1		Color varies from light green to cream to light brown. No
]								1		Hol reaction.
]]]		210.0'-304.0' Rockbits to clayey
	80-	11							80-	1		sand and sandy clay with sandstone and gypsum. Clayey sands consist of
		11]		80% fine to coarse well rounded
	-]							-	1		quartz sand, 20% low to medium plas tic fines.Color brown. Occurs from
		1								1		210.'-220', 225-230' and 240'-250'.
	90-]							90-	1		Sandy clay which is found in the remainer of the interval consists
		11								1		of 30% fine to medium,mostly fine grained sand; and 70% medium plastic
]								1		fines. Color red brown to white to
		11_					-	<u> </u>	<u> </u>	<u> </u>	Ш_	brown. Moderate Hel reaction. Up to
RE=R	ockbi re	t					<u>E</u> _	XPLAN	ATIO	<u>N</u>		

LOSS CORE RECOVERY

CRBSCP Las Vegas Vash ____ Nevada

Exploratory Wells

rucet 3 of 3 Hore No 100 -24

.; et. (6-71) Ger and Cower				GEOLOGI	C LOG	OF D	RILL HO	OLE SHEET OF
	ry Wei	lls		PROJEC	T. CRBS	CP Las	Vegas Wa	ash Unit Ti'le [i state Nevada 900
1.00	CATION	u1.0	SOUL KO'G' MO'L	.631 6.445 - 180	AL PROPER	un Ellevi	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DIP 'ANGLE FROM HORIZ') - 11 - 11 - 11 - 11 - 11 - 11 - 11 -
accus 5/15/80 FIN	IISHED.	2./.4	U/JULL DEPTH	OF OVERBURE	JEN			
DEDTH AND ELEV OF WAT	TER				3CCED 8	, D.A	.Trudeau	u LOG REVIEWED BY D. Branstetter
LEVEL AND DATE MEASU	RED.			LATION TESTS		1 2 2	ΞC	
NOTES ON WATER	TYPE	ZE ZERY		<u></u>		EVA. ION EET)	DEPTH (FEET)	SAMPLE SA
LOSSES AND LEVELS, CASING, CEMENTING,	AND SIZE OF	COR	DEPTH (FEET)	Foss as	ENGTH	3,5		AND PHYSICAL CONDITION
CAVING, AND OTHER DRILLING CONDITIONS	HOLE	(%)	P, Cs, TO	(G.P.M.) (P.S.)	.) (MIM.)			
- : 11: Fauirmon*		1	gr Cm)				1	0.0'-43.0' Quarternary Alluvial Fan
Drilling Equipment	PB -				!		1 1	<u>Deposits</u>
28L BeCyrous Erie Cable Tool						-		consists of Bouldery, cobbly sands and
					:		10-	gravels and gravelly sands. Which are gray to brown. Cobbles and boulders
Drilling and Samp- ling Procedure	10-		,		1		"	visible in hole. Contact with Muddy Creek Fm. based on lithogic change.
	}				:		1	
12.0" cable tool 0- 50' Wash sample eve	nty I		:				4	0.0'-23.0' Rockbits to Boulders, Cobbles in a Well graded Gravelly
5'. Drove casing 0-	Σ i b, -						20-	
Hole Stability	-00							of mostly fine to coarse subangular to subrounded volcaning gravel. San
Hole unstable 0-40'	:				Ì		1 1	consists of fine to coarse subround
note unstable 0-40								volcanic grains. Matrix has up to 10% low plastic fines. Color light
water Level	:						30-	aray Violent Hol reaction. Boulder
22.0' 5/16/80	30-]					1 1	up to 3' in diameter visible in the hole. First water at 23.0'.
Purpose of Hole		1					1 1	23.0'-43.0' Rockbits to Gravelly
]	,		1		1 1	Sand. About 20% fine subangular
Shallow aquifier pbservation well	40-	1					40-	volcanic gravel, max. size 3/8"; 60% fine to coarse subangular to
	"	1						subrounded mostly volcanic sand,
Drill Site]				1		20% medium plastic fines. Color gray brown. Moderate Hcl reaction.
Gibson Road 1/8mi.	ion	1					=	
south of intersecti with Sunset, on eas	5 ti - 50 -	11-	TD =	50'	_		50	43.0'-50.0' Tertiary Muddy Creek Fm.
side of rd.]						Consist of gravelly clay which is brown
Hole Completion		4					1 1	in color. Contact based on change in drilling from hard to easy. Description
Set 6" galvanized		1				1	1	based on wash samples.
steel pipe0-45'.	60	41				1	60-	43.0'-50.0' Rockbits to Gravelly
Field slottled low 5'. Put cap on bot	en tom.]					1 1	Clay. About 20% fine to coarse sub- rounded to subangular mostly calich
Gravel packed 5-50		4						
with pea gravel. Pulled 12" conduct	orl	11					1	to coarse, mostly fine sand; 50% medium plastic fines. Color brown.
casing.	/0						70-	Light to moderate Hol reaction.
		11					1 1	
		-11				-		1
		11					1	
	80	ㅓㅣ					80-]
		11						
		41]
		11						1 11
	90	7					90-]
		11]
		1			İ			
		1						1 11
						EXPLA	NATIO	<u>N</u>
CORE PB = To	rrouss	ion 3	it					on the
Loss			<u></u> .	1 12 11	· -	Shot C =	Churn	Me and
Type of hole Hale sealed	le d		D = Diom P = Pack	ond, H = Hayste er, Cm = Cemen '2''.	ted. Cs =	Bottom of x = 2-3 8	casing ', Nx = 3''	·
RECOVERY Approx. siz Approx. siz Outside did	ce or not ce of cor a. of cas	e (X-se ing (X-	P = Pack ries) . Ex = 1-12 ries) . Ex = 7-82 series) . Ex = 1-13 eries) . Ex = 1-1	Ax = 1-1 3.16", $Ax = 2-1$	1/8". E	1x = 1-5/8' 1x = 2-7/8'	$\frac{1}{1}$, $\frac{1}{1}$ 1	1 8'. 1 2''
Inside dia.	of casin	ng (X-se	eries)Ex = 1-1	Z'', $Ax = 1-2$	CRBSCP	FYZ AE	GAS -WASH	H NEVADA SHEET 1 OF 1 HOLE NO 13225
LYNIAMIE							· + • + t'	The second secon

Exploratory Molls

CRESCP Las Venas Wash

Mevada

over 1 or 3 ways of ETERS

EXPLANATION

CORE C≔Core

CORE

FEATURE Exploratory Wells

PROJECT. CRBSCP Las Vegas Mash Unit STATE.

HOLE NO. LG226 LOCATION Gibson Road North T22S, R62E, Sec. 02 cbb2

COORDS. N. COORDS. N. C. TOTAL 305.0' BEARING. DEPTH AND ELEY OF WATER See Remarks Below LOGGED BY D. A. Trudeau LOG REVIEWED BY D. Branstetter LEVEL AND DATE MEASURED. PERCOLATION TESTS m m NOTES ON WATER LENGTH OF TEST GRAPHIC LOG CLASSIFICATION AND PHYSICAL CONDITION LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER AND SIZE OF HOLE COR! LOSS FROM (P, Cs, or Cm) DRILLING CONDITIONS то (G.P.M.) (P.S.I.) (MIN.) (%) 200.0'-204.0' Sand-С 88 stone and caliche. Sandstone is composed of fine to coarse grained sand in a clay matrix. Sandstone is competent, it takes medium to hard hand pressure to 10break. A 3 inch bed of caliche F.B occurs at bottom of core. It 12"takes a hard hammer blow to break. Color brown. Violent HCL reaction. Note caliche nodules and gravel up to 2" 20. °0− diameter encountered at top of core. 250.0'-254.0' Mudstone and sandstone. One ft. of mudstone was recovered com-30-30posed of 30% poorly graded fine sand and 70% clay. Color brown Violent HCL reaction. Can be broken with light finger pressure. Lower 5 inches recovered was sandstone 40-40composed of 70% fine to coarse grained sand and 30% clay matrix. Color brown. Yiolent HCL reaction. Can be broken with mediumto hard hand pressure. Note 2" diameter piece of 50volcanic gravel recovered in 38 C] top of core. 300.0'-301.25' Clayey gravel. Consists of 50% fine to coarse subrounded 60-60and subangular caliche and volcanic gravel, max. size 2 1/2 inches; 20% poorly graded fine sand; and 30% medium plastic fines. Color brown. Violent HCL reaction. 70~ /0-Damp. 301.25'-301.5' Mud-stone. Consists of mostly clay sized particles. It is very competent, it is very 80-80hard to break with hand pressure. Color White to red. Violent HCL reaction. Damp. 90 90-T**b**=305 Note suite of Geophysical logs available on this hole. CORE FB=Rockbit c=Core

Exploratory Wells

CORE RECOVERY

CRASCE Las Vegas Wash STATE

NV SHEET ... 3 OF 3... HOLE NO. 19275

CORE

FB = Pockbit

EXPLANATION

Note suite of Geophysical logs available on this hole (labeled LG228)

FEATURE Exploratory Wells PROJECT Las Vegas Wash STATE Nevada SHEET A OF A HOLE NO 1872 1972 1972

CORE CORE RECOVERY PB=Percussion bit RB=Rockbit

CRISCO Las Vegas Cash Revada SHEET OF HOLE NO. 2007

Water and Powe	r					<u>uror</u>	.00.0		01 0	11122			
FEATURE.	xploratory	Well:				Р	ROJECT	P Las	Yegas '	ash I	ņit		STATE, MOVAGE
HOLE NO	LG228 LG	OCATIO	4ÇH	soa.Ro	oad.So	uth,	. <u>.</u> Ţ225	,862E GROU	Sec. 14 ND ELEV.	bbc :	2 	.183:	C'DIP (ANGLE FROM HORIZ.)
HOLE NO.	/17/80 CC	OORDS.	N/	/80		E	 nn:		- ··	ŢŌ	TAL	305.0) BEARING
1													
DEPTH AND	ELEV. OF WA D DATE MEAS	TER URED.					LOG	GED B	,b.y.	.Trude	e4u		. LOG REVIEWED BY. P Aranatetter
		T	ERY		PERCO	LATION	TESTS		₹ □	ΞF		R.	
	ON WATER ND LEVELS,	TYPE	2 × ×	DEF	TH .	T	a a	EL	ELEVA. TION (FEET)	OEPTH (FEET)	GRAPHIC	ES FO	CLASSIFICATION AND
CASING, C	EMENTING.	SIZE	CORE RECOVE	(FE	ET)		oss:	HEST	11 F	٥٥	ŽŎ,	est Est	PHYSICAL CONDITION
DRILLING	CONCITIONS	HOLE		FROM (P, Cs, or Cm)	TO	LOSS (G.P.M.)	, a	(, MIM.)			3	SAMPLE	
		1	(%)	or Cm)		(G.P.M.)	(F.3.1.)	(MIN.)			ļ	~	290.0' - 305.0' Rockbits to
		RB 3									}		Gravelly, Clayey Sand. Consists
		12'		1							1	Ш	of about 30% fine subrounded
		1 1	-							-	1		to subangular igneous gravel, max. size ½-inch; 40% fine
		1								10-	1		to coarse mostly coarse sand;
		10-								,0-	}		30% low to medium plastic fines.
		1 1									1		Color brown to gray brown. Violent HCL reaction.
			1							-	1		
		1								-	1		
		70-								70-	}	Ш	
]		l							1		
		=		1							1		
		1								:	1		
-		30-							}	30-]		
		30-								30-	1		
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	RE	s=Poci	cbit					EX	PLAN	A T 1 0 1	H		
CORE		Core	. •										
3													
CORE	Type of hole Hole sealed		<i>.</i>	D =	Diamone Packer,	d, H = Ha- Cm = Cer	ystellite, nented, (5 = Sho 2s = Bo	t, C = Chu	ing			
RECOVERY	Type of hole Hole sealed Approx. size Approx. size Outside dia. of	of hale (of care (X-serie: X-serie:	s) Ex : s) Ex :	= 1-1/2'' = 7/8'',	. Ax =	1-7/8",	Bx =	2-3/8", 1-5/8",	Nx = 3'	8"		
	Outside dia. of	of casing	(X-seri X-scrie	es). Ex = s) Ex =	= 1-13/1 = 1-1/2"	Ax =	2-1/4", 1-29/32	", Bx =	2-3/8",	Nx = 3''			

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7-1337 (6-74) Vater and Power								OF D				SHEET OF
FEATURE Exploratory	Well	s			P	ROJECT	CRES	CP Las	Vegas	. Wash	. Uni	it state W
HOLE NO. LG230	CATIO	Ва	sic Hi	gh Sch	1001 T2	25,R63	E, Se	c. 16 c nd elev:	abl	Est.	1940	it
6/14/80 EIN	ORDS.	N7/	/80	DEPTH	E I OF OVE	 RBURDE	и . Ш	Ά	TO:	TAL 4	00	ft BEARING
DECUM	TER -		1	Po1	-· -· -			, D A	Trude	an		LOG REVIEWED BYD. Branstetter
LEVEL AND DATE MEASE	JRED.S		marks				GED B			1	œ	ļ
NOTES ON WATER	TYPE	CORE ECOVERY			LATION	ш	T ==	EVA- ION EET)	DEPTH (FEET)	ŭ	ξŽ	
LOSSES AND LEVELS,	SIZE	20 X	DEF (FE	ET)		RESSUR	NGTH TEST	37.6	ᇤ	GRAPHIC LOG	STEN	CLASSIFICATION AND PHYSICAL CONDITION
CAVING, AND OTHER	HOLE	, in	FROM	то	LOSS	PRE	45	İ		85	SAMPLI	
		(%)	(P, Cs, or Cm)		(G.P.M.)	(P.S.I.)	(MIN.)	<u> </u>		<u> </u>	\vdash	
Drilling Equipment: Failing 1250	RB]					1	:	}		1	I	to 255.0 ft. Quaternary Alluvial Fan eposits: Rock bits to sands, gravels,
Drilling and Sampl-	5.9"]			Ì		_	1	c	obbles and boulders which are unconsoli
ing Procedure: 5 5/8 inch Tricone				!		· !				}		lated. Contact with underlying Muddy Cr. Fm. based on change in drill
rock bit 0 to 400.	10-					!			10-	1		haracteristics.
Reamed with 12 inch Rock bit 0'to 4 25 .	1			!				1		1	Ш	0 to 255.0 Rock bits to sands,
Wash sample every									_	1		gravels, cobbles, and boulders.
5 feet 6400'.	-								i :	}		Gravels are fine to course sub- angular and igneous. Sands are
Drill Fluid: Baroid	70-				!		!		20÷	4		mostly medium to coarse grained.
Wyo-Gel (Bentonite)										4		Color Light Gray. Little to moderat Hcl reaction. Cobbles and boulders
on 5 5/8 inch hole. Baroid Lo loss in 1				i	:	1				1		indicated by extreme drill bit
inch hole.				i		i				1		chatter. Trace of plastic fines in cuttings.
Hole Stability:	30-								30-]		cuttings.
Hole Stable.	30-				İ					1		
Water level										1		
Depth in ft. Date	e :							į		1		
Not measured.	40-	11				1	İ		40-	1		
	40					:	-			1		•
Purpose of hole: Water table observa-] :	11					İ			1		
tion hole.]								‡		
Well Location: 1/2	50-	11							50-	1		
mile south of Basic]				l .			30]		
High School.	:	11					1		İ	1	Ш	
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Deage	, .		.23 7 7				_			_		
CORE Geophysica		gs Ava	allable									
Type of hole	· · · · ·		, D =	= Diamon	id, H = H	ystellite	S = SI	ot, C = Ch	urn sine			
CORE Hole sealed	of hole	(X-seri	P= es)Ex	= 1-1/2'	, Cm = Ce '', Ax:	= 1-7/8", = 1-1/8", = 1-1/8"	. Bx . Bx	= 2-3/8", = 1-5/8".	Nx = 3" Nx = 2-1	1/8''		
Approx. size Outside dia. Inside dia. of	of casin	g (X-se	ries). Ex	= 1-13/	16", Âx	= 2-1/4" = 1-29/32	B× 2'', B×	= 2-3/8", = 1-5/8", = 2-7/8", = 2-3/8",	Nx = 3-1 $Nx = 3'$	1/2"		

facer and Power								OI DI			
FEATURE . Explorato	ry.We:	lls		h Saha	PF	ROJECT.	CRBSC	P. Las.	Vegas.	Wasb Est.	1.Unit STATE. NV
10	CATION	ı. Da	Sir. Dig	ir Scirc	771.144	- 0 * KO 2 r	'20000	n rî Ev			DIP (ANGLE FROM HORIZ.)
nscum 6/14/80 Ett	NISHED	. 7/.	/80	DEPTH	OF OVER	RBURDER	4NZ	1	. DÉF	TH. 4	000' BEARING
DEPTH AND ELEV. OF WA	TER URED					. LOG	SED BY	. D., A.,	Trudea	au	LOG REVIEWED BY. D. Branstetter
LEVEL AND DATE MEN	П		Γ		LATION T			EVA- 10N EET)	Ŧ.		CLASSIFICATION AND
NOTES ON WATER LOSSES AND LEVELS,	TYPE	CORE ECOVERY	DEP (FEE	TH T)		URE	NGTH TEST	FLEY TION (FEE	DEPTH (FEET)	GRAPHIC LOG	
CASING, CEMENTING,	SIZE	RECO	FROM		LOSS	RESSURE	P P	-		GRA	PHYSICAL CONDITION
DRILLING CONDITIONS	HOLE	(%)	(P, Cs, or Cm)	то	(G.P.M.)	(P.S.I.)	(.HIM.)				* /
Hole Completion:	100								-		255.0 to 400.0 Ft. Tertiary Muddy Cr. Fm. Rock bits to sand, gravels, and an
Set 6 5/8 inch stee	1.18 1 5.9	,									occasional cobble. Contact based on
casing 0-400 feet with bottom 10 feet	. 3								=		change from significant drill bit chatter to smoother drilling which in indicative
field slotted. Bac					,				10-	}	of a greater degree of consolidation.
filled with pea gravel. Set con-	10-									1	Description based on wash samples.
crete 0-5 ft.	=								-	1	255.0 to 400.0 Ft. Rock bits to
	3									1	sands, gravels, and cobbles (?). Gravels are mostly fine subangular
	20-								20-	1	and igneous. Sands are mostly
	"]								1	medium to coarse grained and igneous Little to significant amounts of
	=]]							-	1	plastic fines. Cobbles indicated by
	:	11]							1	occassional drill bit chatter. Color light gray to light brown.
	30-]							30-	1	Little to moderate HCL reaction.
	"	1]	
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		11]	
	40-	11							40-	1	
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	-	1								1	11
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	-						E	XPLAN	ATIC) M	
CORE	3 = 20	ckbit									
	_		n .	= Diamer	nd. H ≖ H	aystellite	. S = S	10t, C = C	hurn		
CORE Approx. siz	e of hole	(X-ser	ies)Ex	= 1-1/2	Ax	= 1-7/8"	Cs = B	= 2-3/8", = 1-5/8", = 2-7/8",	Nx = 3'	.1/8"	
RECOVERY Approx. siz Approx. siz Outside dia Inside dia.	e of core	(X-ser	ries). Ex	$= \frac{1}{1}$	16". Ax	= 1-1/8'' = $2-1/4''$ = $1-29/3$, bx , 8x 2'', 8x	= 1-5/8", = $2-7/8$ ", = $2-3/8$ ",	Nx = 3- Nx = 3'	1/2"	
Inside dia.	or cusin	y (1.5 e	c . j C X	- 1-1/ Z							2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7

: (1337-:6-74) Vator and Power								OF D				SHEET OF
HOLE NO	ORDS.	N	/ 180	DEPTH	E I OF OVE	 RBURDE	GROU N	ND ELEV.	TO	TAL PTH	105.	DIP (ANGLE FROM HORIZ.) O' BEARING. LOG REVIEWED BY. D. Branstetter
LEVEL AND DATE MEASI	JRED		11.000		LATION		GED B					LOG KEYIEWED ST.
NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	TYPE AND SIZE OF HOLE	© CORE	FROM (P, Cs, or Cm)	тн	Loss	(b.2'1')	E LENGTH	ELEVA. TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	SAMPLES FOR TESTING	CLASSIFICATION AND PHYSICAL CONDITION
Drilling Equipment BuCyrus Erie Cable Tool Drilling Sampling Procedure 12 inch percussion bit 0'-105' Wash sample every 5" (?). Drill Fluid Water Hole Stability Sluffing 0-30' Water Level not measured Drill Site Mear KDWN Towers in Henderson. Hole Completion Set 6" mild steel casing 0-98.5' with plate on bottom, and lower 10' field slotted. Backfilled with gravel and grouted 0-5'.	30-	ිස : 2 "							30			For approximately similar geologic conditions refer to the well logs at LC232, and LC232A.
CORE LOSS Type of hole Hole sealed Approx. size Approx. size Outside dia. inside dia. of	of hale (of care (of casing	X-serie (X-serie g (X-serie (X-serie	P = s)Ex s)Ex ies).Ex	Packer, = 1-1/2' = 7/8'', = 1-13/1	', Ax = 16'', Ax = ', Ax =	= 1-7/8", = 1-1/8", = 2-1/4", = 1-29/32	, S = Sh C = 3 Bc Bx Bx Bx Bx	ot, C = Ch pritom of co = 2-3/8", = 1-5/8", = 2-7/8", = 2-3/8",	orn sing Nx = 3'' Nx = 2-1 Nx = 3-1 Nx = 3''	/8" /2"	da	CHEET OF HOLE NO 1972

ater and Power									RILL H		SHEET OF
FEATURE . Exploratory	Well	ls		<u>.</u>	<u>G</u>	ROSECT	Las V	egas Wa	sh Unit		STATE. Nevada
LG 232 LOC	CATION	t KI	OWN Tow	ers T	21S,R6	BE, Se	c. 32	ede 2	Fet	166	0! DIP (ANGLE FROM HORIZ.)900
IOLE NO coc	ORDS.	N			E	. .					
BEGUN / / 02/80. FIN	ISHED.	!!:	30/80	DEPTH	OF OVE	RBURDE	n N	/A	DEPT	тн	305.0 BEARING
EPTH AND ELEY. OF WAT	ER	Sec	e Below	7		1.00	CED B	, D.A	. Trudea	au .	LOG REVIEWED BY D. Branstetter
LEVEL AND DATE MEASU	KED						OED B				
NOTES ON WATER		ERY		PERCO	LATION	TESTS	·	EET)	DEPTH (FEET)	.	S S S S S S S S S S S S S S S S S S S
LOSSES AND LEVELS,	AND	COR	DEP (FEI	TH T)		3	TEST	F.E.	F	GRAPHIC LOG	MÉ CLASSIFICATION AND
CASING, CEMENTING, CAVING, AND OTHER	SIZE	ŭ j		- · ·	LOSS	RESSUR	3.	<u> </u>		₹2	PHYSICAL CONDITION
DRILLING CONDITIONS	HOLE		FROM (P, Cs, or Cm)	TO	(G.P.M.)	_	30		'	٥	XF.
		(%)	or Cm)		(6.7)	(1.3.1.)	(#1171.)				"/
Orilling Equipment	Db 7								1	- 1	0-30.0' Quarternary Alluvial Fan and
Failing 1250	12"	1]	- 1	Valley Fill Mixtures Rockbits to sand
Drilling and Samplim	[]						1		7	- 1	and sandy gravel which are dark gray
Procedure	¹⁵]	ł				1			}		in color. Contact with underlying Muddy Creek Fm. based on change in
12 inch dragbit	10-	İ							10-		lithology. Description based on wash
7-305.0'. Wash	-					l			3	- 1	samples.
sample every 5 ft.	1								1	- 1	
Cored following \(\) Lepth with respective	٦ ٦	1							1 7		0-20' Rockbits to sand. Consists
recovery.									1	1	of about 100% poorly graded medium grain subangular volcanic
	70-		1						70-	ļ	sand. Trace of plastic fines.
45'-50' 100%	1								1	1	Color dark gray. Moderate to high
100'-105' 20%	1				1				1	I	HCL reaction.
150'-155' 100% 200'-205' 80%	7							1	7	- 1	00.001.0
250'-255' 100%	1							l	1	1	20-30' Rockbits to sandy gravel. Consists of about 80% poorly
300'-305' 100%	30-				1				30-	- 1	graded fine gravel, max. size 0.2'
	1 1		1		1	}			1 7	- 1	20% well graded volcanic sand,
Drilling Fluid	1 7		1					l	1. 1	- 1	trace of plastic fines. Color
Water, Quar Gum, and native clays	1 7		ļ					l	1 7	1	dark gray. Low to high HCL reaction
and hative clays	1								1	- 1	20 Al 205 I Want and Make Good Fo
Hole Stability	40-		l		1		ł		40-	}	30.0'-305.' Tertiary Muddy Creek Fm Rockbits and cores to gravelly clay,
Hole open with	1		1						1]	sandy clay, clayey gravel, clayey sand
minor sluffing	1 7								1 7	- 1	and gypsum which are brown to light gree
Water Level	C F		1				1]	1	to reddish brown to cream to tan brown
Depth Date	4"	100	1			1]	1	to turquoise in color. Contact based on change in lithology. Description based o
in ft.	50-		1		}		}		50-	ı	wash samples and core.
Not measured	Db 3	1	1			1]	1	wash samples and esta-
Downson of Holo	12"				1]	j	30.0'-55.0' Pockbits to gravelly
Purpose of Hole Deep Aquifer]	İ	1		İ				3	1	clay and sandy clay. Consists of
Observation Well.	1								1		about 30% poorly graded fine gravel; max. size 0.2 inch; about
	60-								60-		20% fine to coarse mostly fine
Drill Site	1 1		ļ]			ĺ	1 1		sand; 50% medium plastic
Dús east of KDWN Towers in Henderso	1 1								1 1	ı	fines. Color green to greenish
lowers in Renderson	1 1					ļ]		ŀ	white. Violent HCL reaction.
Hole Completion	1		1						1 1	ı	Note no samples 35-50 ft.
Set 6" mild steel	/0-		1						70-		45'-50' Sandy clay
casing 0-300' with	1 1		į					1	1 1		and gypsum. Sandy clay
plate on bottom. Field slotted		1				1		!	1 1		consists of a trace of
290'-300'. Backfill	ed 1	1					Ì		1	- 1	subrounded igneous gravel max. size 0.5 inch; about
with gravel 150'-	1								1		20% poorly graded fine
305' grouted 0-150.	807					1]	80-		sand; 80% medium to high
	1		1					_	1		plastic fines. Color brown
			1							I	45-46', light green
	1							l			46-48.5' and reddish brown 48.5'-50.0'. Low to high
	4		1					1		- 1	HCL reaction 45'-48.5'.
	90 -		-					1	90	1	Low reaction 48.5-50.0'.
	1		1								Gypsum occurs as small
	-		1				1			l	crystals throughout interv
	1							1	1		and makes up about 10% of core. Vein of gypsum 0.5
		1	1					1	1	- 1	inch thick, 4 inch long at
					*****	·	ΕX	PLAN	ATION		45.5'. One inch bed of
_ Db=Di	ragb:	it							<u></u>	ŧ	crystals at 48 ft.
CORE C=Cor	re										
			_								
Type of hale. CORE Hale sealed.								ot, C = Chi	urn sing		
CORE Hole sealed . Approx. size of Ourside dia. of Inside dia. of	f hole (X-serie X-serie	s) Ex = s) Ex =	= 1-1/2" = 7/8"	, Ax = Ax =	1-7/8", 1-1/8".	Bx =	2-3/8", 1-5/8",	Nx = 3" Nx = 2-1/8 Nx = 3-1/2"	••	
Ourside dia. of	casing	(X-ser	++). Ēx =	= 1-13/1	6", Ax =	2-1/4",	B× =	2-7/8'', 2-3/8'',		**	
I maide did. of d	cusing (A-36116		- 1-1/2		P 1 as					1 4 LG 23?

Water and Power								. 01 0				3AEE1,
FEATURE Explorator	ry Well	.s	IN Trans		ić : 62 2	ROJECT	CRB:	SCP Las	Vegas	Wash	Unit	STATE
HOLE NO LG232	LOCATIO	N K.D	WIN TOME	rs 🖂	ان الافارا	s sec.	GROU	ND ELEV.	Est.	.166	0	DIP (ANGLE FROM HORIZ.)90°
BEGUN	COORDS. FINISHED		 . 	DEPTH	C	RBURDE	и И	I/A	TO1	TAL PTH	305.0	BEARING.
1												
DEPTH AND ELEY. OF LEVEL AND DATE ME	SURED.		perow.			LOG	GED B	٠.٠٠٠	n. iruc	iean.		LOG REVIEWED BY
NOTES ON WATER LOSSES AND LEVELS, CASING, CEMENTING, CAVING, AND OTHER DRILLING CONDITIONS	TYPE AND SIZE OF HOLE	COR	DEP (FEE FROM (P, Cs, or Cm)	TH	LATION LOSS	RESSURE	ENGTH Y OF TEST	ELEVA- TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	SAMPLES FOR TESTING	CLASSIFICATION AND PHYSICAL CONDITION
		20	(P, Cs, or Cm)	ТО	1	\$38 (P.S.1.)	3.6		70- - - - - - - - - - - - - - - - - - -	GRA	SAMPI	clay and clayey gravel. Consists of about 50% crystallin gypsum occuring in pieces up to 0.2 inch thick. Sandy Clay is about 30% poorly gradefine sand; 70% medium plastic fines Color reddish brown to green. Little HCL reaction. No semples 85-105 ft. See core description for additional information. 100'-105' Sandy Clay, Gypsum and Clayey Gravel. Sandy clay consists of about 20% poorly graded fine sand; and 80% medium to high plastic fines. Color brown to 101.8 and light green 101.8 to 102.8 ft. No Hcl reaction. Gypsum occurs as crystal interspersed throughout Sandy Clay. Crystals are up to 3 inches. long and make up 50% of sample to 101.8' and are coarse sand sized and make up 20% of sample to 101.8' to 102.8'. Clayey gravel occurs from 102.8' to 105.0 and consists of about 70% fine subrounded igneous and gypsum gravel, max size 0.3 inch; and 30% sandy clay. Color light brown. No Hcl reaction. 150.0'-155.0' Gravel, sandy clay, and gypsum. About 50% of core composed of sandy clay. 50% of core from 150'-152.5' is gravel; gravel is poorly graded fine subangular igneous and crystalline gypsum max size 0.5 inch. Sandy clay consists of about 20% poorly graded fine subangular igneous and crystalline gypsum max size 0.5 inch. Sandy clay consists of about 20% poorly graded fine sand and 80% medium plastic fines. Color tan brown to brown. Little or no HCL reaction. Gypsum occurs as moderately well formed crystals up to 1 inch long interspersed throughout and as crystals in a bed 0.5 inch thick at 154.5'. 200.0'-205.0' Gypsiferous gravels and gypsum. Gypsiferous gravels
	Dragb	it					ΕX	PLANA	TION			occur in first 1 ft. recovered and middle section of core. Gypsiferous gravels consist of
CORE LOSS Type of hole Hole seeled Approx. size Approx. size Outside dia.			P ≂ P	acker. (~ ~ C • m	ented C	e = Rott	, C = Chu om of casi 2-3/8", N 1-5/8", N 2-7/8", N 2-3/8", N	na	3		
Outside dia.	t casing (X-series	s). Ex =	1-1/2",	, Ax = Ax =	1-29/32"	, 8x =	2-3/8",	4x = 3 - 1/2 $4x = 3''$			1 2000

HOLE NO		MODE	N.							2 . Est	. 166	0!	DIP (ANGLE FROM HORIZ). 90°
1													D. BEARING.
LEVEL AN	DELEY. OF WA	URED.		Below				GED B			eau		. LOG REVIEWED SYD: ∤Branstetter
LOSSES AN	ON WATER ND LEVELS, CEMENTING, AND OTHER	TYPE AND SIZE OF	CORE ECOVERY	DE I		LOSS	RESSURE STEEL	ENGTH TEST	ELEVA. TION (FEET)	DEPTH (FEET)	GRAPHIC LOG	PLES FOR	CLASSIFICATION AND PHYSICAL CONDITION
DRILLING	CONDITIONS	HOLE	œ (%)	FROM (P, Cs, or Cm)	70	(G.P.M.)	i a_	(.NIM.)			5	SAMPL	
		4" - C -	80										70% fine to coarse subangular igneous and gypsum gravel up to 1.5 inch in diameter; 20%
		12 1			÷					10-			sandy clay. Color brown. No fich reaction. Gypsum occurs as crystals and makes up 50% of gypsiferous gravels.
		50,111,11								20-			Sandy clay consists of about 10% poorly graded fine sand and 90% medium to high plastic fines. Color dark brown at beginning and end of core run and cream in between. No Hcl reaction. Gypsum occurs as 0.1 inch diameter Crystal inter-
		30-								30			sperced throughout and as bed 0.1 ft. thick 1.5 ft. from bottom of core
		40-								40			250.0'-255.0' Sandy clay and gypsum. Sandy clay consists of about 20% poorly graded fine sand and 80% medium to high plastic fines. Color light green to turquoise to cream colored. Gypsum occurs
	-	- 50 - 4	100							50-			as crystals up to 1.5 inch long interspersed throughout making up 30% of core. Beds of almost 100% gypsum crystals that are 0.5 ft. thick occur at 250.8' and 252.8'.
		Db- 60- 12":								60			300.0'-305.6' Sandy Clay, Clayey sand, gypsum and clayey gravel. Clayey sand consists of about 80% poorly graded fine sand, 20% low to medium plastic fines. Occurs from 300.'-301.'. Color
		\\rangle \\ \frac{1}{1}							,	70-			light green. No HCL reaction. Sandy clay and gypsum occurs from 301'-303'. Sandy clay consists of about 20% poorly graded fine sand and 80% clay
		80-								80- 1			of medium to high plasticity. Gypsum makes up to 10% of sample and occur mostly as sand size gypsum crystals inter spersed throughout. Gypsum
		90-								90-			crystals up to 1 inch long do occur. Clayey Gravel occurs from 303'-304.2'. Clayey gravel consists of about 50% fine subangular igneous and crystalline gypsum gravel; 50% sandy clay. Color light green. No Hcl reaction. Sandy clay and gypsum
Псове	Db=r	ragb	it	•		· · · · · · · · · · · · · · · · · · ·		ΕX	PLANA	TION		<u> </u>	

CORE

C=Core

BEGUN FINISHED DEPTH OF OVERBURDEN N/P. TOTAL 305.0' BEARING. DEPTH AND ELEY OF WATER LOSSES AND LEVELS. CASING, CREWTING, CAVING, AND OTHER DRILLING CONDITIONS PRICE (%) (FEET) LOSS LOSS LOSS LOSS LOSS LOSS LOSS LOS	HOLE NO CO		Ν			E		GROU	ND ELEY.	10.	PPV	305.0	BEADING
NOTES ON WATER LOSSES AND LEVELS. CASING, CEMENTING, CAVING, AND OTHER PROBLEM OF MALE	BEGUN FII	NISHED TEB		· · · · · · ·	DEPTH	OF OVE	KBUKUE	. N 15	Ε Ε	.A. Tr	udeaı	1	D. Branstetter
CAYING, AND OTHER DRILLING CONDITIONS OF HOLE (%) (%) (%) (%) (%) (%) (G.P.M.) (P.S.I.) (MIM.) OCCURS from 304.2'-305.0' Sandy clay consists of about 10% poorly graded fine sand and 90% medium plastic fines. Color light green. No HCL reaction gypsum occur as crystals up to 3 inch long interspersed in sandy clay and is 10% of total sample.	LEVEL AND DATE MEASI	บ่หียัง						GED BY					LOG REVIEWED BY
CAYING, AND OTHER DRILLING CONDITIONS OF HOLE (%) (%) (%) (%) (%) (%) (G.P.M.) (P.S.I.) (MIM.) OCCURS from 304.2'-305.0' Sandy clay consists of about 10% poorly graded fine sand and 90% medium plastic fines. Color light green. No HCL reaction gypsum occur as crystals up to 3 inch long interspersed in sandy clay and is 10% of total sample.	NOTES ON WATER	TYPE	RE VERY	DEP		LATION		Eb	EVA ION EET)	EPTI	OH.	2 S	CI ASSIEICATION AND
TD=305' TD=	CASING, CEMENTING, CAVING, AND OTHER	SIZE	RECO		ET)	LOSS	RESSU	LENG!	<u>n</u> +#	a::	GRAP	MPLE TEST	PHYSICAL CONDITION
C 100 TD=305' TD=30	DRILLING CONDITIONS			(P, Ca, or Cm)	TO	(G.P.M.)	(P.S.I.)	(MIH.)				13/	
10% poorly graded fine sand and 90% medium plastic fines. Color light green. No HCL reaction gypsum occur as crystals up to 3 inch long interspersed in sandy clay and is 10% of total sample.			10							-			occurs from 304.2'-305.0'
and 90% medium plastic fines. Color light green. No HCL reaction gypsum occur as crystals up to 3 inch long interspersed in sandy clay and is 10% of total sample.						TD=	305'-	-				+	Sandy clay consists of about 10% poorly graded fine sand
reaction gypsum occur as crystals up to 3 inch long interspersed in sandy clay and is 10% of total sample.	•									,,			and 90% medium plastic fines.
interspersed in sandy clay and is 10% of total sample.		10-								10-			reaction gypsum occur as
										-			interspersed in sandy clay
													and is 10% of total sample.
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EXPLANATION			1	<u> </u>			<u> </u>		<u></u>		1	Ш	

C=Core

CORE LOSS
Typ

TC- 232

M. Gada

EXPLANATION Note Geophysical Logs available labeled LG232

DB = Dragbit

RB = Rockbit

bit chatter; 280'-305' dark gray to greenish gray, abundant gypsum and drill bit chatter also.

greenish hue. Abundant evosum recovered, also drill

CORE LOSS CORE

RB = Rockbit

EXPLANATION

CORE CORE

Sheet 1 OF 1



			Location	of Boreh	ole:			Job I	No.:	001-063304	Borehole Designation:	BKG-1
								Clier	nt:	Timet	Surface Elevation:	
)								Site:		Henderson, Nevada	Depth to Water:	
1								Subs	ite:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/10/97
								ļ	ing Met			
								Ho spi	ollow-ste lit-spoor	em auger drill rig equippe n (SS) sampler.	ed with a California modified	i
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		8								- Not logged; core in br	ass liner	
		11	18/12	1100								
SS	0-2'	11					A / No 100 - 10	1			1	
		14	10/12	1125					SM	Gravelly fine sand with inches) light yellowish nonplastic, dry to slight	abundant silt, and some cobbrown (10 YR 6/4), moderately moist, mafics	obles (2 to 3 tely sorted,
		20						2		- Gravelly medium sand	d at 1.5 to 2.0 feet	
		15				į		_				
		20										
SS	2-4'		24/24	1110				3	SP	Madinus 4	1.00	
		20					0.00		Sr	brown (10 YR 5/4), wel	with some gravel (0.3 to 1 i l to moderately sorted, nonp	nch), yellowish plastic, dry to
		25				1				slightly moist, mafics, a	rkosics, caliche fragments	
		14					• (• 6 *•*	4		Not logged; core in bra	ss liner	
SS	4-5'		10/12	1115						<i>55</i> - ,		
		28	İ					_				
			İ					5		Total Depth of Boring =	= 5.0 feet BGS	
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Ė			Location of	of Boreho	le:			Job N	√o.:	001-063304	Borehole Designation:	BKG-2
ı								Clien	t:	Timet	Surface Elevation:	
)								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
1								Drill	ing Co.:	The Verde Companies	Drilling Date(s):	06/10/97
								Drill	ing Meth	od:		l
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bonom	10								Not logged; core in bra	ass liner	
		10										
	0.21	22	10/04	1010				1				
SS	0-2'	35	18/24	1010				1	SW-SP	(10 YR 5/3 to 5/4), mo	n sand with trace silt, brown derately sorted, nonplastic, mafics, volcanics, caliche fi	dry to slightly
		24						2			1 (0.05 :- 1)	1 (10 VD
		15							ML	6/3), well sorted, nonp	nce gravel (0.25 inch), pale plastic, dry, medium dense,	volcanics, caliche
		16								fragments		
SS	2-4'	10	24/24	1015				3	SW-SP	Gravely fine to medius	n sand with trace silt, brow	n (10 YR 5/3 to
1		16					0.0	2	5,, 51	5/4), moderately sorte	d, nonplastic, dry to slightly	y moist
<u> </u>		25						4				
1.		19	10.410	4000						Not logged; core in br	ass mer	
ISS	4-5'	27	12/12	1020								
<u></u>		- -						5		Total Depth of Boring	= 5.0 feet BGS	
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Sheet <u>1</u> OF <u>1</u>



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation: BKG-3
								Clien		Timet	Surface Elevation:
								Site:		Henderson, Nevada	Depth to Water:
								Subsi	te:		Logged by: D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s): 06/10/97
								Drilli	ng Meth	nod:	
										m auger drill rig equippe (SS) sampler.	ed with a California modified
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description
	Dottom	12								Not logged; core in bra	ass liner
		12									
											<u> </u>
		22									
SS	0-2'		18/24	0830			• ()• () • ()•	1	67.5	all d	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
		24							SM	pinkish gray (7.5 YR 6	d and trace gravels (0.25 to 0.5 inch), /2), well sorted, nonplastic, dry to slightly
								1		moist, medium dense,	some mafics, subrounded
							990		SP	Modium to conres cane	I with trace gravels (0.25 to 0.5 inch),
		26					0.00		51	brown. (7.5 YR 5/3 to	5/4), well sorted, nonplastic, dry to slightly
										moist, medium dense,	volcanics, mafics, subrounded
	<u> </u>						a 9.0	2	SM	Silty fine sand with tra	ce gravel, light brown (7.5 YR 6/3 to 6/4),
		27								well sorted, nonplastic subangular	, dry to slightly moist, medium dense, mafics
1							0.0			Subangular	
		33						•	SW	Medium sand with a tr	ace of silt and cobbles, some gravel (0.25 to
	į						9 10			3.0 inch), brown (7.5 nonplastic, slightly mo	YR 5/3 to 5/4), moderately to poorly sorted, ist to moist, medium dense, felsics, caliche
SS	2-4'		24/24	0830				3		fragments	
33	2-4	35	24724	0630							
		-									
		-						-			
		40					O D	2			
1							0.00				
<u> </u>		-					10.20	4		Not logged; core in br	ass liner
		32					_			Not logged, core in or	ass mor
SS	4-5'	22	12/12	0845			1				
l		33					-				
								_			
						1	5		Total Depth of Boring	= 5.0 feet BGS	
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Sheet <u>1</u> OF <u>1</u>



			Location	on of Boreh	ole:			Job 1	No.:	001-063304	Borehole Designation:	BKG-4
								Clier	nt:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
Ì								Subs	ite:		Logged by:	D. Venable
								Drill	ing Co.:	The Verde Companies	Drilling Date(s):	06/10/97
								Drill	ing Meth	nod:		
								Ho sp	ollow-ste lit-spoon	em auger drill rig equippe a (SS) sampler.	ed with a California modified	
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		36								Not logged; core in bra	ass liner	
		36									1	
SS	0-2'	27	18/24	0740			0.00	1	SW	Medium to coarse sand	with abundant gravel (0.5 to	0.75 inches),
		23					C 200			moist, loose to medium	3), moderately to poorly sorten dense, mafics, angular to su	ed, nonplastic, ibangular
		9					0000	2				
		10										
SS	2-4'	12	24/24	0750				3				
		15										
-							0	4		Not logged; core in bra	1:	
SS	4-5'	17	12/12	0755						Not logged, core in ora	iss inter	
	· · · · · · · · · · · · · · · · · · ·	33						5			NACCO - 1988	
										Total Depth of Boring	= 5.0 feet BGS	:
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			Location	of Boreho	le:			Job N	No.:	001-063304	Borehole Designation:	BKG-5
								Clien	t:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
								Drilli	ing Co.:	The Verde Companies	Drilling Date(s):	06/10/97
								Drilli	ing Meth	nod:		
										em auger drill rig equippe n (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	20110111	18					Ì			Not logged; core in bra	ass liner	
		30									1	
SS	0-2'	27	18/24	0645				1	SP	Fine to coarse sand wi	th a trace of silt and gravel	(0.5 to 3 inches),
		37 40								slightly moist, medium subangular to subroun	R 5/4), moderately sorted, r dense to dense, mafics, vol ded	canics,
		+					9.0	2	SM	Fine to coarse sandy s	ilt with trace of gravel, pale	brown
		18					17,7	ĺ		(10 YR 6/3), moderate medium dense to dense	ly sorted, nonplastic, dry to e, mafics, subangular to sub	orounded
		26		0=00			:					
SS	2-4'	33	24/24	0700			0.00	3	SP	Medium to coarse sand	d with gravel (0.5 to 2 inched oderately to well sorted, not	es), yellowish nplastic, slightly
		4					0.50			moist to moist, medium	n to dense sand	
 		20						4		Not logged; core in br	ass liner	
ss	4-5'	38	12/12	0710								
		150					-	5		Total Depth of Boring	= 5.0 feet BGS	
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Client: Time Surface Elevation: Site: Henderson, Nevada Depth to Water:				Location	of Boreho	ole:		<u> </u>	Job N	No.:	001-063304	Borehole Designation:	BKG-6
Site: Henderson, Nevada Depth to Water: Subsite: Logged by: D. Venable Drilling Co.: The Verde Companies Drilling Date(s): 06/09/97 Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler. Soil Description Fig. 8				~ cution									
Substite: Logged by: D. Venable Drilling Co.: The Verde Companies Drilling Date(s): 06/09/97 Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler. Soil Description Soil Description Soil Description Fig. 1 Soil Description Fig. 2 Soil Description Not logged; core in brass liner - Not logged; core in brass liner - Not logged; core in brass liner SS 2-4' 14 24/24 1125 SSP Medium to coarse sand with trace gravel (0.25 to 1 inch), pale light yellowish brown (10 YR 6/3), well sorted, nonplastic, dry, medium dense SSP Medium to coarse sand with trace gravel (0.25 to 2 inch), dark yellowish brown (10 YR 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner - Not logged; core in brass liner - Not logged; core in brass liner - Not logged; core in brass liner - Not logged; core in brass liner													
Drilling Co.: The Verde Companies Drilling Date(s): 06/09/97 Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler. Soil Description Top to Bell 19 15/24 1115 SS 0-2' 14 24/24 1125 SS 2-4' 15 19 24/24 1125 SS 4-5' SS 4-5' SS 4-5' SS 14/12 1135 Drilling Co.: The Verde Companies Drilling Date(s): 06/09/97 Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler. Soil Description - Not logged; core in brass liner - Not logged; core in brass liner SP Medium to coarse sand with trace gravel (0.25 to 1 inch), pale light yellowish brown (10 YR 6/3 to 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner - Not logged; core in brass liner - Not logged; core in brass liner - Not logged; core in brass liner	ı									te:		 	D. Venable
Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler. Sample Depth Top to Bellow E											The Verde Companies		
Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler. Sample Depth Top to Bottom													
SS 0-2' 19 15/24 1115 1									Но	ollow-ste	m auger drill rig equippe	ed with a California modifie	d
SS 0-2' 19 15/24 1115 1	Sampler Type	Sample Depth Top to	Blows Fin. Samp.	Recovered Driven	Time	Info.	Analysis	Lithology	Depth	Soil		Soil Description	
SS 0-2' 19 15/24 1115 1 ML Medium to coarse sandy silt with trace gravel (0.25 to 1 inch), pale light yellowish brown (10 YR 6/3 to 6/4), well sorted, nonplastic, dry, medium dense SS 2-4' 14 24/24 1125 15 19 SP Medium to coarse sand with trace gravel (0.25 to 2 inch), dark yellowish brown (10 YR 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner		Bottom									- Not logged; core in b	rass liner	
SS 0-2'			14										
SS 2-4' SS 4-5' 14 21 ML Medium to coarse sandy silt with trace gravel (0.25 to 1 inch), pare light yellowish brown (10 YR 6/3 to 6/4), well sorted, nonplastic, dry, medium dense SP Medium to coarse sand with trace gravel (0.25 to 2 inch), dark yellowish brown (10 YR 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner			19									1	
dry, medium dense 21	SS	0-2'	21	15/24	1115			411	1	ML	Medium to coarse san	dy silt with trace gravel (0.2	5 to 1 inch), pale
SS 2-4' 14 24/24 1125 19 SP Medium to coarse sand with trace gravel (0.25 to 2 inch), dark yellowish brown (10 YR 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner - Not logged; core in brass liner			21					(15) (15)	2		light yellowish brown dry, medium dense	(10 YR 6/3 to 6/4), well sor	ted, nonplastic,
SS 2-4' 125 24/24 1125 3 SP Medium to coarse sand with trace gravel (0.25 to 2 inch), dark yellowish brown (10 YR 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner			21							1			
SS 2-4' 1125 24/24 1125 SP Medium to coarse sand with trace gravel (0.25 to 2 inch), dark yellowish brown (10 YR 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner - Not logged; core in brass liner			14										
SS 2-4' 24/24 1125 3 yellowish brown (10 YR 6/4), well sorted, nonplastic, slightly moist to moist, medium dense, felsic - Not logged; core in brass liner - Not logged; core in brass liner	ĺ		-					Tal.		SP	Medium to coarse san	d with trace gravel (0.25 to	2 inch), dark
15 19 23 SS 4-5' 54 14/12 1135 4 - Not logged; core in brass liner	22	2.41	14	24/24	1125			0,00			vellowish brown (10 Y	R 6/4), well sorted, nonplas	stic, slightly moist
SS 4-5' 23 14/12 1135 4 -Not logged; core in brass liner	33	2-4	15	24/24	1123			0 5 0			to moist, medium dens	e, leisic	
SS 4-5' 23 14/12 1135 4 -Not logged; core in brass liner			<u> </u>										
SS 4-5' 23 14/12 1135 - Not logged; core in brass liner			19					ડ્રેટું.	4				
54			23				4 Not logged; core in brass line			brass liner			
	SS	4-5'		14/12	1135			_					
Total Depth of Boring = 5.0 feet BGS			54						5				
											Total Depth of Boring	= 5.0 feet BGS	
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BOREHOLE LOG Sheet 1 OF 1



			Location of	of Boreho	le:			Job N	√o.:	001-063304	Borehole Designation:	BKG-7
								Clien	t:	Timet	Surface Elevation:	
•								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/09/97
								Drilli	ng Meth	od:		
										m auger drill rig equippo (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		8								- Not logged; core in b	orass liner	:
		11									}	
SS	0-2'	14	18/24	1030			0.30	1	SW-SP	Medium to coarse san	d with trace gravels (0.5 inc	ch), yellow -brown
		21	, p. p. p. p. p. p. p. p. p. p. p. p. p.							medium dense, felsics	oderately sorted, nonplastic with some mafics	, dry, loose to
								2	GM	- Some silt at 2 to 3 fe	et	
		14										
ļ		35										
SS	2-4'	37	24/24	1037			0 6 0	3	GP		d with some gravel and few	cobbles
1	ļ	37					0.00			(2 to 3 inches), slightly	y moist	
l		37					000	4				
,		35						4		- Not logged; core in l	orass liner	
SS	4-5'		12/12	1045								
		45					-	5			5.0.C . DCC	
Į										Total Depth of Boring	= 5.0 feet BGS	-
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			Location		le:			Job N	Jo.:	001-063304	Borehole Designation:	BKG-8
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2010110				Clien		Timet	Surface Elevation:	
								Site:	······	Henderson, Nevada	Depth to Water:	
_									tol	Henderson, Nevada	Logged by:	D. Venable
								Subsi		The Verde Comments	Drilling Date(s):	06/09/97
									ng Co.:	The Verde Companies	Diffilling Date(s).	00/03/31
								Ho	llow-ste		ed with a California modific	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		16								- Not logged, core in	brass liner	
		18									î	
SS	0-2'	$\vdash$	18/24	0930			0.200	1	SP	Fine to coarse sand wi	ith a few cobbles (1 to 2 inc	ches), yellowish
		24								brown (10 YR 5/6), m	noderately sorted, nonplastic angular, basaltic	c, dry, medium
		27					0.00			uciisc, subaligulai lo a	ingular, oasame	
		10				-	0000	2				
		19						•		- Slightly moist, pebbl	les, basaltics, felsics at 2.5	feet
		30					0,00					
SS	2-4'	33	24/24	0945				3				
		دد					0.50					
Į į		35										
		50						4		- Not logged, core in	brass liner	
SS	4-5'		12/12	0950			_					
1		70						-				
								5		Total Depth of Boring	s = 5.0 feet BGS	
1		-	1									
										4		
1	-							6				
			1				+					
1								7				
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]			_			-	_	8				
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			1				-					
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			1	} !			-					
								10				
			-				-	11				
!							i i		ļ			
			1									
1			-				-	12				
1				1								



			Location (	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	S-17-1
			Location (	, Boi ello				Clien		Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
1										The Verde Companies	Drilling Date(s):	06/12/97
									ng Meth			
										m auger drill rig equippe (SS) sampler.	ed with a California modified	d
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	27							SM	Silty fine sand with son 5/3), poorly sorted, no	ne gravel (0.25 to 0.75 inch)	), brown (7.5 YR to dense, mafics,
		30								volcanics, angular to s	nplastic, dry, medium dense ubrounded	
SS	0-2'	33	24/24	0945				1			î	
		36					000		SW	Fine to coarse sand wi brown (7.5 YR 5/3), m	th gravel (0.5 to 0.75 inch), oderately to poorly sorted, s subangular to subrounded	brown to strong slightly moist,
		17						2		medium to very dense,	subangular to subrounded	
SS	2.45	38	22/24	0955								
33	2-4'	62	23/24	0955			0 0	3				
		167					0.00	4				
. SS	4-5'	60	12/12	1000				1		- Not logged; core in	brass liner	
33	4-3	50	12/12	1000				5				
										Total Depth of Boring	= 5.0 feet BGS	
					9 5							
							-				e e	
1		-										
.) 1							+					
							-					



Location of Borehole:									√o.:	001-063304	Borehole Designation:	S-17-2
								Clien		Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te·		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/12/97
									ng Meth		Diming Date(s).	00/12/9/
								Но	llow-ste		ed with a California modifi	ed
g g	Sample Depth	ows Samp.	ered /en		PID	yais	logy		USCS			
Z ed	Top to Bottom	Blows 6-in. Sam	Recovered Driven	Time	Info. (ppm)	Analysis	Lithology	Depth	Туре	Fill the English day	Soil Description	12 inch\ hacum
		28							SM	(7.5  YR  5/3), poorly so	n abundant gravel (0.2 to 0 rted, nonplastic, dry, med s, angular to subrounded	ium dense to
SS	0-2'	45 34	22/24	0730				1			à	
		47						2	SW	brown (7.5 YR 5/4 to 5	th gravel (0.2 to 0.75 inch) /6), moderately sorted, no dense, mafics, subangular	nplastic, slightly
		19								moist, moduli to very	conso, numes, savangular	to sucrounded
ss	2-4'	38	24/24	0740				3				
		90						4				
		30								- Not logged; core in b	orass liner	
ss	4-6'	45	24/24	0747				5	SP	Fine sand with some gr (7.5 YR 5/4 to 5/6), we	ravel (0.2 to 1 inch), brown	n to strong brow
		53						6		dense to very dense, pl	utonic, mafic, subangular	to subrounded
		30										
SS	6-8'	31	24/24	0805				7				
		43						8		Total Depth of Boring	- 8 0 faat RCS	
										Total Depui of Bolling	— 3.0 ICCI 1103	
								9				
						-	10					
							_					
				:			The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	11				
								12				



			Location of	of Boreho	le:	-		Job N	lo.:	001-063304	Borehole Designation:	S-17-3	
							i	Client	t:	Timet	Surface Elevation:		
l								Site:		Henderson, Nevada	Depth to Water:		
								Subsi	te:		Logged by:	D. Venable	
										The Verde Companies	Drilling Date(s):	06/12/97	
									ng Meth				
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	d	
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description		
	Dottom	14							SM	Silty fine sand with abu YR 5/3), poorly sorted,	indant gravel (0.25 to 0.75 nonplastic, dry, medium de ular to subrounded	inch), brown (7.5 ense to dense,	
		20								manes, voicames, angular to subrounded			
SS	0-2'	20	22/24	0857				1			,		
		30					0.00 0.00 0.00 0.00		SW	Fine to medium sand winch), brown to strong	ith abundant coarse gravel brown (7.5 YR 5/4 to 5/6), to very dense, subangular to	(0.2 to 0.75 poorly sorted,	
		18						2		slightly moist, medium	to very dense, subangular to	o subrounded	
		32											
SS	2-4'	50	24/24	0910				3					
		104					0.00						
•		28				0.00	4		- Not logged; core in b	orass liner			
SS	4-5'	34	10/12	0920									
								5		Total Depth of Boring	= 5.0 feet BGS		
								6					
								7					
			,										
								8					
								9					
			+										
					†			10					
1			1					11					
ĺ			-										
								12					

Sheet 1 OF 3



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	UST-01
								Clien		Timet	Surface Elevation:	
•								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	te:		Logged by:	D. Venable
ĺ								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/19/97
l								Drilli	ng Meth	od:		
								Ho	llow-ster	n auger drill rig equippe	d with a California modified	1
								spli	it-spoon m the ve	(SS) sampler. Boring di	rilled at an angle of 34 degree	:S
	Commis	i	ה					1 1		THOUSE.		
ဗ္ဂ ဇ္	Sample Depth	ws Samp	ecovere. Driven	T:	PID	ysis	log	Depth	USCS Soil		Soil Description	
Sampler Type	Top to	Blows 6-in. Samp.	Recovered Driven	Time	Info. (ppm)	Analysis	Lithology	рерш	Type		3011 Description	
	Bottom	اف	IX.		(11 )			!	-	- Not logged; drilled th	rough from 0 to 10.5 feet	
											1	
								1				
											•	
								2				
İ												
1												
								3				
	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s						1					
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	0-10'	1										
1							Ţ					
		-						6				
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ı												
							1	8				
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1												
							1	9				
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ļ		-					• C• = v	5	OTT.	Croupling (0.2 += 1.2 == 1	h) fine to coorse and brown	(10 VP 5/2)
		16					0 0 0	3	SW	moderately to poorly s	h) fine to coarse sand, brown sorted, nonplastic, slightly mo e, mafics, caliche, subangula	oist to moist,
		16						11		medium dense to dens	e, mafics, caliche, subangula	r to angular
SS	10- 12.5'			1353			000					
		27					0.30	12				
		38			0			. 12				



	MI				of Boreho	ole:		<del></del> -	Job N	70 ·	001-063304	Borehole Designation:	UST-01
			Loca	tion	or borene	10.			Clien		Timet	Surface Elevation:	
									Site:		Henderson, Nevada	Depth to Water:	
									Subsi	ta.	Tichderson, Tevada	Logged by:	D. Venable
											The Mende Commonics	Drilling Date(s):	06/19/97
											The Verde Companies	Drining Date(s).	00/15/57
									Ho spli	ing Meth llow-ster it-spoon m the ve	m auger drill rig equippe (SS) sampler. Boring dr	d with a California modified illed at an angle of 34 degr	d rees
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered	Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		16				0			, ,				
SS	12.5-	22			1403			- No. 0	13		- Not logged; drilled th lab for analysis	rough from 13 to 14 feet, s	ample submitted to
ىق	14.5'	45			1405						!		
		47				0			14	sw	Gravelly (0.2 to 1 inch poorly sorted, nonplast	) fine to coarse sand, brown tic, slightly moist to moist, subangular to subrounded	n (10 YR 5/3), medium dense to
												rough from 14.5 to 25 feet	
	ļ		1						15		1100 106622, 211112	11046	
		<u></u>	1	ļ				_					
									1,6		ļ		1
	ĺ							7	16				
<b>!</b>			_					4					
1								_	17				
									*				
			-					1					
								4	18				
		-	1		5								
		-	-					-	19				
	14.5-25												
			-					-	20				
							-	_					
			1					7	21				
		-	-					-					
l									22				
			1						22				
		-	4					_					
									23				
									23				
.1			-					1					
1			_					_	24				
1			_										



			Loca	ation (	of Boreho	le:			Job N	o.:	001-063304	Borehole Designation:	UST-01
								Ì	Client	:	Timet	Surface Elevation:	
•									Site:		Henderson, Nevada	Depth to Water:	
1									Subsi	te:		Logged by:	D. Venable
									Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/19/97
										ng Meth			
									spli	t-spoon	(SS) sampler. Boring di	d with a California modified with a California modified at an angle of 34 deg	ed rees
<u> </u>									tro	n the ve	rtical.		
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered	Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Doutom	92			_				25		- Sloughing in boring,	drilled through to 27 feet	
		-											
	25 271	74			1515				26			<b>1</b>	
SS	25-27'	96			1313				20				
		174				41.5							
ļ		22				1.8			27	·	- Not logged; drilled the	arough from 27 to 28 feet,	sample submitted to
		46						5			•		
SS	27-29					:		0.500	28	SW	Gravelly (0.2 to 1 inch	i) fine to coarse sand, brov	vn (10 YR 5/2),
		87						0.00			moderately to poorly so	orted, nonplastic, slightly is subangular to subrounded	noist to moist, very l
		107						0 0 0			201100, 1121103, 22110110,	, <b>3_3,</b>	
) —			1						29		Total depth of Boring	= 29 feet BGS	
1			1										
									30				
	i								30				
1		-											
			-					1	31				
			1										
			1						32				
ı													
								1	33				
1		-	-					-					
									34				
1									34				
1		-	1					-				18	•
1			-					-	35				
1													!
			1					i.					
ļ		-						-	36				
1								4					
									37				

Sheet 1 OF 2



		 I	ocation of	f Borehol	e:		i	Job N	o.:	001-063304	Borehole Designation: UST-0	2
							ļ	Client		Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsit	e:		Logged by: D. Venab	le
										The Verde Companies	Drilling Date(s): 06/19/9	)7
								Drilli Ho spl	ng Meth	od: m auger drill rig equipp (SS) sampler. Boring d	ed with a California modified rilled at an angle of 34 degrees	
Sampler Type	Sample Depth Top to	Blows 6-in. Samp.	Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
!	Bottom	ارف	L							- Not logged; drilled th	rough from 0 to 9.5 feet	
								1			i	
								2				
								3				
1	0-9.5							4				
	0-9.5							5				
								6				
								7				
							-	8				
							- O- ÷ V	9	FILL	Gravally (0.2 to 0.9	inch) fine to coarse cand with ahundant	silt
SS	9.5-	150	24/24	0925				10	LILL	brown (10 YR 5/3), p mafics, asphalt, wood mineralization, plastic	inch), fine to coarse sand with abundant borly sorted, nonplastic, dry, very dense, fragments, caliche, secondary quartzitic c and metal, arkosics, rootlets	J1419
	11.3	250 380			1.1			11			10.56	
SS	3 11.5- 13.5'	16 25						12		Not logged; drilled the to lab for analysis	rough from 11.5 to 12.5 feet; sample sub-	nitte

Sheet <u>2</u> OF <u>2</u>



			Location o	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	UST-02
								Client	t:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi			Logged by:	D. Venable
							ļ			The Verde Companies	Drilling Date(s):	06/19/97
								Ho spl		em auger drill rig equippen (SS) sampler. Boring d	ed with a California modifie rilled at an angle of 34 degr	
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
SS	12.5- 13.5'	36 97	18/24	0945	0.1			13	SP	(10 YR 5/3), moderatel	with some gravel (0.2 to 0.5 y sorted, nonplastic, moist, caliche, subangular to sub	dense to very
					Ċ	•		14		- Not logged; drilled th to lab for analysis	rough from 13.5 to 21 feet;	sample submitted
								15				
				·				16				
e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l								17				
	13.5-21'											
								18				
								19				
								20				
							·/···	21				
		27					0 6 0		SW	cobble (2 inches), velle	with some gravel (0.2 to 0.7) owish brown (10 YR 5/4), m	oderately sorted.
		38				K				nonplastic, moist, dens to subrounded	se to very dense, mafics, cal	iche, subangular
SS	21-23'		24/24	1043			000	22				
		44			0.6			1				
<b>.</b>		196			0.3			23		- Not logged; drilled the submitted to lab for an	nrough from 22.5 to 23.5 fee alysis	et; sample
		67			P. A. Law .			23				:
SS	23-24'	89	12/12	1100				24	SW	- Fine to coarse sand brown (10 YR 5/4), movery dense, mafics, su	with some gravel (0.2 to 1 in oderately sorted, nonplastic brounded	nch), yellowish , moist, dense to
										Total Depth of Boring	= 24 feet BGS	



			Location	of Boreho	le:			Job N	Ю.:	001-063304	Borehole Designation:	UST-FL01
								Clien	t:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	te:		Logged by:	D. Venable
ŀ								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/18/97
								Drilli	ng Meth	nod:		
					-			Ho spi	llow-ste it-spoon	m auger drill rig equippe (SS) sampler:	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	36							SM	Silty fine sand with abu	indant gravel (0.1 to 0.5 in ted, nonplastic, dry to slight	ch), brown
		45								mafics, caliche, arkosi	cs, subangular to surounder	d
SS	0-2	25	24/24	1525			000	1				
		24							SW	Fine to medium sand w	with trace silt and abundant	gravel, brown (10
								2		very dense, mafics, cal	nonplastic, dry to slightly iche, arkosics, subangular	to subrounded
		38					0.50					
SS	2-4'	200	24/24	1540				3	SM	Silty fine sand with abi	andant gravel (0.1 to 0.5 in	ch), and a cobble
		250						2		(2.5 inch), brown (10	YR 5/3), moderately to poor liche, arkosics, subrounded	rly sorted, moist,
 		90						4		171	a bassa linan	
ss	4-5'	9	12/12	1545						- Not logged; sample i	n orass mei	
		12						5				
	A TANKA MANAGAMINA									Total Depth of Boring	= 5.0 feet BGS	<u> </u>
								6				:
İ								7				:
		-					_	8				
							_					
			-					9				
								10				
								11				
								11				
			į					10				
			1					12				



			Location	of Boreho	le:			Job l	No.:	001-063304	Borehole Designation:	UST-03
								Clier	nt:	Timet	Surface Elevation:	
)								Site:		Henderson, Nevada	Depth to Water:	
								Subs	ite:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/20/97
									ing Meth			
								Ho sp	ollow-ste lit-spoon	m auger drill rig equippe (SS) sampler.	ed with a California modified	]
Sampler Type	Sample Depth	Blows 6-in. Samp.	Recovered Driven	Time	PID Info.	Analysis	Lithology	Depth	USCS Soil		Soil Description	
<del>В</del> ⊢	Top to Bottom	Fin B	χg   □		(ppm)	Ą	Ë	•	Туре		<b>-</b>	
		11			1.3	ļ.			SC	Fine to coarse sandy si dry, loose, medium den	lt with some gravel (0.1 to 1 use, mafics, subangular to su	inch), sorted, ibrounded
SS	0-2'	14	23/24	0635	1.1			1	SC	(7.5  YR  5/3), poorly so	d with abundant gravel (0.2 rted, nonplastic, slightly mo	ist, loose to
	0.2	10	23724	0033	1.1			1		medium dense, matics, chips,	caliche, angular to subroun	ded, asphalt
		9			1.1			2				
		6			1.1							
SS	2-4'	7	23/24	0640	0.8			3				
		10			0.8							
		11			0.6			4				
		135			0.6					- roots to 4.5 feet	and cobbles (0.3 to 2.5 inche	es) with quartz
SS	4-6'	65	22/24	0653	0.6			5		biotite, muscovite at 4.	5 to 5 feet	o), with quartz,
		40 69			0.3							
		47			0.3			6				
		40			1.1	•	T Lde			- Not logged; drilled th	rough from 6.5 to 7.5 feet, s	sample submitted
SS	6-8'	44	24/24	0703				7		to lab for analysis		
		94	1		0.8		0.50		SP	Fine to medium sand w	ith some to abundant gravel d, nonplastic, moist, dense t	, yellowish brown
		30			0.8			8		(10 III ), well softe	a, nomprassio, motor, ucine t	o very dense
	8.401	90		0515	0.3							
SS	8-10'	90	24/24	0715			<u> </u>	9		- Not logged; drilled th lab for analysis	rough from 9 to 10 feet, san	nple submitted to
		85						10		·		
		36			0.1			10				
SS	10-12'	47	23/24	0723	0.1			11				
)	SS 10-12	50	#31 <b>2</b> 7	UILJ				11		- Not logged; drilled th lab for analysis	rough from 11 to 12 feet, sa	mple submitted to
		50					A. D. S	12				
SS	12-12.5	40			0.1							



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	UST-03
								Clien	t:	Timet	Surface Elevation:	
\ 								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/20/97
								Drilli	ng Meth	nod:		
										m auger drill rig equippe (SS) sampler.	ed with a California modified	1
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	60			0							
ss	12.5-14'	80	24/24	0735	0		0.00	13				
		90			0						A	
							0.00	14		Total Depth of Boring	= 14 feet BGS	
								15				
							1					
							1	16				
								17				
								17				
								18				
								19				
							-					
								20				
								21				
			-									
			1				-	22				
-							_					
								23	A CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR			
1								24				
1								24				



			Location o	f Boreho	le:			Job N	Ю.:	001-063304	Borehole Designation:	UST-04
								Clien	t:	Timet	Surface Elevation:	
,								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/13/97
								Drilli	ng Meth	nod:		
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		20							FILL	brown (7.5 YR 5/3), po	nd with abundant gravel (0 porly sorted, nonplastic, dr	y, medium dense,
			E. Chabour							angular to subrounded	, asphalt chips, rootlets, ca	liche
SS	0-2'	30	23/24	1230				1			i	
	02	30	2372	2								]
		27										
<b>I</b>		27						2				
		7					0.20					
1		11						•				
SS	2-4'		23/24	1240				3				
ł		7					970					
		14						•				
		66	ĺ				0.50	4				
1		66					390		!			
l		107		40.70				_	1			
SS	4-6'	76	22/24	1250	İ		9.1	5	-			
		96					0.17	6			•	
		19					0.0					
		-					- No da N			- Not logged, core in	brass liner	
ss	6-8'	56	23/24	1300	P. C. C. C. C. C. C. C. C. C. C. C. C. C.		-	7		-Black unidentifiable	(asphalt) chips (0.5 to 1 in	ch) at 7.3 to 7.6
		46										
1	Š	69	1				0.00	) ).	SP	Fine to medium sand	with some gravel (0.2 to 0. ell sorted, nonplastic, mois	3 inch), yellowish
-		-	+				0.0	8		dense.	ен зопец, попризис, mois	it, defise to very
1		16					0 0 0	5.				
		66					0.00	• •				
SS	8-10'		20/24	1320		-	200	9		- Not logged, drilled t	hrough from 9 to 10 feet, s	submitted to lab for
		93					1			analysis	- ′	
	1	37	-	į			0.30	10	SP	Fine to medium sand	with some gravel (0.2 to 0.	3 inch), yellowish
1		37	-					6		brown (10 YR 5/4), w dense.	ell sorted, nonplastic, mois	st, dense to very
	10.00	63	21/24	1222			0.00	<u>.</u>				
\ S	10-12	70	21/24	1333				11			through from 11 to 12 feet,	, submitted to lab fo
1							+			analysis		
	Ì	90						12		Fine to medium sand	with some gravel (0.2 to 0	.3 inch), yellowish
S	S 12-14	47					0,00		SP	brown (10 YR 5/4), we dense.	vell sorted, nonplastic, moi	si, dense to very



Location of Borehole:		Job N	in :	001-063304	Borehole Designation:	UST-04
Location of Botenoie.		Clien		Timet	Surface Elevation:	
		Site:		Henderson, Nevada	Depth to Water:	
				Henderson, Nevada	Logged by:	D. Venable
		Subsi		The Mendo Commonica	Drilling Date(s):	06/13/97
				The Verde Companies	Diffillig Date(s).	00/13/7/
		Но	ng Meth llow-ster it-spoon		ed with a California modifie	d
Sample Depth So Top to Bottom Bottom PID Sample PID Time Info. (ppm)	Analysis Lithology	Depth	USCS Soil Type		Soil Description	
66	0,00	13				
SS 12-14' 82 24/24 1400	0.30	13			ì	
170						
	6.00	14		Total Depth of Boring	= 14 feet BGS	
		15				
		1.0				•
		16				
		17				
		1/				
		18				
		19				
		20				
		21				
		22				
		23				
		24	.			



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	UST-16
								Client	t:	Timet	Surface Elevation:	
1								Site:		Henderson, Nevada	Depth to Water:	
ı								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/12/97
								Drilli	ng Meth	od:		
								Ho spl	llow-ste it-spoon	m auger drill rig equippe (SS) sampler.	ed with a California modified	d
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	3							FILL	Fine to coarse sand, w slightly moist, rootlets,	ith some gravel, poorly sort subangular	ed, nonplastic,
		4					0.00				ī.	
SS	0-2*	4	22/24	1400			0.00	1				
		6					0.303	2	'			
		4					0 0 0	2				
		5										
ss	2-4*		20/24	1410		-		3				
İ		5					0.00					
١		9				1		4				
2		12								- Not logged; core in l	brass liner	
SS	4-5'	32	10/12	1420								
		-					-	5		Total Depth of Boring	= 5.0 feet BGS	
							-					
							j					
			!					6				
							-		i			
1			-				1.	7				
								8				
		-	-				-					
								9				
												•
			1				-	10				ļ
		-										
								11				
					1			11				
1		-	4				-					
		-	-		1		_	12				
1	1											

$\boldsymbol{\nu}$												
		I	Location o	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	UST-05
								Clien	t:	Timet	Surface Elevation:	
}								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/18/97
								Drilli	ng Meth	od:		
										m auger drill rig equippe (SS) sampler.	ed with a California modified	d
Sampler Type	Sample Depth Top to	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	9	14.							- Not logged; drilled t	hrough from 0 to 4 feet	
						-						
								1			1	
							1					
	0-4'							2				
							-	3				
ļ							0.90	4			1 (0.1 to 0.2 in	-h) vallowish
/ 4		10							SM	brown (10 YR 4/4), m	nd with gravel (0.1 to 0.3 incoderately sorted, nonplastic	slightly moist,
SS	4-5.5'	47	18/18	0900			0.00		SP	loose, mafics, arkosic	s, subangular to subrounded	i
33	7 3.3	57	10,10					5		yellowish brown (10 Y	with abundant gravel (0.1 to /R 4/4), well to moderately s	0.5 inch), dark sorted, nonplastic,
										slightly moist, dense to	hrough from 5.5 to 9 feet	
							-	6		Trot loggett, trimes s	••• • • • • • • • • • • • • • • • • •	
İ							_					
i				 	1							
1	5.5.01						1	7				
l	5.5-9'	-					_					
							1	8				
		-					-					
								. 9				
		23							sw	inch) and a faw cobbl	um sand with abundant coar les (0.3 inch), moderately to	a nooriv sorted
l		-				-	8.0	<u></u>		nonnlastic slightly m	oist to moist, medium dense	, mafics, arkosics,
SS	9-10.5	23	18/18	0903			_	10		subangular to subrou		et cample
I		16						10		- Not logged; drilled submitted to lab for	through from 9.5 to 10.5 fer analysis	or sample
_			-			-	-			- Not logged; drilled	through from 10.5 to 14 fee	et
1			1					11				
}		İ										
1	10.5-14	'					7					
1			-			-	_	12				

Sheet 2 OF 4



				Location o	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	UST-05
									Client	i:	Timet	Surface Elevation:	
Ž									Site:		Henderson, Nevada	Depth to Water:	
ı									Subsi	te:		Logged by:	D. Venable
									Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/18/97
									Drilli	ng Meth	od:		
									Ho spl	llow-ste it-spoon	m auger drill rig equippe (SS) sampler.	ed with a California modifie	d
Sampler	D To	mple epth op to	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		.5-14'							13			1	
		-	36						14	SM	Silty fine sand with tra well sorted, nonplastic subangular	ce gravel (0.2 to 1 inch), but, dry to slightly moist, dens	rown (10 YR 4/3), e, mafics,
SS	5 14	-15.5'	50 53	18/18	0917				15	SW	Fine to coarse sand wi	th trace silt and gravel, dar ly sorted, nonplastic, slight bangular to subrounded	k yellowish brown ly moist to moist,
_	+-							.o:t4:			- Not logged: drilled t	hrough from 15.5 - 19 feet	
l									16			Ü	
									10				
							-	1					
i								-	17				
	15	.5-19'											
				1									
				]			-		18				
l													
					E								
			46						19		19.0 to 19.5 feet	sand with abundant gravel (	
s	S 19	9-20.5	50	18/18	0929			J. 50		SW	dark vellowish brown	ith trace silt and gravel (0.1) (10 YR 4/4), moderately so	rted, nonplastic,
ı			65						20		slightly moist, very de	nse, mafics, subangular to	subrounded
	-		65					4.4.9	3		Not logged duitted	through from 20.5 to 24 fee	×t
								_			- Not logged; diffied	mrough nom 20.5 to 24 fee	
									21				
				-				+				,	
								1	22				
	20	0.5-24	•									e e e e e e e e e e e e e e e e e e e	
				1				7					
				-				-	23				
3	SS 2	4-25.5	. 43	18/18	0943				24	SM	dark vellowish brown	sand with abundant gravel ( ( (10 YR 4/4), well sorted, r ense, mafics, arkosics, subr	nonplastic, dry to

Sheet 3 OF 4



Г			Location of	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	UST-05
								Clien	t:	Timet	Surface Elevation:	
Ì								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/18/97
								Drilli	ng Meth	nod:		
										m auger drill rig equippe a (SS) sampler.	ed with a California modified	
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
SS	24-25.5'	65	18/18	0943				25				
<u> </u>	2.20.0		10,10				<u> </u>			- Not logged: drilled t	hrough from 25.5 to 29 feet	
								26		Not logged, di med t	inough nom 25 to 25 to 25	
								20				
l								27				
	25.5-29'											
ĺ								28				
1												
I							• O• • n•	29	SM	674 6	- dish absendant arayal (0 :	1 to 0.5 inch)
		106							21/1	dark vellowish brown (	nd with abundant gravel (0.) (10 YR 4/4), well sorted, nor	iplastic, dry to
cc	29-30.5	90	18/18	1018			0.0			slightly moist, very der subangular	ise, mafics, arkosics, subrou	inded to
33	29-30.3	90	10/10	1016			0 d	30		- Gravel at 30.0 - 30.	5 feet	'
		75										
										- Not logged; drilled t	hrough from 30.5 to 34 feet	
								31				
1								32				
ì	30.5-34'											
1		-				-		33				
-	l	-					0.50	34	SP	Fine to medium sand v	with trace silt and abundant	gravel (0.1 to 0.2
		80					10.90			inch), dark yellowish l	prown (10 YR 4/4), well sort very dense, mafics, arkosics,	ed, nonplastic,
SS	34-35.5'	95	18/18	1035				5.		subangular		22010211000000
			1				0 3 A	35		- Gravelly sand at 35	.0 to 35.5 feet	
_		163					1000	Ž			1.0.000	
								1		– Not logged; drilled	through from 35.5 to 39 fee	et.
•			1				1	36				
1	35.5-39		-									
			1					37				
1	1	i	1	1	1	1	1	1	1			



) L	INDI			LU	J			J.1.	· · ·			
_				of Boreho				Job N	0.:	001-063304	Borehole Designation:	UST-05
								Client	:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsit	e:		Logged by:	D. Venable
								<u></u>	ng Co.:	The Verde Companies		06/18/97
									ng Meth			
								Но	llow-ster		ed with a California modified	1
Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom							38				
	35.5-39'										1	
							-	39		- Not logged; core in	hrass liner	
		100								- Not logged, core in	OTASS INICI	
							1					
SS	39-41'	50	24/24	1100			· (* = 5	40		Eine to medium cond	with abundant gravel (0.1 to	0.7 inch), dark
00	39-41	53	24,24	1100			0.00	ó.	SP	yellowish brown (10 Y	with abundant gravel (0.1 to R 4/4), well sorted, nonplass anded	tic, very wet, ve
							0.20	•		dense, mafics, subrou	nded	
		120					0.00	41		m. I D. d. CD. '	41 foot BGS	
										Total Depth of Boring	-41 ICCL DU3	
			1		4		-					
								42				
		ļ					-					
								43				
		-	1				$\dashv$				,	
								44				
			_				-					
								45				
		-	1					+3				
							_					
								46				
		-	+					40				
							_					
			-				-	47				
			-					48				
								į				
4	-											
1		-						49				
1		1				1		1				

			Location	of Boreho	ole:			Job N	√o.:	001-063304	Borehole Designation: UST-6	06
								Clien	t:	Timet	Surface Elevation:	
\ \								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	te:		Logged by: D. Venab	le
								Drilli	ing Co.:	The Verde Companies	Drilling Date(s): 06/16/9	97
								Drilli	ng Meth	nod:		ı
											ed with a California modified	
								spl	it-spoon	(SS) sampler.		
_   S	Sample	فع	8		PID	ဟ	≥6		USCS			
	Depth	Blows 6-in. Samp	Recovered Driven	Time	Info.	Analysis	Lithology	Depth			Soil Description	ı
ფ⊢  I	Top to Bottom	9. E	88		(ppm)	₹	=======================================		Туре			
		15							sw	Fine to medium sand w	ith trace silt and some gravel (0.2 to 2 inc	ch),
							0,00				R 5/4), moderately sorted, nonplastic, slig	htly
SS	0-2'	35	22/24	0840				1		moist to moist, medium mafic, micaceous	dense to dense, angular to subrounded,	
00	U-Z	44	22124	UUTU				•			1	
		90					99.0					
		80						2				
		50					0.50	•				
		52										
SS	2-4'		21/24	0855			5,50	3				
		36					930	:				
		80						•				
		12						4				
		12				ļ		•				
		24										
SS	4-6'	52	24/24	0905				. 5				
									SM	Silty fine to medium sa	nd with some gravel (0.2 to 1 inch),	
		56						6		vellowish brown (10 YI	R 5/4), moderately sorted, nonplastic, dry dense to very dense, mafics, subangular t	to
		31								subrounded	dense to very dense, manes, sabangular i	.0
		95								- Cobble (8 inch), mafi	cs, subrounded at 6.5 feet	
SS	6-8'	9.1	23/24	0917			6 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7		Gravelly fine to con	sand with gravel (0.1 to 1 inch), brown (	10
		57					000		sw	YR 4/5), moderately so	rted, nonplastic, slightly moist to moist,	10
		75						•		mafics, subangular to	subrounded, medium dense to very dense	
$\vdash$								8				
		32					0 0 0	). 				
		22					0.00					
SS	8-10'	22	24/24	0925		-	0 00	9	SW	Silty fine to medium sa	nd with abundant gravel (0.2 to 1 inch),	
		22						-	.o₩	yellowish brown (10 Y)	R 5/4), moderately sorted, nonplastic, dry dense, mafics, subangular to subrounded	<b>′</b> ,
		50						) <u>.</u>		delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia delia	,,	
		50			,			10				
						-		2		Gravelly fine to mediu	m sand with abundant coarse gravel (0.1	to
SS	10-12'	52	23/24	0945			000	11	SM	0.5 inch) vellowish bro	own (10 YR 5/4), moderately sorted,	
33	10-12	63	23124	U243			0,00	11		nonplastic, slightly mo	ist, very dense, mafics, subrounded, arko	SICS
)		75						>				(2)
		75					10 60 C	12		well sorted, nonplastic	ce gravel (0.2 to 1 inch), brown (10 YR 4, dry to slightly moist, mafics, subangular	·/3), r to
SS	12-14'	26	18/24	1002					SM	subrounded, medium d	lense to very dense	



JU				LU	J			Sne	et <u>2</u> O	F 3. (-9)-			
		]	Location o	of Boreho	le:			Job N	ło.:	001-063304	Borehole Designation:	UST-06	
								Clien	t:	Timet	Surface Elevation:		
								Site:		Henderson, Nevada	Depth to Water:		
								Subsi	te:		Logged by:	D. Venable	
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/16/97	
								Drilli	ng Meth	nod:			
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	d	
Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description		
		37					, - C	•					
								13					
SS	12-14'	70	18/24	1002				-			¥ 1		
		105											
					- ALL PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE			14	! 				
		143					0,50			- Some gravel at 14.5	to 15.0 feet		
		73								bome graver at 1115			
ss	14-16'	-	23/24	1025				15		Fine to coarse sand wi	th some silt, and trace grav	rel (0.2 to 0.5	
İ		73	1						SM	inch) dark vellowish h	prown (10 YR 4/4), moderate pist to dry, very dense, mafic	ely sorted.	
i		87					<b>O B</b> q			subrounded	ist to dry, very delise, mand	.s, subangular to	
						<u> </u>	49°0	16					
Ì		56	!										
		87					Q a	•					
SS	16-18		24/24	1050			0 3 0	17					
		70					0.50	2					
		130					d 3 0	3					
j								18		- Silty fine to coarse s	and with trace gravel at 18	.0 to 18.5	
		55					0.00						
		74						ů.					
SS	18-20'	-	22/24	1110			0 0	19					
		85	-					<b>.</b>	1	 			
		187					0 0						
		-						20		- Silt at 20.0 to 20.5	feet		
		80					Щ	Ц		- Silty fine to coarse s	sand with trace gravel (0.2	to 0.5 inch), at	
		140					1 a	Ž.		20.50 to 21.0 feet			
SS	20-22'	-	23/24	1130			000	21					
		152	]					ં.					
		260					0.5	•					
		+						22		- Silty fine to coarse s 22.0 to 22.5 feet	sand with trace gravel (0.2	to 0.5 inch) at	
		75					000			22.0 to 22.3 lect			
		80					999	)-  -					
SS	22-24'		23/24	1150				23					
	İ	190						pa .					
		300		i	Ì		000	5.					
	1	-						24		- Silty fine to coarse	sand with abundant gravel	(0.2 to 0.5 inch)	
SS	24 261	80	24/24	1205				)°.		at 24 to 25.5 feet			
22	24-26'	110	1	1203									



$D \cup$	JKL			LU				Sì	neet <u>3</u> (	OF <u>5</u>		
			Location	of Boreho	ole:			Job l	No.:	001-063304	Borehole Designation:	UST-06
								Clien	nt:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subs	ite:		Logged by:	D. Venable
								Drill	ing Co.:	The Verde Companies	Drilling Date(s):	06/16/97
								Drill	ing Meth	nod:		
										m auger drill rig equippe (SS) sampler.	ed with a California modified	
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
SS	24-26'	120 260	24/24	1205			0 - 1 - 0 9 0 9 0 9 0	25	SM-ML	Sandy silt with trace co brown (10 YR 4/4), we slightly moist, subround	parse gravel (0.1 to 0.3 inch) Il sorted, nonplastic, very de ded to rounded	, dark yellowish nse, dry to
		90						26		- Caliche at 26.0 feet	î	
SS	26-28'	110 120	24/24	1220				27				
		250						28				
		590 150								- Volcanic cobble (3 in	nch), at 28.5 feet	
SS	28-30'	250	23/24	1330			00000000000000000000000000000000000000	29		- Abundant gravel (0.1	t to 0.3 inch), at 29.5 to 30.5	5 feet
		283 146						30				
SS	30-32	175 200	24/24	1355				31	SP	Fine to medium sand wyellowish brown (10 Yi slightly moist, very den	vith abundant gravel (0.1 to 0 R 4/4), well to moderately so use	).5 inch), dark rted, nonplastic
		322						32		NTo local deliberation		
							-			- Not logged; drilled ti	nrough from 32 to 34 feet	
	32-34'							33	i i			
		90						34	MIL	Fine sandy silt, dark ye nonplastic, dry, very de	ellowish brown (10 YR 4/4), ense	well sorted,
SS	34-35.5	92 250	18/18	1445				35	SP	brown (10 YR 4/4), we	n sand (0.2 to 2 inches), dar Il to moderately sorted, nonp aliche, subangular to subrou	lastic, moist,
								ļ			through from 35.5 to 36.0 fee	et
, , ,		90						36	ML		ellowish brown (10 YR 4/4),	
SS	36-38'	51	23/24	1500				37	SP	Fine to medium sand w yellowish brown (10 Y) subangular to subroun	with abundant gravel (0.1 to R 4/4), well sorted, nonplast ded	1 inch), dark ic, moist, mafic

			Location	of Boreho	ile:			Job N	No.:	001-063304	Borehole Designation:	UST-06
								Clien	t:	Timet	Surface Elevation:	
, )								Site:		Henderson, Nevada	Depth to Water:	
İ								Subsi	te:		Logged by:	D. Venable
								1	ing Co.:	The Verde Companies	Drilling Date(s):	06/16 to 17/97
								Drilli	ing Meth	od:		
										m auger drill rig equippe (SS) sampler.	ed with a California modifi	ied
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
SS	36-38'	100	23/24	1500				38		- Silt at 37.5 to 38.0 fe	eet	
	·	47	1					36			\$	
		30										
SS	38-40'		24/24	1530	1			39		- Wet at 39.0 feet		
		10					0.50	)		Saturated at 39.5 to	40.0 feet	
		12		Í								
		57		i			0.50	40	SP	Medium to coarse sand	with abundant gravel (0.	1 to 1 inch), and
							0000	•		trace cobbles (2 inch), sorted, nonplastic, wet	dark yellowish brown (10 to saturated, mafics, suba	YR 4/4), well angular to
SS	40-42'	50	23/24	0715				41		subrounded	quartzic at 40.5 to 41.5 fe	
33	40-42	28	23/24	0/13			0.00				4	
)		00				<u> </u>	000 00 0000					
1		90					0.0	42				
		60					000	•				
		55						5.				
SS	42-44'	-	21/24	0727	and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th		0,00	43				
		100										
	l I	210					0 0	44				
		500					2,00	9 44		- Not logged; drilled t	hrough from 44 to 46 feet	
		500				-	1					
SS	44 461		0.46	0747				45				
33	44-46'		0/6	0/4/								
		-										
			1				. K• 9 X	46		Classes diameter	and with two on anound	a (0, 2 to 5 inch)
		33						š.	SC	brown (7.5 YR 4/3), pl saturated, dense, mafic	rse sand with trace gravels lastic, well to moderately s cs, angular	sorted, wet to
SS	46-48'	45	21/24	0810				47	SP	Coarse sand with trace	e silt, brown (7.5 YR 4/4), dense, subrounded	
	.0.10	76		3010					ML	Sandy silt with trace cl plastic, moist, very de	lay, brown (7.5 YR 4/4), v	well sorted, slightly
		80		!						plastic, moist, very del	iisc	
<b> </b>	<u> </u>	- 50						48				
1		68	1	i 			3/6	8.	SC	Clayey fine sand with 4/4), well sorted plas	some gravels (0.5 to 1 inc tic, moist to wet, very den	sh), brown (7.5 YR se, mafics.
is Z		300								subangular to subroun	ided	
SS	48-50	-	24/24	0857			100	49		- Sandy clay, brown (very dense at 48.5 to	7.5 YR 4/4), slightly plast o 49 feet	ic, moist to wet,
1		102	-			-	1000	Š.				
1		202					12.0	3.				

	, <u>, , , , , , , , , , , , , , , , , , </u>	\		LO	_						
-			Location	of Boreho	ole:			Job 1	No.:	001-063304	Borehole Designation: UST-
								Clien	it:	Timet	Surface Elevation:
								Site:		Henderson, Nevada	Depth to Water:
								Subsi	ite:		Logged by: D. Venal
									ing Co.:	The Verde Companies	30 7
									ing Meth		Drining Date(e).
								Н	ollow-ste		ed with a California modified
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description
	Bottom	1					636	50			
		67					10 8 S				
		58									<b>;</b>
SS	50-52'	37	23/24	0905			000	51			•
		27									
		50						52	ML-CL	Clayey silt to silty clay,	brown (7.5 YR 4/4), slightly plastic, moi
		22						32		very dense, hard	
		33				<u> </u>		J			
		75						]			
SS	52-54'	200	18/24	0935				53			
		200									
		153									
) —		32		ļ				54			
1		32	:								
		72					N	1 55			
SS	54-56'	119	18/24	0957				55			
		117					1/	\			
ł		123						56			
		70						30			
ss	56-57'	-	12/12	1020			1)				
		150						57			
			]	-				] ,		Total Depth of Boring	= 57.0 feet BGS
			-				-				
								58			
1								36			
			-				-				
								59			
1			1				-				
								60			
								00			
		-					_				
								61		•	
1					!			01			
1	ļ t		-				_				
								62			
1			1					02			



U			<i>)</i> <u>L</u>		DO	<u> </u>							
			Loca	tion (	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	TP-01
									Clien	t:	Timet	Surface Elevation:	
									Site:		Henderson, Nevada	Depth to Water:	
									Subsi	te:		Logged by:	D. Venable
											The Verde Companies	Drilling Date(s):	06/20/97
										ng Meth			
									Но	llow-ste		ed with a California modifie	d
Sampler Type	Sample Depth Top to Bottom	Blows 3-in. Samp.	Recovered	Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Donom										- Not logged, hand aug sediment	ered out, loose silty, yellov	vish brown
									1				
00	0-3'												
SS	0-3												
								1	2				
										i			
	1						-	-	3		- Not logged; drilled th	rough from 3 to 4 feet, san	nple submitted to
		ļ			1504						lab for analysis		
SS	3-4'				1504								
<b>\</b>			-					-	4		Total Depth of Boring	= 4.0 feet BGS	
•								Ì			Total Depth of Boring	1.0 100: 200	
							-	-	5				
1													
ł					Ì								
1		-	-						6				
1			1					1					
1							-	4	7				
1													
i			-					1					
I									8				
1			-					-					
									9				
ì													
		-	-										
1									10				
									10				
		-	-					_					
1													
\ <b>^</b>									11				
1		-	1				<u> </u>	_					
1			1						12				
1	1	1	ļ			!	ı	1	1	1			



			Location o	of Borehol	e:			Job N	o.:	001-063304	Borehole Designation:	MW-01
								Client	:	Timet	Surface Elevation:	
1								Site:		Henderson, Nevada	Depth to Water:	
l								Subsit	e:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	08/05/97
								Drilli	ng Meth	od:		
										m auger drill rig equippe (SS) sampler.	ed with a California modified	i
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom									<ul> <li>Not logged; drilled the Consultants log well called MW-1])</li> </ul>	nrough from 0 to 37 feet (Sec construction diagram for loc	e Converse cation B-1 [now
								31			ŧ	
								-				
								32				
								33				
SS/ BL	0-37'											
l								34				
								35				
	!					i i						
l								36				
		-					-		i			
					!		. 0. 9	37				
		36							SP	(0.1 to 0.7 inch), darl	with a trace of silt and abunc yellowish brown (10 YR 4/4	4), well sorted,
SS/ BL	37-38.5	40	1	0740						nonplastic, moist, den subangular	se, mafics, arkosics, subrou	nded to
BL	J30.3		· •	5, 70			10 % Q	38		3		
		32										0.53-1-3
		12							SW	dark brown, poorly so	d with abundant gravel (0.1 orted, non plastic, wet to sat	to 0.5 inches), urated, dense,
		26	-				000	39		mafics, subrounded to	subangular	
CD.		-	-			-	0.00	•	SW	Medium to coarse sar	d with some gravel (0.1 to 0	).3 inches).
SS/ BL	38.5-41	30	18/18	0822			000	40	3 **	moderately sorted no	on plastic, moist to wet, densition, micaceous, subangular	e, quartzitic with
		32					0.00			secondary mineraliza	non, micaceous, subangular	to subtounded
l		-					5000					
<u> </u>							000	41				
		17					000	2				
SS/ BL	41-43	23	24/24	0839			0 0			- Silty medium sand a	at 41.8 to 42.5 feet	
		20					<b>₹</b> }: :	42				
1		30	1			Ì	1.1.1.1			1		

Sheet 2 OF 3



	7111		Location o		le·			Job N	[n ·	001-063304	Borehole Designation:	MW-01
			_wanon (	, Dorono.				Client		Timet	Surface Elevation:	
Ì								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	· ·	Hondorson, 1.0.	Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	08/05/97
									ng Meth		Drining Date(c).	
								Но	llow-ster		ed with a California modified	·
Sampler Type	Sample Depth Top to	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	36								- Fine to medium silty feet	sand with a trace of gravel a	at 42.5 to 43.0
		11					7.42.D	43	SP	Medium to coarse sand very dense, mafics	, well sorted, wet to saturat	ed, dense to
00/		24						•				
SS/ BL	43-45'	75 125	24/24	0852				44	SM- ML	Silty sand to sandy silt well sorted, non plastic	with a trace of clay and a tr c, moist, very dense, subrou	race of gravel, nded
		123				-	7.20	45		- Not logged; drilled the	hrough from 45 to 50 feet (V	Vater present)
								46				
								47				
			,					48				
								49				
		10						50	ML-	Sandy silt to sandy cla	y with a trace of gravel, da	rk yellowish
		75						· // //.	CL	brown, slightly plastic	, moist to wet, hard, subrou	inded
SS/ BL	50-52	60	18/24	0925			Z Z	51				
		160						S. W. 0				
		35						52	CL	brown, plastic, wet to	ce of gravel (0.1 inch), dark saturated, soft (blow counts	yellowish s may be a
SS	/ 50.50	66	24/24	0011						function of gravel), su	ibrounded	
SS. BI	52-54'	137	24/24	0944			N	53				
1-		170						54	ML	Sandy eilt with a trace	e of clay and gravel (0.1 inc	h), dark
SS BI	54-56°	43 50	-	1000						yellowish brown, plas to subanguler	stic, saturated, soft to very s	oft, subrounded



				DO								<u>/</u>	
			Location	of Boreho	le:			Job N	lo.:		001-063304	Borehole Designation:	MW-01
							ļ	Clien	t:		Timet	Surface Elevation:	
i								Site:		Heno	ierson, Nevada	Depth to Water:	
								Subsi	te:			Logged by:	D. Venable
							İ			The Ve	rde Companies	Drilling Date(s):	08/05/97
									ng Meth				
ĺ								Но	llow-ste			ed with a California modifie	d
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type			Soil Description	
		136					9.7%	55					
SS/ BL	54-56'	130						56	CL	Silty cl plastic	ay with a trace of, moist, hard	of sand, dark yellowish brow	wn, slightly
		250						30					
SS/ BL	56-58'		10/12	1030				57					
								58		_ Not	logged; drilled t	hrough from 58 to 61 feet	
·. 	58-61'						-	59					
							-	60					
								61		- Tota	I depth of boring	g = 61 feet	
											•		
					j.			62					
								63					
				4				64					
								65					
	***							66					
	Š			No. of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of				67					

Sheet <u>1</u> OF <u>3</u>



		I	ocation o	f Borehol	e:			Job N	o.:	001-063304	Borehole Designation:	MW-02
I		_					-	Client		Timet	Surface Elevation:	
)							-	Site:		Henderson, Nevada	Depth to Water:	
1							i-	Subsit	e:		Logged by:	D. Venable
							ļ	Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	08/04/97
							L		ng Meth			
								Ho	llow-ste	m auger drill rig equippe	ed with a California modifie	d
										(SS) sampler.		1
			73			- T						
و <u>ه</u>	Sample Depth	amo	Recover ed Driven		PID	Analysis	Lithology		USCS		Soil Description	
Sampler Type	Top to	6-in. Samp	Driven	Time	Info. (ppm)	Anal	itho	Depth	Soil Type		3011 Description	
"	Bottom	d)	<u> </u>		(pp)				-71-	NI-+ I d. daillod tl	nrough from 0 to 33 feet	
										- Not logged; drilled if	irough from 0 to 33 leet	į
}												1
]		_						31			<b>\</b>	
1												l
								32				
1												
1												
		120						33		- Not logged; drilled t	hrough from 33 to 35 feet	
		/1"										
SS/												
L	33-35'		6"	0810				34				
1												
i								35				
		150						33		- Not logged; drilled	hrough from 35 to 37 feet	
1		/4"										
SS/			6"	0829				26				
SS/ BL	35-37'		0	0829				36				
							-					
					1			37				
		100								- Not logged; drilled	through from 37 to 38.5 fee	t
22	05 55 5	/4"	<b>6</b> 1	00.45			1					
SS/ BL	37-38.5'		6"	0842			_	38				
1		40					0.00		SP	- Fine to medium san	d with some gravel (0.1 to 1	l inch), dark
		+∪				-	0.00	39		yellowish brown (10 plastic, wet, mafics	YR 4/4), moderately to we, arkosics, subangular to su	n sorted, non brounded
SS. BL	38.5-40	33	14/18	0859			0 0 0	-		_	.3 to 0.5 inches) at 39.5 to	
		50						•				
_		-						40		- Saturated gravel (1	to 2 inches) at 40 to 41 fee	t
		50					[0] [0]					
1		100					0.00					
SS	40-42		18/24	0922			0.30	41	SP	- Medium to coarse s	and with abundant gravel (	0.1 to 1 inch),
, "		105					0 50	<u>.</u>		micaceous, subang	non plastic, wet to saturate ular to subrounded	
1								•	SM	- Medium to coarse s	silty sand with abundant gra	vel (0.1 to 1 inch),
-		+					130	42			astic, wet, quartzitic through from 42 to 49.5 fe	et
1									1	- Not logged; drilled	un ough from 42 to 49.3 le	UL

R	N	R	$\boldsymbol{E}$	H	$\boldsymbol{O}$	I.	$\boldsymbol{E}$	L	0	G
I)	<b>'</b>	IL.	Ľ.	Ll	v	L.			$\mathbf{\mathcal{I}}$	J

Sheet 2 OF 3



DC				LUC					<u> </u>			3 47: 52
		L	ocation (	of Borehol	e:			Job N	o.:	001-063304	Borehole Designation:	MW-02
							ĺ	Client	:	Timet	Surface Elevation:	
<b>).</b>								Site:		Henderson, Nevada	Depth to Water:	
i								Subsit	e:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	08/04/97
									ng Meth			
										m auger drill rig equippe (SS) sampler.	ed with a California modified	d
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recover ed Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
								43			;	
								44				
								45				!
	42-49.5							46				
							den in the second	47				
								48				
							-	49				
cc	49.5-	18 52						50		- Not logged; drilled sample	through from 49.5 to 51.5 f	eet, driller lost
SS/ BL	51.5	75		0952				51	SC	<ul> <li>Clayey fine sand, b</li> <li>(May be slough)</li> </ul>	orown (7.5 YR 4/4), well sor	ted at 51.5 feet
-							$ \Pi $		ML	- Clayey silt/silty cla	y, brown (7.5 YR 4/4), sligh	tly plastic, moist,
SS. BI	51.5- 52.5'	125	1/18	1005				52	CL	dense to hard  - Top of Muddy Cree	ek at 52 feet	
							_	53		- Not logged; drilled continues	through from 52.5 to 57.8	feet - Muddy Creel
1	52.5- 57.8'							54				

<b>BOREHOLE</b>	LOG
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Sheet 3 OF 3



					LU							A Daughala Dasignasiana	MW-02
			Loc	cation	of Boreho	le:			Job N		001-06330		141 44-02
									Client	:	Time		
									Site:		Henderson, Nevad		
									Subsit			Logged by:	D. Venable
									Drilli	ng Co.:	The Verde Companie	es Drilling Date(s):	08/04/9
									Drilli	ng Meth	od:		
									Ho spl	llow-ste it-spoon	m auger drill rig equi (SS) sampler.	pped with a California modifie	d
3	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered	Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
_	Bottom	9	1 22						55				
												:	
		-	1						56				
	52.8- 57.8'												
	57.8'				ļ			İ					
		-	-					1	57				
		_									- Total depth of bo	ring = 57.8 feet	
			1						58		- Ioai depin oi oo		
								_					
									59				
			+						60				
			4					-					
	į												
			7						61				
		-						-					
			-						62				
			_					-					
									63				
								-					
			$\dashv$						64				
			$\dashv$				-		65	i			
		_						_					
		-	$\dashv$					-	66	5			
							-	-	6	7			



	ILL).			of Boreho				Job N	[o.:		001-063304	Borehole Designation:	C-1
		j	Location (	טוום וטכו זי				Client			Timet	Surface Elevation:	
								Site:		Hend	erson, Nevada	Depth to Water:	
								Subsi	te:			Logged by:	D. Venable
										The Ve	de Companies	Drilling Date(s):	06/11/97
									ng Meth				
								Ho spl	llow-ste it-spoon	m auger i (SS) sai	drill rig equipp npler.	ed with a California modific	ed
Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type			Soil Description	
	Bottom	48								- Not	ogged; core in	brass liner	
		40					-						
	0.01	70	22/24	1125				1				1 (0 05 · 0 5 i - 1)	h h v (7 5 VI
SS	0-2'	25	23/24	1125					SP	1///	uall carted name	ant gravel (0.25 to 0.5 inch) plastic, slightly moist to moi ngular to subrounded, calid	ist, medium dei
		37					0 0 0	2					
		18						2	SM	Fine to	medium sandy R 5/3), well so	silt with trace gravel (0.1 trted, nonplastic, dry, mediu	o 0.5 inch), bro im dense to dens
							- t q (			calich	e fragments	•	
SS	2-4'	50	24/24	1130				3	SP	Medin	m to coarse san	d with trace gravels, dark	yellowish brown
ورو		90					0.0°		Sr	(7.5.3	R 4/4), moderat	tely well sorted, nonplastic,	moist, very der
		125						P ė		matic	s, subangular to	augulai	
		-					, v. a	4	-	- Not	logged; core in	brass liner	
SS	4-5'	20	9/12	1140			-				,		
J.)		67						5					
	<u> </u>							3		Total	Depth of Boring	g = 5.0 feet BGS	
		-					-						
			-				_	6					
								7					
							_						
								8					
						-	-						
								9					
										-			
			1									79	
			-				$\dashv$	10	•				
							_						
I			-					11					
1			4				_						
								12	2				
1								12					



	1111			of Boreho				Job N	o.:	001-063304	Borehole Designation: C-2
			LJCanon (	2010110	•		ŀ	Client		Timet	Surface Elevation:
								Site:		Henderson, Nevada	Depth to Water:
								Subsi	te:		Logged by: D. Venable
										The Verde Companies	Drilling Date(s): 06/09/97
									ng Meth		
								Но	llow-ste		ed with a California modified
2	Sample Depth Top to	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description
$\dashv$	Bottom	1	IL.							- Not logged; core in	brass liner
		19									
		30									
s	0-2		23/24	0220			0.24°	1	SM	Silty fine to coarse sar	nd with gravel (0.25 to 0.5), dark yellowish
		42		i i						brown (10 YR 4/4), we	ell sorted, nonplastic, slightly moist, dense agments
		52								very delise, carione ira	-0
		-						2			
		37						•			
		44					0.40				
S	2-4'		24/24	0225		-		3			
		46					(T. 16)	2			
		64									
		-					1.0.0	4		- Not logged; core in	brass liner
SS	4-5'	34	12/12	0232			-				
		40						_			
		+						5		Total Depth of Boring	g = 5.0 feet BGS
			-				_				
								_			
								6			
			-				-				
								7			
								'			
		-	-				$\dashv$				
								8			
								0			
			-			-	-				
								9			
							1				
								10			
								10			
			_				-				
							_	11			
			i.					11			
			-								
								12	2		
l			1				1				



_			Location	of Boreho	le:			Job N	٠:	001-063304	Borehole Designation:	C-3
								Clien		Timet	Surface Elevation:	
)								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/11/97
									ing Meth			
										em auger drill rig equippe n (SS) sampler.	ed with a California modifie	ed .
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottoin	20								- Not logged; core in b	orass liner	
		27									,	
SS	0-2'	30	23/24	0300			0.00	1	SP	Fine to medium sand v	with trace gravel (0.1 to 0.5 th brown (10 YR 4/4), well so very dense, mafics, subang	inch) and cobble
l		30					0000	4		(1 inch), dark yellowis slightly moist, dense to	n brown (10 YR 4/4), well so very dense, mafics, subant	gular
		32					000	2				
		21					0.50	2				
		-					000					
SS	2-4'	51	23/24	0310			0.00	3				
		61					0.00	٥				
		43			A Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Comp			4				
<u> </u>		45								- Not logged; core in	brass liner	
SS	4-5'	5.5	11/12	0320			-					
		55					-	5		T : 1 D 1 of Doming	E O Cost DCC	
1							4			Total Depth of Boring	= 5.0 leet 505	
							7					
			-			-	-	6				
							4					
							7					
		-	-				-					
			-									
			-				4					
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1				İ								



_			Location	of Borehol	le:			Job N	lo.:	001-063304	Borehole Designation:	<b>J</b> 9-1
								Clien		Timet	Surface Elevation:	
}								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/11/97
								İ	ng Meth			
										m auger drill rig equippo n (SS) sampler.	ed with a California modific	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	35								- Not logged; core in b	erass liner	
		60									<b>}</b>	
SS	0-2'	35	24/24	0750			0.00	1	SP	Fine to medium sand v	with trace gravels and cobb R 5/4 to 5/6), well sorted, n	les (0.25 to 2
		72								slightly moist, dense to	very dense, matic, plutoni	c, subangular
<u> </u>		1				-	0 de	2		at 2 to 2.5 feet	with abundant silt, trace g	
ĺ		48		İ						- Medium to coarse sa	nd with some gravel (0.1 to 1.0 feet	0.5 inch) and a
		70					0.00			iew copples at 2.5 to 4	.U leet	
SS	2-4'	25	24/24	0700			0 0 0	3				
		32						>				
}		+					.0.5	4		- Not logged; core in	brass liner	
SS	4-5'	19	24/24	0705								
		35					-	5		Total Depth of Boring	- 5 0 foot PCC	
										Total Depth of Boring	= 5.0 leet BG5	
1						Í						
								6				
			1					7				
		-										
			-				-	8				!
								9				
				1				9				
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		-						10				
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1							_	11				
1				1								
								12				
1		ļ										



	ILL.		Location	of Borehol	e:		i i	Job N	lo.:	001-063304	Borehole Designation:	J9-2
3							ļ	Client	:	Timet	Surface Elevation:	
i i								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/11/97
									ng Meth			
							·			m auger drill rig equippe a (SS) sampler.	ed with a California modific	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	i i								- Not logged; core in b	orass liner	
		43									1	
SS	0-2'		23/24	1035			0.00	1	SP	Fine sand with abunda	nt gravel (0.1 to 0.2 inch) well sorted, nonplastic, slig	and a trace of silt, htly moist, dense
		75								to very dense, mafics,	angular to subangular, cal	iche fragments
		102						2				0 6 :
		21					13.90 10.51	2	SM	(7.5 YR 5/3), well sort	nd with trace gravel (0.2 to ted, nonplastic, dry to sligh pangular, caliche	tly moist, dense,
		40					0.00		SP	Medium sand with abi	indant gravel (0.25 to 2 inc 4/4 to 4/6), well sorted, no	hes), brown to
SS	2-4'	47	24/24	1045				3	:	moist, medium dense	to dense, mafics, angular to	subangular,
		43								caliche fragments		
) —							.~•.	4		- Not logged; core in	brass liner	
ss	4-5'	30	12/12	1050			-					
1		20						5			506 BGS	
										Total Depth of Boring	g = 5.0 teet BGS	
								6				
		-					-	7	1			
1								8				
								0				
1												
			-			-	-	9				
1												
		-						10				
	1	-										
								11				
								11				
1			_				-					
			_			-	_	12	2			
		1										



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	IDN10-01
								Client		Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/11/97
									ng Meth			
								Ho spl	llow-ste it-spoon	m auger drill rig equippe ı (SS) sampler.	ed with a California modific	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	6								Not logged; core in bra	ass liner	
		-					-					
	0.21	9	22/24	0720	i		0.0	1		Fine to medium sand v	with a trace of of gravel (0.	I to 0.5 inch),
SS	0-2'	9	22124	0120			0.00		SP	hrown (10 YR 4/3), we	ell sorted, nonplastic, slight	tly moist, loose,
				!				•	SM	subangular to subroun Silty fine sand, dark g	ravish brown (10 YR 4/2),	well sorted,
<b> </b>		15			İ			<u> </u>	) AT	nonplastic, moist, loos	se, rootlets	hes) brown (10 YR
		32							ML	5/3) nonplastic, dry to	slightly moist, dense to ve	ry dense, caliche
l		34					0.50	2	SP	Fine to medium sand v	with abundant caliche grave	els, strong brown
ss	2-4'	24	23/24	0725			0.00	3		(7.5 YR 4/6), well sor	ted, nonplastic, moist, dens	se to very dense
		54					_0°00					
1		76					0.00	?				
) —		1.0	1				6 2.03	4		Not logged; core in bi	ass liner	
ss	4-5'	16	12/12	0740			-			1		
		88		İ				5			F East DCD	
			-					) 3		Total Depth of Boring	s = 5 feet BGS	
		-	-		1		-					
								6				
1								"				
			1									
			-				_	7				
1												
1			-			-	-	8				
ı												
1			-					9				
1		_				-						
								10				
1								10				
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1						!		11				
1								11				
		-				-						
1							_	12	2			
1		}		1						÷		

Sheet <u>1</u> OF <u>1</u>



			Location	of Borehol	e:			Job N	o.:	001-063304	Borehole Designation:	IDN10-02
								Client	 ::	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsit	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/10/97
								Drilli	ng Meth	od:		
										m auger drill rig equippe (SS) sampler.	ed with a California modific	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	DOROM	18								Not logged; core in bra	ass liner	
		27									1	
SS	0-2'	20	22/24	1310				1	SP	brown (10 YR 4/4), we dense, subangular to s	e gravel (0.25 to 0.5 inch) ell sorted, nonplastic, slight ubrounded	ly moist, medium
		23						2	SM	Cilty fine cand with tra	ce gravel (0.25 to 0.75 incl d. nonplastic, slightly mois	h), brown st, medium dense,
		18						•		,	YR 5/4) at 2 to 2.5 feet	
		24					0.50	3				
SS	2-4'	27	23/24	1315					SP	yellowish brown (10 Y	with some gravel, (0.25 to 1 R 4/6), well to moderately medium dense to dense, m	sorted nonplastic. I
1		30		ļ			0.00	4		caliche, subangular to	angular	
ss	4-5'	27		1320				4		Not logged; core in br	ass liner	
22	4-3	42		1320								
							3	5		Total Depth of Boring	= 5 feet BGS	
							_	6				
							-					
								7				
								8				
			-									
								9				
					- Company			10				
							-					
			-					11				
1												
								12				



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	IDN12-01
								Client		Timet	Surface Elevation:	
) j								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/10/97
								Drilli	ng Meth	nod:		
								Ho spl	llow-ste it-spoon	m auger drill rig equippe (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Doughi	52								Not logged; core in bra	ass liner	
		70									4	
SS	0-2'	82	23/24	1405			0.50	1	SW	Fine to medium sand w	rith abundant gravel and gravel	anules (to 1 inch),
		-								very dense, arkosics, n	oderately sorted, nonplastic afics, olivine and caliche	s, slightly moist,
		59					000	2				į
		11					0.00					
	ĺ	20					0000			1 6 1		
SS	2-4'		23/24	1410			0 0 0	3				
	E	31										
-		10				-		4		Not logged; core in br	ass liner	
ss	4-5'	11	10/12	1415								
	13	48	10/12	1112								
							1	5		Total Depth of Boring	= 5 feet BGS	
						<u> </u>	-		-			
							_	6				
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1							-	7				
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		-	i			-	1	8				
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l								9				
							-					
							4	10				
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		-						11				į
1			-									
1								12				
								12				



			Location	of Borehol	le:			Job N	lo.:	001-063304	Borehole Designation:	IDN16-01
								Client		Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/13/97
								Drilli	ng Meth	iod:		
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	15							FILL	Silty fine sand with abo	indant gravel, brown (7.5	YR 5/3), poorly
		13								sorted, nonpiastic, dry	, medium dense, angular	
		20	24/24	07.50							1	
SS	0-2	25	24/24	0750			0.50	1				
								•	SP	Medium to coarse sand	l with some gravel and trac	e silt, brown
		40						2		(7.5 YR 5/4), well sort angular, rootlets	ed, nonplastic, dry medium	dense to dense,
		11	i i					:		angular, rooticts		
		-					0 00		SW	Fine to medium sand v	vith abundant gravels (0.2	to 0.75 inch),
SS	2-4' 24/24 0700							3		brown (7.5 YR 5/4), m	noderately sorted, nonplasti r to subrounded, caliche	c, moist, dense to
		21					0.00	•	:	very dense, subangula	i to subrounded, earnesse	
	}	50					C.S.	2				
\ \ 		30	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s			-		4				
1		60										
		80					0.00	•				
SS	4-6'	-	24/24	0705			0.00	5				
		94	1				0,50	<b>9</b>		- Rootlets at 5.5 to 6.	0 feet	
		174					000					
		1					0,00	ં. 6				
1		-	-									
	6-8'		24/24	0020				7				
SS	0-8		24/24	0820			0.50	0				
1		-				ļ	-000	0		- Mafics at 7.5 to 8.0	feet	
			<u>)</u>				0.00	8				
										Total Depth of Boring	= 8.0 feet BGS	,
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			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	IDN16-02
								Client	t:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
ı								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	06/10/97
								Drilli	ng Meth	nod:		
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	15								Not logged; core in bra	iss liner	
		32									,	
SS	0-2'	47	22/24	1450				1	SP	Gravelly medium to co	arse sand, yellowish brown htly moist, medium dense to	(10 YR 5/4), well o dense, caliche,
		41							SM	mafics, subangular to	subrounded	1
		52						2	3141	yellowish brown (10 Y	nd with some granules to g R 6/4), moderately sorted, no dense, caliche, mafics, su	nonplastic, slightly
		27						-		moist, medium dense to subrounded	o dense, caliche, mafics, su	bangular to
		ار م										1
SS	2-4'	54	24/24	1500				3	SP	Medium sand with abu	indant gravel (0.25 to 1 inc.	h), brown (10 YR
		42							Sr	7/4), well sorted, nong caliche, subangular to	olastic, moist, medium dens	e to dense, mafics,
		48								cancile, subangular to	SubTourided	
<b>\</b>				L N				4		Not logged; core in br	ass liner	
SS	4-5'	27	9/12	1505								
33	13	32	), 1 <b>2</b>	1232								
								5	İ	Total Depth of Boring	= 5 feet BGS	
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İ								6				
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			1				1	8				
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l							-	11				
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			Location of	of Borehol	le:			Job N	lo.:	001-063304	Borehole Designation:	MD-01
								Client		Timet	Surface Elevation:	
j								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/13/97
								ì	ng Meth			
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	19								- Not logged; core in b	orass liner	
		60									3	
SS	0-2'	60	22/24	0925				1			,	
		58										
		33						2	SW	Fine to coarse sand wi	th gravel (0.2 to 0.5 inch), plastic, moist to very moist,	brown (7.5 YR dense to very
		33					0.00			dense, subangular		
SS	2-4'							3				
		58					0.00			 		
		75					0,00					
		60						4		- Not logged; core in	brass liner	
1			9/12	1035			-					
SS	4-6'	73						5				
		95	10/10	1105								
		104	10/12	1105								
								6		Total Depth of Boring	= 6.0 feet BGS	
1						-	-					
	-							7				
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							1					
1							-	8				
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								10				
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1												
1								12				



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	T3-1
								Clien	t:	Timet	Surface Elevation:	
}								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
					*					The Verde Companies	Drilling Date(s):	06/20/97
								Drilli	ng Meth	nod:		İ
										m auger drill rig equippe (SS) sampler.	ed with a California modified	d
Sampler Type	Sample Depth Top to	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	51	LL.		0.3				SM	(0.1 to 1 inch), brown	th some silt and abundant gr (10 YR 4/3), moderately sor	ted, nonplastic,
SS	0-2'	55	24/24	1140	0			1		moist, medium dense to	dense, mafics, subangular	to subrounded
٥٥	0-2	38	27/21	1140	0							
		44			0			2				
	I	14			0							
SS	2-4'	96 0							sw	Medium sand with abu	ndant gravel (0.1 to 1 inch) n (10 YR 4/3), moderately s	cobbles
		50			0					medium to very dense,  mafics horizon at 3.5	slightly moist, angular	Often, nonpiasus,
		60	ı		0			4				
SS	4-6'	80	21/24	1127	0			5	SM	(0.1 to 1 inch), brown	th some silt and abundant gr (10 YR 4/3), moderately sor che, mafics, subangular to a	ted, nonplastic,
		71			0					moist, very dense, cam	olic, manos, suvangular to a	iliguiai
		50			0			6				
								0		Total Depth of Boring	= 6.0 feet BGS	
								7				
								8				
								9				
								10				
			2 10 10 10 10 10 10 10 10 10 10 10 10 10									
<b>4</b>								11				
								12				

Sheet <u>1</u> OF <u>1</u>



			Location	of Boreho	le:	······································		Job N	No.:	001-063304	Borehole Designation:	T3-2			
1								Clien	t:	Timet	Surface Elevation:				
}								Site:		Henderson, Nevada	Depth to Water:				
1								Subsi	te:		Logged by:	D. Venable			
										The Verde Companies	Drilling Date(s):	06/20/97			
İ									ing Meth						
										m auger drill rig equippe (SS) sampler.	d with a California modified				
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description				
	Dotto!!!	36			0	Q -(			SM	inch), brown (10 YR 4/	h some silt and abundant grav 3), moderately sorted, nonplas	stic, moist.			
CC	0.21	28	22/24	1157	0	6		,		dense to very dense, ma	fics, subangular to subrounde	ed			
SS	0-2'	39	23/24	1157	0			1			,				
		80			0	6	39% 36%	2							
		40			0	•(									
SS	2-4'	65	22/24	1210	0	.(		3							
		75			0				SP	(to 1.5 inches), brown	ndant gravel (0.1 to 1 inch) and (10 YR 4/3), moderately sorted set matics, horizon, angular	id cobbles d, nonplastic,			
		65	ACCUPATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF		0			4		very dense, slightly moist, mafics, horizon, angular					
1		50			0	•			C) (						
SS	4-5.5'	124	18/18	1230	0	•(		5	SM	inch), brown (10 YR 4/2) mafics, caliche, subang	h some silt and abundant grav 3), moderately sorted, nonplas ular to subrounded	el (0.1 to 1 stic, moist,			
		60			0	.(					and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o				
								6		Total Depth of Boring	= 5.5 teet BGS				
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								10							
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			Compagnation of Community					11							
			manada Jamas Ada												
								12				: :			

Sheet <u>1</u> OF <u>1</u>



			Location	of Boreho	ole:			Job N	Vo.:	001-063304	Borehole Designation:	T3-3
Į								Clien	t:	Timet	Surface Elevation:	
1								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi			Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/20/97
									ing Meth			
										m auger drill rig equippe (SS) sampler.	ed with a California modified	
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom	15			0				SM	(0.1 to 1 inch), brown	th some silt and abundant grav (10 YR 4/3), moderately sorted	, nonplastic,
SS	0-2'	14	24/24	1304	0			1		moist, medium dense, r	nafics, subangular to subround	led
22	0-2	12	24/24	1304	0			1				
		12		i	0			2				
		20			0	[		_				
SS	2-4'	27	24/24	1314	0			3				
		60			0.3				SP	(2 to 2.5 inches), brow	ndant gravel (0.1 to 1 inch) an n (10 YR 4/3), moderately sort ightly moist, subangular to ang	ed, nonplastic,
· -		75			0			4		- mafics at 3.0 to 3.5 fe		,
		90			0		ु हुत्। के हुते।			Fine to coarse cond wi	th some silt and abundant grav	al (0, 1 to 1
SS	4-5.5'	164	18/18	1325	0			5	SM	inch), brown (10 YR 4/	(3), moderately sorted, nonplass subangular to subrounded	stic, very
		80	And the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s							Total Depth of Boring	= 5.5 feet BGS	
								6		rom: Bopin or Boring	3.5 lock 2-do	
								7				:
								8				
								9				
								10				
	Prince and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s							11				
								12				

## BOREHOLE LOG



			Location	of Boreho	ole:			Job 1	٧o.:	001-063304	Borehole Designation:	OWS-01
								Clien	nt:	Timet	Surface Elevation:	
İ								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	ite:		Logged by:	D. Venable
								Drill	ing Co.:	The Verde Companies	Drilling Date(s):	06/11/97
								Drill	ing Metl	nod:		
										m auger drill rig equippe (SS) sampler.	ed with a California modified	
Sampler Type	Sample Depth Top to	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	1	LL.							- Not logged; core in b	rass liner	
		33					-			Tiot logged, cold in	. 400 Inio.	
		37										
SS	0-2'	33	24/24	0815			0.300	1	SP	Fine to coarse sand wi	th a trace of gravel (0.25 to 0	.5 inch), dark
		$\vdash$					000			moist, dense, caliche,	R 4/6), moderately sorted, not subrounded	npiastic, slightly
		36					0 200	2		Not leaved, some in he		
		12						_		-Not logged; core in bi	rass liner	
		18							SM-	Fine sand with some gr	ravel and silt, dark yellowish	brown (10 YR
SS	2-4'		23/24	0820		:	dal.	3	SW	4/6), moderately sorted dense, mafics, caliche	l, nonplastic, slightly moist, r	nedium to very
		35										
		80										
		12					10.90	4		- Not logged; core in b	orass liner	
SS	4-5'	=	10/12	0825			_					
		24						5				
										Total Depth of Boring	= 5.0 feet BGS	
							-	6				
							-					
							4	_				
								7				
					ļ		-					
								8				
							-	9				
	 							10				
							-					
								11				
								11				
							1					1
							-	12				



			Location	of Boreho	ole:	<del>tw</del> .		Job l	No.:	001-063304	Borehole Designation:	PM-1
								Clien	ıt:	Timet	Surface Elevation:	
1								Site:		Henderson, Nevada	Depth to Water:	
.*								Subs	ite:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/12/97
									ing Meth			
										m auger drill rig equippe n (SS) sampler.	ed with a California modified	d
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		29								- Not logged, core in b	rass liner	
		70		l								
SS	0-2'	129	23/24	1305				1			<u>;</u>	
		105							SP	Fine to coarse sand wit YR 4/3 to 4/4), modera	h some gravel and trace of tely sorted, nonplastic, dry, lar to angular	silt, brown (7.5 dense to very
		29					7.490.0	2		dense, mafics, subangu  - Not logged; drilled the	lar to angular arough from 2 to 3 feet, sub-	mitted to lab for
		30					0.20	•	SP	analysis		
SS	2-4'	40	22/24	1315			0.50	3	51	well sorted, nonplastic	ith a trace of gravel, brown, moist, medium dense to de	nse, subangular
		42										
ļ		20						4				
1		23										
SS	4-5'		23/24	1325				5				
		30 58					0.0			-Not logged; core in br	rass liner	
<u> </u>		36		- Composition				6		Total Depth of Boring	THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE S	
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			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	PM-2
								Clien	t:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/12/97
								i	ng Meth			i
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	d
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		27								- Not logged; core in b	orass liner	
		30		,							,	
SS	0-2'	71	23/24	1145			0.50	1	SW	Fine to coarse sand, so	ome gravel, and trace cobbl	es, brown to
		$\vdash$								moist, medium to very	4/4 to 4/6), moderately sort dense, mafics, subangular t	ed, nonpiastic, to angular
		129					0 0	2				
		33				!	0.00					
		45					000					
SS	2-4'		23/24	1155			0 00°	3		- Not logged; core in t	vrace liner	
		47								Not logged, core in t	nass inici	
l		49										
) —		20					0.00	4	SW	Fine to coarse sand, so	ome gravel, and trace cobble 4.4 to 4.6), moderately sort	les, brown to
SS	4-5'	43	12/12	1202		-				moist, medium dense to	o dense, mafics, subangular	to angular
							1	5		Total Depth of Boring	= 5.0 feet BGS	
		-					-					
							_	6				
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				of Boreho				Job N	No.:	001-063304	Borehole Designation:	PM-3
								Clien		Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
*								Subsi	te:	1101001, 1101001	Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/12/97
								-	ng Meth		Dinning Date(s).	00/12//
								Но	llow-ste		ed with a California modified	
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Bottom	45		-			1			- Not logged; core in b	orass liner	
		47										
SS	0-2		23/24	1045			0.30	1	SP	Fine to coarse sand wit	th some gravel (0.2 to 0.5 inc	ch), brown (7.5
		32					000			YR 5/3), well sorted, n volcanics, caliche, sub-	onplastic, moist, dense to ver	ry dense,
		30					0.00	•		voicames, canene, suo	amputat to suctoution	
								2				
		21						•				
		54					0.00	•				
SS	2-4'	56	24/24	1050			* # ⁷ * *	3		Not logged; core in b	orass liner	
		99								<del></del>		
`\							0.30	4	SW	Fine to coarse sand wi	th gravel (0.25 to 0.5 inch),	some cobbles (1
SS	4-5'	46	12/12	1055						to 2 inches), strong bro nonplastic, moist, dens subangular	own (7.5 YR 4/6), moderately se, mafics, plutonics, micaced	y sorted, ous, angular to
	<u> </u>						10 °° 0•	5		Total Depth of Boring	= 5.0 feet BGS	
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								6				
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								8				
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								9				
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				And the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t				11				
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								12				



			Location	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	SF-01
								Clien	t:	Timet	Surface Elevation:	
,								Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:		Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	06/11/97
								Drilli	ng Meth	nod:		
										m auger drill rig equippe (SS) sampler.	ed with a California modifie	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		25								- Not logged; core in b	orass liner	
		33										
SS	0-2*	34	22/24	0905			0.50	1	sw	Fine to coarse sand win YR 5/4), moderately to	th some gravel (0.25 to 1 in poorly sorted, nonplastic, nts	nch), brown (7.5 slightly moist,
		42						2		mafics, caliche fragme	nts	
		29					0.500					
		26					0000					
SS	2-4'	17	24/24	0910				3				
		27					0.00					
<u> </u>		21					.0.9	4		- Not logged; core in l	brass liner	
SS	4-5'	39	10/12	0914	ļ							
ļ							-	5		Total Depth of Boring	= 5.0 feet BGS	
						-						
								6				
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		-		Address				7				
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		]	Location	of Boreho	le:			Job N	o.:	001-063304	Borehole Designation:	J2U2
							ļ	Client	:	Timet	Surface Elevation:	
							-	Site:		Henderson, Nevada	Depth to Water:	
1							Ī	Subsit	ie:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	08/06/97
									ng Meth			
								Ho spl	llow-ste it-spoon	m auger drill rig equippe (SS) sampler.	ed with a California modified	d
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recover ed Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
	Dottom									<ul> <li>Not logged; drilled the log for J2U2 dated 1.</li> </ul>	nrough from 0 to 24 feet (Sec 2/18/96 and 12/19/96	e Hydrosearch
								21				
								21				
	0-24'							22				
1								23				·
1												
) —		40						24	SM	Gravelly fine to mediu	m sand with some silt, mode	erately
1										saturated, nonplastic, mafics, subangular to	m sand with some silt, mode moist, dense to very dense, subrounded	airosics,
SS/	24-26'	89	24/24	0904				25				
BL	24-20	118	47124	0304				-2.3				
1		102				-	000					
_		123						26		Not logged: drilled t	hrough from 26 to 38 feet	
										- Not logged; diffied t	in ough nom 20 to 30 feet	
							1					
							-	27				
			-				4					
			1					28				
							-					
								29				
	26-38'							29				
							-					
			_					30				
							1					
I			-				-	31				
À				9								
								32				
1	1	1	1		1	- 1			ŀ	1		



		I	ocation o	of Boreho	le:			Job N	lo.:	001-063304	Borehole Designation:	J2U2
		_						Client		Timet	Surface Elevation:	
ļ								Site:		Henderson, Nevada	Depth to Water:	
1								Subsi	te:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	08/06/97
									ng Meth	·		
								Но	llow-ster	n auger drill rig equippe	ed with a California modifie	d
										(SS) sampler.		
g g	Sample Depth	Blows 6-in. Samp.	Recovered		PID	Analysis	Lithology	D	USCS Soil		Soil Description	
Sampler Type	Top to	B := B	Driven	Time	Info. (ppm)	Anal	ith	Depth	Type		bon bescription	
3	Bottom	എ	<u>m</u> ,		(PP7	,						
								33				
											}	1
	a la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la caración de la c										<b>1</b>	
								34				
								35				
	26-38'											
		_						36				
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J.												
1								37				
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1												
SS/ BL	38-38.5'	210	6/6	0935				38	SM	plastic, moist, very de	and with a trace of gravel, wase, mafics, subangular	
		17						•	SM	Silty fine to coarse sar	nd with a trace of gravel (1 t, medium dense to dense, a	inch), well
							0.30	39		subrounded	t, medium dense to dense, a	irkosios,
SS/	38.5-	23	21/24	0945				2.				:
BL	40.5'	27	21/24	0943			5.0	•				
		-						40				•
	ļ	40					0.00			- Saturated at 40.5 to	41 feet	·
								41				
SS	40.5- 42.5'		21/24	0958				•				
	42.3											
1								42				
-		-	+				0.5	<u>[-</u>	SP-	Gravelly silty fine san	d, brown, well sorted, non	plastic, dense to
		44						2.	SM	very dense, saturated,	arkosics, subrounded	•
		66						43				
SS	42.5- 44.5'		22/24	1012			13.5	1.	SM-	Silty sand/sandy silt.	yellowish brown, fine, well	sorted,
1		89					_ - - - -	44	ML	nonplastic, wet, medi	um dense to dense	
		105								Silty fine sand with so	ome gravel (0.1 to 2 inches)	and a trace of
SS	44.5-	88	1						SM- ML	clay, yellowish brown medium dense to dense	to brown, moderately sorte	ed, nonplastic,



			Location o	of Boreho	le:			Job N	o.:	001-063304	Borehole Designation:	J2U2
								Client	:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
1							İ	Subsit	e:		Logged by:	D. Venable
								Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	08/06/97
								Drilli	ng Meth	od:		
								Ho spl	llow-ste it-spoon	m auger drill rig equippe (SS) sampler.	ed with a California modific	ed
Sampler Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
$\vdash$	Bottom	1 1	1				\$ F 18	45		- Saturated at 45.0 to	46.0 feet	
l		120										
SS	44.5- 46.5'	170	20/24	1027							1	
	, , ,							46				
<u> </u>										- Some coarse, saturat	ted at 46.5 to 47.0 feet	
							\$ N.	47				
								47				
SS	46.5- 48.5'		24/24	1050								
İ								48		- Clayey sand with gra	avel and some silt at 48.0 to	o 48.5 feet
1								10				
1		<del> </del>					~	1		- Not logged; drilled t	hrough from 48.5 to 51.5 f	eet
1			_					49				
								[				
	48.5-							50				
1	51.5'											
				ALAMA TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TOTAL TO THE								
1			-	ĺ			-	51				
1			į.									
		70							CL	Sandy clay with some sorted, plastic, wet to	coarse sand, brown, mode	rately to well
			-					52		Sorted, plastic, wer to	<b>02.00.00</b>	
SS	51.5-53	'	6/18	1110				:				
										- Silty clay, hard at 5	3 feet	
1		+	-			-		53		· · · · · · · · · · · · · · · · · · ·	through from 53 to 55.5 fe	et
1			1				_					
1												
	52 55 5		-				1	54				
1	53-55.5	'   	_			-	1					
ı												
1								55				
-		-	-				0.00	•	SP	Gravelly fine sand (0)	.5 to 1 inch), moderately so	orted, brown.
		12	: ]				000	0.		nonplastic, saturated	, medium dense, arkosics,	mafics
SS	55.5-5	7' 17	18/18	1145			0.00	56				
1		-					TO S		CL	Silty clay, yellowish I	prown, nonplastic, moist, h	ard
<u> </u>		20	) 					57			through from 57 to 58.5 fe	
S	57-58.	5' 15	5							- Not logged; drilled	mrough nom 57 to 58.5 ft	



	ILL							Job N		001-063304	Borehole Designation:	J2U2
			Location	or boreno	10.			Client		Timet	Surface Elevation:	
										Henderson, Nevada	Depth to Water:	
								Site:		nenucisun, nevada	Logged by:	D. Venable
								Subsi		The Veris Comments	Drilling Date(s):	08/06/97
										The Verde Companies	Diffing Date(s).	00/00/7
								Но			ed with a California modifie	d
ype	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
s	57-58.5'	17 30	12/18	1153				58				
			!							- Slough		
S	58.5-60'		12/18	1208				59	GC	saturated, subrounded		
									CL		ish brown, nonplastic, mois	
								60		<ul> <li>Not logged; drilled t</li> </ul>	hrough from 60 to 63.5 feet	
								61				
	60-63'							(2)				
								62				
								63				
		43					-		СН	Clay dark vellowish	brown, non plastic, moist, h	ard
	63-64.5	76	-	1223				64	GC	Sandy clay with some	abundant coarse gravel, ye	
~		90					27.0		СН	plastic, wet to saturate Clay, yellowish brown	n, non plastic, moist, hard	
SS	64.5-65	'	_				//	65		- Not logged; drilled	through from 65 to 69 feet	
							$\dashv$	66				
S	65-69'						-	67				
			_				+					
								68				
			-									
-			-				1	69	CL	Silty clay, dark yello	wish brown to brown, moist	, stiff, hard
S	S 69-70.5	5'										

BOREHOLE LOG
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Sheet 5 OF 5



BC	IKE	HU	<b>JL</b>	Ŀ	LU	J			She	et <u>5</u> 01	F 3	<u> </u>	
					of Boreho			-	Job N	o.:	001-063304	Borehole Designation:	J2U2
		•							Client		Timet	Surface Elevation:	
									Site:		Henderson, Nevada	Depth to Water:	
									Subsit	e:		Logged by:	D. Venable
											The Verde Companies	Drilling Date(s):	08/06/97
									Drilli	ng Meth	od:	1	
									Но	llow-ster		ed with a California modifie	d
Type	Sample Depth Top to Bottom	Blows Fin. Samp.	Recovered	Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
		4							70				
22	69-70.5							1			- Total depth of boring	g = 70.5 feet BGS	
									71		zom: web or a rand	•	
									71				
		-						-					
								_	70				
		-	1						72				
			-			b.	-	-					
							1						
									73	İ			
		-	-					_					
l									74				
	i I								74				
1 '			4					-					
	i	-	7						75				
								_					
			1						76				
1						•							
1													
1			-						77				
1								_					
		-	$\dashv$						78				
								_					
1													
		-	$\dashv$				-	-	79				
								_					
1													
		-	-				-	$\dashv$	80	•			
								_					
1													
्।		-	$\dashv$						81				
1													
ł		-	-				-	-	82	2			
- [			]										



		I	ocation o	f Borehol	e:			Job N	0.:	001-063304	Borehole Designation:	J2D2-R2
								Client	:	Timet	Surface Elevation:	
1								Site:		Henderson, Nevada	Depth to Water:	
1								Subsit	e:		Logged by:	D. Venable
							1			The Verde Companies	Drilling Date(s):	08/18/97
							ĺ		ng Meth			
								Hol	low-ste	m auger drill rig equippe	ed with a California modifie	ed
								spli	t-spoon	(SS) sampler.		
	Sample	o.	8		PID	S	<b>6</b> 6		USCS			
Sampler Type	Depth	8 S	Recovered Driven	Time	Info.	Analysis	Lithology	Depth	Soil		Soil Description	
\\$\\	Top to Bottom	Blows 6-in. Samp.	8   0		(ppm)	Ā	=		Type			
										- Not logged; drilled the	hrough from 0 to 29 feet	
								21			1	
1												
								22				
l												
SS	0-26'							23				
1			  - 									
								24				
								-				
1												
l								25				
							,					
								26		- Driller hit water at	26 feet	
1								27				
								21				
SS	26-29'											
1								28				
1												
$\vdash$							0.3%	29	GC	Gravelly (0.1 to 1 inc	h) fine to medium sand with	h abundant clay,
1		32					18			dark brown (7.5 YR 3 wet, dense, caliche ri	(3), moderately sorted, not	n plastic, moist to
SS	29-30.5	34	14/18	0842						wee, dense, canone it	on Braidio	
		30					000	30				
ļ		20					* X . X	\$		- Not logged: drilled	through from 30.5 to 39 fe	et
								31		The topped, difficu		
			Í					10				
SS	30.5-39	1	1				į					
			-			-	_	32			•	
1												



		]	Location o	of Borehol	e:			Job N	o.:	001-063304	Borehole Designation:	J2D2-R2
								Client		Timet	Surface Elevation:	
ì							-	Site:		Henderson, Nevada	Depth to Water:	
								Subsit	e:		Logged by:	D. Venable
							ŀ	Drilli	ng Co.:	The Verde Companies	Drilling Date(s):	08/18/97
							L		ng Meth			
								Но	llow-ste	m auger drill rig equippe	ed with a California modifie	d
										(SS) sampler.		İ
	Sample	<u>-1</u>	73					1				
be de	Depth	Same	ecovere Driven	Time	PID Info.	Analysis	olog	Depth	USCS Soil		Soil Description	
Sampler Type	Top to	Blows 6-in. Samp.	Recovered Driven	Time	(ppm)	Ana	Lithology	J 69	Type		•	1
	Bottom	ဖ	LC									
				i				33				
											i i	
								-				Į
								34				
			ļ									l
								35				Į.
			ļ					ļ '	ļ			
SS	30.5-39											
							1	36				
1						-	-					į
_												
1								37				
									-			
l								38				
ł							_					
		ļ					0.00	39	SP	Gravelly medium to co	parse sand (0.1 to 0.5 inches	es), dark brown
1		70	15110	0025			0 0 0		SP	(7.5 YR 3/4), moderate	tely sorted, non plastic, wet basaltic, subangular to sub	to saturated,
SS	39-40'	70	15/18	0925						Silty medium sand, l	orown (7.5 YR 5/3), modera	itely sorted, non
-	<del> </del>	-					· N. F	40		plastic, wet to satural	ated, very dense, caliche 7.5 YR 5/3), well sorted, sl	ightly plastic, wet
		-1-2								\ to saturated, very de	ense at 40 feet	
										- Not logged; drilled	through from 40 to 44 feet	
İ		-	_					41				
1			_				-					
1												
SS	40-44'							42				
1			-				-					
								12				
1								43				
			-									
1-							.C. a u	• 44	SP	Madium to coarse	sand with a trace of fine sai	nd and gravel (1 to
	144.45.5	15		0043			000	0.	) SP	2 inches), medium	dense to dense, basaltic, vo	lcanics, subangular
25	44-45.5	20	16/18	0943			0,0	0		to subrounded		



				n of Boreho				Job N	lo.:	001-063304	Borehole Designation:	J2D2-R2
			250 04110				Ì	Client		Timet	Surface Elevation:	
							ļ	Site:		Henderson, Nevada	Depth to Water:	
								Subsi	te:	·	Logged by:	D. Venable
										The Verde Companies	Drilling Date(s):	08/18/97
									ng Meth			
			,					Но	llow-ste		ed with a California modifie	d
) )	Sample Depth Top to	Blows 6-in. Samp.	Recovered	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
_	Bottom 44-45.5'	37	LH					45				
) 	44-43.3	31					000			- Not logged: drilled t	hrough from 45.5 to 49 feet	
										- Not logged, dimed a	í	
								46				
							-					
_	45 5 401						1	47				
S	45.5-49'					-	-					
		-	!					48				
							_					
		1				-		49	CL	- Silty clay with a trac	ce of fine sand, yellowish br I, trace of fine mica	own (10 YR 5/4
		40								slightly plastic, hard	i, trace of fine mica	
SS	49-50.5	80		1009		i	2 2	2				
								50				
											50.5.0	
										- Total depth of borin	g = 50.5 feet	
		-	-				-					
		-	-				-					
			4				-					
			7									
		L		ŀ								
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		-	-			i	-					
			1									
							_					
											•	



$\stackrel{\smile}{-}$				LUC			T	Ioh Ni	` '	001-063304	Borehole Designation:	J2D1-R2
		L	ocation (	of Borehol	e:		-	Job No		Timet	Surface Elevation:	
							1-	Client			Depth to Water:	
							<u> </u>	Site:		Henderson, Nevada		D. Venable
								Subsit			Logged by:	08/19/97
										The Verde Companies	Drilling Date(s):	00/17/9
							į		ng Meth			
								Hol spli	low-ster t-spoon	n auger drill rig equipp (SS) sampler.	ed with a California modifie	d
3	Sample Depth Top to Bottom	Blows in. Samp.	Recover ed Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
+	Bottom	6 1	<u>~</u>		GF. /	1				- Not logged; drilled t	rough from 0 to 29 feet	
						-		21			;	
											•	
1		-						22				
		$\vdash$				1	1	23				
Ì								24				
	0.001											
	0-29'											
		-					1	25				
								26				
							-					
								27				
				1			-	28				
										m 11 13		
										- Tagged by driller		
							0,00	29	SP	Gravelly fine to med	ium sand (0.1 to 0.5 inches)	, brown (7.5 Y
		34					0.00	-		4/3), moderately sor	ted, non plastic, wet, dense caliche	to very dense,
	29-30.5	60	16/18	0802			0.0	2.		voicumos, ousumo,	· · · · · · · · · · · · · · · · · · ·	
		ļ					-00°	30				
		70					0,00	0.			1. 1.6	
			}							- Not logged; drilled	d trough from 30.5 to 39 fee	ı
		-	1				-	31				
	20 5 2	<u>.</u> _										
	30.5-3											
		1			1		1	32	1			



		I	ocation (	of Borehol	e:			Job N	0.:	001-063304	Borehole Designation:	J2D1-R2
							T	Client	:	Timet	Surface Elevation:	
Ì								Site:		Henderson, Nevada	Depth to Water:	
								Subsit	e:		Logged by:	D. Venable
								Drillir	ng Co.:	The Verde Companies	Drilling Date(s):	08/19/97
									ng Meth			l
								Hol	low-ster	m auger drill rig equippe	ed with a California modifie	ed
								spli	t-spoon	(SS) sampler.		1
	Sample	Q.	8 _		DID	S	25		USCS			
Sampler	Depth	S E	ecover ec Driven	Time	PID Info.	Analysis	Lithology		Soil		Soil Description	
55 F	Top to Bottom	Blows 6-in. Samp.	Recovered Driven		(ppm)	Å	=		Type			
	Dottom											
								33				
											ì	
'												
								34				
	ļ											ļ
			į					35				
ŀ				2								į
	30.5-39							36				
								30				
)												
í								37				
1							-					
							-	38				
1												
-	-						0.60	39	GM-	Gravelly medium to c	parse sand (0.1 to 2 inches)	with abundant
		73		Ì					SM	silt, brown (7.5 YR 4/	3), poorly sorted, non plass, basaltic, subangular to su	brounded
1	39-40.5	150	17/18	0822								
							0.20	40				
-							Florid K	2		- Not logged: drilled	through from 40.5 to 44 fee	et
1								41			J	
								41				
İ		-	1				1					
	40-44'							42				
								-				
					į							
			-				_	43				
)												
1	-	-		İ				44	CL	Silty clay with a trac	e of fine sand, yelowish bro	own (10 YR 5/4),
	44-45.5	85	18/18	0842						slightly plastic to pla	stic, hard, trace of fine mic	ca
1		90	15/15	33.2								

Sheet 3 OF 3



				of Boreho				Job N	Io ·	001-06330	Borehole Designation:	J2D1-R2
		L	Deation	Of Borelle				Clien		Time		
)								Site:		Henderson, Nevad		
								Subsi	te:	Hondordon, 1.0.	Logged by:	D. Venable
								1		The Verde Companie		08/19/97
									ng Meth		3 Dinning Date(6).	
								Но	llow-ste		pped with a California modifie	d
Kampler Type	Sample Depth Top to Bottom	BIG I	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description	
SS	44- 45.5'							45				
33	45.5'									- Total depth of bor	ing = 45.5 feet BGS	
										- Total depth of bot	1	
						-						
						-	-					
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							1					
}							4					
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## BOREHOLE LOG



Client: Timet Surface Elevation: Site: Henderson, Nevada Depth to Water: Subsite: Logged by: D. Brogmann Drilling Co.: The Verde Companies Drilling Date(s): 12/17/97  Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler.  Sample Depth Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top to Bottom Top top to Bottom Top top to Bottom Top to Bottom Top to Bottom				Location	of Boreho	ole:		i	Job N	No.:	001-063304	Borehole Designation:	J2D4
Site: Henderson, Nevada Depth to Water:  Subsite: Logged by: D. Brogman Drilling Co.: The Verde Companies Drilling Date(s): 12/17/97  Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler.  Sample Depth Soil Description Top to Bottom  1 2 3 4 4 5 5 5 5 5 5 5 5 5 5 5 25 8/18 0820  SS 5-6.5' 25 8/18 0820  Site: Henderson, Nevada Depth to Water: Logged by: D. Brogman Drilling Co.: The Verde Companies Drilling Date(s): 12/17/97  Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-split spoon (SS) sampler.  Soil Description  1 2 5 5 5 5 5 5 5 5 5 8/18 0820	Location of Borehole:											<del></del>	
Subsite: Logged by: D. Brogmann Drilling Co.: The Verde Companies Drilling Date(s): 12/17/97 Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler.  Sample B B B B B B B B B B B B B B B B B B B												<del> </del>	
Drilling Co.: The Verde Companies   Drilling Date(s): 12/17/97										te.	Tionacison, Tavada	<del> </del>	D. Brogmann
Drilling Method:   Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler.											The Verde Companies	<del></del>	
Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler.  Sample September 1												Dining Date(3).	12,1,,,,
split-spoon (SS) sampler.  Soil Description  Soil Description  Soil Description  1  2  3  4  SS 5-6.5' 25 8/18 0820  7  8  Soil Time Info. (ppm)												d with a California modified	i
1									spli	it-spoon	(SS) sampler.		
1	bs .	Sample	, <u>p</u>	<b>B</b>   <b>c</b>		PID	တ္တ	æ		USCS			
1	ample Type	Depth Top to	BIOW Fin Say	ecove Drive	Time	Info.	Analys	itholo	Depth	Soil		Soil Description	
2   3   4	,	Bottom	φ	œ '		(PP)				1)70		<u> </u>	
13   3   4						-							
13   3   4													
3   4   5									ı			,	
3   4   5						-							
3   4   5									,		•		
SS 5-6.5' 25 8/18 0820 Silty fine to coarse sand, some gravel (0.25 to 0.33 inch), brown, dry, cemented  7 8									_				
SS 5-6.5' 25 8/18 0820 Silty fine to coarse sand, some gravel (0.25 to 0.33 inch), brown, dry, cemented  7 8													
13									3				
13													
13													
SS 5-6.5' 25 8/18 0820						F			4				
SS 5-6.5' 25 8/18 0820													
SS 5-6.5' 25 8/18 0820			Ì										
SS 5-6.5' 25 8/18 0820			12					0 32	5	-	Silty fine to coarse san	d, some gravel (0.25 to 0.33	3 inch), brown,
25 6 7 7 8			15								dry, cemented		
25 7 7 8 8	SS	5-6.5'	25	8/18	0820				6				
7			25										
							-	a a					
									7				
									.				
									8				
									_				
			$\square$						9				
									10				
						-							
Silty fine to coarse sand, gravel (0.25 to 1.5 inch), brown, dry, cemented, trace caliche	-		14					0 202	11		Silty fine to coarse sand	d, gravel (0.25 to 1.5 inch),	, brown, dry,
cemented, trace caliche			14					930			cemented, trace caliche	2	· ·
SS 11-13.0' 20 12/24 0830   (C. Sale)	SS	11-13.0'	20	12/24	0830			O Gar					
21 G. C. C. C. C. C. C. C. C. C. C. C. C. C.			21					C. 73.	12				

Sheet <u>2</u> OF <u>4</u>



Location of Borehole:								Job N	lo.:	001-063304	Borehole Designation:	J2D4
								Client	:	Timet	Surface Elevation:	
								Site:		Henderson, Nevada	Depth to Water:	
								Subsi			Logged by:	D. Brogmann
										The Verde Companies	Drilling Date(s):	12/17/97
									ng Meth		d with a California modifie	d
										(SS) sampler.	a with a Carnot his mount	
e e	Sample Depth	Sy amp	g   g		PID	Analysis	Lithology		USCS			
Sampler Type	Top to	Blows 6-in. Samp.	Recovered Driven	Time	Info. (ppm)	\mal)	ithol	Depth	Soil Type		Soil Description	
					(pp.i.i)	_	77.5		1)60			
SS	11-13.0'	27	12/24	0830				13				
			and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th									
											<b>!</b>	
			:					14				
l												,
1												
		19						15		Silty gravelly sand, bro	wn, dry, cemented, trace of	aliche
							o y					
SS	15-16.5'	27	18/18	0850				16				
		32										
							N-S-C					
								17				
I												
		-						18				
<u>L</u>							م در جه نام	19				
		17								caliche, angular to sub	inch) sand with silt, brown crounded,	i, ary, dense,
SS	19-20.5	28	18/18	0915								
"	15 20.5		12.25					20				
		28										
								21				
		-					-					
								22				
		-					-	23				
						-	-					
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		-	1	1		-	1					
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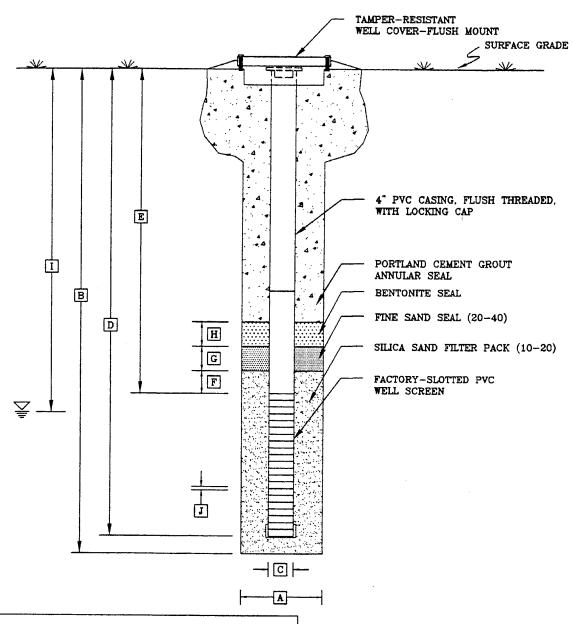
Sheet <u>3</u> OF <u>4</u>



			Location	of Boreho				Job l	Jo ٠	001-063304	Borehole Designation:	J2D4	
			Deation	or borem	JiC.			Clien		Timet			
								Site:		Henderson, Nevada			
								Subs	ita•	Henderson, Nevada	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	rogmann	
									ing Co.:	The Verde Companies		2/17/97	
											Dinning Date(s).	2/1////	
								Drilling Method: Hollow-stem auger drill rig equipped with a California modified split-spoon (SS) sampler.					
Type	Sample Depth Top to Bottom	Blows 6-in. Samp.	Recovered Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description		
	Dottom	28					0 0 0 0 0 0 0 0	25		Gravelly (0.25 to 0.75 water	inch) sand, brown, dry to moist, pos	ssible	
SS	25-26.5'	33	18/18	0940							1		
		41						26			1		
							4-3-3.						
								27					
						-							
								28					
								29					
								29					
								30					
		ļ					0.275	31		Silty gravelly (0.25 to 0	0.5 inch) fine to coarse sand, brown	, wet,	
							900			rounded to angular, so	me caliche		
SS	31-32.5'		18/18	0955				32					
							0 0 0						
								33					
		-											
								34					
								35					
SS	5-6.5'	50	3/5	1030	!		000			Gravelly medium to coa	arse sand, brown, wet,		
								36					
					1			37					
					* *			31					



			Location	of Boreho	le:			Job N	√o.:	001-063304	Borehole Designation:	J2D4	
								Client:		Timet	Surface Elevation:		
								Site:		Henderson, Nevada	Depth to Water:		
								Subsi	te:		Logged by:	D. Brogmann	
								Drilli	ing Co.:	The Verde Companies	Drilling Date(s):	12/17/97	
								Drilli	Drilling Method:				
								Но	llow-ster	m auger drill rig equippe	d with a California modifie	d	
								spl	it-spoon	(SS) sampler.			
								1					
e ec	Sample Depth	Blows 6-in. Samp.	Recovered Driven		PID	Analysis	Lithology		USCS		Call Description		
Sampler Type	Top to Bottom	<u>B</u> 0	Driven	Time	Info. (ppm)	ra	it.	Depth	Soil Type		Soil Description		
3	Bottom	ဖ်	吸, 1		(ррии)				2)   0				
								20					
								38					
											) 1		
				,				20					
				:			11.	39		Clayey fine to medium	sand, brown, wet, increasi	ng clay with depth	
						ļ							
SS	39-41.5'		18/18	1043									
								40					
<b> </b>							1.1.						
								41					
				İ				40					
İ				ĺ				42					
							-						
								43					
							1	43					
							-						
								44					
								44					
							1	İ					
								سے م		·			
		15						45		Clay to fine to very fine	sandy clay, brown, wet		
		-						•					
SS	45-46.5'	18	18/18	1100				16					
1		21					//	46					
ļ							7.7	-		Total Depth of Boring	= 46.5 feet BGS		
							Ì	47		Total Deput of Boring	- 40.5 ICCL DGG		
							1	47					
								1.0					
								48					
							-						
								40					
			1				]	49					
			<del> </del>			-	-	1					
1		]	;	1	i	1	1		1	1			



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 61 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 60 FEET
- (E) DEPTH TO TOP OF SCREEN 30 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 3.0 FEET
- (G) TOP OF 10-20 FILTER PACK TO TOP OF 20-40 FILTER PACK 2 FEET
- (H) THICKNESS OF BENTONITE SEAL 3 FEET
- (I) DEPTH TO WATER TABLE 38.5 FEET (8/21/97)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

TETRA TECH EMI A Tetra Tech Company

T	METALS DERSON,	CORPORATION NEVEDA
	 <b>A 112 1</b>	

GROUNDWATER MONITOR WELL MW-1 DESIGNED:

CHECKED:

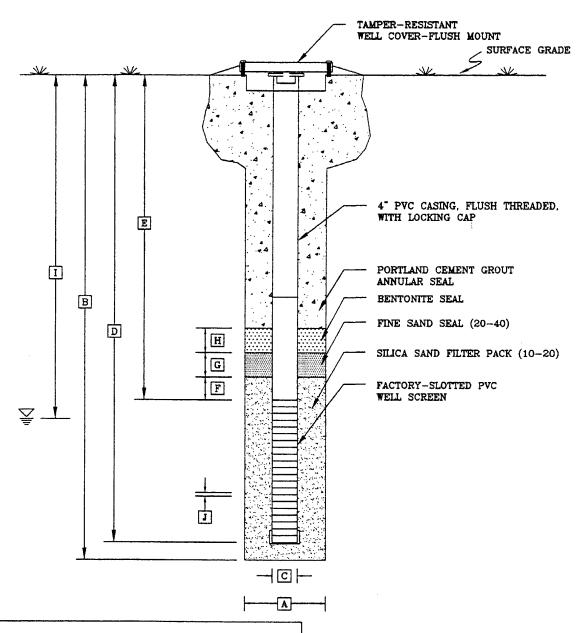
APPROVED:

DRAWN: RTF

PROJ.: 001-062109

DATE: 08/27/97

S:\TIMET\DRAWINGS\AUTOCD...\MW-1.DWG



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 57.8 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 57 FEET
- (E) DEPTH TO TOP OF SCREEN 32 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 3.0 FEET
- (G) TOP OF 10-20 FILTER PACK TO TOP OF 20-40 FILTER PACK 2 FEET
- (H) THICKNESS OF BENTONITE SEAL 4 FEET
- (I) DEPTH TO WATER TABLE 40 FEET (8/21/97)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

SINTIMETY DRAWINGS VAUTOCAD ... VMV-2.DVG

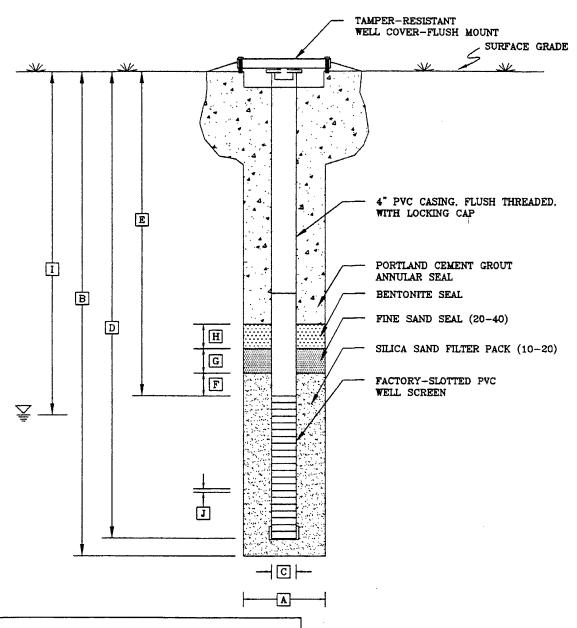
TITANIUM METALS CORPORATION HENDERSON, NEVEDA

GROUNDWATER MONITOR WELL MW-2

DESIGNED:
CHECKED:
APPROVED:
DRAWN: RTF
PROJ.: 001-062109

DATE: 08/27/97

TETRA TECH EMI A Tetra Tech Company



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 69 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 68.5 FEET
- (E) DEPTH TO TOP OF SCREEN 33.5 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 3.0 FEET
- (G) TOP OF 10-20 FILTER PACK TO TOP OF 20-40 FILTER PACK 2.7 FEET
- (H) THICKNESS OF BENTONITE SEAL 8.3 FEET
- (I) DEPTH TO WATER TABLE 38.5 FEET (8/21/97)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

GROUNDWATER
MONITOR
WELL J2U2

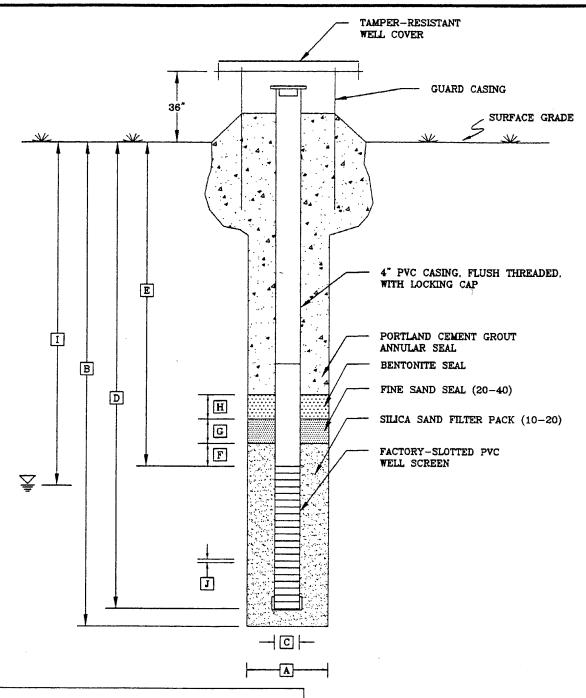
TETRA TECH EM
A Tetra Tech Company

DATE: 08/27/97

DESIGNED:

TITANIUM METALS CORPORATION HENDERSON, NEVEDA

DVD.SUSL/_DADOTUB/2DNIVARD/TEMIT/2



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 45.5 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 44 FEET
- (E) DEPTH TO TOP OF SCREEN 19 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 3 FEET
- (G) TOP OF 10-20 FILTER PACK TO TOP OF 20-40 FILTER PACK 2 FEET
- (H) THICKNESS OF BENTONITE SEAL 3.25 FEET
- (I) DEPTH TO WATER TABLE 28.5 FEET (8/21/97)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

DVG.SR-18SULLBADDTUB/2DNIVARIANTS

TITANIUM METALS CORPORATION HENDERSON, NEVEDA

**GROUNDWATER MONITOR** 

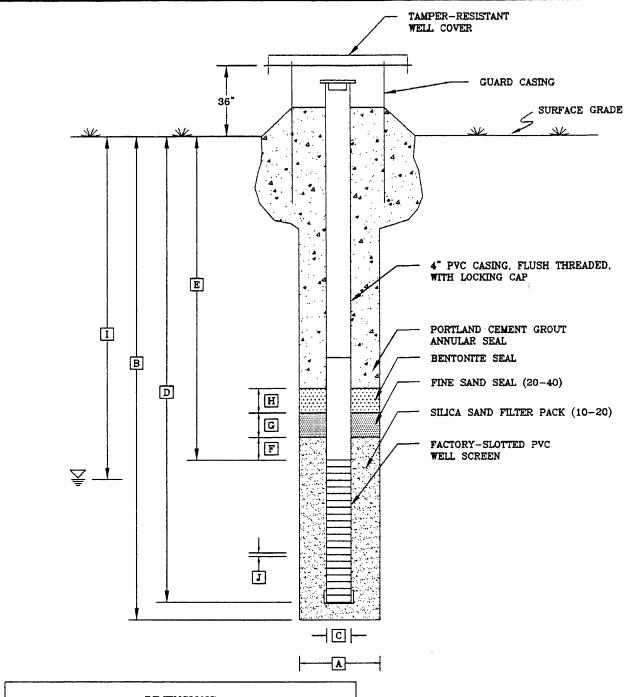
WELL J2D1-R2

TETRA TECH EMI A Tetra Tech Company

DATE: 08/27/97 DESIGNED: CHECKED: APPROVED:

DRAWN: RTF

PROJ.: 001-062109



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 50.5 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 48.5 FEET
- (E) DEPTH TO TOP OF SCREEN 23.5 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 2.9 FEET
- (G) TOP OF 10-20 FILTER PACK TO TOP OF 20-40 FILTER PACK 2.7 FEET
- (H) THICKNESS OF BENTONITE SEAL 3.9 FEET
- (I) DEPTH TO WATER TABLE 26 FEET (8/21/97)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

DVC.SR-SCSL/_CADCTUA/2DNIVARC/TEMIT/12

# TITANIUM METALS CORPORATION HENDERSON, NEVEDA

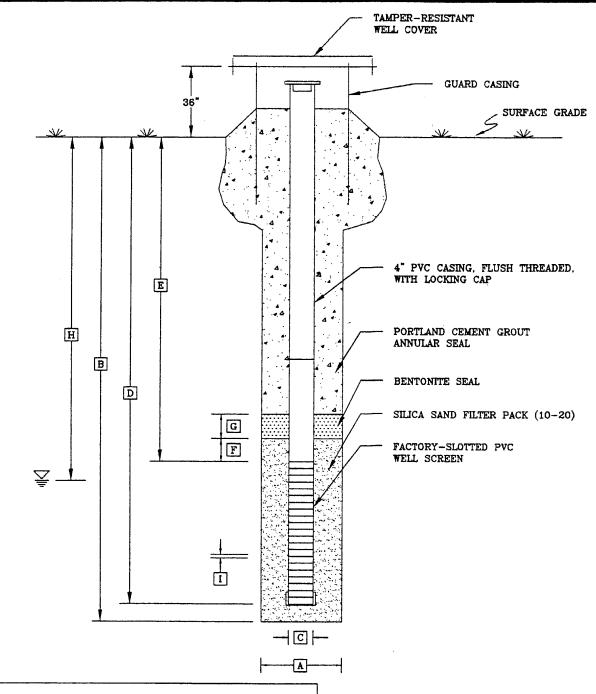
# GROUNDWATER MONITOR

WELL J2D2-R2



DATE: 08/27/97
DESIGNED:
CHECKED:
APPROVED:

DRAWN: RTF
PROJ.: 001-052109



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 45 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 45 FEET
- (E) DEPTH TO TOP OF SCREEN 15 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 2.0 FEET
- (G) THICKNESS OF BENTONITE SEAL 6 FEET
- (H) DEPTH TO WATER TABLE 33.25 FEET (8/21/97)
- (I) SLOT APERATURE .020 INCHES

O20 INCHES

O20 INCHES

O3.25 FEET (8/21/97)

OROUNDWATER

MONITOR

WELL J2D4

O4.DVG

GROUNDWATER

MONITOR

WELL J2D4

CHECKED:

APPROVED:

DRAWN: RTF

PROJ.: 001-062109

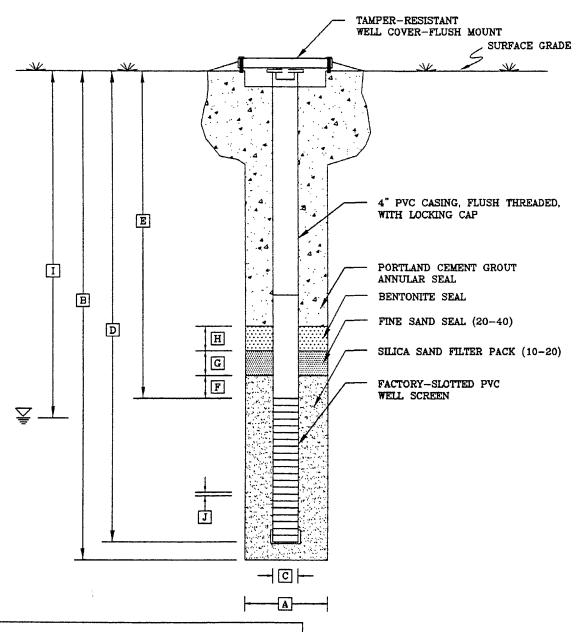
TITANIUM METALS CORPORATION

HENDERSON, NEVEDA

DATE: 08/27/97

DESIGNED:

DVG.EGSL/...GADOTUA/2DAIVARD/TEMIT/12



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 72 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 60 FEET
- (E) DEPTH TO TOP OF SCREEN 40 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 6.5 FEET
- (G) TOP OF FILTER PACK TO TOP OF SAND 2 FEET
- (H) THICKNESS OF BENTONITE SEAL 3 FEET
- (I) DEPTH TO WATER TABLE 47.47 FEET (5/3/99)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

SINTIMETYPHASE II FOLLOWUPYECIWA REPORTYFIGURESYFIGURE 2.26.DWG

ENVIRONMENTAL CONDITION INVESTIGATION ADDENDUM REPORT	DATE: 09/01/99			
HENDERSON, NEVADA	DESIGNED:	_		
GROUNDWATER	CHECKED:	WPG		
MONITOR	APPROVED:	KTA		
WELL BRW-R1	DRAWN:	RTF		
WEEL DIVW-N	PROJ.: P0655-04			
TETRA TECH EMI A Tetra Tech Company	Figure	2.2b		

$R \cap$	RI	H	DLE	7 7	OC	
DU	'KE	III	JLE		<b>( )(</b> 7	•

Sheet 1 OF 3



			Location	of Boreho	ole:			Job No.:		P065502 Borehole Designation: BRW-R1
								Clier	ıt:	Timet   Surface Elevation:
١	i							Site:		Henderson, Nevada   Depth to Water:
ì	2							Subs	ite:	Logged by: W.P. Gagnon
								Drill	ing Co.:	The Verde Companies Drilling Date(s): 03/23/99 and 03/24/99
									ing Metl	
										em auger.
								Sp	lit Spoo	n Sampler (SS)
<b>8</b> 0	Sample	6	8 5		PID	့်တ	- <del>}</del>		USCS	
Sampler Type	Depth Top to	Blows	Recovered Driven	Time	Info.	Analysis	Lithology	Depth	Soil	Soil Description
ς <u>ς</u> ,	Bottom	<u> </u>	<u>α</u>		(ppm)	Ā	===		Type	
	 	i I						i		
								1		
							-	2		
	ĺ									
						<del>                                     </del>		3	SP	Sand, fine to coarse, light brown, minor rounded pebbles (0.25
ss	3-5'	50	2/24		0			4		Sand, fine to coarse, light brown, minor rounded pebbles (0.25 inch), slightly moist, nonplastic, poorly sorted, loose
		İ								
	1							5		
	: :						-	6		
	i							7		
	į.							,		
-	1					1		8	SP	Sand, as previously described above, pebbles (0.25 - 0.50 inch),
SS	8-10	50	8/24		0			9	_	subanguler, minor caliche layers 9 - 10 feet, slightly moist
			:					10		
			!					11		
			: : :					12		
								12		
	!							13	SM	Sand as previously described 0.50 inch dumps of brown day
ss	13-15'	60	8/24		0			14		Sand, as previously described, 0.50 inch dumps of brown day dispersed in sand at 15 - 15.5 feet, brown color
									1	
								15	:	
		Ì					! 	16	i	
		!	1					47		
				ì				17	į į	
								18	SP	Sand, as previously described, no day dumps, bottom 4 inches of
SS	18-20	72	10/24		0			19	<u> </u>	is hard, caliche cement
<b></b>	,0 20		10/24		U			,0		· ·
								20		
					i			21		
	;							i		
	)		i					22		
			:	1				23		
							ļ	24		
								- '		

# **BOREHOLE LOG**

Sheet <u>2</u> OF <u>3</u>

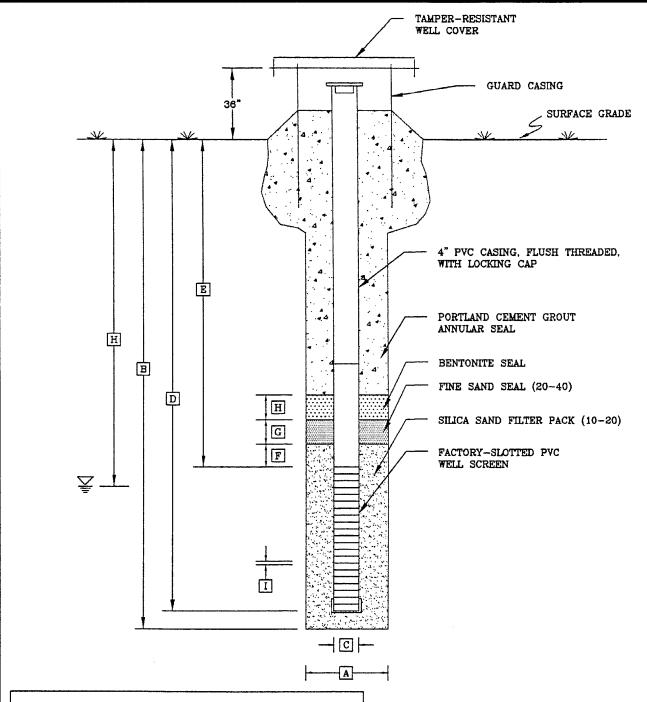


			Location	of Boreho	de:			Job No.:		P065502 Borehole Designation: BRW-R1				
								Clien	t:	Timet Surface Elevation:				
)								Ste		Henderson, Nevada Depth to Water:				
r								Subsi	te:	. Logged by: W.P. Gagnon				
										: The Verde Companies   Drilling Date(s): 03/23/99 and 03/24/99				
								Drilli	Drilling Method:					
										em auger.				
								Spi	lit Spoo	on Sampler (SS)				
رن <u>م</u>	Sample 8 5 PID 8 8						ò	1	USCS					
Sampler Type	Depth Top to	Blows	Recovered Driven	Time	Info.	Analysis	Lithology	Depth	Soil	Soil Description				
ß.	Bottom	ш	8 -		(ppm)	Ā	Ξ	25	Туре					
								25	SM	Sand to fine sand, brown with mixture of small pebbles (< 0.25 inch), nonplastic, loose, slightly plastic, gravelly sand layer 25.5 -				
SS	25-27	60	8/24		0			26		25.7 feet, hard, gravel (< 0.25 inch) are subangular to rounded.				
					<u> </u>	ļ		27		poorly sorted				
					į			!	İ					
								28						
				1			1	29						
								30						
								7 30	SM	Sand, as previously described				
SS	30-32'	100	10/24		0	:		31						
					<u>i</u>	-		32						
į					: : :		-	33						
1								34						
								35						
								- 30	SM	Sand, as previously described				
ss	35-37	100	9/24		0			36						
							· · · · · ·	37 -						
							į							
					:		:	38						
						-	•	39						
				į į				40						
							•••••	40	SM	Sand, as previously described				
ss	40-42'	100	14/24		0			41						
								42 -						
!														
								43						
								44						
				:										
				:		<u> </u>		45 -	SM	Sand, as previously described, gradiational contact with:				
SS :	45-47	100	16/24		0		ΪΪ	46	SM	Silt, brown with coarse sand and peoble inclusions, moderately				
١.								47 -	ĺ	hard, dense, very slightly plastic, slightly moist, 1" caliche layer from 46' 11"-47', hard, very poorly sorted				
					i			4/		non-to-11 -47, hard, very poorly sorted				
								48						
						e Marketone and control controller		49						
								. •	j					

Sheet 2 OF 3



			Location	of Boreho	de:			Job N	lo.:	P065502	Borehole Designation: BRW-R1		
								Clien		Timet	Surface Elevation:		
1								Site:		Henderson, Nevada	Depth to Water:		
1								Subsi	te [.]	Transaction, Trotag	Logged by: W.P. Gagnon		
										The Verde Companies	Drilling Date(s): 03/23/99 and 03/24/99		
									ng Met		Drilling Dad(s). 03/23/99 and 03/24/99		
									-	am auger.			
								1		•			
								1	Split Spoon Sampler (SS)				
رو <u>ه</u>	Sample Depth	Ş	Recovered Driven		PID	'Si	Lithology		uscs				
Sampler Type	Top to	Blows	ecovere Driven	Time	Info.	Analysis	<u>\$</u>	Depth			Soil Description		
S	Bottom		쬬 _		(ppm)	∀		- 50	Туре				
							<b>X</b>	50	SP	Fine sand, dark brown,	loose, very poorly sorted with coarse sand .125 inch), slightly moist, nonplastic, abrupt		
ss	50-52'	50	18/24		0			51	CL	contact with:	. 125 man, signity moist, horiprasite, abrupt		
								52		Silty day, reddish brow	vn, slightly plastic, dense, slightly moist,		
li										moderately well sorted			
						-	-	53		- Water at 53 feet			
								54					
		<u> </u>					17	55	CL	Clay to silty day brow	n with tan to light tan mottling near top,		
ss	55-57'	70	18/24		0			56	02	plastic, laminated, sligh	ntly moist. 2 inch zone of coarse sand and		
33	33-37	10	10/24		U					pebbles at 56 - 56 feet 2 graded	2 inches, light tan, slightly moist, poorly		
		:					<u> </u>	57		<b>3</b>			
•							_	58					
								30					
							-	59					
								60					
								0	CL	Clay, brown with tan m	nottling, plastic, coarse reddish brown		
SS	60-62'	65	18/24		0	<u> </u>		61		gravery sand from 60 - slightly moist	- 60 feet 3 inches, loose, poorly sorted,		
								62					
				,				02					
			ļ				-	63					
								64					
								04					
						-	11	65	CL	Clayto silby at = 1 b	an alaskin anniak taran arkibi (1. 0.40°		
	CE CT	20	2/04		_		11	66	UL	inch), rounded	n, plastic, moist, trace peobles (< 0.125		
SS	65-67'	30	3/24		0		11	66	į	·			
								67					
								00					
								68					
				į	ļ		1	69					
			<u> </u>					70 -	CL	Clay to silty day, as pr	eviously described, hard, moist		
SS	70-72'	55	18/24	1	0			71					
			1										
1								72 -		Total depth of boring: 7	72 feet		
ĺ								73					
		!		!									
				!				74					
l					1			į					



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 69 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 67 FEET
- (E) DEPTH TO TOP OF SCREEN 37 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 8 FEET
- (G) TOP OF FILTER PACK TO TOP OF SAND 2 FEET
- (H) THICKNESS OF BENTONITE SEAL 3 FEET
- (I) DEPTH TO WATER TABLE 55.62 FEET (5/3/99)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

S/\TIMET\PHASE II FOLLOWUP\ECIVA REPORT\FIGURES\FIGURE 2.2C.DVG

ENVIRONMENTAL CONDITION INVESTIGATION ADDENDUM REPORT	DATE: 09/01/99				
HENDERSON, NEVADA	DESIGNED:	_			
GROUNDWATER	CHECKED:	WPG			
MONITOR	APPROVED:	KTA			
WELL MW-3	DRAWN:	RTF			
WELL IVI W—5	PROJ.: P0655-04				



Figure 2.2c

BO	R	$\boldsymbol{F}_{i}$	H	()	T.	$\boldsymbol{F}$	1	O	G
1)(/	11	11/11	u	U.	L		L	( /)	l

Sheet 1 OF 3



					<del></del>				~		<i>,</i>			
			Location	of Boreho	ole:			Job N	lo.:	P065502	Borehole Designation:	MW-3		
l								Clien	t:	Timet	Surface Elevation:			
٠,								Site:		Henderson, Nevada	Depth to Water:			
)										naida son, Nevada	<del></del>			
1								Subsi			Logged by:	W.P. Gagnon		
1										: The Verde Companies	Drilling Date(s):	03/23/99		
								Drilli	Drilling Method:					
l								Но	ilow-ste					
								1						
								4	plit Spoon Sampler (SS)					
8	Sample	G	Recovered Driven		PID	νς 778	<del>6</del>	:	USCS					
Sampler Type	Depth	Blows	ecovere Driven	Time	Info.	Analysis	90	Depth			Soil Description			
S.	Top to Bottom	<u> </u>	8 □		(ppm)	An	Lithology		Type		•			
	Bottom							<u> </u>		: 				
								_						
							a , 9	5	SM	Sand, buff to light brow	wn with medium gravel. lo	ose. nonplastic.		
ss	5-7'	71	9/24		o			6		slightly moist, poorly s	wn with medium gravel, lo sorted, angular to subangula	ar		
33	J-1	' '	3124				2 7	. 0						
							1.0 (2.7)	7			·			
							1	8				•		
							-							
							1	9						
							<u> </u>	40						
							a 2,7	10	SM	Sand, as previously de	scribed, but more gravelly			
SS	10-12	124	24/24		0		o ₹ 9°3	11						
~	10 12		2.772,7		Ū									
VI							• • •	12						
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					ļ		İ	44						
								14						
		<u> </u>						15			·			
							c 3 = .		SM	Sand, as previously dea	scribed, more dense, minor	caliche stringers		
SS	15-17'	85	6/24		0		C 3	: 16						
			i				و ۾ ج							
								- 17						
								10						
								18						
			7.4			-		19						
								-						
		<del>  </del>					• <u></u> ,	20	~ ·	0 1 11 17 1				
		į į							SM	Sand, light brown, mod	derately well sorted, slightlounded gravel	y plastic, loose,		
SS	20-22'	100	12/24	į	0			21		anginay morat, minor re	ounded graver			
		<u>                                     </u>					e 3,₹.,	-						
								22						
				!	:			23						
								-5						
			İ		ļ			24						
ĺ				i i		ļ								
						· · · · · ·	• • • •	25	SP	Grandly and been				
I		400		!	_ :			200	or .	Gravelly sand, brown, hard	poorly sorted, nonplastic,	ory, moderately		
	25-27	100	8/24	!	0 -			26						
1								27						
		1	i						:					
			1					28						
			!											

# **BOREHOLE LOG**

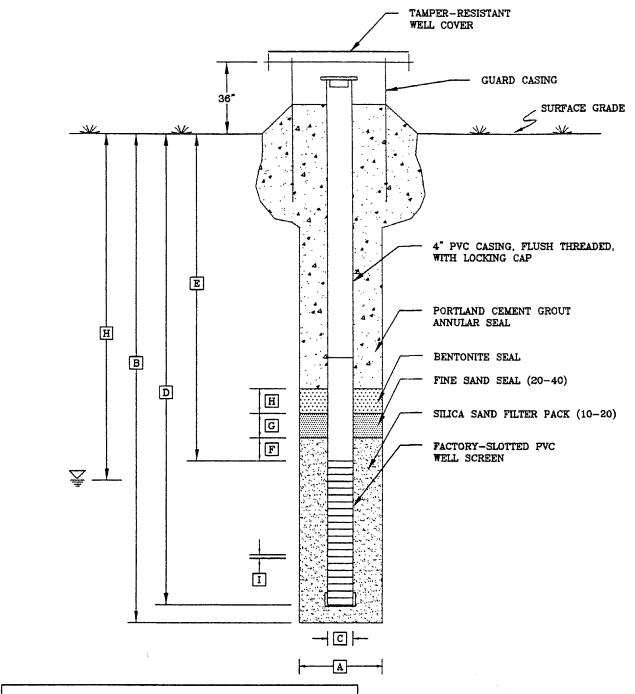
Sheet 2 OF 3



			Location	of Boreh	ole:		Job N	10.:	P065502 Bo	orehole Designation:	MW-3			
							Clien			urface Elevation:				
<b>,</b>							Site:			epth to Water:				
, j							Subsi	te:		ogged by:	W.P. Gagnon			
										rilling Date(s):	03/23/99			
								ing Meth						
							Но	Hollow-stem auger.						
									n Sampler (SS)					
<b>-</b>	Sample	. !	Q _	1	1	·- >	1							
Sampler Type	Depth	Blows	Recovered Driven	Time	PID Info.	Analysis	Depth	USCS Soil	S	Soil Description				
SE-	Top to	ĕ	3800 D	THO	(ppm)	Ana	-	Type	-	хон Безспраон				
	Bottom			į	i		29	-						
		-		<u> </u>	+	• • • • •	5 30							
				-		ر ج ر في ا		SM	Sand, as previously describ	bed, but slightly moist				
SS	30-32	51	12/24	İ	0		31							
-				1			32							
İ					AMERICAN CALLARY									
					A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND A SAME AND		33							
			<u> </u>	ļ			34							
				:		2,77	35	SM	Sand. as previously descrip	hed. light reddish brow	n. hard. gypsum			
ss	35-37'	35-37 100 12/24 0					36		Sand, as previously describ crystals in sand 35-36 feet,	, caliche stringers, sligh	ntly moist			
	••			1	-									
1			İ			1	37							
				:			38							
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		:	:	:			: 40	34/	mer I become moderal	العطونات العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل العامل	• ••			
	10 101	100	10/04	į				SW	Fine sand, brown, moderate moderately hard, dense, sli	tely well sortea, siignuj liahtly moist, minor rou	y plastic, inded gravels			
SS	40-42	100	10/24	i	0		41		,	· · · · · · · · · · · · · · · · · · ·				
<b> </b>		1			<u>:</u> :		42		C					
			1	İ			42							
				i			43							
		1	į į	ļ.	1		44							
				ł			45				ļ			
							45	ML	Silt, brown, well sorted, sl gypsum crystals 45-46 feet	lightly plastic, loose, m	oist, minor			
ss	45-47		12/24	:	0		46	, ,	gypsum crystals 45-46 teet	t	ŀ			
				1			47							
			1				47		Mr. 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4					
			l į	: :			48				İ			
1							49				!			
			į		-		49				!			
							50	ML	Claver sit brown well ar	radad wall aartad man	landaly plantic			
	50 <b>52</b> '	100	14/04		0		51	IVI L	Clayey silt, brown, well gr moist, dense, slightly mica	raded, werr sorted, mod aceous 51-52 feet, cross	eratery prastru bedded 51-52 feet			
)	50-52	100	14/24		. 0		31	:			!			
					<del></del>		52							
						V.OPPROMISSION CONTRACT	53				!			
							. 🕶				1			



			Location	n of Boreho	ole			Job N	10.:	P065502 Borehole Designation: MW-3
								Clien	rt:	Timet Surface Elevation:
1							1	Site:		Henderson, Nevada Depth to Water:
1								Subsi	• • • • • • • • • • • • • • • • • • • •	Logged by: W.P. Gagnon
ĺ										The Verde Companies Drilling Date(s): 03/23/99
İ									ing Meth	
								1		em auger. n Sampler (SS)
	<del></del>			<del></del>				4	lit open.	n sampler (SS)
3 gg	Sample Depth	N.S	Recovered Driven		PID	ysis	logy		uscs	
ξĤ	Top to	Big	(€ Dri	Time	Info. (ppm)	Analysis	Lithology	Depth	Soil Type	Soil Description
-	Bottom		<u>r</u>	·	(FF7)			54	176-	
		-	<u>.                                    </u>			<u> </u>	11	55		
			 							Clayey silt, brown, well graded, well sorted, moderately plastic, very moist, dense, slightly micaceous, cross-bedded
SS :	55-57'	90	16/24		0			56		to y more, delicy digitity more and a second
-							Ш	57		
			i i	:				58		
	į		:		ļ		!	59		
-		· ·				-		60	ML	Observable harmonical annual multiparted moderately plantic
~	60-62'	90	16/24		0			61	IVIL	Clayey silt, brown, well graded, well sorted, moderately plastic, very moist to wet, dense, slightly micaceous, cross-bedded
<u> </u>	30-32	<b>SC</b>	IUI Æ⊤						:	
-		<u> </u>						62		
11	!	į į	į			<u> </u>	1	63		
	ļ		!				The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa	64		
	1								:	
			:				11	65	CL	Silty clay, brown, plastic, wet
ss	65-67	90	16/24	!	0	$\vdash$		66	1	
			ı					67		
						1	11	Ĭ i	CL	Silty clay, brown, plastic, very moist
SS	67-69	90	16/24	i	0			68		
		<del></del>		·			//	69		
:		1		i				70	į	- Total depth of boring: 69 feet
		1	!						į	
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- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 67 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 58 FEET
- (E) DEPTH TO TOP OF SCREEN 38 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 7 FEET
- (G) TOP OF FILTER PACK TO TOP OF SAND 2.5 FEET
- (H) THICKNESS OF BENTONITE SEAL 3 FEET
- (I) DEPTH TO WATER TABLE 48.92 FEET (5/3/99)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

SINTIMETYPHASE II FOLLOWUPYECIVA REPORTYFIGURESYFIGURE 2.28

ENVIRONMENTAL CONDITION INVESTIGATION ADDENDUM REPORT	DATE: 09	/01/99
TITANIUM METALS CORPORATION HENDERSON, NEVADA	DESIGNED:	T
GROUNDWATER	CHECKED:	WPG
MONITOR	APPROVED:	KTA
WELL MW-4	DRAWN:	RTF
**************************************	PROJ.: P065	5-04
TETRA TECH EMI	Figure	2.2d

A Tetra Tech Company

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Sheet <u>1</u> OF <u>3</u>



			Location	of Boreho	le:		Job N	lo.:	P065502 Borehole Designation: MW-4
							Clien	ıt:	Timet Surface Elevation:
· \							Site:		Henderson, Nevada Depth to Water:
/ 1							Subs	ite:	Logged by: W.P. Gagnon
							Drill	ing Co.:	The Verde Companies   Drilling Date(s): 03/24/99 and 03/25/99
								ing Meth	
							Н	ollow-ste	em auger.
							1		on Sampler (SS)
	Comple		73						
e e	Sample Depth	S.	Recovered Driven	œ.	PID	Analysis Lithology		USCS	
Sampler Type	Top to	Blows	Ø 1	Time	Info. (ppm)	\rad	Depth	Soil Type	Soil Description
0,	Bottom		<u>ac</u>		(PP)	<u> </u>	1	-76-	
			į				1	i !	
			1				2		
						TEI	3	ML	Consults site how wish over some models control or and (c. 0.25
			40/04			C 2 2		IVIL	Gravelly silt, brownish gray, very poorly sorted, gravel (< 0.25 inch), subrounded, all soil is friable, loose, dry
SS	3-5'	35	12/24		0	, p	4		
							5		
							6		
							0	1	
							7		
		ş.					0		
						r . 0	8	ML	Gravelly silt, as previously described, brownish gray and brown
	8-10	30	6/24		0		9	:	
1							10		
							10	;	
							11	[ 1 -	
							12		
							1		
							13		· 1 ·
							14		
		,				= 3,9	•	SP .	Gravelly sand, brownish gray, very poorly sorted, gravel sand ratio: 30/70 loose dry gravel (< 0.25 inch), subangular to rounded,
SS	14-16	: 40	12/24		0		15	:	1 inch caliche zone at 15 feet
				i		7.3.7	16		
100							1		
							17		
							18		
						4.0°	19	SM	Gravelly sand, brownish gray, very poorly sorted gravel sand ratio:
SS	19-21'	60	12/24		0		20		5/95, loose, dry, gravel (< 0.25 inch) subangular to rounded, hard zone of same from 20 - 20 feet 3 inches
		;	ļ			e 3 ?			The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th
	<del></del>						21		
			1				22		
l			1				22		
7			:				23		
-4		1				!	24	 SP	Gravelly sand brownish area years poorly exted areas send ratio
SS	24-26	60	8/24		0	:	∵ 25		Gravelly sand, brownish gray, very poorly sorted gravel sand ratio: 5/95 loose, dry, gravel (< 0.25 inch) subangular to rounded
اس	4 <del></del> 40	50	W 24		U		. 2 <b>.</b>		

Sheet 2 OF 3

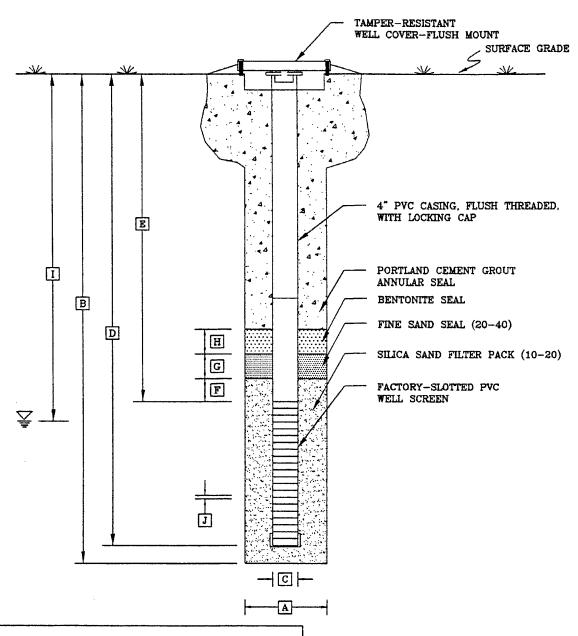


			Location	of Boreh	ole:			1 doL	۷o.:	P065502	Borehole Designation: MW-4				
								Clier		Timet	Surface Elevation:				
1								Site		Henderson, Nevada	Depth to Water:				
	į.							Subs			Logged by: W.P. Gagnon				
ľ								;		: The Verde Companies	Drilling Date(s): 03/24/99 and 03/25/99				
									ing Met		27 mmg 2 a sq. 29. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20				
								1	_	em auger.					
								•		on Sampler (SS)					
$\vdash$	Sample		1 70	I	!			<u> </u>							
Sampler	Depth	Blows	Recovered Driven		PID	Analysis	Lithology	Danth	USCS						
Sg.	Top to	8   B	88 jr	Time	Info. (ppm)	Ana A	i ti	Depth	Soil Type		Soil Description				
$\vdash$	Bottom	!	1 02	<u> </u>	(pprii)	1		26	1 7 00						
								1							
								27							
			-				1	28							
								- 29							
						i I	c 3 3	. 23	SP	Gravelly sand, as previ	ously described, grades into:				
SS	29-31'	100	12/24		0		5°.	30							
							ŤŤ	31	ML	Gravelly silt, brown, n	onplastic, poorly sorted, loose, slightly moist				
								31							
					   	<u> </u>	<u>:</u>	32							
				İ				33							
					i i	1									
							-	34							
r -	<u> </u>	1						35							
									ML	Gravelly silt, as previous					
ss	35-37	50	14/24		0			36	SP	Gravelly sand, brown,	nonplastic, dry, gravel sand ratio: 15/85, banguler to subrounded, gypsum cemented nes				
ļ		<u> </u>		!		<u> </u>	3.	37		layer 36 - 36 feet 2 incl	nes				
Į															
							1	38							
l	!			]				39							
						1		40							
								40	SC	Fine sand to silty sand,	brown, minor gravel (< 0.25 inch),				
SS	40-42'	50	10/24		0			41		rounded, slightly plastic 41 - 41 feet 3 inches	c, poorly sorted, slightly moist, loose, hard				
<u> </u>					3			42		Tribat o manas					
								42							
					1			43							
								44							
					1			77							
						-		45	SC	Fine cand to silty asset	brown minor ground (s 0.05 in-th)				
ss	45-47'	60	15/24		0			46	SP	rounded, slightly plastic	brown, minor gravel (< 0.25 inch), c, poorly sorted, hard, wet at 45.5 feet				
٦	-V41	<b>50</b>	10/24		U			, 7		Sand with minor gravel,	brown, loose, wet, nonplastic, gypsum				
					:	•		47		layers in upper 3 inches	, poorly sorted				
1	-			i i	:			48							
	)			į				٠							
				:	-			49	!						
				· ·				- 50 -							
SS	50-52'	30	18/24		0				SM	Fine sand, brown, trace sorted, wet	gravel, moderately plastic, moderately well				

Sheet <u>2</u> OF <u>3</u>



	Location of Borehole:								Job I	Vo.:	P065502	Borehole Designa	tion: \$410/.4			
										nt:	Timet	Surface Elevation				
٠.,									Site:		Henderson, Nevada	Depth to Water:				
									Subs		THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE S	Logged by:	W.P. Gagnon			
Ī											: The Vrede Companies	Drilling Date(s):	03/24/99 and 03/25/99			
										Drilling Method:						
									Н	ollow-st	em auger.					
											on Sampler (SS)					
Sampler	Sample Depth Top to Bottom	Blows	Recovered	Driven	Time	PID Info. (ppm)	Analysis	Lithology	Depth	USCS Soil Type		Soil Description				
SS	50-52'	30	18/	24		0			51 52	SM	Fine sand, brown, trace sorted, wet	e gravel, moderatel	y plastic, moderately wel			
							-		53							
									54							
				+					55	ML-	Sity day to dayey sit,	brown, plastic, tra	ice pebbles, rounded,			
SS	55-57'	35	6/2	24		0			56	CL	saturated, more silty to	ward bottom				
	<u> </u>			-			!	//	57							
					:				58							
			! : :						59							
, , <u>i</u>		<u> </u>		-					60		~					
SS	60-62'	55	8/2	4	-	0			61	ML- CL	Sity clay, brown, mode to wet	arately plastic, mod	erately hard, very moist			
			L			i I			62	ML	Clayey silt, brown, slig	htly plastic, moist				
SS	62-64'	45	14/2	24		0			63							
						:			64 -	- :						
i							İ		65	CL	Sihi dar hama					
ss	65-67'	47	16/2	24	÷	0			66	OL	Silty day, brown, mode	rately plastic, mois				
				-		!			67		Total double of least					
-		1			7				68		- Total depth of boring:	67 feet				
					and the same			:	69							
						and and and		!	70							
				-	70. 13000	and and		;	71	-						
:		i							72	-						
!						<del>-</del>			73							
		;				-			74							
									75							



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 65 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 60 FEET
- (E) DEPTH TO TOP OF SCREEN 40 FEET
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 5 FEET
- (G) TOP OF FILTER PACK TO TOP OF SAND 2 FEET
- (H) THICKNESS OF BENTONITE SEAL 3 FEET
- (I) DEPTH TO WATER TABLE 48.97 FEET (5/3/99)
- (J) SLOT APERATURE .020 INCHES

Not to Scale

S/TIMET/PHASE II FOLLOVUP/ECIVA REPORT/FIGURES/FIGURE 2.2+.DVG

ENVIRONMENTAL CONDITION INVESTIGATION ADDENDUM REPORT	DATE: 09/01/99					
HENDERSON, NEVADA	DESIGNED:	_				
GROUNDWATER	CHECKED:	WPG				
MONITOR	APPROVED: KTA					
WELL MW-5	DRAWN:	RTF				
44FFF 14144—2	PROJ.: P065	5-04				
TETRA TECH EMI	Figure	2.2e				

A Tetra Tech Company

Sheet <u>1</u> OF <u>3</u>



			Location	of Boreh	ole:			Job	No.:	P065502	Borehole Designation:	MW-5
								Clier	nt:	Timet	Surface Elevation:	
1								Site:		Henderson, Nevada	Depth to Water:	
								Subs	site:		Logged by:	W.P. Gagnon
								Drilli	ng Co.	The Verde Companies	Drilling Date(s):	03/30/99
									ng Metl			
								Н	ollow-st	em auger.		
								Sp	olit Spo	on Sampler (SS)		
٦	Sample		) e)			S	>			i		
ampler Type	Depth	Blows	Recovered Driven	Time	PID Info.	Analysis	Lithology	Dept-	US CS Soil		Soil Description	
Sal	Top to Bottom	<u>a</u>	) G		(ppm)	An	Lift	h	Type			
Г				***************************************								
-						<u> </u>	·	10	SM	Coarse sand brown	to raddish brown your page	orly ported with
99	10-12'	40	14/24		0			11	SIVI	tine sand and silt, tra-	to reddish brown, very poo ce pebbles (0.2 inch), nonp	plastic, loose,
33	10-12	10	17/27		J					slightly moist		
$\vdash$							• • • •	12				
								13				
								14				
							-	15				
								16				
Į								17				
								18				
								19				
								20				
SS	20-22'	45	10/24		0.3			21	ML	Sandy silt, brown, tra- moderately well sorte	ce pebbles (<0.2 inch), rou d, dry, no odor	ınded,
		73	10/24		0.3			22				
								23				
					in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se			24				
								25				
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				and and and and and and and and and and				27				:
				ļ	! !			28				
	:							29				
					ļ		<u> </u>	30	GM	Grouply oilth and 1		
25	30-32'	50	10/24		0 =			31	Civi	0.75 inch) with green	rown, minor purple volcani zeolites, very poorly sorted	d, loose, dry
	JU-UZ	50	10/24		U	-		į	:		·	·
						<u>-</u>		32				
					-	<del></del>		33	1			
	i											

# **BOREHOLE LOG**

Sheet 2 OF 3



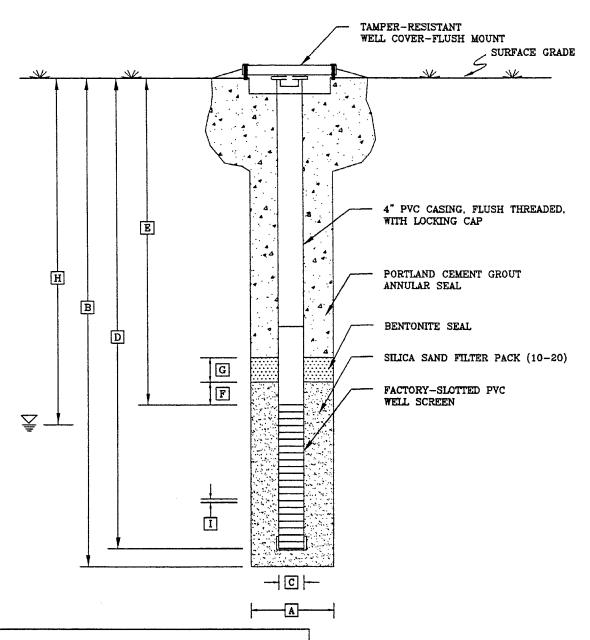
	i-	Location	n of Boreh	ole:			Job	No.:	P065502	Borehole Designation:	MW-5	
								Clier		Timet	Surface Elevation:	101.0 0-0
								Site:		Henderson, Nevada	Depth to Water:	
_ )								Subs		Honderson, Novada	Logged by: W.P. G	2gnon
										The Verde Companies		3/30/99
								1	ng Meth		Drilling Date(s).	3/30/20
									-	em auger.		
								!		on Sampler (SS)		
			- 6			,			/// OF -	on campio. (CC)		
g Ser	Sample Depth Top to Bottom	NS.	Recovered	5	PID	sis	Lithology	Dept-	USCS			
Zan Z	Top to	Blows	Scovere	Time	Info.	Analysis	I hol	h	Soil Type		Soil Description	
S	Bottom		, &		(ppm)	_ ≺		24	Type			
								34				
						1	e 3,5	35	GM	Gravelly, silty sand, gr	ravel is subangular (0.1 - 0.3 inch	), loose,
ss	35-37'	48	11/24		17			36		slightly moist, no odor	`	,,
			4									
							<u> </u>	37				
								38				
		1						20				:
								39				
-	1	<u>:</u>			1	+		40	B #1	O		
	10 10		10/04		10.4			41	ML	Sandy silt, brown, min hard, dry, no odor	nor pebbles (<0.24 inch), rounded	, slightly
SS	40-42'	50	10/24		10.1			41				
-	!				1			42				
•								43				
							1	40				
								44				
								45				
							e 3 = .		GM	Gravelly, silty sand, br	rown, gravel is rounded to subang	guler
ss	45-47'	80	8/24		6.2	-	0.5 1.3	46		(U. 1 - U.4 INCH), 1005E,	nonplastic, wet, no odor	
					ļ		د د د د د	47				
												·
								48				
		:		:				49				
								73				
		1		<u> </u>			H	50	МН	Clavev silt brown mir	nor trace nebbles (<0.2 inch)	
ss	50-52'	48	18/24		8.1			51		subrounded, slightly p	nor trace pebbles (<0.2 inch), lastic, wet, no odor	
	00 0_		10/2		U.,							
				-		<del>                                     </del>		52				
								53				
ĺ		:										
								54				
			<del></del> .			!		55				
						!	$\Pi$	•	МН	Clayey silt, as previous	sly described, no pebbles	
` ~ .	55-57'	70	18/24		7.0			56				
, 						!		57				
									:			
								58				
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D	U.	$\boldsymbol{\pi}$	П	U	ட		<u>_</u>	U	U

Sheet 3 OF 3



			Location	of Boreb	ole:			Job I	No :		P065502	: Parabala Danimatian	
			2000000	O. DO.O	0.0.			Clier				Borehole Designation	n: MW-5
l											Timet	Surface Elevation:	
								Site:		Henders	on, Nevada	Depth to Water:	
								Subs				Logged by:	W.P. Gagnon
											Companies	Drilling Date(s):	03/30/99
									ng Meth				
								1		em auger.			
								Sp	olit Spoo	on Sample	r (SS)		
er	Sample	<b>,</b> 0	n rec		PID	. <u>s</u>	gy		Hece				
mp	Sample Depth Top to Bottom	Blows	Recovered Driven	Time	Info.	Analysis	Lithology	Dept-	USCS Soil			Soil Description	
Sa	Bottom	8	Rec		(ppm)	An	三		Туре			•	
	j.							59					
	i							60	N 44 1	Cilh ala			
									МН	Silty clay	r, brown, mo	derately plastic, wet, no	oodor
SS	60-62'	80	18/24		9.1			61					
								62					
			İ										
								63					
								64					
i													
	;							65		- Total de	epth of borin	g: 65 feet	
	!							66				•	
	:							07					
			į					67					
	:							68					
								69					
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****					7			81					
		ļ						82					
		1						83					
								55	1				



- (A) BOREHOLE DIAMETER 11 INCHES
- (B) BOREHOLE DEPTH 60 FEET
- (C) CASING DIAMETER 4 INCHES
- (D) DEPTH TO BOTTOM OF SCREEN 59 FEET 8 INCHES
- (E) DEPTH TO TOP OF SCREEN 39 FEET 8 INCHES
- (F) TOP OF SCREEN TO TOP OF FILTER PACK 6 FEET 8 INCHES
- (G) THICKNESS OF BENTONITE SEAL 3 FEET
- (H) DEPTH TO WATER TABLE 43.23 FEET (8/19/99)
- (I) SLOT APERATURE 0.20 INCHES

Not to Scale

ENVIRONMENTAL CONDITION INVESTIGATION ADDENDUM REPORT TITANIUM METALS CORPORATION HENDERSON, NEVADA DESIGNED: WPG CHECKED: GROUNDWATER APPROVED: KTA MONITOR RTF DRAWN: WELL MW-6R PROJ.: P0655-04 TETRA TECH EMI Figure 2.2f A Tetra Tech Company

DATE: 09/01/99

SINTIMETYPHASE II FOLLOWUPYECIWA REPORTYFIGURES/FIGURE 2.2F.DWG

# BOREHOLE LOG Sheet 1 OF 2



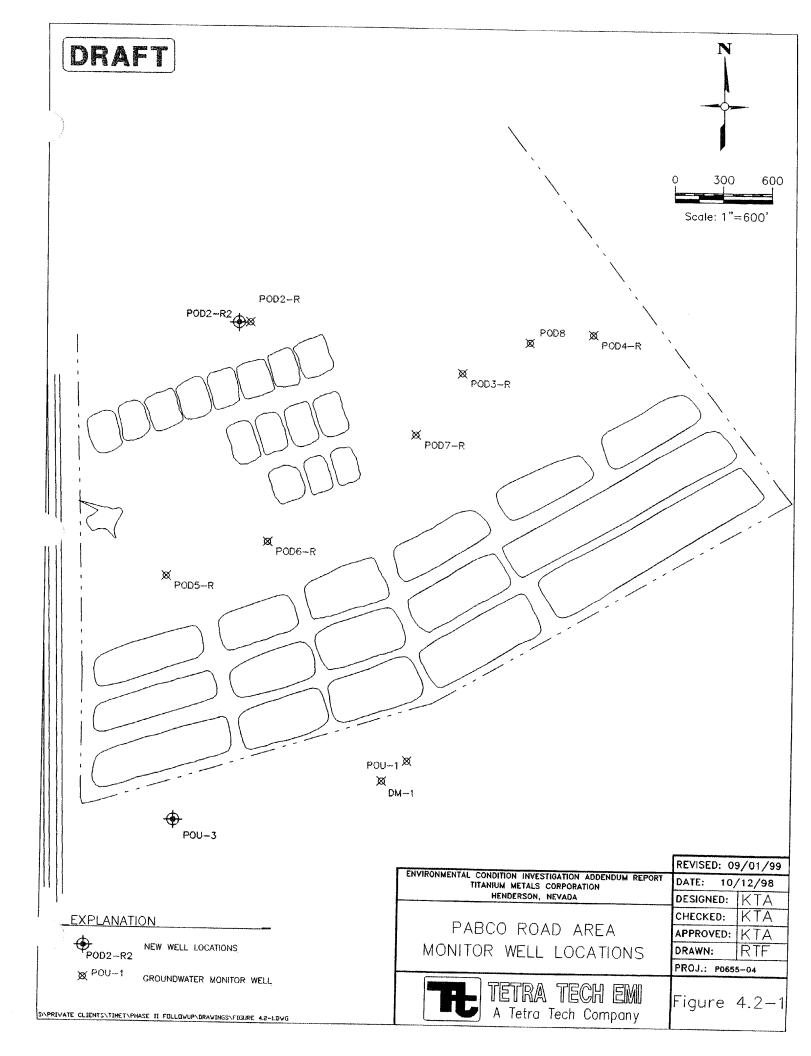
			Location	of Boreho	ole:			Job N	lo.:	P065502	Borehole Designat	ion: MW-6
								Clien	t:	Timet	Surface Elevation:	
`\								Site:		Henderson, Nevada	Depth to Water:	
1								Subs	te:		Logged by:	W.P. Gagnon
										: The Verde Companies	<del></del>	
								Drill	ing Met	hod:		
										em auger.		
<u> </u>	- 10							Sp	lit Spoo	n Sampler (SS)		
Sampler Type	Sample Depth	Blows	Recovered Driven	Time	PID Info.	Analysis	Lithology	Depth	USCS Soil		Soil Description	
ß_ ⊤	Top to Bottom	面	Rex		(ppm)	Anx	Lit		Туре		Son Doorty	
	10.10.5	20	CIE				 	10				
SS	10-10.5	30	6/6	[	0		ا جا داء			Gravelly silty sand, bro- - 0.3 inch), subrounde	own, very poorly so	rted, sorted, peobles (0.1 asphaltic material
	:		1				1	11		<u> </u>	u, 1000, c.,,	aspiratio massing
	i		]					12				
	l						1	13				
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	Į		; [	:				17				
. /	l			:	:	ļ		18				
								19				
							1. F ]:	20	2.4.			
SS	20-22'	60	12/24		0			21	ML	Gravelly silt, light bro loose, dry, moderately	wn, gravel (0.2 - 0.0 well sorted, nonpla	3 inch), subrounded, stic
			-					22	**************************************		Market in the second second second second second second second second second second second second second second	
								23				
	!							24				
	i							25				
	i							26				
	ļ		!  -  -					27				·
	1							28				
	İ							29				
	!							30				
	22.20	20	2/04		- 4		2 p			Gravelly silt, light broaubrounded, loose, dry	wn, trace large grave moderately well so	el (0.75 inch), orted. nonplastic
	30-32'	60	6/24		0.1		=   2   1	31		•	, ,	
					7-14		_lcl_i.	32				· · · · · · · · · · · · · · · · · · ·
								33				
1									!			

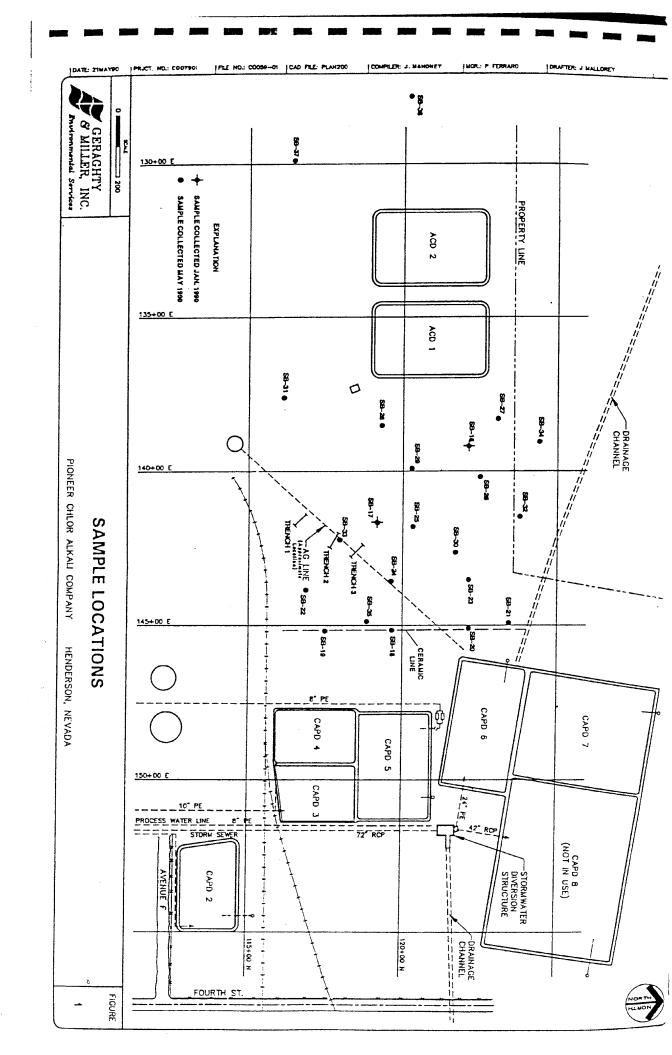
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D	U	$\boldsymbol{\pi}$	П	U	L.		L	

Sheet 2 OF 2



			Location	n of Boreh	ole:			Job 1	do :	DOSTERN		
1					J. C.					P065502	Borehole Designation	on: MW-6
į								Clier	π:	Timet	Surface Elevation:	
1								Site:		Henderson, Nevada	Depth to Water:	
$\mathbf{r}^{\prime}$								Subs	ite:		Logged by:	W.P. Gagnon
								Drilli	ing Co.:	The Verde Companies	Drilling Date(s):	03/31/99 and 04/01/99
1								Drilli	ing Met	hod:		
								Н	ollow-ste	em auger.		
1										n Sampler (SS)		
<u> </u>	. 0		-		1			<u> </u>				
Sampler	Sample Depth	NS NS	Recovered Driven		PID	Analysis	Lithology	1	uscs			
<u>_</u>	Top to	Blows	y C	Time	Info.	la Se	2	Depth			Soil Description	
63	Bottom	<u> </u>	<u> ~</u>		(ppm)	¥	<u> </u>	<u>:                                    </u>	Туре			
1							j	34				
ı			!				-	35				
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1								30				
			1				-	37				
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Ī								38				
			1					39				!
1												
<b>-</b>				<del> </del>		<del> </del>		40	ML	Gravelly fine cond. bro	un diabtu basa si:	
SS	40-42'	100	6/24		0			41	141	Gravelly fine sand, browsorted, gravel (0.1 - 0.3	wii, singhtly hard, sing 3 inch), subrounded,	gnity moist, poorty trace of gypsum,
~	70.72	100	U Z T		U	1	. ^ c ?	71		nonplastic		<b></b>
-		1				!	<u> </u>	42				
. /								40				
		ĺ						43				
							-	44				
				ļ								
								45		- No recovery		
ss	45-47	80	0/24		0		-	46		·		
				-								
						<del>                                     </del>		47				
								48	İ			
						-						
						ļ		49	į			
								50 -				
								<b>30</b>		- No recovery		
SS	50-52'	160	0/24		0			51				
1								52				
								53	İ			
					į			1	İ			
								54				
<u> </u>								55				
		l		1	ļ			~	CL	Clay to silty clay, brown	n, plastic, moist, loos	æ
7	55-57'	35	14/24		r		11	56				
ا ئىد در					i			57				
:					1			5/	- 1	- Total depth of boring:	57 feet	
					,			58		J		
			:			!						





### APPENDIX A

Sample Core/Log Sheets - May 1990

A)	マGER GMIL nvironm	LER.	INC.
	Well_ <u>\$</u>		•
Site Location	n <u>Pi</u>	d V16 6	K. (
Length	epth Drill and Diai	meter	2'
	irface Eli		
Drilling	Fluid Us	ed	no
<b>-</b>	tor		
Prepare By		. ح	
	ore Depth land surface)		Time:
_	85	1.5	Ist

SAMPLE/CORE LOG	IPLE/CORE I	LOG
-----------------	-------------	-----

Little	onme	niai se	rvices	SAMPLE/CORE LOG
Boring/Wel	<u> 54</u>	5 -18	_Project/No.	C O O 74.01
Site Location	Pi	d VIEE	x (61	on Alkali Drilling 5/7/90 Drilling 5/7/90
Total Dooth	مالات	u 20	.4	Hole Diameter 7 inches Coring Device Split Spoon
Length and	Dian	oeter	reet	, <del>-</del> 1
of Coring [	Device		Ζ΄΄Υ	[, Sampling Interval
Land-Surfac	ce Ele		feet	☐ Surveyed ☐ Estimated Datum
Drilling Flui	d Use	ed	NONE	Drilling Method H.S. Auger
Drilling Contractor	6	1) 65	Leich TE	chnologics Inc. Driller Gues Helper Kurt
Prepared	10	<u> </u>		Driller O-REG Helper 12 UKF
By	<u> </u>	<u>. ک</u>	PE	Hammer 140 Hammer 30 inches
Sample/Core D	epth		Time/Hydraulio	
(feet below land :		Core Recovery		,
	To	(feet)	inches	Sample/Core Description
5 6	.5	1.5	15/15/20	SAND (60%) It. beown (7.54R6/4)
				fine to coause. Guardel (40%)
				sibrugulaicto subvound up to 15"
				diAmi procly souted , day
		· · · · · · · · · · · · · · · · · · ·		
		-		
10.010	.5	1.5	2447/1	SAND (70%) pale 620mm (10487/4)
				fine to med. some (OAKSE;
				GUNUEL (30%) cub Angulaiz up (0
				l'diam: poule souted de
				3 1 1 3 3 3
<u> </u>	7 0	) <del></del>	Colf Cit	SAUD (60%) AS About: GUAVEL (30%)
				15 About 111 to > 2" Sidue
				Clay(10%) dle. gravish brown
			·	(loy2 3/2) in small lenses;
				920x 1: = 512+cd day
			b	Tin- Open of Samples in
				EDDOUS & Cution

<b>△</b> GERAGHTY
A WILLER, INC.
Environmental Services

Boring	Well <u>Si</u>	B 19	.Project/No.	
Site Locatio	n Piou	NECK (	hlor Alka	1. Hendersu NV Stated 12:10 Drilling 5/7/80
Total D	epth Dril	led 2	/- 5 ⁻ feet	Hole Diameterinches Coring Device
Length of Cori	and Dia ng Devic	meter e	2"×	/. 5 / Sampling Interval fee
Land-Si	urface El	lev	feet	□ Surveyed □ Estimated Datum
	Fluid Us			/ Cu
Drilling Contract	ctor	Veste	un Tock	reliation Tuc. Driller Gueg Helper Kunt
richaic	ed	R.	Sipe	Hammer Hammer Weight 140 Drop 30 inche
Sample/( (feet below From	Core Depth land surface	Core Recovery	Time/Hydraulic Pressure or Blows per 6 inches	
<u></u>	(- a	T	T .	
2	5.9	0.9	38/50-5	(60 (10) +)
				fine to V. CONESE G. GNAUEL (30%) subnugular
	-			up to I'diAn; V. poorly souted, day
10.0	11.5	1,5	35/3428	SAND (60%) AS ABOUF, SOME BROWN
				(1048 4/3); GUAUE (40%) Subangular
				most < 3/4" dian occ > 2" diam.;
				V pourly souted dry some
				odox
			·	
20	21.5	1.5	16/20/23	SAND (70%) YEllowish brown (104R5/4)
				function (1200/1)
				fine to vicoakst GRAVER(30%) sub Angular of of l'diam, v. poorly souted dry
				s((b) Angular) up to I diam,
				U. POOKLY SOLFED DLY
				Tip-Oppin of spinple-in
				carly + Cutting
			ь	3/00n = (a// in)s



Boring/W	ell <u>58</u>	70 P	roject/No	(0079.01 STRIAG Page   pf !
				A/KA// Drilling 5/7/70 Drilling 3/7/98 Started 2:30 Completed 3:30
Total Den	oth Orille	d 21	,5_feet H	Hole Diameter inches Coring Device
			2" x /.	•
			feet	□ Surveyed □ Estimated Datum
Drilling F	luid Use	d	none	Drilling Method H. S. Augre
Drilling Contracto	or <u>L</u>	JEST	ELNTE	chnologies Iuc. Driller Gury Helper Kurt
Prepared By		6	2-5ip	Hammer 140 Hammer 30 inches
Sample/Co (feet below la	re Depth		Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
	6.5	<del></del>	31/23/28	5:14(50%) brown (104R4/3)
				SANDY : GRAVEL (50%) Subnigular,
				up to 1/2" diAM. V. poorly southed,
				ding: some calcife comentation?);
				Some odon
10	11,5	1.5	20/25/50-5	" Silt (80%) AS About, U. SANdy
				" Silt (80%) AS About U. SANdy guading into a fine sound;
				Gunvel (20%) subningular upto
·				1/2" dinn; v-poorly souted, day
				some comentation
20	215	1.0	41/50/35	SAND (80%) live brown (2.545/6)
				V. COARSE to FINE - GUNUEL (20%
				salveound to sub angular, up to 1"
				diaming vipocely souted, luy
				Tip Oppor of samples
				in spoon red attings
				attings.
			ъ	



Boring/Well SP-71 Project/No. Coo 7901 Task 10 Page 1 c	of 1
Location Printer Chlore Alkali Drilling 08:05 Drilling 09:18  Location Printer Chlore Alkali Started 5-2-50 Completed 5-8	-90
Total Depth Drilled 20 feet Hole Diameter 8/2 inches Coring Device 5plit specification.  Length and Diameter 8/2 inches Coring Device 5plit specification.	* N
of Coring Device	feet
Drilling Fluid Used N/A Drilling Method 12011000 Stee	24500
	4
Prepared B. Botsford  By B. Botsford  Drilling  Driller Greg Og/C Helper Kurt  Hammer Weight 140 Drop 3	inches
Sample/Core Depth  (feet below land surface)  From To  Core Recovery  Recovery  (feet)  Sample/Core Depth  Time/Hydraulic  Strong  See EE  From To  Sample/Core Description	
17-78-117 Sanda Grevelly-Silb - 57% (11 20% Comme for 1 20%)	fine
dense to V. Jense dry 5 YR 7/2 Pinkich go  Tip read -0.9 - Slight odor of Change  6  10-90%  Sub and grovel - 50% sorvel 50% Sand 20% 5	\ <del>-</del> \ \ - \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
6 Tip read -0.9 - Slight odor of chimne 6 10-90% Sandy Gravel - 50% gravel 20% Sand 20% 5	: (
July 12 The Anny Grave Med grain - Nu	m.d
Moist Loose to deuse 7.5 yr 7/2 Pink-gray	slight Chlorine co
BK-100; Same as above - Moisture increases slightly humid to Moist. Tip read - 3.2 wodents to sto	i
humid to Woist. Tip read - 3.2 wodente to sto	ine .
20-60% 26-25-29 Some as above - dense - Moint tip rood -1.5	
, b	



Boring/Well SB-2Z Project/No. Coo 7901 Task 10 Page 1 of 1	
Boring/Well SB-2Z Project/No. Coo 7901 Task 10 Page 1 of 1  Site Pioneex Chlou Alka; Drilling 09: 30 Drilling 10: 30  Location Pioneex Chlou Alka; Started 5-8-90 Completed 5-8-90	
Total Depth Drilled 20 feet Hole Diameter 8/2 inches Coring Device Split 5000	
Length and Diameter of Coring Device	et
Land-Surface Elevfeet   Surveyed   Estimated   Datum	*******
Drilling Fluid Used	
Contractor Western Technologies Driller Greg Ogle Helper Kurt Herma	<u>_</u>
Prepared B. B. Bots ford Hammer Weight 140 Drop 30 inches	es
Sample/Core Depth Time/Hydraulic (teet below land surface) Core Pressure or Recovery Blows per 6 From To (feet) inches Sample/Core Description	
	7
0 35-7% 17-16-17 Silfy Gravelly Sand - Sand - 50% Gravel - 20%, 5.16-20, 1-20% Dry, 7.5 yR 6/4 Light brown - (Sand well grad gravel Line to Course - Sub ang.) Tip tend 12.1 Slight a	2
grayel Line to coarse - Sub ans.) Tip tend 12.1 slight a	4,
@10-6%, 25-26-28 Same as above - loce to deuce - humid to damp	
5YR 6/3 Lt. red-bun slight olon Tip read-0.7	7
1015-10% 27-32-31 Same as above - dense-damp 7.54R 6/2 Lt. born	1
Slight to No odor tip read 0.3	1
20 @20-60, 50-40-50 Some or Obove Victorise damp 7.5 /R 6/7 Lt. hom	1
Slight oder tip read 0.2	1
	1
	1
	$\frac{1}{2}$
	-
ъ	
	1



Steetim to 2012

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Boring/	Well <u>≤</u> [	3-23	Project/No	C007901 Tesk 10 Page 1 of 1
Site Location	n	ionee	x (6/0,	CAIKAII Drilling 5-8-90 Drilling 5-8-90 Started 10:40 Completed 11:40
Total De	epth Drill	ed2	?ofeet	Hole Diameter 8/2 inches Type of Sample/ Coring Device 5/1, + Sfeex
Length	and Dia	meter	18"xz"	·
Land-St	urface El	ev	feet	□ Surveyed □ Estimated Datum \( \mu / \mu \)
Drilling	Fluid Us	ed/	Y/A	Drilling Method Hollow Stem ange
Drilling Contract	tor (	weste	an Te	chnologies Driller Grey Ogle Helper Kunt Herm.
	_	3. Bol		Hammer 140 Hammer 30 inches
(feet below	Core Depth land surface	Recovery	Time/Hydraulic Pressure or Blows per 6	CompletCom Description
From	To	(feet)	inches	Sample/Core Description
0		135-60%	33-38-50/	+ Silty Gravelly Sand Sand ~40% Gravel +10% Sit - 20%
				Loose to dense (fushing tock) Sub-angular to Sub
				round Sandi Gravel dry to damp (w/desth)
	8			Slight overnic odor. Tip read 2.2
8		0 7.0	10	
0		10-W/0	31-37-49	Sandy Gravelly Silt Silt - 40% gravel - 40% South
				deuse humid to damo 54R 6/3 Lt. red. brn.
	11			stryht chloride odor Tip read -0.9
11	Į.	915-50%	21-20-19	Silty Gravelly Sand - Same as Iron o to 8
				Slight organic odor tir read 1.9
			14-16-17	Same as above (0-8) loose damp 54R 6/2
	20	\$20-90%		Slight Chloring ofor Tip. read 1.7 bg 1.8?
	ļ			
				·
		ď		



OAMI ELIGOTE EOG	
Boring/Well 56-24 Project/No. C007901 Task 1D Page_	
Site PIONETIC Chlor Alkali Drilling 5-8-99 Drilling Location Started 13.05 Completed	5-8-90
Type of Sample/  Total Depth Drilled 23 feet Hole Diameter 3/2 inches Coring Device 591:4	
ength and Diameter of Coring Device Sampling Interval	
and-Surface Elevfeet	
Drilling Fluid Used	0
Contractor Western Technologies Driller Grey Ogle Helpe	rkunt Henna
Prepared B. Bots ford Hammer 140 Har Dro	nmer p <u>30</u> inches
Sample/Core Depth Time/Hydraulic feet below land surface) Core Pressure or Recovery Blows per 6	
From To (feet) inches Sample/Core Description	
0 05-60; 31-37-35 Sandy Silty Gravel - gravel 250% silt	~30% Soud fine -
quavel well graded some to Cobble 5:22 -	- deuse to
V. dense dry to humid 7.54R 7/2 Pintis	sh-quen
no Odor Tir read 2.8	V 0
10-506 41-50/4° Same as above humid in waist vide	ase slicht
12 Chloride soor Tip read 2.0	
17 015-90% 26.29-41 = andy gravelly 5,16 5:16 ~60% said 20%	grovel zo%
deuse to V. dence humid 54R 6/3 H	.1
20 @ 20 50/z" Slight to No odor Tip read 2.0 by	1. 3
@ zo' fuching Pock - drilled to 21.5'	
21.5 23 (22.5-6% 40-39-41 Same as above W/Lens of Pale Pink	Sandy Gravel
8-22' slight abor Ty read 2.1 6	9 1.9
•	<i>J</i>
5	



Boring/W	ell <u>S</u>	3-25	Project/No	COO 7901 Task 10 Page 1 of 1			
Site Location	Pic	ONEE	e Chlou	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
Total Dep	oth Drille	ed	3feet	Hole Diameter 8 /2 inches Type of Sample/ Coring Device Selit seon			
Length and Diameter of Coring Device Sampling Interval Set Sampling Interval Set Sampling Interval Set Sampling Interval Set Set Set Set Set Set Set Set Set Set Set							
	Land-Surface Elevfeet   Surveyed   Estimated Datum   1/A						
Drilling Floorilling	Drilling Fluid Used N/A Drilling Method 14016w stem augen						
Contracto	Contractor West an Technologies Driller Grey Offe Helper Kurt Heman						
Prepared By	B	. Bota	ford	Hammer ← Hammer → inches			
Sample/Con (feet below lan		Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description			
o		05- V/s	35-50-50/4	Sandy Silty Gravel Gravel -50%, 5:11-30% sand-20%			
				dense to U. dense dru to humid 7.54R 6/2			
	6			Pinkish-gray - Gravel five to was Grain slight to No odon			
6		@10-6°6	12-10-21	Sand silty Gravel Gravel ~50% to cobble size silt-30%			
				Sand -20% Gravel sub round Loose, damp 54R6/3			
1	12			Lt reddich bun.			
12	Į.	Q 15-100%	39-49-36	sandy Gravelly 5.1+ - 5.1+ ~40% Sandy 30%, Gravel -30%			
		*		Sabangular to Sub round up to Cobble 5.7+ 1 blk bolcs.)			
	\			Vidence humid 54R 7/2 Pinkish gray 16 odor			
				3 20 boulder dilled post to 23'			
	23	\$ 23-15/0	26-28-25	Same as above - color Changes Slickfly to greenish			
				slight to no odor			
			b				
-							



Boring/Well 5 8-26 Project/No
Location Prontex Chlore Alta, Started 5-8-30 Completed 5-8-30
Total Depth Drilled 70 feet Hole Diameter 8/2 inches Coring Device Selic Sees
Length and Diameter of Coring Device
Land-Surface Elevfeet   Surveyed   Estimated Datum
Drilling Fluid Used N/A Drilling Method Hollow Steen aug
Contractor Western Technologies Driller Gray Ogle Helper Kurt Ham
Drilling Contractor Weight 140 Drop 30 inche
Sample/Core Depth Time/Hydraulic (feet below land surface) Core Pressure or Recovery Blows per 6 From To (feet) inches Sample/Core Description
0 85-50: 14-41-36 Sandy Sill w/quavel Sill~60% Sand~30% five
to Cearse, gravel ~10% fine sub angular to sub
round loose to dense humid 7.5 yr 6/2 Pinkis
gras - Cloth on it
gray - Slight Organic odor.
310-100/314-9-12 Same as above increased 51/2 ~ 70% - Sand ~20%
mavel ~10% - loose humid 54R 7/3 Pink
No odor
1015-90% 23-30-30 Game as @ 10'
019-96, 15-12-14 Same as above
20 020-60: 14-22-28 =ame as above
5)



Boring/	Well_S 5	3-27	Project/No	C 80 7901 Task 10 Page ' of '
Site Location	n	ione	eu Chi	Ou Alkal: Drilling 5-9-90 Drilling 5-9-90 Completed 08; 50
Total De	epth Drill	led2	o feet	Type of Sample/ Hole Diameter 7/2 inches Coring Device 5/1: L Speed
cength of Corir	and Dia ng Devic	meter e	18"xz"	, Sampling Interval Seet
Land-St	urface El	ev	feet	□ Surveyed □ Estimated Datum □ □ A
	Fluid Us	ed	N/A	Drilling Method Hollow Stem Auge
Drilling Contrac	tor <u>u</u>	Jester	n Tecl	enologies Driller Grag Ogle Helper Kurt Harman
D	ed &			Hammer Hammer
Sample/( (feet below From	Core Depth land surface	Recovery	Time/Hydraulic Pressure or Blows per 6 inches	
	1	(feet)	1	Sample/Core Description
0		<b>36 −90</b>	16-24-36	silty Sand little gravel Sand -1,6% 5:11-30%
$\longrightarrow$		ļ		gravel-10% Loose to dense dry 54R 1/5 lt.
······································	<u> </u>			teddich-brn. 40 ador Tip read 0.3 by 0.2
	<u> </u>	210-45%	14-11-15	Same as above Sand-60% 5:14-20% quevel-20%
<del></del>				V. Louse to Loose dry SYR US 4 red-born
	12			Slight odor Tip read - 1.5 bg - 0.2
12	(	\$15-60%	36-25-20	Sand Silt some gravel - Silt 50% Sand-25% gravel
		,		fine to Coarse (666/100) ~25% Sub angular to Sub
$\longrightarrow$				round, Loose (high blow Gunt due to Cobbe), day
·	<b>\</b>			54R 6/3 Very Slight soor Tip read 6.9 bg-0.Z
	17-18	9 30-	21-30-34	Silty Sandy Gravel - Gravel ~ 50%, Sab audas to 5-5
18/				round line Sand well graded to gravel ~ 30% 5.16
				-20% deuse to Vidence humil 7.5 YR 7/2
	20			Pinkish gray - Slight abor Tip rend -0.4 in 0.3
			30-24.50/	bez somple some as above -
			į.	
	i			



Boring/Well 513 -28 Project/No C 00 79 61 745 K (0 Page I of
Site Planete Chlan Alkali Drilling 5-9-90 Drilling 5-9-90 Location Started 09:10 Completed 10:20
Total Depth Drilled 10 feet Hole Diameter 8 1/2 inches Coring Device 5,1.4 Speed
Length and Diameter of Coring Device Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval Sampling Interval
and-Surface Elevfeet
Drilling Fluid Used N/A Drilling Method Hallow Stem Onger
Orilling Contractor Western Technologies Driller Greg Ogle Helper Kurt Herman
Prepared B. 130+5-6-6  Hammer Hammer Weight 140 Drop 30 inches
Sample/Core Depth Time/Hydraulic eet below land surface) Core Pressure or Recovery Blows per 6 From To (feet) inches Sample/Core Description
0 \$5-60% 14-14-12 Silty, Sandy Gravel Gravel ~ 40% Well quaded to
well graded Sand Sub angular to Sub round Sand ~30%
Silt 30%, Loose, humid, 54R 7/2 Pinkinh gray
My Odor Tip read 4.6 by 0.4
14 Dio. 90% 24-23-23 Same as above Silt increases to 45% Sond-grave!
20.00
14 915-90% 27-31-42 gravelly Santy Silt Silt 50%, Sand - 30% gravel- 70%
Sand i gravel well graded - dense to V. dase worst
20 De - 92/ 22-28-27 5
20 020-90/3 23-38-33 Same as above - Tip read 2,1 bg-0.2
41-39-43 has Sample @ 20'- Same
h h



ans - ass

Boring/Well 53-29 Project/No							
Site Pionera Chlore Alkali Drilling 5-9-90 Drilling 5-9-90 Location Pionera Completed 12:10							
Total Depth Drilled 20 feet Hole Diameter 8 1/2 inches Coring Device Split Spean							
Length and Diameter of Coring Device							
Land-Surface Elevfeet   Surveyed   Estimated   Datum							
Drilling Fluid Used N/A Drilling Method Hollow Stem Auge							
Drilling Contractor Western Technologies Driller Gree Ogle Helper Kurt Herman							
Contractor Western Technologies Driller Greg Ogle Helper Kurt Herman Prepared B. Butsfield Hammer Weight 140 # Drop 30 inches							
Sample/Core Depth Time/Hydraulic (feet below land surface) Core Pressure or Recovery Blows per 6 From To (feet) inches Sample/Core Description							
0 05-10.59:-14.55 Pushing Rock - Sendy, Gravelly 5:14 5:14 60% - gravel 20%							
Send 20% - Sandi gravel well graded, Sub angular to							
Subrounded Loose dry SYR 7/2 finkish gray							
T   Slight Organic Olor Tip read 10.1 bg 0.3							
1 10.906 27-29-35 Silty Gravelly Sand 50nd -50% Gravel -20% Siltyas							
well qualed fine Send to gravel dense to Vi dense							
15 humid 5 YR 7/4 Pink 310 odor Tip -12.3 bg -0.2							
15 . 13 K-100; 29-50-50/3 Gravelley, Silt Little Sund - Silt 60%, Gravel 30% Sand 10%							
Sand-Gravel Well Graded Sabangular to Sub bound -							
V. dense, dry to humid 54R 7/2 Pink slight							
17 to Woderate (Chlorital odor Tip read 0.8, 67 0.2							
17 Dro-556 28-30-35 Silty Sand Same gravel Sond 55%, Silt 50% Grave 220							
Loose to dense havid SYR 16/3 Lt brodich born							
Ms Odor Tip read 0.0 - by 0.2							
1920 30-35-50/3" bac sungle Pushing Rock Same us above 6641cs							
Probably throughout from 15' death							



Boring/Well S	<u>B-30</u>	Project/No	C00 7901 Task 10 Page 1 of 1				
Site Location	ionE	ea Chl	C007901 Task 10  Page 1 of 1  A/KA/, Drilling 5-9-90  Drilling 5-9-90  Completed 14:50				
			Hole Diameter 8/2 inches Type of Sample/ Coring Device Split Span				
Length and Diameter of Coring Device Sampling Interval 5							
Land-Surface Elevfeet   Surveyed   Estimated   Datum							
Drilling Fluid Used N/A Drilling Method Hollow Stem augen							
Drilling Contractor Western Technologies Driller Greg Ogle Helper Kurt Herman							
Prepared By	B.B	teful	Hammer # Hammer 30 inches				
Sample/Core Depth (feet below land surfa From To		Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description				
0 0.5	-		Cine South Silk - Longe day 540 8/7				
0.5	05-90	6 18-43-36	Silty, Sand - Sand - 70% well graded fine to Coars e				
		pushian	54R 6/3 it reddish bun Tip read 6.6 6g 0.3				
	1310-50	67-33-32	silty, soud som - gravel Sundy 50% - gravel 20%				
			Silt 30% - Sand and gravel well graded - fine Sand				
	_		to wed gravel (Cobbles Present throughout).				
\	-		dense dans 5 yr 6/3 slight organia odor				
13	ļ		Tip read 0.0 log 0.3 (?)				
13	@15-90%	35-41-37	Gravelly Sand, Little Silt Sand - Gravel ~80%				
			Sill-20% Soud-Gravel Well Graded from Live Sound				
			to Wed Gravel (Cobbles fresent) Sub augular to				
\ ·			Sub round (102% Kica / dense to Vi dense				
			damp to woist 2.5 YR 6/2 Rie Red V. Slight				
			Odor Tip head 0.9 kg 0.0				
	920-93%	18-20-20	Odor Tip read 0.9 log 0.0  Some as above a Moist Tipread 0.0 log 0. = (?)				
20	<u> </u>	1 1	beg Sample of 20				
		ņ					
İ							



Boring/Well 51	3-31	Project/No	C007901 Task 10 Page 1 of 1			
Site Location	, one e	x Chlo	THE Alkali Drilling 5-9-90 Drilling 5-9-90 Completed 16:15			
			Hole Diameter 8 1/2 inches Coring Device Split Special			
Length and Diameter of Coring Device						
Land-Surface Elevfeet   Surveyed   Estimated   Datum   U/A						
Drilling Fluid Used N/A Drilling Method Hollow Sten aug en						
Drilling Contractor Western Technologies Driller Grey Ogle Helper Kurt Herman						
Prepared By	B. 12	isford	Hammer Hammer Hammer Weight 140 Drop 30 inches			
Sample/Core Depti (feet below land surfa From To		Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description			
0	Ø5-62	26-13-14	Silty Sand with gravel Soud - 50%, gravel -30% Silt -20%			
	3, -0.	8-13-17	So I see well will so the source of the second			
			Soud-gravel well gunded Line Soud to Med gravel (cobbles to bouldous present) Sub Angular, Loose			
<b></b>						
· 1			humid 54R 7/2 Pinkish Gray Organic olor			
			Tip would -0.1 kg -0.6 (t.)			
	310-30%	15-17-12	Same as above Slight Color Change SYR 7/2 fink			
11			Tip read-0.3 kg -0.9			
(1	215-50,0	1	Sandy Silt some Gravel Sill 55% Sand 30% Fravel 20%			
			Sand i gravel well graded fine sund to Gause			
			gravel, Loose to dense hamid SYR 72 Pinking			
	J.		Guay Mo odor Tip read 1.9 by - 5.1			
	020-50%	33-31-41	Same material-as above but Gravelly Silt W/soud			
20		1	Dis beg samile organic odor Tip 27 ha-p.7			
	-	Þ				
1						



Boring/Well 56-32 Project/No							
Site Figure 1 on EFK Chlor Alkali Started 16:30 Drilling 5-9-10 Completed 17:35							
Total Depth Drilled 70 feet Hole Diameter 91/2 inches Coring Device 501.4 5000 4							
Length and Diameter of Coring Device							
Land-Surface Elevfeet							
Drilling Fluid Used N/A Drilling Method Hollow Stan Augen							
Drilling Contractor Western Technology Driller Greg Ogle Helper Kurt Herman							
Prepared By Botsford Hammer Hammer By Hammer By Botsford Weight Botsford Hammer Weight Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop Brop							
Sample/Core Depth Time/Hydraulic (teet below land surface) Core Pressure or Recovery Blows per 6 From To (feet) inches Sample/Core Description							
Pushing							
0 06-90% 24-21-14 gravelly Sand Little Silt - Sand -60% well graded							
to fine Gravela 30% Sub angular to Sub round							
Silt ~10%, Loose humid to damp SYR WZ Finkinh							
gray-No odor Tif veir 0.9 bg 0.8							
@19-90% 25-30-30 Pushing Rocks Same as above (Cobbles to boulders							
Present) Tip read-0.7 bg0.3							
@15-70% 30-26-81 " Same as above (brenking through Rocks @							
end of fushi) Tip read 0.2 ba -0.4							
Des 90% 20-17-15 Same as above (entire 20' Varies Slightly in							
Silt and gravel Concentration ~5% + Waisture increased widefth to wist) Tip read 0.1 bg 0.0							
@ 20' bag Sample Tip read 0.1 bg 0.2							
r.							



Boring/Well <u>SB33</u> Pro	oject/No. <u> </u>	Page / of /
	Chlor Alkali	- / /
Total Depth Drilled 16-5	feet Hole Diameter	Type of Sample/ inches Coring Device
Length and Diameter of Coring Device/_		Sampling Intervalfee
Land-Surface Elev	feet   Surveyed	
Drilling Fluid Used		Drilling Method H.S. Auge
Drilling Contractor Wiste	an Technologies	- ac_ Driller GREG Helper Kurt
Prepared R. S		Hammer / 40 Hammer 30 inches
(feet below land surface) Core Recovery	Time/Hydraulic Pressure or Blows per 6	
From To (feet)	inches	Sample/Core Description
6 7.5 1.2 4		70%), brown to of brown (757K\$4
	to 7.5%	1K42) v.fine to corker silfy
	Sift (	20%); GUMI ((10%) subanjular
	up fo	(diston) V. Penely sorted
	duy to	the moist
10 115 1.3 2		(75 KS/4) W. Fine
	Lo 11-Co.	Auge; SiH(10%): (-VASH(10%)
	sura nice	ne unto 1/2 dias pooly
15 165 1.5 3	35/2138 SAND (70	Accepted te moist to dry
	subang	lar, upto 1 Liam; 5, 1+(10%);
	V. 2002	y souted te moist to deey
		,
	OVM-	Oppm of samples in spean
		2.3 pm fram inside. 5
	•	Auers @ 15'
2		



Boring∧	Nell_≤ñ	34	Project/No	(079.01 Task/0 Page / pf /				
Site	P	idneed	c (hlou	Alkali Drilling 5/10/88 Drilling 5/10/80 Started 9:20 Completed 10:15				
	Lonoth and Diameter (1)							
of Corin	g Device		1.5					
	Land-Surface Elevfeet   Surveyed   Estimated   Datum   LA							
	Drilling Fluid Used 1000 Drilling Method H. S. Alager							
Drilling Contract	tor	UESTE	en lechn	ologics, Inc. Driller Greg Helper Kunt				
Prepare By	d		Sijie	Hammer Hammer Weight 140 Drop 30 inches				
•	Core Depth		Time/Hydraulic					
(feet below	land surface)	Recovery	Pressure or Blows per 6					
From	То	(feet)	inches	Sample/Core Description				
5	6.5	1.5	25/29/36	SAND (90%) H. yellowish brown (104/2014)				
				v fine to coruse: Guavel(10%)				
				subsingular to substant up to 1/2" line				
				Sil+(10%). qualy sontial day				
10	115	1.1	43/35/50-5					
-	,			Line followase is expect 20%)				
				subscould survice Aut on to				
				32 7 12				
/	11	, 5		couted to moist to due				
15	16.5	1.3	22/28/41	S And (80%) AS 1. 5, NE GUAVE (20%				
		·		15 Above ; 5; 1+(10%) . parely				
				conted tr-moist				
20	21.5-	1.0	72/2/25	5.1nd(60%) garyish boxon (25/5)				
				Fineto U. CORUSE: GARUEL(30%)				
				quisiquisets especial into 1.5"				
				13. 5.1+(105) - W. 1201/10 50+11				
				-112 11+(105) - V. poorly south				
		·		(1. 1/2013) ( CIT OUTE				
				OUM				
				OVM - Opper of sturies in spoon				
				- 4 prus from based sample 010				



744 Fue - 12 22

Boring	_{J/Well} SE	335	Project/No	COO79-D( Page / of //			
				Alkali Drilling S1(093 Drilling S1/10/9) Started 10:35 Completed 11:30			
Total D	epth Dril	led _2/	!Sfeet I	Hole Diameter 7 inches Coring Device 5011 5000			
Length of Cor	and Dia ing Devic	meter e	2 ×	Sampling Interval			
Land-S	Surface El	ev	feet	□ Surveyed □ Estimated Datum h/A			
			NONE	Drilling Method H - S - Auger			
Drilling Contra	Drilling Western Technologies Inc. Driller Grey Helper Kurk						
Prepar By	ed K	\. <u>5</u> ;	₽c ⁼	Hammer 140 Hammer Drop 30 inches			
	/Core Depth v land surface To	) Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description			
(_	6.5	1.2	5/18/23	San 100000 11 (1010011)			
	1 0.5		311312	SAU- (80%) guryish becom (10 Vil 4/2)			
				Line to V. COMUSE : GRAVE ((10%)			
				subrugular 1 ubucund: cep to 1/2 dias			
<del></del>	-			Silt (10%): pookly souted, the			
				moint du odon			
10	11.5	1.3	21/38/43	SAND (70%) brown (104R 5/2)			
				fine to U. COAUSE ( - KAULI ( 20%)			
		,		Substitute, un to 2'diday			
				Silt (10%): v. posely souted,			
				tire moist = 1: odoix			
15	165	1.1	19/35/35	Sand (70%) AS Above Gram (104R43)			
``				GRAVEL (30%) AS Above; Silt (10%).			
				V. Doonly souted the moist			
20	2/.5	1. 1	20/33/39	SAUD (60%) AS ADOVE; GUEVE/(20%)			
				re above agto 1" from. C/4(100)			
				or missieted but weist			
				/			
				OVM- Oppm of samples a spron			
				- 29 pm of innectionaple 10			
				- 25 24 St bound conde 201			



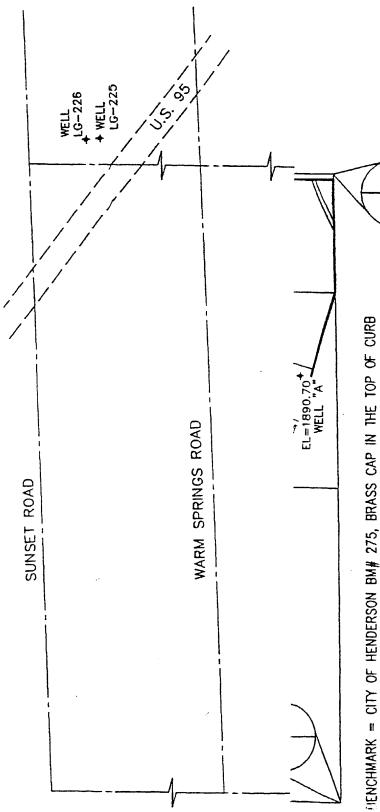
				(00-71-01 Page of / Drilling 5/10/90 Drilling 5/10/90 Started 12:30 Completed 100			
Total De	pth Drille	ed/0	_	Hole Diameter inches Coring Device 5/1.4			
	Land-Surface Elevfeet □ Surveyed □ Estimated Datum □ 🗸						
			None	4			
Drilling Contract				Chadogies Juc Driller Gueg Helper Kunt			
Prepare By	ď	R.	Sipe	Hammer / 40 Hammer 30 inches			
	Core Depth (land surface)	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description			
-	6.5	1.0	Τ .				
<u> </u>	6. 7	1.	11/11/27				
				v.fine to v.copuse. Gravel (30%)			
				3/4 Lithing Silt (20%) U. pooly			
				3/4 diffing Sil+ (20%) U. prouly			
				souted duy			
10	10.6	0.6	24/50-1	" SAND (40%) Hayung (10487/2)			
				W. Eint to rooms: (-unvil (30%)			
		,		15 PAINE: 5: (+ (30%) pooly			
				souted day			
		.,		,			
				Oign W/OUM off			
				SAMPLES in spoon			
			-				
į	Ì						

<b>✓</b> GERAGHTY
A WILLER, INC.
Environmental Services

Boring/Well
Boring/Well 937 Project/No. (0079.01 Page 1 of 1  Site Dianetal Indiana Alkali Drilling 5/10/90 Drilling 5/10/90  Location Dianetal Indiana Alkali Started I':10 Completed I:30  Table Booth Bolley II Started I Started I':4 600
Total Depth Drilled //. 5 feet Hole Diameter 7 inches Coring Device 5 plif spoon
Length and Diameter // / / /
Length and Diameter 2"X 1.5" Sampling Interval See
Land-Surface Elevfeet   Surveyed   Estimated   Datum
Drilling Fluid Used
Contractor Western Technologies Inc Driller Gueg Helper Kurt
Prepared P C Hammer - Hammer
Prepared R Sipe Hammer 140 Hammer 30 inches
Sample/Core Depth Time/Hydraulic (feet below land surface) Core Pressure or Recovery Blows per 6 From To (feet) inches Sample/Core Description
Compressed description
5 6.5 1.0 10/15/15 SAND 50%) It becomest great (104R62
v. fincto V. (OAUSI: GUAVE (30%)
subargalisado subjound upto 3/4 dira.
5,1+(20%) v. goody souted dry
Oppin - Oilvi
0 115 1.4 20/14/2 SAND (50%) AS NOWE (-KAUE 1 (30%)
AS Above, 5:1+ (20%). U. Devely
souted day
, ,
Oppur by OUM of stroks
in spoon
,

# GIBSON BUSINESS PARK

# WELL LOCATION EXHIBIT



DENCHMARK = CITY OF HENDERSON BM# 275, BRASS CAP IN THE TOP OF CURB ON THE SOUTHWEST CORNER OF AMERICAN PACIFIC DR. AND GALAGER CREST RD. (STAMPED C.O.H.). ELEVATION NAVD '88 DATUM = 1854.294 FT.

NOTE: ELEVATIONS SHOWN REFLECT TOP OF CONCRETE AT BASE OF WELL HEAD.

1/4 CORNER

NOTE: WELLS LG-225 & LG-226 ARE APPROXIMATE LOCATION ONLY PER G.E.S.

NOTE: SEE ATTACHED SHEET FOR STATE PLANE COORDINATES INFORMATION.

GRAPHIC SCALE

800

( IN FEET ) 1 inch = 800 ft.



SCALE:  $1^{\circ}$  = 800'



ESI ENGINEERS AND SURVEYORS INC.



W.O. #503-C375 File: C375EX06.DOC September 30, 1997

> By: TLH Checked By: GDR

SURVEYOR'S NOTE: The State Plane Coordinates shown hereon are derived from Clark County's Record of Survey recorded in File 88, Page 53 of Surveys. The reference points, which this survey was based upon, were "Whitney 2" and "W51" as shown per said Survey. The coordinates shown hereon are in U.S. Survey feet and are Grid Coordinates rotated and translated to the North American Datum of 1983 (NAD 83), Nevada East Zone, #2701. See the E.S.I. exhibit labeled A320EX62.DWG for the location of the well heads as referenced to local streets within the City of Henderson.

BENCHMARK - City of Henderson BM# 275, Brass Cap in the top of curb on the southwest corner of American Pacific Drive and Galager Crest Road (Stamped C.O.H.).

Elevation NAVD 88' Datum = 1854.294 ft.

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
2000	26719788.77	819909.85	1783.71	WELL "F"
2001	26717131.48	819059.66	1838.99	WELL "D"
2002	26715809.72	819813.04	1851.92	WELL "C"
2003	26715849.02	818114.18	1873.04	WELL "B"
2004	26714962.98	818267.11	1890.70	WELL "A"
2005	26715804.75	815276.80	1894.70	WELL "E"

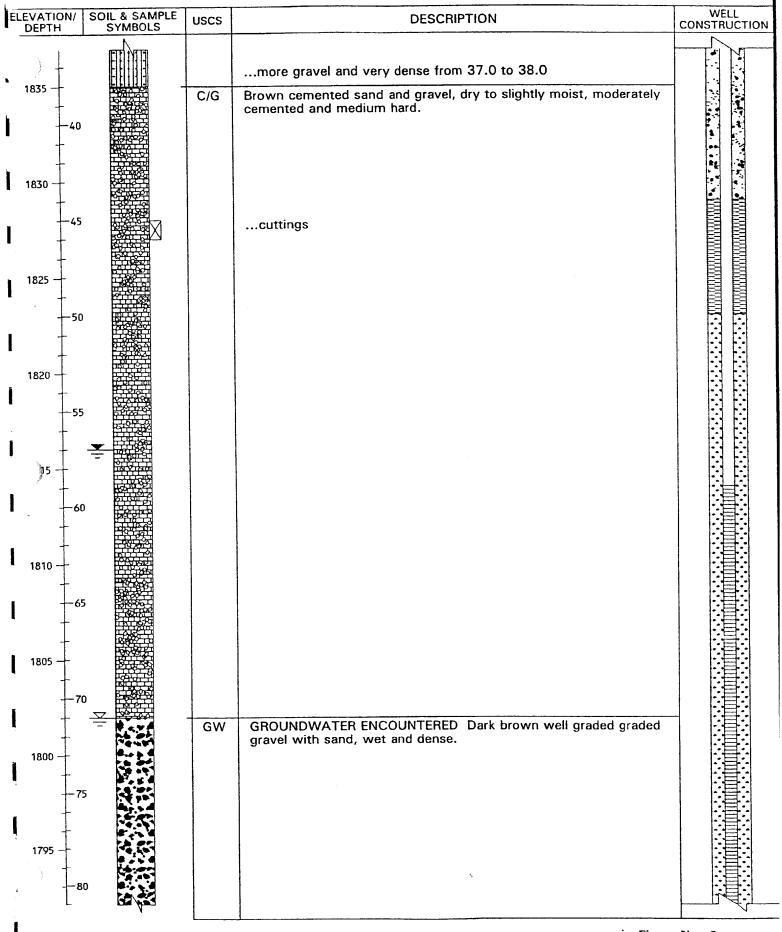
#### EXPLORATION LOG A

INITIAL DEPTH TO WATER: 8			1890.7         LOGGED BY:         S. JOHNSON           89         DATE MEASURED:         8-30-97           75         DATE MEASURED:         9-15-97	
VATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCT
890 -		GP- GM	Pale brown poorly graded gravel with silt and sand, dry and den very dense.	se to
885 — 10	<b>≥</b> 50	C/G	Pale brown cemented sand and gravel, dry, cemented and hardcemented material, no sample taken	
	17	SP	Dark brown poorly graded sand with gravel, slightly moist and of to very dense.	iense
1870 -	100		dry and light brown from 19.0 to 31.0	
- 25 1865				
-		C/G	Light grey cemented sand and gravel, dry, strongly cemented as very hard.	nd
-35 1855 —		SP	Brown poorly graded sand with gravel, dry to slightly moist, par cemented and very dense.	rtially

#### EXPLORATION LOG B

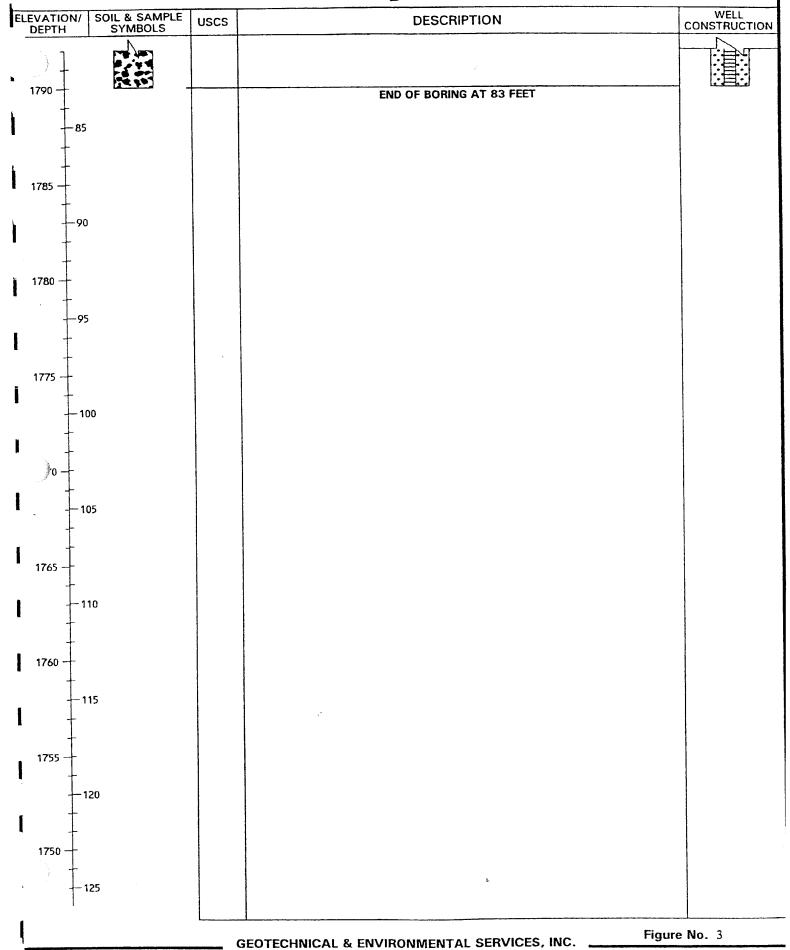
PLORATION SIZE (diameter): 4" MONITORING WELL EQUIPMENT: MOBILE B.	
	-53
G.S. ELEVATION: 1873.04 LOGGED BY: S. JOHNSON	
INITIAL DEPTH TO WATER: 71 DATE MEASURED: 9-5-97 FINAL DEPTH TO WATER: 57 DATE MEASURED: 9-11-97	
_EVATION/ SOIL & SAMPLE SYMBOLS USCS DESCRIPTION	WELL CONSTRUCTION
1875 —	
GP Brown poorly graded gravel with sand and cobbles, slightly moist and dense.	
1870	
GP- Light brown poorly graded gravel with silt and sand, slightly mo moist and dense.	
SP Brown poorly graded sand with fine gravel, moist and dense.	
slightly moist to moist from 9.5 to 17.5	
79	
26	
15 13 13 150	
<u> </u>	
1855dry from 17.5 to 33.0	
-20 :::: <b>=</b> 27	
50	
1850 —	
+	
1845 —	
cobble	
_ + 30	
18/0	
SP- Brown poorly graded sand with silt and gravel, slightly moist a dense.	nd
-35	
GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure No. 3

#### EXPLORATION LOG B



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figure No. 3

#### EXPLORATION LOG B

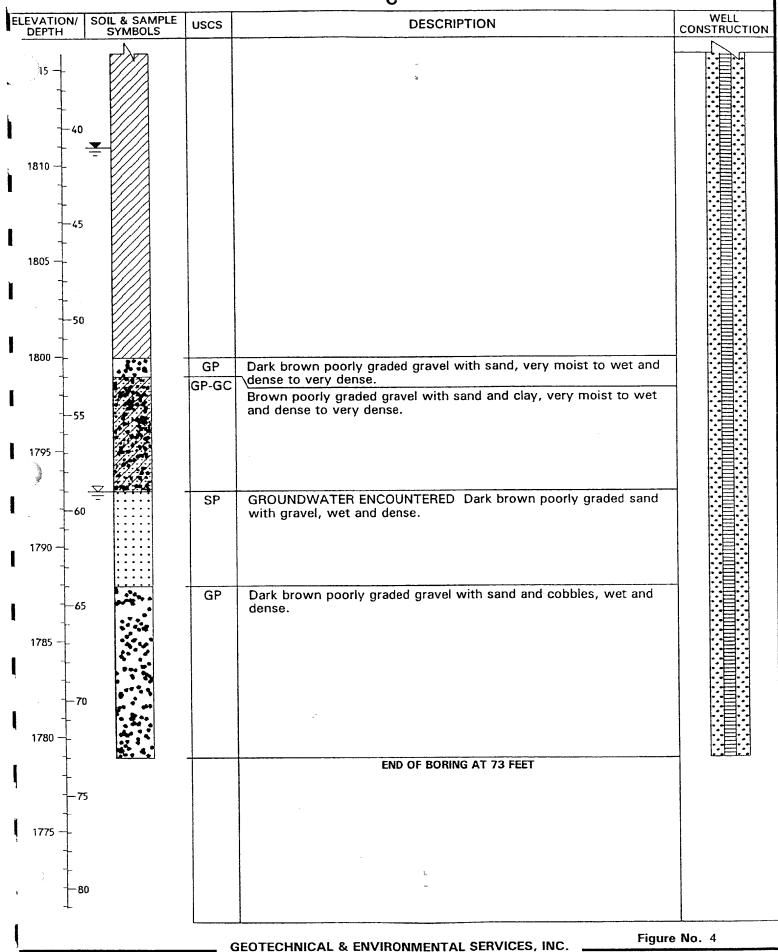


# **EXPLORATION LOG**

PROJECT: PEPCON MONITORING WELLS				_ PROJECT NO.:	96189V2	
HOLE LOCATION: SEE SITE PLAN				EXPLORATION D		7
PLORATION SIZE (diameter): 4" MONITORING WELL						
.S. ELEVATION:			1851.92	_ LOGGED BY:	S. JOHNSON	
NITIAL DEPTH TO V	NATER	₹:	59 DATE	MEASURED:	9-6-97	
INAL DEPTH TO W				MEASURED:	9-15-97	
VATION/ SOIL & SA DEPTH SYMBO		uscs		DESCRIPTION		WELL CONSTRUCTIO
Γ						
+		ŀ				
0	1 +	GP	Brown poorly graded or	ravel with sand coh	obles and boulders, moist	
		٠.	and dense.			
1850			light brown and dry t	o slightly moist to 1	12.0	
-5	20		sampler on rock			
845 —	3					
	]		more fine gravel and	sand, no boulders a	and isolated cobbles to	
1			12.0	J, Dod.do.d		
-10	<b>□</b> 50					
	0د ہے					
840 -	_				)	
		GP- GM	Light brown poorly gra moist and dense.	ded gravel with silt	and sand, dry to slightly	
	-	SP-SC		ded sand with clay.	slightly moist and dense.	
15		5. 00	g 2.01111 poolity gra		J	
1835	31 21 _					
	26	CL	Reddish brown lean cla	ay with sand, moist	and stiff.	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1		anndu lann alau udak	minor aumaum fram	10 0 to 21 5	
-20	1		sandy lean clay with	minor gypsum fron	1 13.0 10 31.3	
	19 30					
830	37					
-25						
	1		,			
1825	1					
	7					4 3
] \///						
-30	1					
1830 7	1		small gravel lense fr	om 31.5 to 32.0		
1820	1		sman graver ierise ii	5 51.5 to 52.0		
† 1///	7					
+ 1///				Ť		
			1			
35				rs.		

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

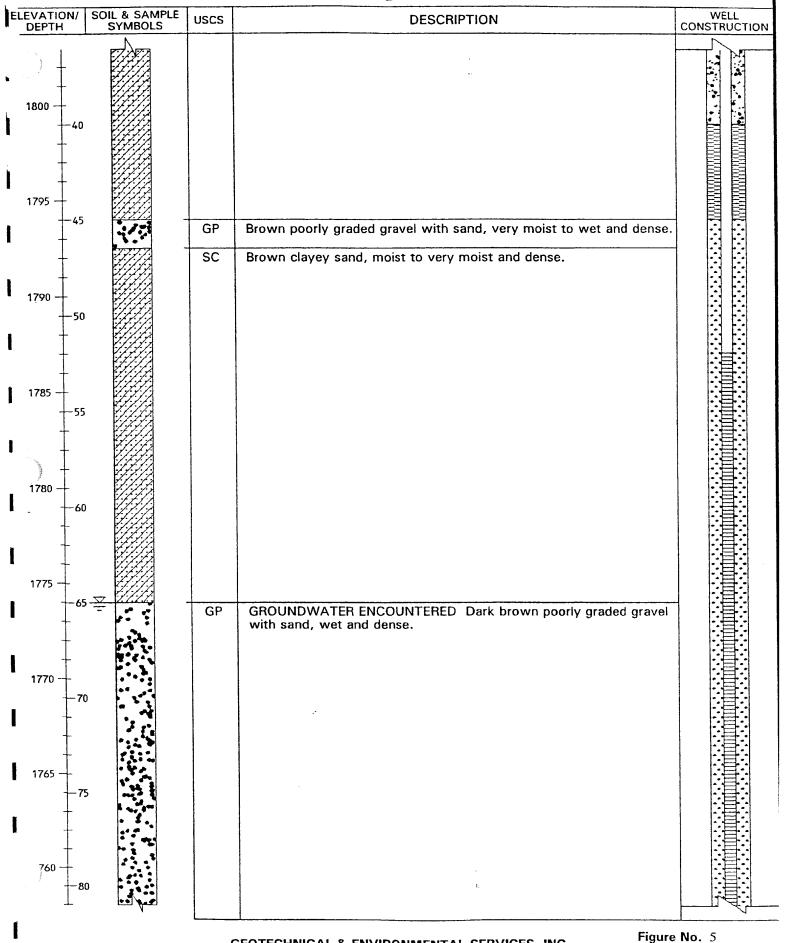
#### EXPLORATION LOG C



#### EXPLORATION LOG D

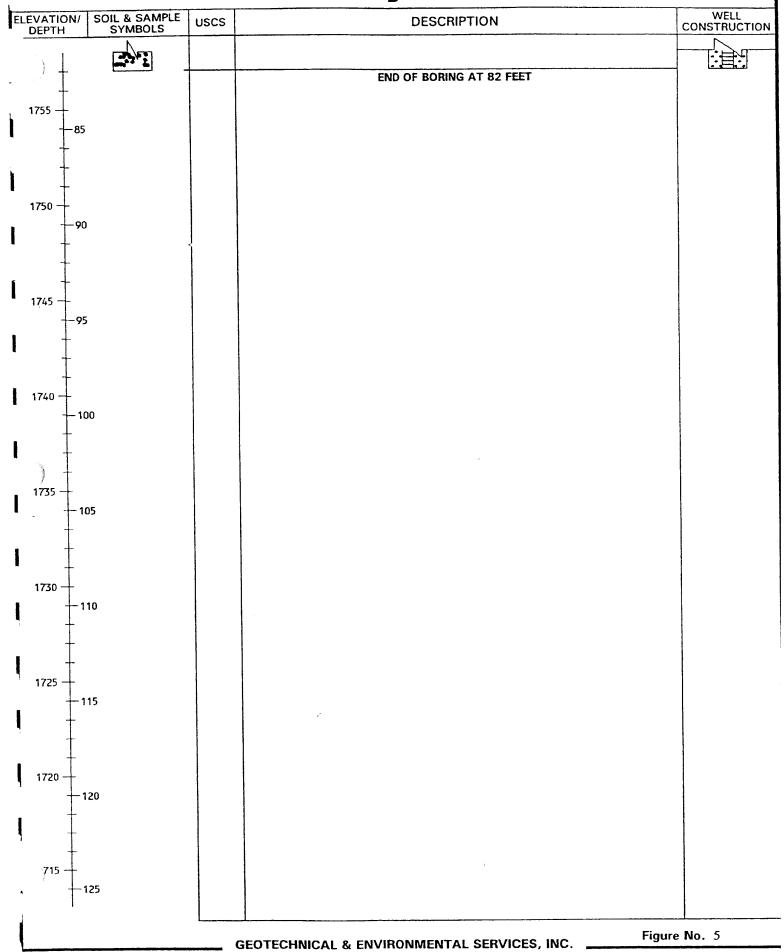
.s. elev	ATION:		4" MONITORING WELL 1838.99	LOGGED BY: S. JO	HNSON	
	EPTH TO WATE PTH TO WATER		65 DATE MI	ASURED: 9-2-5 EASURED: 9-15-	97 -97	
VATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs		DESCRIPTION		WELL CONSTRUC
840 — 0 835 — 5 1825 — 15 1820 — 20	42 50 8 16 22	GP- GM SC CL SC CL	Reddish brown clayey sa Reddish brown sandy lea Reddish brown clayey sa Reddish brown sandy lea	an clay, moist and stiff.		
1815 —	5					
805	5	SC	Brown clayey sand, slig	htly moist to moist and dei	nse.	

# EXPLORATION LOG



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

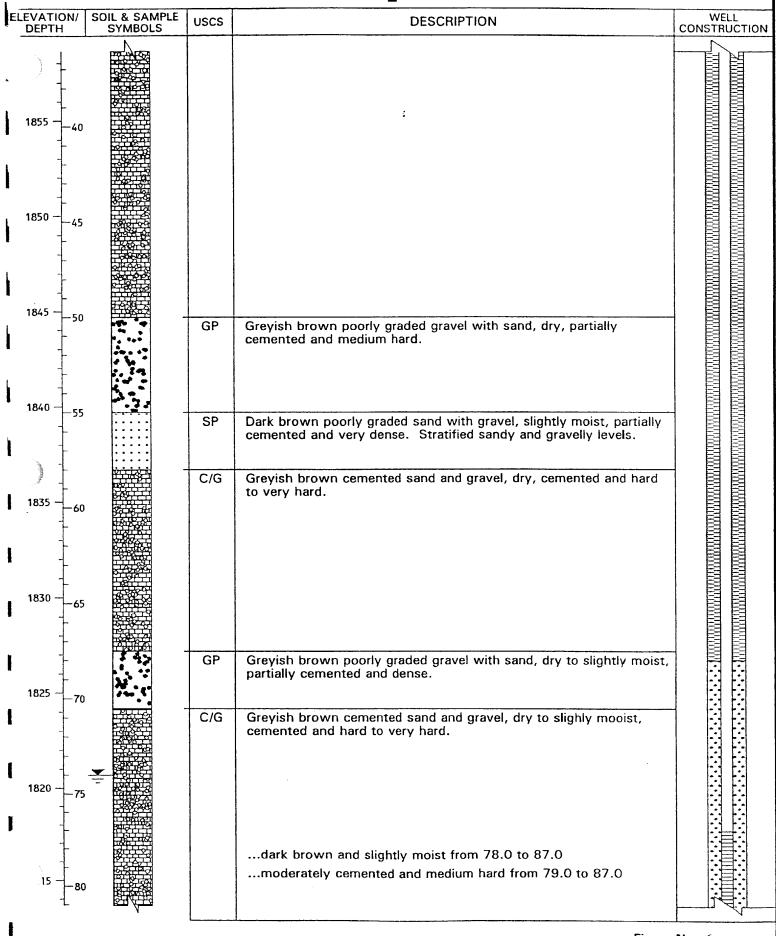
# EXPLORATION LOG



#### EXPLORATION LOG E

PROJECT: PEPCON MONITORIN		PROJECT NO.:	96189V2	
TOLE LOCATION: SEE SITE PLA		EXPLORATION DATE:		
PLORATION SIZE (diameter):	4" MUNITURING WELL	LOGGED BY: S. JOH	MOBILE B-53 INSON	
G.S. ELEVATION:				
INITIAL DEPTH TO WATER:		ASURED: 8-28-9 EASURED: 9-11-9	97 97	
LEVATION/ SOIL & SAMPLE SYMBOLS USCS		DESCRIPTION		WELL CONSTRUCTION
1895 — SP	Brown poorly graded san	d with gravel, slightly mois	t and dense.	
1890	slightly moist to moist  Brown poorly graded san moist and dense.	from 4.0 to 6.5  Indicate the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desired of the desire	slighltly moist to	
1885 — 10				
1880 - 15	Brown poorly graded gradense. Stratified with sa	vel with sand, slightly mois andy layers.	st to moist and	
1875 – 20 SP	dense.	nd with gravel, slightly mois		
1870 — 25 GP GM	dense to very dense.	e gravel with silt and sand, dense.		
1865 — 30	very dense from 27.5partially cemented fro			
C/G	Greyish brown cemente	d sand and gravel, dry, cen	nented and hard.	
— V—	GEOTECHNICAL & ENVIRO	NMENTAL SERVICES INC	Figure	e No. 6

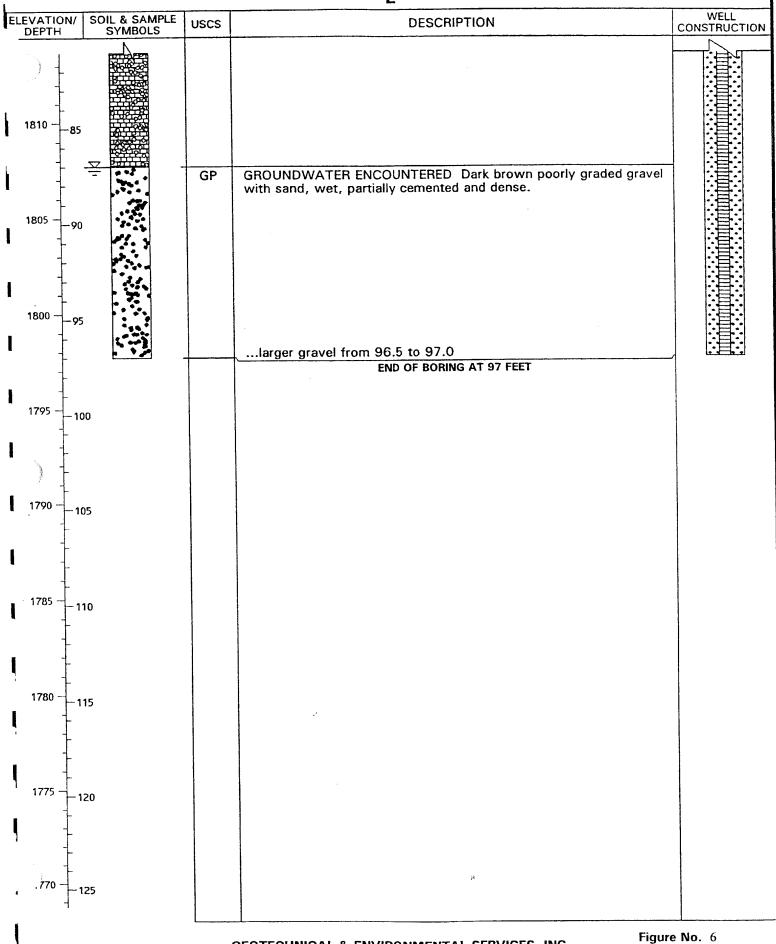
# EXPLORATION LOG



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

Figure No. 6

# EXPLORATION LOG

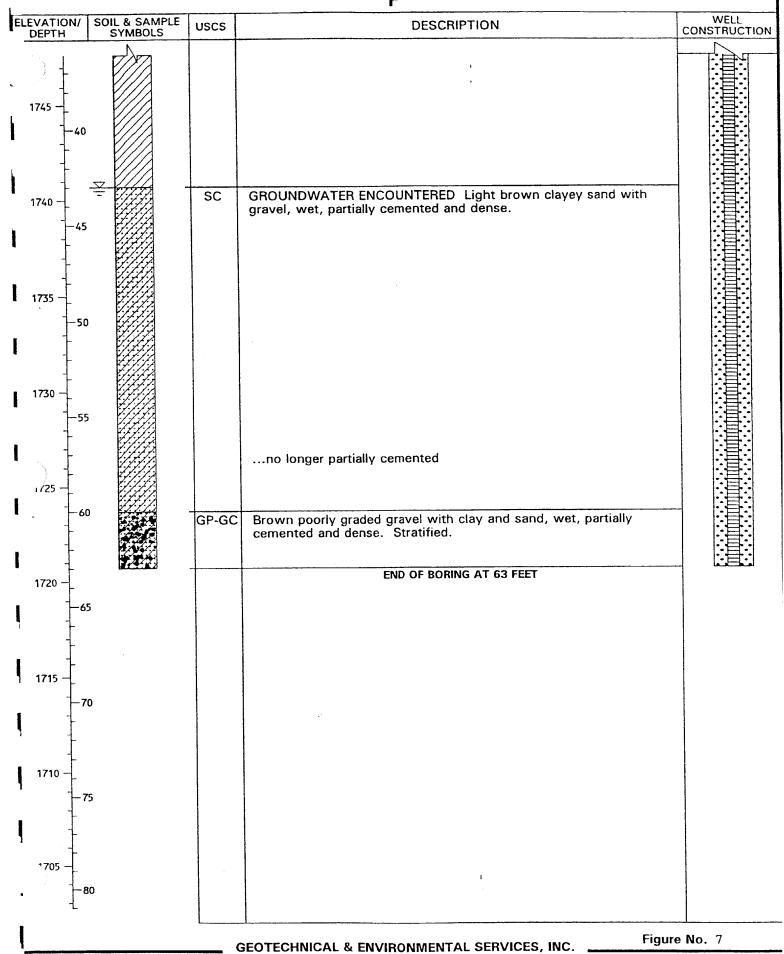


GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

# EXPLORATION LOG F

PROJECT: PEPCON MONITORING WELLS					PROJECT NO.:	96189V2	
PLORATION SIZE (diameter): 4" MONITORING WELL					EXPLORATION		
					_ EGUIPMENT: _	S. JOHNSON	
	LEVAT				_		
INITIA	L DEPT	H TO WATE	R:	43 DATE M	EASURED:	9-6-97	
		TO WATER	:	29 DATE M	EASURED:	9-11-97	
EVATIO DEPTH		IL & SAMPLE   SYMBOLS	uscs		DESCRIPTION		WELL CONSTRUCT
1785 -	_						
4	-0						
4	-		F	Brown poorly graded gramoist and dense.	avel with sand, co	obbles and boulders, slightly	
4	-			light brown and dry to	slightly maist to	4.0	
1	-			ingre brown and ar,	g,		
1780 —	-	-	GP-	Light brown poorly grad	ed gravel with silt	t, sand and cobbles, dry to	
-	-5	50	GM	slightly moist and dense	to very dense.	t, sand and dobbloo, ary to	
1	_						
	-						
4775	_	HH		boulder			
1775 -							
	-10	50 □					
į							
770 —							
-	<b>−15</b>	<b>以持续</b>					
-	"						
-	-		C/G	Dark brown cemented s hard.	and and gravel, c	emented and hard to very	
-	-		CD.		ad arough with an	nd applies and haulders	
1765 -			GP- GM	dry to slightly moist and	d dense to very de	nd, cobbles and boulders, ense.	
-	-20						
-	-		C/G	Dark brown cemented s	and and gravel, d	ry and hard. Isolated	
-	}		5,5	boulders.		· ····	
1760 -	]						
1760 -	]	<del>2421691</del>					
_	-25						
-	-			·		•	
-	-						
1755 -	-						
-	70						
-	-30						:量:
-	+						:    :
-	1		<u></u>	<u> </u>			」  : 量:
1750 -	<del> </del>		CL	Reddish brown sandy le	ean clay with grav	el, moist and stiff.	:昌:
	-35						:書:
	1			·			

### EXPLORATION LOG



#### **KEY TO SYMBOLS**

Symbol Description

Strata symbols



Poorly graded gravel with silt



Strongly cemented sand and gravel



Poorly graded sand



Poorly graded gravel



Poorly graded sand with silt



Well graded gravel



Poorly graded sand with clay



Low plasticity clay



Poorly graded gravel with clay



Clayey sand



Fill

Misc. Symbols

____

Boring continues

# **KEY TO SYMBOLS** 1 Description Symbol Final water level at date indicated Initial water level at date indicated Soil Samplers Standard penetration test No recovery Bulk sample California sampler Monitor Well Details riser with cover and protective casing Neat Cement seal bentonite pellets silica sand, blank PVC

slotted pipe w/ sand

#### **KEY TO SYMBOLS**

#### Notes:

- 1. Exploratory borings were drilled on date shown using a Mobile B-53 drill rig.
- 2. California sampler or Standard Penetration Test sampler driven with 140 pound hammer falling 30 inches as noted.
- 3. Boring locations and elevations were determined by an E.S.I. survey crew.
- 4. Four-inch diameter PVC monitoring wells with .020 inch slotted screen sections set at depths noted in exploration logs.
- 5. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 6. Results of tests conducted on samples recovered are reported on the logs and attached plates/figures.

FIGURE No. 8

#### EXPLORATION LOG MW-A

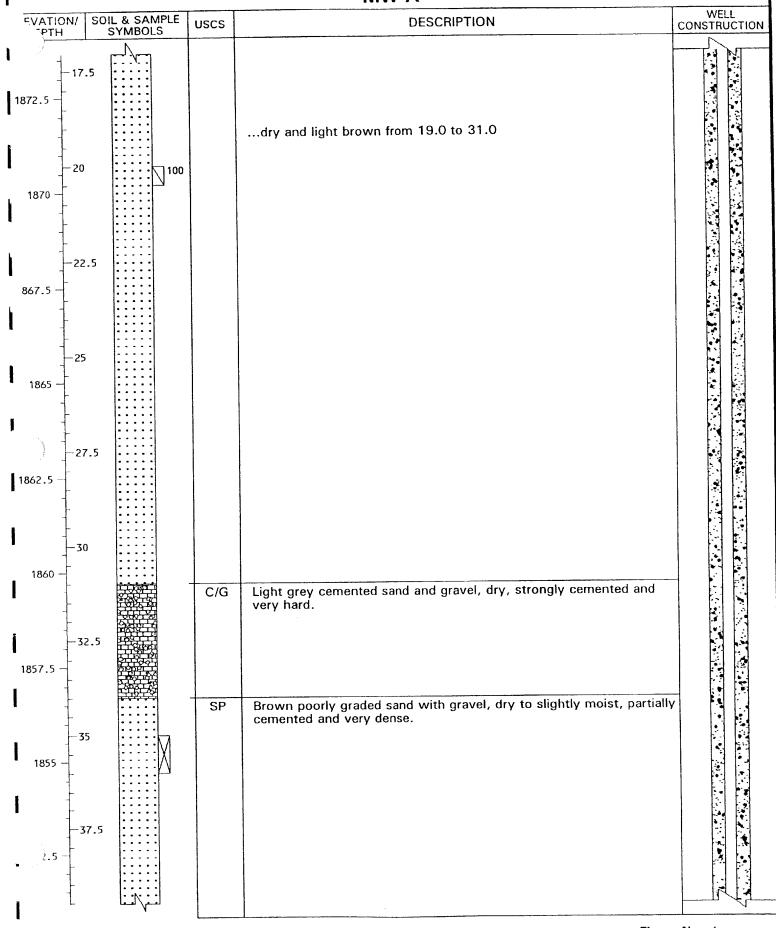
## CONFIDENTIAL

97664V1 DJECT: FORMER PEPCON FACILITY PROJECT NO.: 8-28-97 **EXPLORATION DATE:** LE LOCATION: SEE SITE PLAN EXPLORATION SIZE (diameter): 4" MONITORING WELL EQUIPMENT: _ MOBILE B-53 LOGGED BY: 1890.7 S. JOHNSON G.S. ELEVATION: INITIAL DEPTH TO WATER: __ 89 DATE MEASURED: 8-30-97 75 DATE MEASURED: 9-15-97 FINAL DEPTH TO WATER: SOIL & SAMPLE SYMBOLS WELL LEVATION/ **USCS** DESCRIPTION CONSTRUCTION **DEPTH** GP-Pale brown poorly graded gravel with silt and sand, dry and dense to GM very dense. 1890 1887.5 1885 7.5 882.5 C/G Pale brown cemented sand and gravel, dry, cemented and hard. 10 ...cemented material, no sample taken 1880 12.5 SP Dark brown poorly graded sand with gravel, slightly moist and dense to very dense. 75 Figure No. 4

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

#### EXPLORATION LOG MW-A

# CONFIDENTIAL



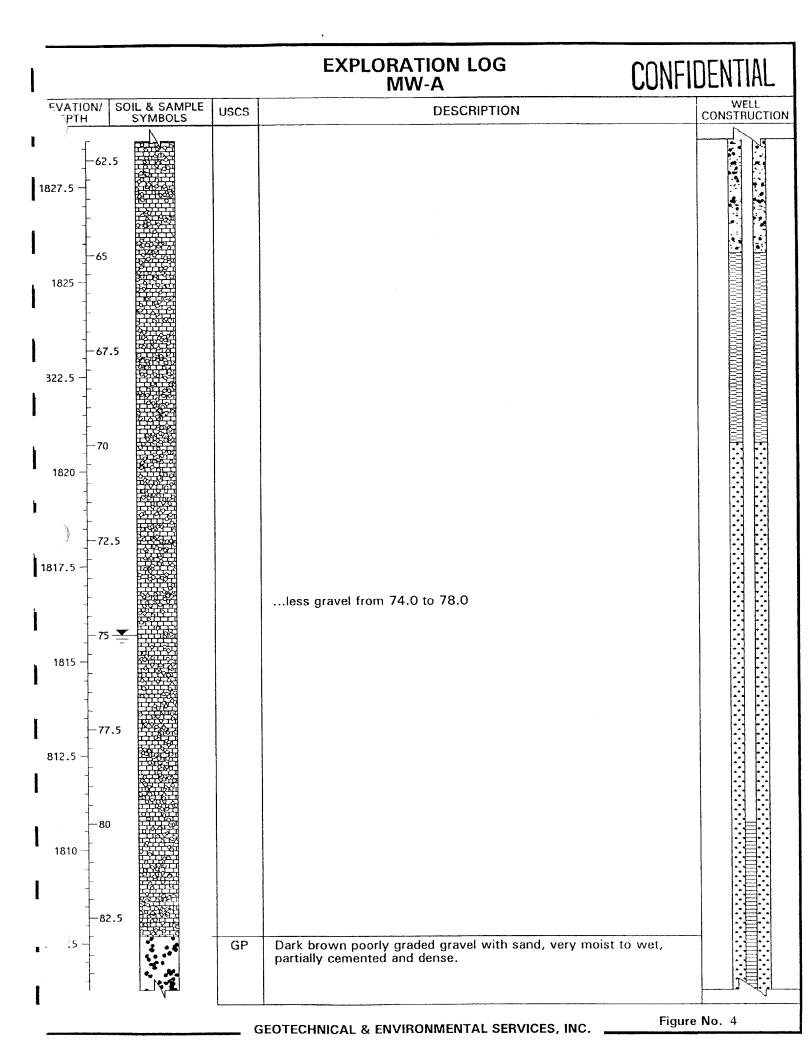
GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

Figure No. 4

# **EXPLORATION LOG** MW-A WELL CONSTRUCTION EVATION/ EPTH SOIL & SAMPLE SYMBOLS **DESCRIPTION** uscs 40 1850 42.5 1847.5 1845 47.5 1842.5 50 1840 52.5 1837.5 55 Dark brown cemented sand and gravel, dry, cemented and hard to C/G very hard. 1835 57.5 1832.5 60 .830

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

Figure No. 4

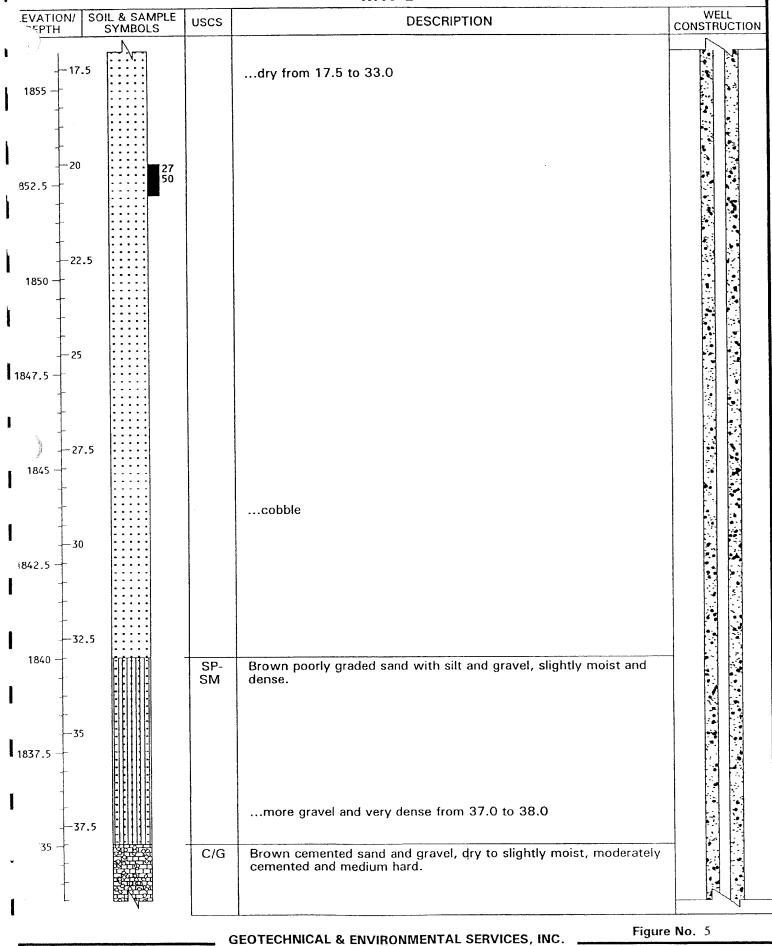


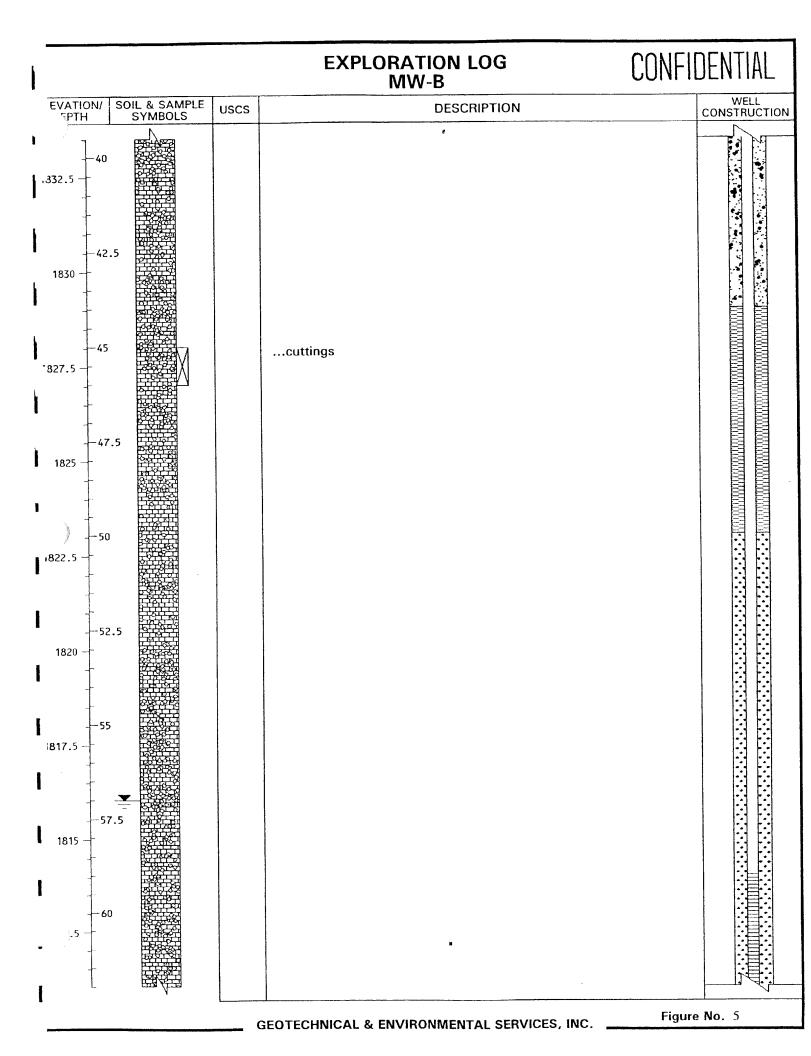
## EXPLORATION LOG MW-A CONFIDENTIAL EVATION/ SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION **DESCRIPTION** uscs 1805 87.5 .02.5 GROUNDWATER ENCOUNTERED ...very few fines, predominantly coarse sand and larger ...more coarse gravel and very dense from 90.0 to 93.0 1800 92.5 1797.5 1795 97.5 **792.5** 100 **END OF EXPLORATION** END OF BORING AT 100 FEET 1790 102.5 787.5 105 Figure No. 4 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### CONFIDENTIAL

97664V1 DJECT: FORMER PEPCON FACILITY PROJECT NO.: TITLE LOCATION: SEE SITE PLAN **EXPLORATION DATE:** MOBILE B-53 EXPLORATION SIZE (diameter): 4" MONITORING WELL EQUIPMENT: LOGGED BY: S. JOHNSON 1873.04 G.S. ELEVATION: 9-5-97 DATE MEASURED: ____ INITIAL DEPTH TO WATER: 71 9-11-97 DATE MEASURED: FINAL DEPTH TO WATER: 57 WELL CONSTRUCTION SOIL & SAMPLE ELEVATION/ **DESCRIPTION** USCS **DEPTH SYMBOLS** 1875 Brown poorly graded gravel with sand and cobbles, slightly moist to GP moist and dense. 1870 Light brown poorly graded gravel with silt and sand, slightly moist to GPmoist and dense. 867.5 GM Brown poorly graded sand with fine gravel, moist and dense. SP 1865 ...slightly moist to moist from 9.5 to 17.5 19 26 862.5 12.5 1860

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## EXPLORATION LOG MW-B WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ PTH **DESCRIPTION** uscs 62.5 1810 107.5 67.5 1805 70 1802.5 GROUNDWATER ENCOUNTERED Dark brown well graded graded GW gravel with sand, wet and dense. 72.5 1800 797.5 77.5 1795 1792.5 82.5 90 **END OF BORING AT 83 FEET** Figure No. 5 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY

LE LOCATION: SEE SITE PLAN

EXPLORATION SIZE (diameter): 4" MONITORING WELL

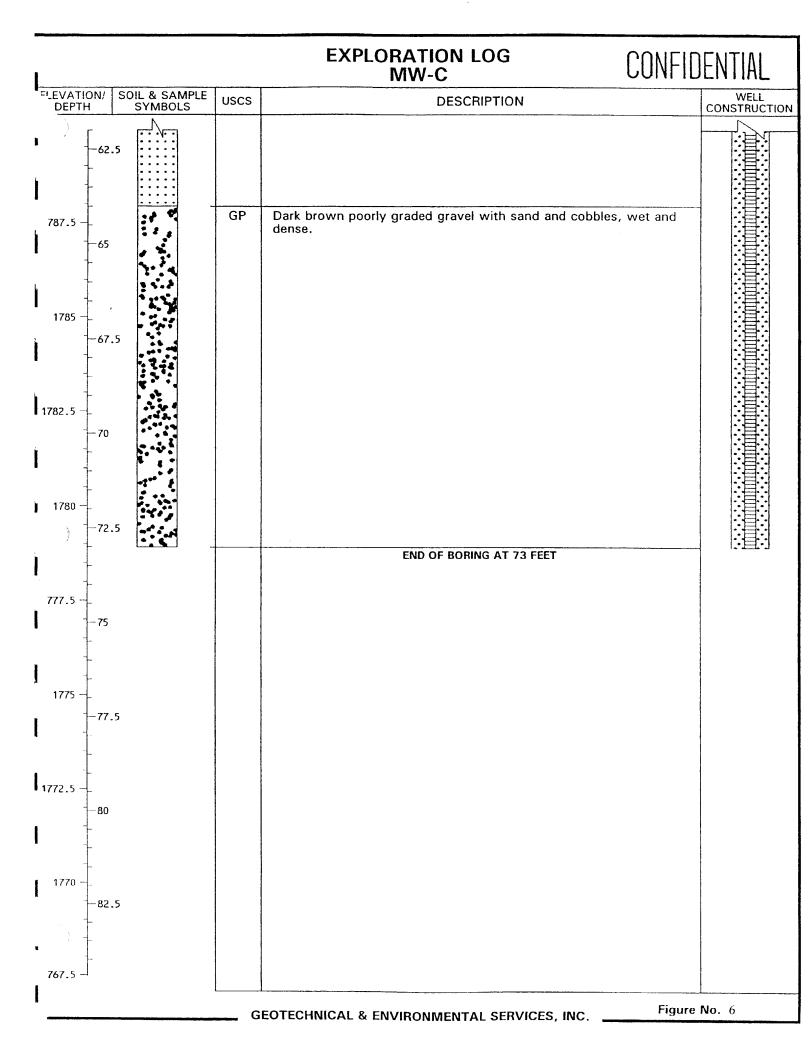
EQUIPMENT: MOBILE B-53

G.S. ELEVATION: 1851.92 LOGGED BY: S. JOHNSON

EVATION DEPTH	ON/ S	OIL & SAN SYMBOL	MPLE S	USCS	DESCRIPTION	WELL CONSTRUCTION
352.5	-					
- - 1850 —				GP	Brown poorly graded gravel with sand, cobbles and boulders, moist and denselight brown and dry to slightly moist to 12.0	
347.5	  5		20		sampler on rock	
1845	  7.5				more fine gravel and sand, no boulders and isolated cobbles to 12.0	
342.5 — - -	- - 10		<b>]</b> 50			
1840 —	-12.5		-	GP- GM	Light brown poorly graded gravel with silt and sand, dry to slightly moist and dense.	
837.5 	- - - 15		-	SP-SC	Light brown poorly graded sand with clay, slightly moist and dense.	
1835 —			31 21 26		8	1.

## **EXPLORATION LOG** CONFIDENTIAL MW-C FI EVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION USCS DESCRIPTION CL Reddish brown lean clay with sand, moist and stiff. ...sandy lean clay with minor gypsum from 19.0 to 31.5 32.5 -20 19 30 37 1830 22.5 1827.5 1825 122.5 ...small gravel lense from 31.5 to 32.0 1820 -32.5 1817.5 1815 -37.5 312.5 Figure No. 6 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### **EXPLORATION LOG** CONFIDENTIAL MW-C SOIL & SAMPLE SYMBOLS LEVATION/ DEPTH WELL CONSTRUCTION **USCS DESCRIPTION** 1810 42.5 1307.5 1805 47.5 1802.5 1800 GP Dark brown poorly graded gravel with sand, very moist to wet and 52.5 dense to very dense. GP-GC Brown poorly graded gravel with sand and clay, very moist to wet and dense to very dense. 797.5 -55 1795 -57.5 SP GROUNDWATER ENCOUNTERED Dark brown poorly graded sand 1792.5 with gravel, wet and dense. 1790 -Figure No. 6 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. _



## CONFIDENTIAL

ROJECT: FORMER PEPCON FAC LE LOCATION: SEE SITE PLAN		PROJECT NO.:EXPLORATION DATE:	97664V1 9-2-97
EXPLORATION SIZE (diameter):	4" MONITORING WELL	EQUIPMENT:	MOBILE B-53
G.S. ELEVATION:			
INITIAL DEPTH TO WATER:FINAL DEPTH TO WATER:	65 DATE ME 31 DATE ME	EASURED: 9-2-97 EASURED: 9-15-97	7
.EVATION/ SOIL & SAMPLE SYMBOLS USCS		DESCRIPTION	WELL CONSTRUCTION
1840 —	Light brown poorly graded and very densesampler on rock	d gravel with silt and sand, s	
1830 — ———————————————————————————————————			
12.5 SC	Reddish brown clayey sa	nd, moist and dense.	
CL 8 16 22	Reddish brown sandy lea	n clay, moist and stiff.	
822.5 SC	Reddish brown clayey sa	nd, moist and dense.	
	EOTECHNICAL & ENVIRON	VMENTAL SERVICES, INC.	Figure No. 7

## **EXPLORATION LOG** MW-D ELEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION USCS **DESCRIPTION** CL Reddish brown sandy lean clay, moist and stiff. 17.5 1820 ...light brown and slightly moist from 19.5 to 33.0 50 1817.5 22.5 1815 -25 812.5 27.5 1810 1807.5 SC Brown clayey sand, slightly moist to moist and dense. 1805 802.5 37.5 1800 Figure No. 7 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

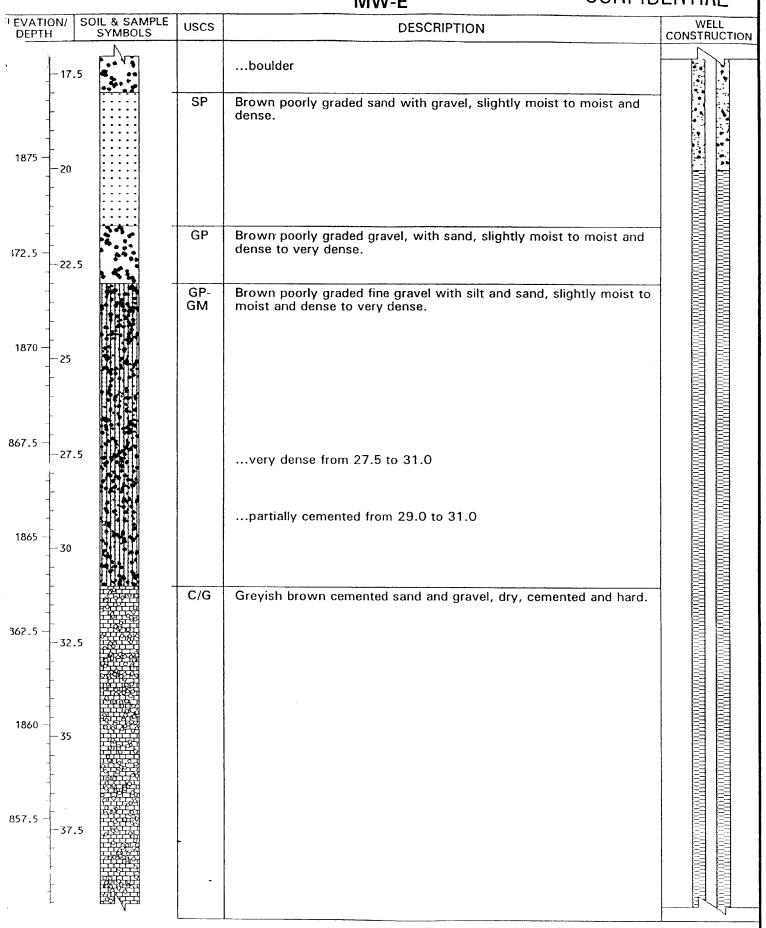
## **EXPLORATION LOG** CONFIDENTIAL MW-D WELL CONSTRUCTION EVATION/ DEPTH SOIL & SAMPLE SYMBOLS uscs DESCRIPTION 1797.5 42.5 1795 GP Brown poorly graded gravel with sand, very moist to wet and dense. .792.5 SC Brown clayey sand, moist to very moist and dense. 47.5 **179**0 1787.5 52.5 1785 .782.5 57.5 1780 777.5 Figure No. 7 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

## EXPLORATION LOG MW-D WELL CONSTRUCTION FI_EVATION/ DEPTH SOIL & SAMPLE SYMBOLS **DESCRIPTION** USCS 1775 GROUNDWATER ENCOUNTERED Dark brown poorly graded gravel GP with sand, wet and dense. 1772.5 1770 767.5 1765 1762.5 1760 757.5 **END OF BORING AT 82 FEET** 82.5 1755 Figure No. 7 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### CONFIDENTIAL

97664V1 ROJECT: FORMER PEPCON FACILITY PROJECT NO.: 8-28-97 **EXPLORATION DATE:** LE LOCATION: SEE SITE PLAN EXPLORATION SIZE (diameter): 4" MONITORING WELL EQUIPMENT: MOBILE B-53 LOGGED BY: S. JOHNSON 1894.7 G.S. ELEVATION: 87 DATE MEASURED: 8-28-97 INITIAL DEPTH TO WATER: 9-11-97 74 FINAL DEPTH TO WATER: DATE MEASURED: SOIL & SAMPLE SYMBOLS WELL .EVATION/ uscs DESCRIPTION CONSTRUCTION DEPTH 1895 SP Brown poorly graded sand with gravel, slightly moist and dense. 1892.5 2.5 ...slightly moist to moist from 4.0 to 6.5 1890 Brown poorly graded sand with silt and fine gravel, slighltly moist to SP-SM moist and dense. 887.5 1885 -10 882.5 GP Brown poorly graded gravel with sand, slightly moist to moist and 12.5 dense. Stratified with sandy layers. 1880 - 15 Figure No. 8 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

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GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### EXPLORATION LOG MW-E WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS **DESCRIPTION** VATION/ uscs EPTH В. 2.5 42.5 850 ٠7.5 -47.5 1845 Greyish brown poorly graded gravel with sand, dry, partially cemented and medium hard. GP 42.5 -52.5 1840 Dark brown poorly graded sand with gravel, slightly moist, partially cemented and very dense. Stratified sandy and gravelly levels. -55 SP 337.5 --57.5 Greyish brown cemented sand and gravel, dry, cemented and hard C/G to very hard. 1835 -60 Figure No. 8 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### EXPLORATION LOG MW-E CONFIDENTIAL FI EVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs DESCRIPTION 62.5 1830 65 127.5 67.5 GP Greyish brown poorly graded gravel with sand, dry to slightly moist, partially cemented and dense. 1825 70 Greyish brown cemented sand and gravel, dry to slighly mooist, C/G cemented and hard to very hard. 1822.5 72.5 1820 317.5 77.5 ...dark brown and slightly moist from 78.0 to 87.0 ...moderately cemented and medium hard from 79.0 to 87.0 1815 -80 1812.5 --82.5 Figure No. 8 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

## **EXPLORATION LOG** CONFIDENTIAL MW-E FLEVATION/ DEPTH SOIL & SAMPLE SYMBOLS USCS WELL CONSTRUCTION DESCRIPTION .807.5 GROUNDWATER ENCOUNTERED Dark brown poorly graded gravel with sand, wet, partially cemented and dense. GP 1805 1802.5 92.5 1800 ...larger gravel from 96.5 to 97.0 1797.5 **END OF BORING AT 97 FEET** 97.5 1795 100 1792.5 -102.5 1790 - 105 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figure No. 8

CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY

LOCATION: SEE SITE PLAN

EXPLORATION DATE: 9-6-97

EXPLORATION SIZE (diameter): 4" MONITORING WELL

G.S. ELEVATION: 1783.71

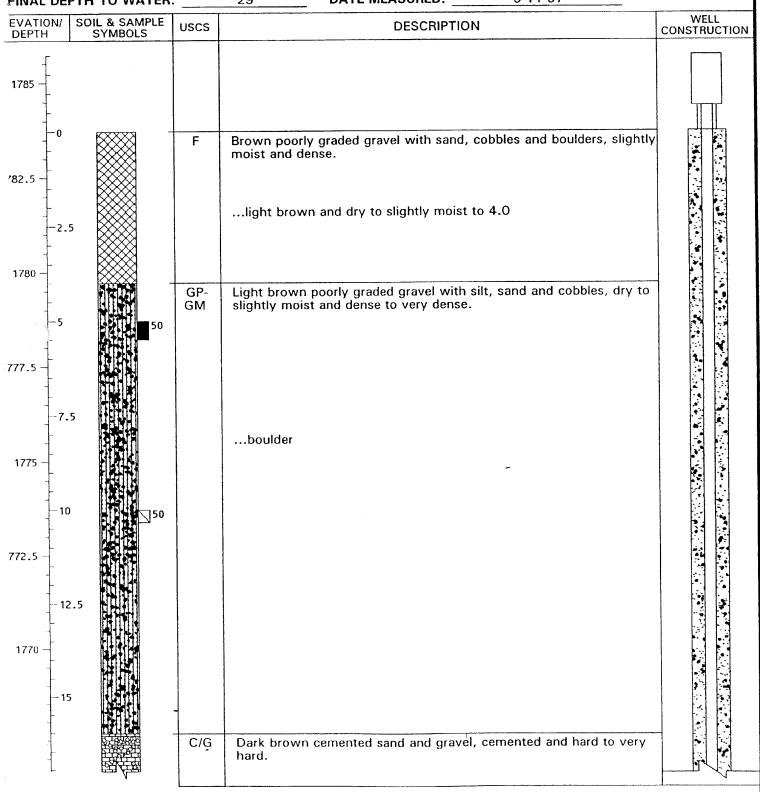
EQUIPMENT: MOBILE B-53

LOGGED BY: S. JOHNSON

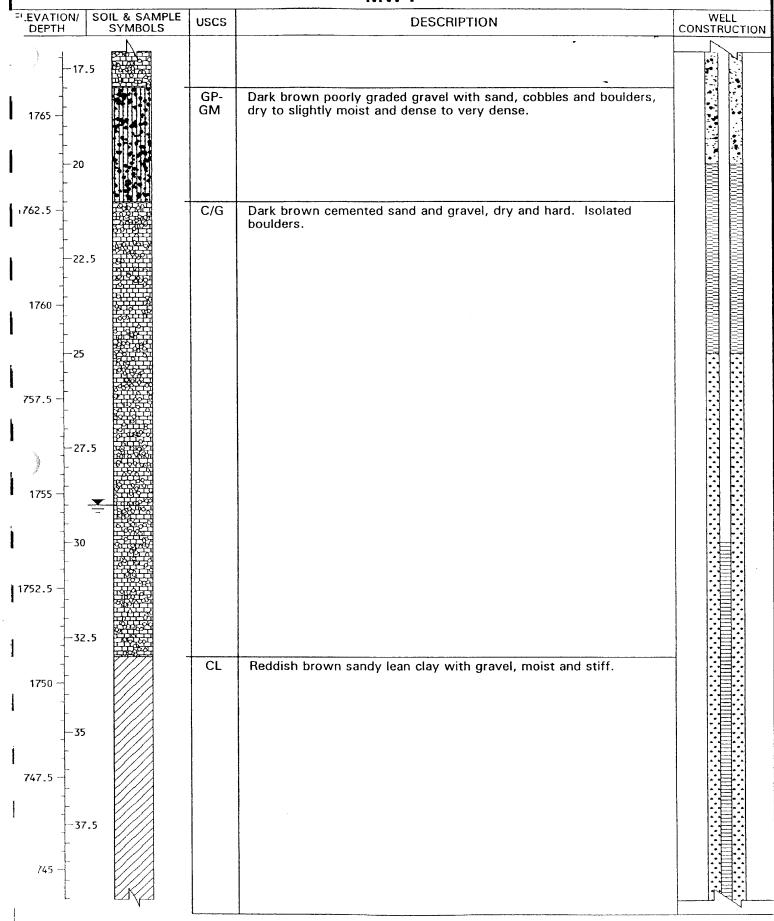
INITIAL DEPTH TO WATER: 43

DATE MEASURED: 9-6-97

INITIAL DEPTH TO WATER: 43 DATE MEASURED: 9-6-97
FINAL DEPTH TO WATER: 29 DATE MEASURED: 9-11-97



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## EXPLORATION LOG MW-F CONFIDENTIAL WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS =1.EVATION/ **USCS DESCRIPTION DEPTH** 1742.5 SC GROUNDWATER ENCOUNTERED Light brown clayey sand with gravel, wet, partially cemented and dense. 1740 737.5 47.5 1735 1732.5 52.5 1730 727.5 ...no longer partially cemented 57.5 1725 GP-GC Brown poorly graded gravel with clay and sand, wet, partially cemented and dense. Stratified. Figure No. 9 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. _

## CONFIDENTIAL EXPLORATION LOG MW-F WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS /ATION/ EPTH uscs **DESCRIPTION** 62.5 **END OF BORING AT 63 FEET** 720 7.5 67.5 715 -70 2.5 710 75 7.5 -77.5 705 -80 2.5 -82.5 Figure No. 9 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### CONFIDENTIAL

Figure No. 10

PROJECT NO.: TOT: FORMER PEPCON FACILITY 97664V1 EXPLORATION DATE: CATION: SEE SITE PLAN 2-23-98 XPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: ____ MOBILE B-61 HDX 1782.12 LOGGED BY: S. JOHNSON .S. ELEVATION: DATE MEASURED: _ 35' 2-23-98 IITIAL DEPTH TO WATER: 35.18' DATE MEASURED: 2-26-98 INAL DEPTH TO WATER: WELL CONSTRUCTION VATION/ SOIL & SAMPLE uscs **DESCRIPTION SYMBOLS** F Fill: Asphalt and roadbed. Brown poorly graded gravel with silt and sand, slightly moist and GPdense (mostly subrounded - subangular basalt). GM 780 Pale brown poorly graded gravel with clay and sand, dry to slightly GP-GC moist and dense (stratified sandy and gravelly layers). 7.5 ...boulder to 11.0 2.5 - 10 770 12.5 ...light brown, less clay, slightly moist to 14.5 .7.5 GP Brown poorly graded gravel with sand, slightly moist and dense to very dense (mostly subrounded basalt, stratified). 765

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### CONFIDENTIAL EXPLORATION LOG MW-F2 WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS .EVATION/ **DESCRIPTION** USCS 762.5 1760 22.5 757.5 ...coarse gravel to 27.0 1755 SP Brown poorly graded sand with gravel, moist and medium dense. -27.5 1750 32.5 Brown cemented sand and gravel, moist, cemented and hard. C/G 747.5 ...Groundwater Encountered, weakly cemented, medium hard and wet to 37.0 1745 CL Red brown sandy clay, wet and moderately stiff (Muddy Creek 37.5 formation). 742.5 Figure No. 10 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

## EXPLORATION LOG MW-F2 SOIL & SAMPLE SYMBOLS EVATION/ WELL CONSTRUCTION USCS **DESCRIPTION** 1740 42.5 ⁷37.5 45 **END OF BORING AT 45 FEET** 1735 -47.5 32.5 -50 -52.5 **7**27.5 --55 1725 57.5 722.5 -60 **17**20 -62.5

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY
PROJECT NO.: 97664V1

EXPLORATION: SEE SITE PLAN
EXPLORATION DATE: 12/1/97

EXPLORATION SIZE (diameter): 2" MONITORING WELL
EQUIPMENT: MOBILE B-53

G.S. ELEVATION: 1904.99

LOGGED BY: S. ORNDORFF

INITIAL DEPTH TO WATER		100.0     DATE MEASURED:     12/2/97       92.4     DATE MEASURED:     12/4/97	
LLEVATION/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
	F	Pale yellow brown silty gravel with sand, cobbles and boulders, dry and very dense. Calcium carbonate rinds on gravel.	
1902.5 — 2.5		light brown to 10.5 and dry to slightly moist to 5.0	
1900 — 5		gravel with sand, cobbles and boulders to 6.5, dry to 10.5	
. 7.5		poorly graded gravel with sand to 9.5	
1895 — 10		with silt to 9.5silty gravel with sand to 10.5	
892.5 12.5	GP- GM	Pale brown poorly graded gravel with silt and sand, dry and very dense.	
1890 — 15 	SP-	Light roddish brown poorly graded and with alle and are the side	
887.5 — 17.5	SM	Light reddish brown poorly graded sand with silt and gravel, dry to slightly moist and very dense.	
	GP- GM	Light reddish brown poorly graded fine gravel with silt and sand, dry to slightly moist and very dense.	

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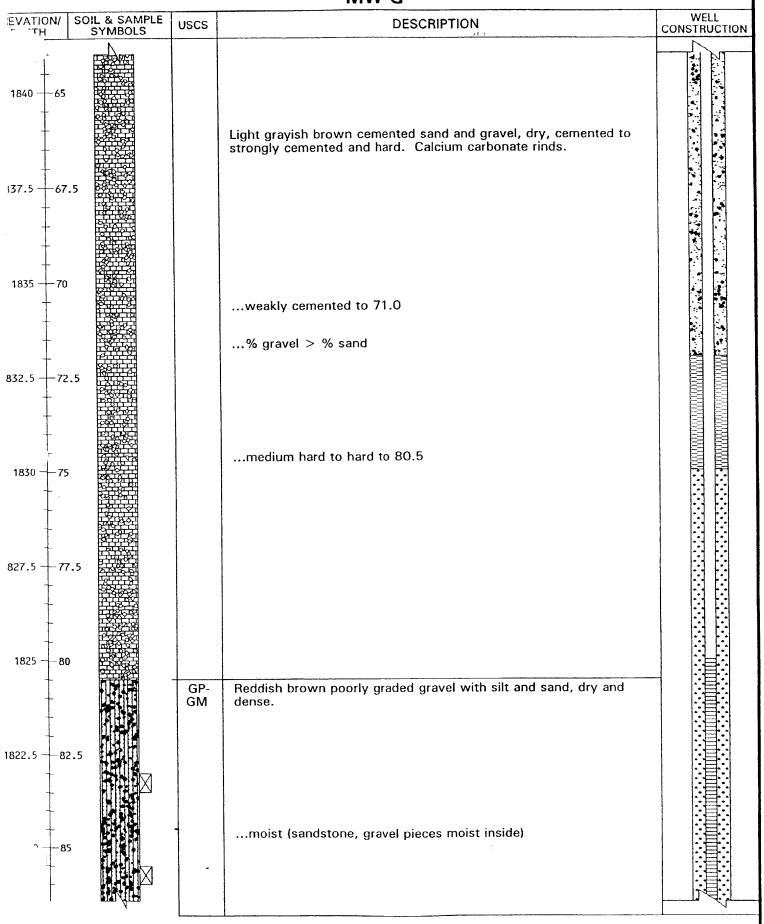
		MW-G	IDLITIAL
EVATION/ SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION	WELL CONSTRUCTION
1885 — 20	SP- SM	Light reddish brown poorly graded sand with silt and gravel, dry to slightly moist and very dense.	77
382.5 — 22.5	GP- GM	Light reddish brown poorly graded gravel sith silt and sand, dry to slightly moist and very dense.	
1880 — 25	SP- SM	Light reddish brown poorly graded coarse sand with silt and gravel, dry to slightly moist and very dense.	
1877.5 27.5	GP- GM	Reddish brown poorly graded gravel with silt and sand, dry to slightly moist and very dense.	انه ا ا ا
18/2 - 30	C/G	Reddish brown cemented sand and gravel, dry to slightly moist, cemented and moderately hard to hard.	
872.5 — 32.5		% gravel > % sand% sand > % gravel	
1870 — 35	SP-	% gravel > % sand  Reddish brown poorly graded coarse sand with silt and gravel, dry,	
1867.5 — 37.5	SM	partially cemented and very denseboulder	
765 — 40	-		

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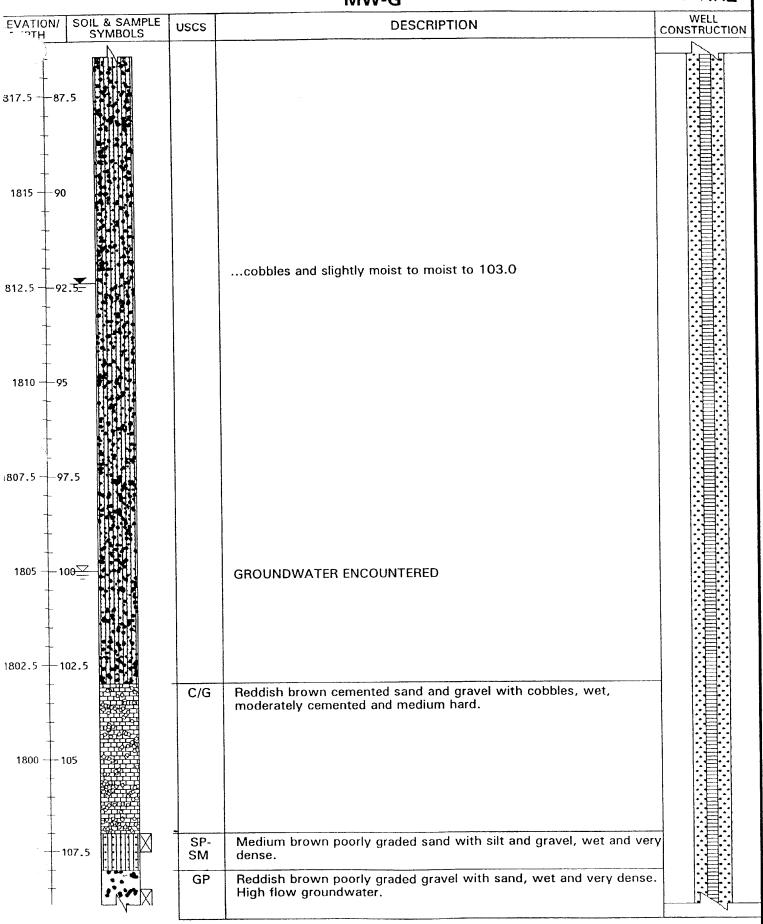
		MW-G	JENTINE
VATION/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
2.5 -42.5			
	GP- GM	Reddish brown poorly graded gravel with silt and sand, dry, partially cemented and very dense.	
7.5 — 47.5	SP- SM	Reddish brown poorly graded sand with silt and gravel, dry, partially cemented and very dense. Calcium carbonate rinds on gravel.	
355 — 50		boulder	
2.5 52.5	GP- GM	Medium brown poorly graded gravel with silt and sand, dry and very dense.	
850 — 55	C/G	Medium brown cemented sand and gravel, dry, moderately cemented to cemented and medium hard. Extensive calcium carbonate rinds.	
7.5 57.5	GP- GM	Medium brown poorly graded gravel with silt and sand, dry and very dense. Calcium carbonate rinds.	
845 — 60	SP- SM	Reddish brown poorly graded sand with silt and gravel, dry and very dense.	
	C/G	partially cemented to 61.5  Light brown cemented sand and gravel, dry to slightly moist,	
62.5	-	moderately cemented and medium hard.	
		medium hard to hard to 66.0	

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# **EXPLORATION LOG** MW-G EVATION/ SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION DESCRIPTION USCS **END OF BORING AT 110 FEET** 792.5 - 112.5 1790 --- 115 ⁷87.5 — 117.5 1785 — 120 782.5 - 122.5 1780 -- 125 777.5 - 127.5 - 130 Figure No. 11 ___ GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. ___

CONFIDENTIAL

***FCT: FORMER PEPCON FACILITY** PROJECT NO.: 97664V1 **EXPLORATION DATE:** LOCATION: SEE SITE PLAN 11/24/97 ŀ. EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-53 LOGGED BY: S. ADAMS-LOWE 1974.58 G.S. ELEVATION:

DATE MEASURED: INITIAL DEPTH TO WATER: 185.0 11/28/97 DATE MEASURED: 12/5/97 FINAL DEPTH TO WATER: 148.0

FINAL DEPTH TO WATER	·	148.0 DATE MEASURED: 12/5/97	
EVATION/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
972.5 — -2.5 — -5	GM	Light gray silty gravel with sand, dry and medium dense. Basalt gravel with calcium carbonate rinds14" basalt boulder with a calcium carbonate rind	
1965 —			
962.5 —			
1960 — 15			
957.5		'>	
	(	GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	re No. 12

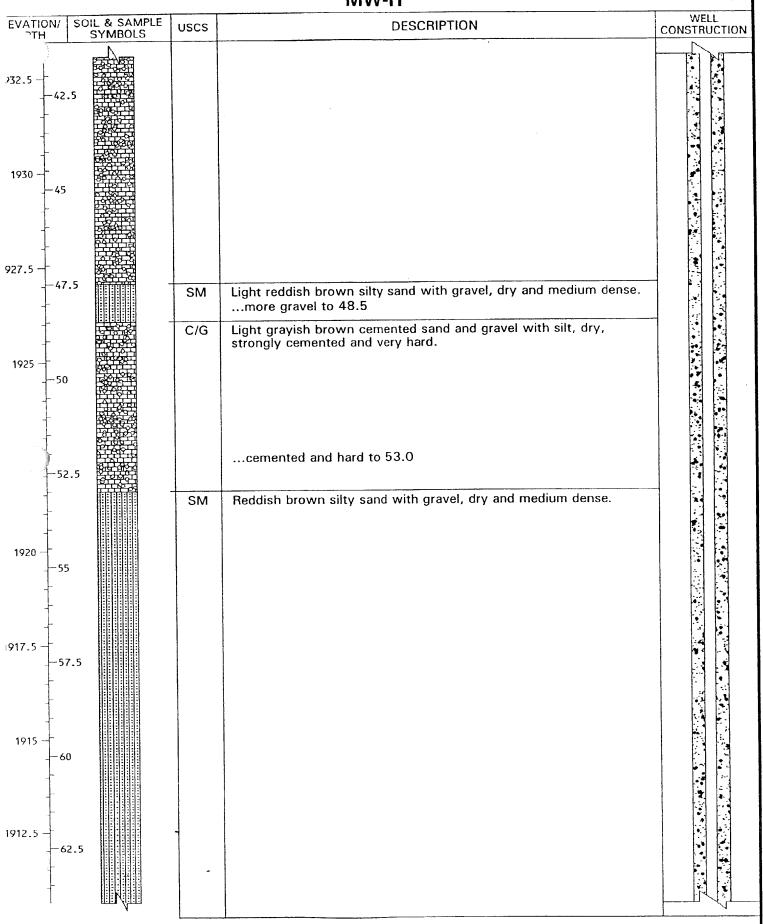
## EXPLORATION LOG

## CONFIDENTIAL

			MW-H	LIVIAL
EVATION/ SOIL	L & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTIO
1955 20				7.5.4.5.4.5.4.5.4.5.4.5.4.5.4.5.4.5.4.5.
252.5 — 22.5 		SM	Light gray brown silty sand with gravel, dry and medium dense.	
1950 25			more coarse gravel to 33.0cobbles and boulders to 33.0	1.28.28.28.28.28.28.28.28.28.28.28.28.28.
947.5				
30				
942.5 — —32.5		C/G	Light gray brown cemented sand and gravel, dry and medium dense.	
1940 35				
937.5 — ———————————————————————————————————		SM	Light grayish brown silty sand with gravel, dry and medium dense.	
1935 - 40		C/G	Light grayish brown cemented sand and gravel, dry, moderately cemented and medium hard.	
-				

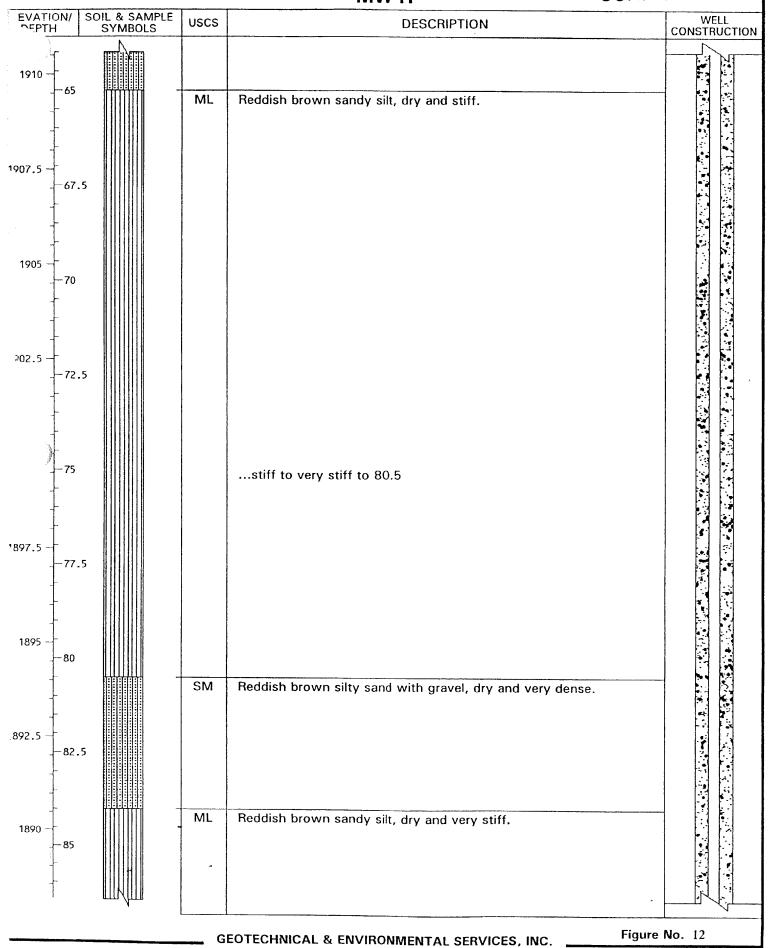
### CONFIDENTIAL

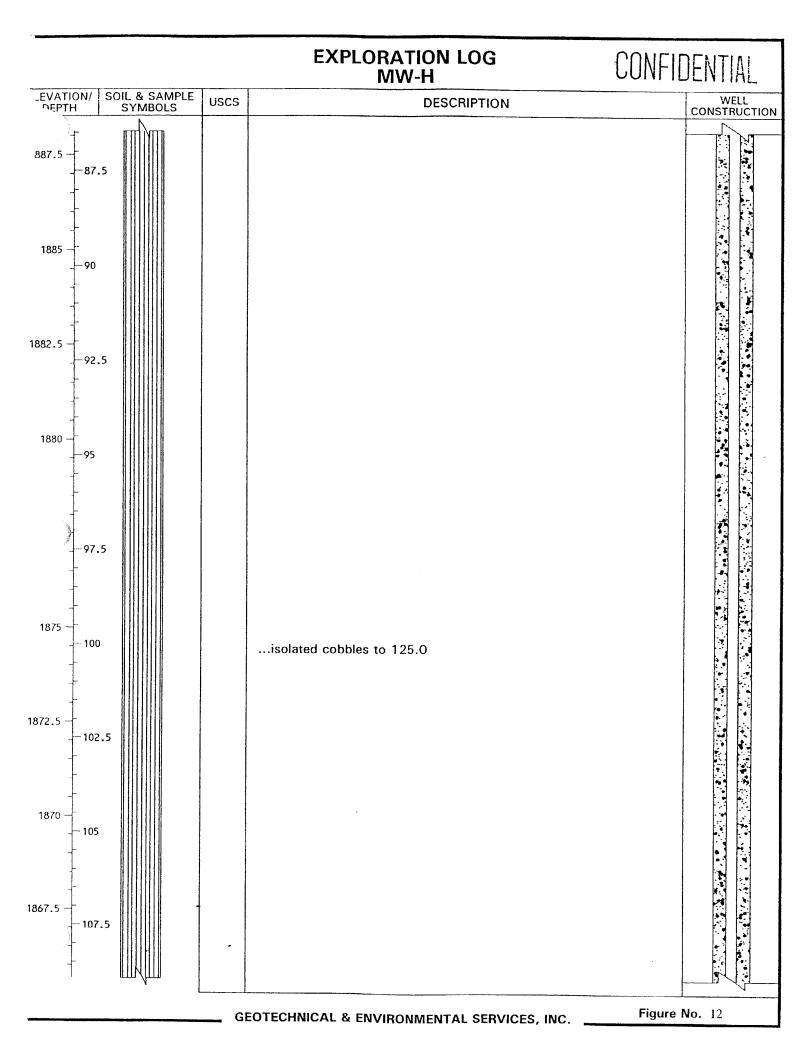
Figure No. 12



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

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### **EXPLORATION LOG** CONFIDENTIAL MW-H SOIL & SAMPLE SYMBOLS EVATION/ PEPTH WELL CONSTRUCTION uscs **DESCRIPTION** 1865 110 ...with sand to 125.0 1962.5 112.5 1860 -115 .357.5 117.5 ...firm to stiff to 124.5 120 352.5 122.5 1850 125 SP-Reddish brown poorly graded sand with silt and gravel, dry to SM slightly moist and dense. 1847.5 -127.5 1845 - 130 Figure No. 12 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

## CONFIDENTIAL **EXPLORATION LOG** MW-H WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ DEPTH uscs **DESCRIPTION** 342.5 132.5 ...rhyolite gravel with calcium carbonate rinds to 150.0 1840 135 1837.5 137.5 1835 - 140 **)**5 142.5 1830 - 145 1827.5 1825 - 150 SM Reddish brown silty coarse-grained sand, dry, partially cemented and medium dense. 822.5 -152.5 Figure No. 12

### EXPLORATION LOG MW-H CONFIDENTIAL WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ DEPTH uscs **DESCRIPTION** 1820 155 1917.5 157.5 1815 160 .312.5 162.5 b 165 307.5 -167.5 ...slightly moist to 170.0 1805 170 GP-Reddish brown poorly graded gravel with silt and sand, moist to very GM moist and medium dense. :802.5 172.5 1800 - 175 ...cobbles to 178.0 Figure No. 12 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### **EXPLORATION LOG** CONFIDENTIAL MW-H WELL CONSTRUCTION EVATION/ DEPTH SOIL & SAMPLE SYMBOLS USCS **DESCRIPTION** 797.5 177.5 Reddish brown poorly graded sand with gravel, very moist and SP medium dense. 1795 - 180 1792.5 182.5 1790 185 **GROUNDWATER ENCOUNTERED** .5 187.5 **END OF BORING AT 188 FEET** 1785 190 1782.5 -192.5 1780 - 195 1777.5 -197.5

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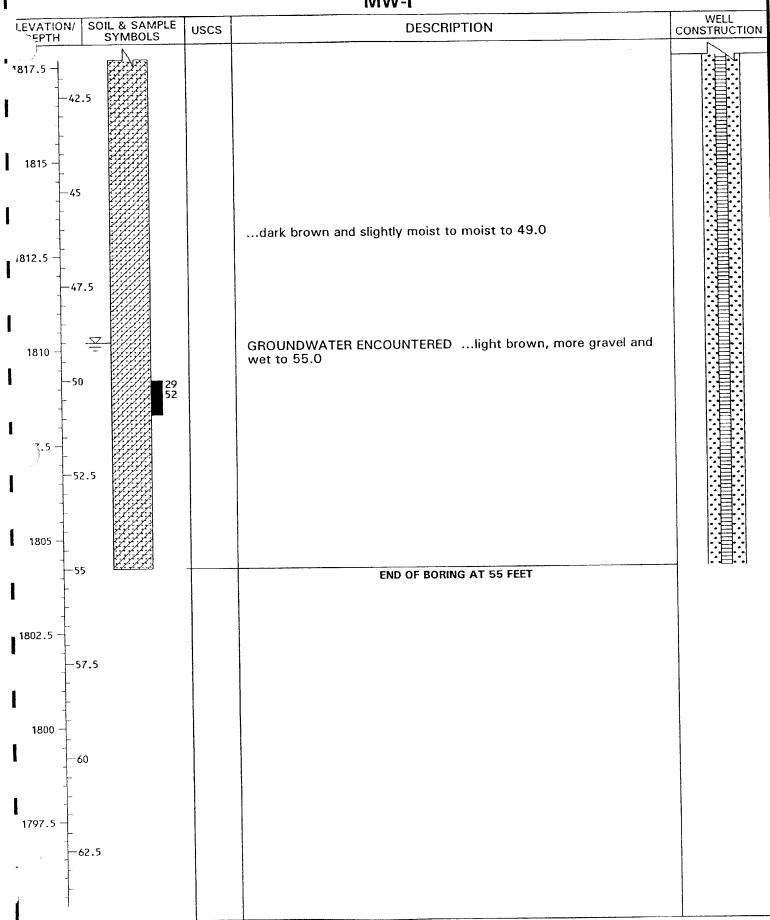
JECT: FORMER PEPCON FA	PROJECT NO.:		97664V1		
. LE LOCATION: SEE SITE PLAN			EXPLORATION DATE: 11/18.		11/18/97
EXPLORATION SIZE (diameter):	4" MONITO	RING WELL	EQUIPMENT:		MOBILE B-53
3.S. ELEVATION:	1859.22		LOGGED BY:	S. J0	HNSON
INITIAL DEPTH TO WATER:	49.0	DATE M	EASURED:	11/19	0/97

SOIL & SAMPLE SYMBOLS			CONSTRUCTION
	F	Asphalt and subgrade material, dark brown well graded sand with gravel, slightly moist and dense.	
5	SP	Brown poorly graded sand with isolated gravel, dense to very dense.	
	GW	Brown well graded gravel with sand and cobbles, slightly moist and dense to very dense.	
5			
	SW-	Brown well graded sand with clay and gravel, slightly moist to moist	
2.5	SC	and dense to very dense. Hard clay nodules.	
5 2 2 2 2 2 3 3 3 3			
7.5			
	5	F SP SW-SC SC	F Asphalt and subgrade material, dark brown well graded sand with gravel, slightly moist and dense.  SP Brown poorly graded sand with isolated gravel, dense to very dense.  GW Brown well graded gravel with sand and cobbles, slightly moist and dense to very dense.  SW-SC Brown well graded sand with clay and gravel, slightly moist to moist and dense to very dense. Hard clay nodules.

# **EXPLORATION LOG** MW-I WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ **DESCRIPTION** uscs $\dots stratified, light brown hard clayey layers and reddish brown sandy layers to 31.0 <math display="inline">\,$ 1840 -1837.5 22.5 1835 25 832.5 -27.5 30 -30 ...more gravel to 40.0 1827.5 32.5 1825 -35 1822.5 37.5 1820 Static Groundwater Level Figure No. 13 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



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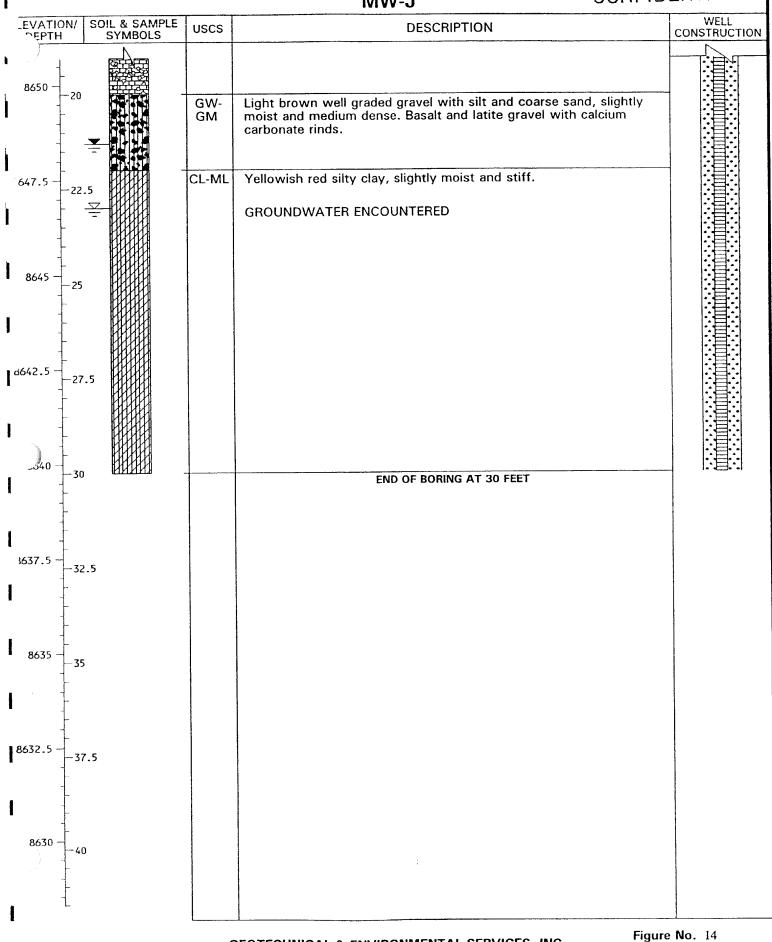


## CONFIDENTIAL

Figure No. 14

97664V1 PROJECT NO.: **OJECT: FORMER PEPCON FACILITY EXPLORATION DATE:** 11/23/97 JLE LOCATION: SEE SITE PLAN EXPLORATION SIZE (diameter): 2" MONITORING WELL MOBILE B-53 EQUIPMENT: LOGGED BY: S. ADAMS-LOWE 8669.77 G.S. ELEVATION: DATE MEASURED: 11/23/97 INITIAL DEPTH TO WATER: 23.0 DATE MEASURED: FINAL DEPTH TO WATER: 21.3 WELL CONSTRUCTION LLEVATION/ SOIL & SAMPLE **DESCRIPTION USCS DEPTH SYMBOLS** Yellowish red silty sand with gravel, slightly moist and medium SM dense. Vesicular basalt and trachyte gravel with calcium carbonate rinds. 8667.5 -...more gravel and some cobbles to 11.0 ...sampler on rock ...more fine gravel to 11.0 8660 Yellowish red silty gravel with sand and cobbles, slightly moist and GM dense. Trachyte cobbles. -12.5 8655 Yellowish red cemented sand and gravel with silt, dry, cemented and C/G hard. Basalt and trachyte gravel. 9652.5 --17.5

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Figure No. 15

"OJECT: FORMER PEPCON FACILITY PROJECT NO.: 97664V1 LE LOCATION: SEE SITE PLAN **EXPLORATION DATE:** 11/22/97 EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-53 G.S. ELEVATION: 1668.03 LOGGED BY: S. ADAMS-LOWE INITIAL DEPTH TO WATER: 21.0 DATE MEASURED: 11/22/97 FINAL DEPTH TO WATER: 20.6 DATE MEASURED: 12/4/97 EVATION/ SOIL & SAMPLE WELL USCS **DESCRIPTION DEPTH SYMBOLS** CONSTRUCTION Light brown silty medium-grained sand with gravel, dry and medium SM **GM** Light brown silty gravel with sand and cobbles, dry to slightly moist and medium dense. Massive, basalt gravel with calcium carbonate rinds and trace mica. 1665 62.5 GW Brown well graded gravel, slightly moist and medium dense. 1660 SM Brown silty medium to coarse-grained sand, slightly moist and medium dense. Massive, with trace mica. GW Brown well graded gravel with cobbles, dry to slightly moist and dense. 10 SM Gray silty coarse grained sand with fine gravel, dry to slightly moist 1657.5 and dense. Brown cemented sand and gravel, dry to slightly moist, cemented C/G and hard. ...more sand and silt to 21.0 12.5 1655 552.5 17.5 0

# EXPLORATION LOG MW-K WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ **DESCRIPTION** uscs Light yellowish red silty clay with some cemented gravel, very moist and stiff. Trace mica. CL-ML 22.5 1645 642.5 -27.5 1640 Light yellowish red clayey sand, wet and dense. SC **END OF BORING AT 30 FEET** 1637.5 32.5 1635 -35 632.5 37.5 1630 1027.5 Figure No. 15 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

OJECT: FORMER PEPCON FACILITY LIE LOCATION: SEE SITE PLAN		PROJECT NO.:	97664V1 ATE: 2-23-98		
EXPLORATION SIZE (diam	eter):	2" MONITORING WELL			
G.S. ELEVATION:		1634.37	LOGGED BY:	S. JOHNSON	
INITIAL DEPTH TO WATER	R:	13' DATE M 10.05' DATE M	EASURED:	2-23-98 2-26-98	
DEPTH SYMBOLS	uscs		DESCRIPTION		WELL CONSTRUCTION
	F	Fill: Asphalt and roadbed			
	SP	Brown poorly graded san dense.	nd with gravel, dry to	o slightly moist and	
1.632.5 2.5	SP-SC	Brown poorly graded san	nd with clay, slightly	moist and dense.	
1630 5		with white moist claypartially cemented to			
7.5	SC	Brown clayey sand, slig dense. moist and medium de		and medium dense to	
1625 - 10 -					
12.5	SP-SC	Brown poorly graded sa Groundwater Encounter	and with clay, wet ar	nd medium dense.	

Figure No. 16

...with gravel to 21.0

1620

1617.5

-17.5

# EXPLORATION LOG MW-K1 WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ **DESCRIPTION** USCS 1615 -20 С White caliche, wet, cemented and hard. 1612.5 -22.5 **END OF BORING AT 23.5 FEET** 1610 - 25 507.5 27.5 ٦5 1602.5 -32.5 1600 - 35 597.5 -37.5 1595 -Figure No. 16 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

CONFIDENTIAL

Figure No. 17

OJECT: FORMER PEPCON FACILITY

PROJECT NO.: 97664V1

EXPLORATION: SEE SITE PLAN

EXPLORATION DATE: 2-24-98

EXPLORATION SIZE (diameter): 2" MONITORING WELL

G.S. ELEVATION: 1619.27

EQUIPMENT: MOBILE B-61 HDX

S. JOHNSON

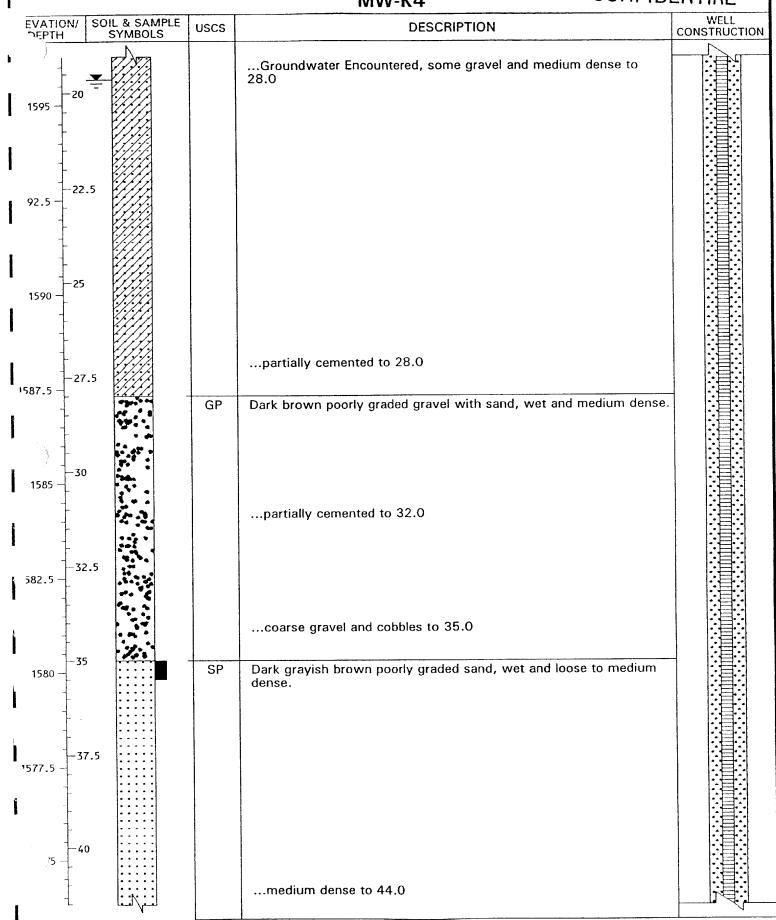
17' 2-24-98 DATE MEASURED: INITIAL DEPTH TO WATER: 3-2-98 18.95' DATE MEASURED: FINAL DEPTH TO WATER: WELL ELEVATION/ SOIL & SAMPLE uscs **DESCRIPTION** SYMBOLS CONSTRUCTION DEPTH Brown poorly graded sand with gravel, moist and dense. (subangular SP basalt and andesite) 517.5 1615 Light brown poorly graded sand with clay and gravel, moist and SP-SC dense. 1610 ...gravel lense to 12.0 607.5 12.5 1605 602.5 SP-SC Gray brown poorly graded sand with clay and gravel, wet and medium dense. Groundwater Encountered Light brown poorly graded sand, wet and medium dense.

# EXPLORATION LOG MW-K2 WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ **DESCRIPTION** uscs 1600 -20 1597.5 22.5 Gray brown poorly graded gravel with sand, wet and medium dense. GP 1595 White caliche, wet, moderately cemented and medium hard. С 592.5 **END OF BORING AT 27 FEET** 27.5 90 1587.5 32.5 1585 (582.5 37.5 1580 Figure No. 17

# CONFIDENTIAL

OJECT: FORMER PEPCON F	_AN	EXPLORATION DATE:	
EXPLORATION SIZE (diameter)	: 2" MONITORING WELL	EQUIPMENT: MO	BILE B-61-HDX
G.S. ELEVATION:	1615.32	LOGGED BY: S. JOHNS	SON
INITIAL DEPTH TO WATER: FINAL DEPTH TO WATER:	19 DATE MI 19.65 DATE M	EASURED: 4-1-98 EASURED: 4-3-98	**************************************
CLEVATION/ SOIL & SAMPLE USC		DESCRIPTION	WELL CONSTRUCTION
1615 O F	asphalt paving and roadb	ed gravel	
SP-S	Dark reddish brown poor moist and denseminor gravel to 14.0	ly graded sand with clay and g	gravel, slightly
612.5	minor graver to 14.0		
1610 -5			
1607.5	more clay and very de	nse to 14.0	
1605 —			
602.5			
GP-C	and dense to very dense		
SP-S	Dark reddish brown poor moist and dense to very	ly graded sand with clay, mois dense.	st to very
- <del>-</del>			Figure No. 18

# CONFIDENTIAL



# EXPLORATION LOG MW-K4 CONFIDENTIAL EVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs **DESCRIPTION** 1572.5 -CL Pale grayish brown sandy lean clay, wet and stiff. 1570 567.5 --50 **END OF BORING AT 50 FEET** 1565 52.5 1562.5 1560 -57.5 557.5 1555 62.5 15 Figure No. 18 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

# CONFIDENTIAL

OJECT: FORMER PEPCON FACILITY

PROJECT NO.:

97664V1

EXPLORATION DATE:

4-2-98

EXPLORATION SIZE (diameter):

2" MONITORING WELL

G.S. ELEVATION:

1592.49

PROJECT NO.:

97664V1

EXPLORATION DATE:

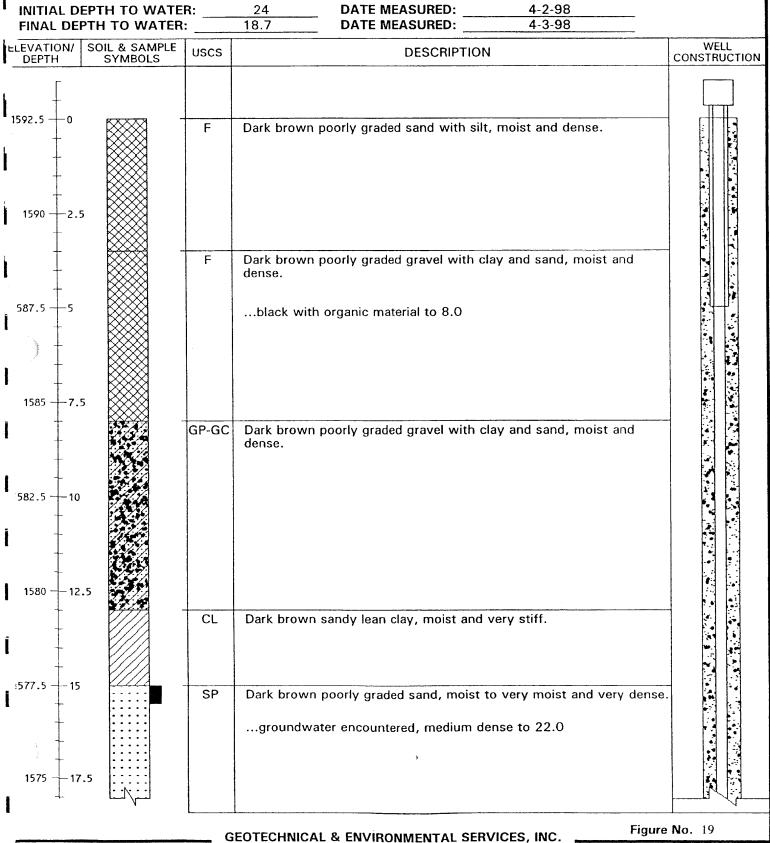
4-2-98

EQUIPMENT:

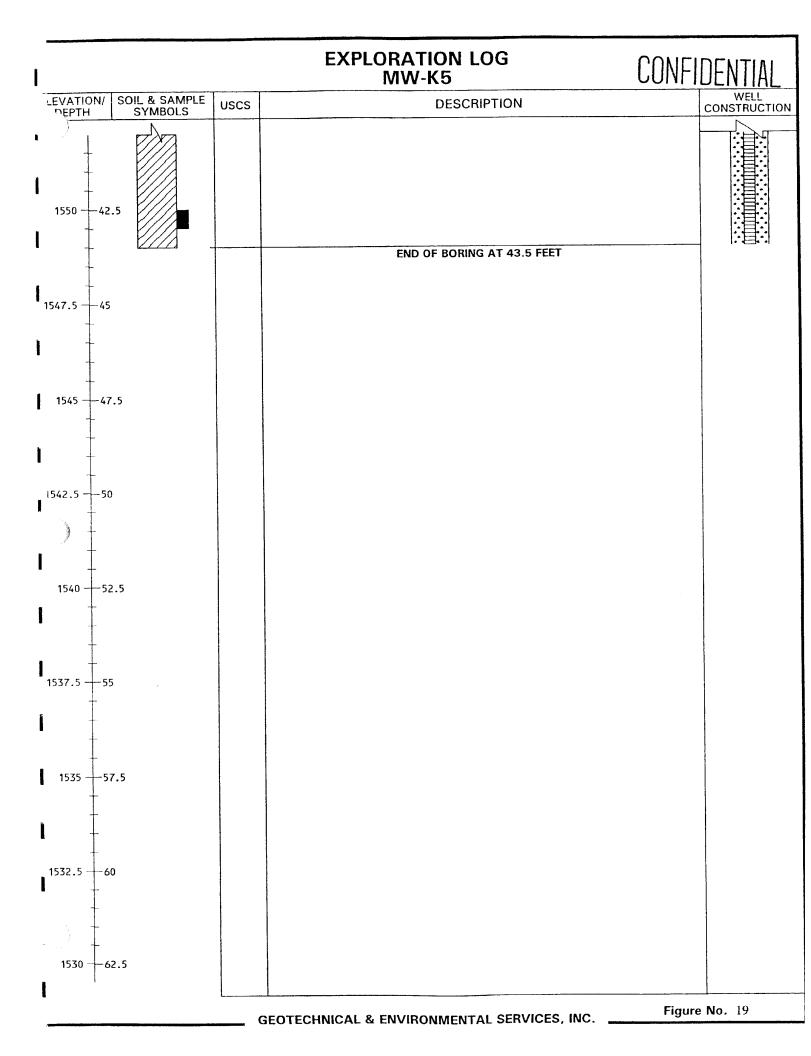
MOBILE B-61-HDX

LOGGED BY:

S. JOHNSON



### **EXPLORATION LOG** CONFIDENTIAL MW-K5 WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS .EVATION/ **DESCRIPTION** uscs 572.5 -20 ...gravel lense to 22.0 Dark reddish brown clayey sand, wet and medium dense to dense. SP-SC 1570 --22.5 1567.5 --- 25 ...gravel lense to 27.5 1565 -27.5 ... dense to 32.5 562.5 ...gravel lense to 32.5 -32.5 1560 -...dense to very dense to 35.0 1557.5 --...medium dense to 38.0 1555 · -37.5 White and green mottled sandy lean clay, moist to very moist and CL 1552.5 -Figure No. 19 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



CONFIDENTIAL

Figure No. 20

PROJECT NO .: 97664V1 **DJECT: FORMER PEPCON FACILITY** 3-12-98 **EXPLORATION DATE:** . JLE LOCATION: SEE SITE PLAN MOBILE B-53 **EXPLORATION SIZE (diameter):** 2" MONITORING WELL EQUIPMENT: LOGGED BY: S. ORNDORFF 1557.77 G.S. ELEVATION: DATE MEASURED: 3-12-98 INITIAL DEPTH TO WATER: 3-16-98 2.40 DATE MEASURED: FINAL DEPTH TO WATER: WELL CONSTRUCTION LEVATION/ SOIL & SAMPLE **DESCRIPTION** USCS DEPTH SYMBOLS Light brown poorly graded sand with silt and gravel, dry and very SP-557.5 SM dense. ...slightly moist to 3.0 1555 Brown clayey sand with gravel, moist to wet and very dense. SC Brown poorly graded gravel with clay and sand, wet and very dense. GP-GC 1552.5 Groundwater Encountered ...fine gravel to 10.0 Brown poorly graded sand with clay and gravel, wet and very dense. SP-SC 547.5 -12.5 1545 1542.5 17.5 40

## EXPLORATION LOG MW-K6 CONFIDENTIAL WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ uscs **DESCRIPTION** 1537.5 22.5 1535 532.5 27.5 1530 GP-GC Brown poorly graded gravel with clay and sand, wet and very dense. 1527.5 SP Brown poorly graded sand, wet and very dense. 32.5 1525 SC Pale pinkish brown clayey sand, wet and very dense. 522.5 CL White and pink mottled sandy lean clay, wet and stiff. 1520 .5 **END OF BORING AT 41 FEET** Figure No. 20 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

## CONFIDENTIAL

Figure No. 21

PROJECT: FORMER PEPCON FACILITY

LE LOCATION: SEE SITE PLAN

EXPLORATION DATE:

C.S. ELEVATION:

PROJECT NO.:

97664V1

EXPLORATION DATE:

3-11-98

EQUIPMENT:

MOBILE B-53

LOGGED BY:

S. ORNDORFF

INITIAL DEPTH TO WATER: 7.5 DATE MEASURED: 3-11-98
FINAL DEPTH TO WATER: 8.19 DATE MEASURED: 3-16-98

FINAL DEPT	H TO WATER	:	8.19 DATE MEASURED: 3-16-98	
EVATION/ SO DEPTH	OIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
i52.5 — 2.5		SP- SM	Light brown poorly graded sand with silt and gravel, dry and densedry to slightly moist to 3.0	
1550		CL	Brown sandy lean clay with gravel, slightly moist and very stiff.	
1-47.5		GP-GC SP-SC	Light brown poorly graded gravel with clay and sand, slightly moist to moist and very dense.  Light brown poorly graded sand with clay, moist and very dense.	
7.5\\		sc	Light brown clayey sand with gravel, wet and dense. Groundwater Encountered	
1545				
1540		ML	Brown silt with sand, wet and stiff.	
-15				
17.5				

### EXPLORATION LOG MW-K7 CONFIDENTIAL LEVATION/ DEPTH WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS uscs **DESCRIPTION** 35د، 20 ...6" clay lense 1532.5 22.5 1530 527.5 -27.5 525 30 SP-Light brown poorly graded sand with silt, wet and very dense. SM 1522.5 32.5 GP-Very pale brown poorly graded gravel with silt and sand, wet and GM very dense. 1520 517.5 37.5 SP Very pale brown poorly graded sand with gravel, wet and dense. 1515 **END OF BORING AT 41 FEET** Figure No. 21 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

## CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY

LE LOCATION: SEE SITE PLAN

EXPLORATION SIZE (diameter): 2" MONITORING WELL

EQUIPMENT: MOBILE B-53

G.S. ELEVATION: 1560.25 LOGGED BY: S. ORNDORFF

EVATIOI DEPTH	N/ SOIL SY	& SAMPLE 'MBOLS	uscs	DESCRIPTION	WELL CONSTRUC
57.5	-0 3 4		GP- GM	Light brown poorly graded gravel with silt and sand, dry and very densereddish brown and dry to slightly moist to 3.0	12. E
	-		SP	Reddish brown poorly graded sand with gravel, dry to slightly moist and very dense.	
1555	-5			slightly moist to 13.5	
52.5	7.5			with coarse gravel to 9.5	
1550	-10				
1545	-15	3.	GP	Reddish brown poorly graded gravel with sand, slightly moist and very dense.	
(2.5	-17.5	• •	SP	Reddish brown poorly graded sand with gravel, slightly moist to moist and very dense.	
	<del>▼</del>		SP- SM	Brown poorly graded sand with silt and gravel, wet and very dense. Groundwater Encountered	

Figure No. 22

## **EXPLORATION LOG** MW-K8 ELEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs **DESCRIPTION** 1540 22.5 537.5 SM Brown silty sand with gravel, wet and very dense. 25 1535 SP-SC Brown poorly graded sand with clay and gravel, wet and very dense. -27.5 1532.5 SC 1530 Brown poorly graded clayey sand, wet and dense. 32.5 527.5 -35 1525 -37.5 1522.5 ._50

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

Figure No. 22

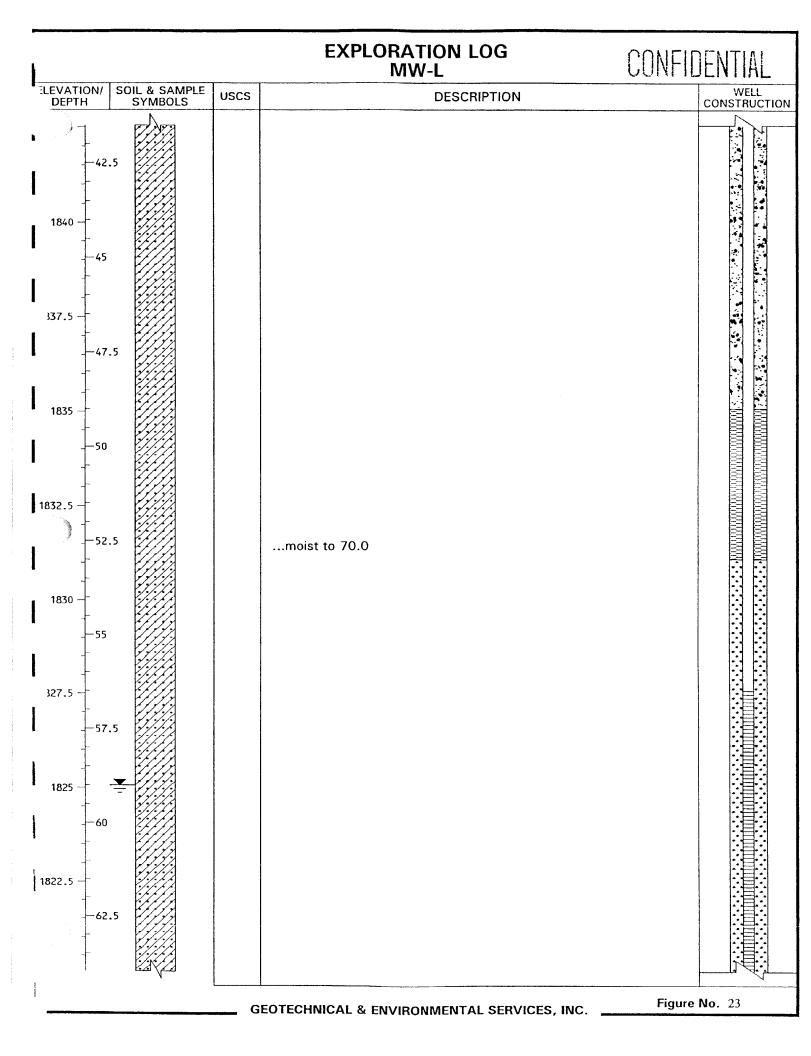
# CONFIDENTIAL **EXPLORATION LOG** MW-K8 ELEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs **DESCRIPTION** GP-GC 1515 Light brown poorly graded gravel with clay and sand, wet and very dense. CL White gravelly clay with sand, wet and very stiff. 47.5 1512.5 **END OF BORING AT 50 FEET** 1510 · 52.5 107.5 1505 57.5 502.5 **150**0 62.5 5 ~ Figure No. 22 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

CONFIDENTIAL

**PROJECT:** FORMER PEPCON FACILITY PROJECT NO .: 97664V1 LE LOCATION: SEE SITE PLAN **EXPLORATION DATE:** 11/20/97 **EXPLORATION SIZE (diameter):** 2" MONITORING WELL EQUIPMENT: MOBILE B-53 LOGGED BY: 3.S. ELEVATION: 1884.07 S. JOHNSON INITIAL DEPTH TO WATER: 80.0 DATE MEASURED: 11/20/97 FINAL DEPTH TO WATER: 59.0 DATE MEASURED: 12/2/97 SOIL & SAMPLE SYMBOLS WELL EVATION/ uscs **DESCRIPTION** CONSTRUCTION DEPTH Asphalt and roadbed material, light brown poorly graded sand with silt and gravel, dry and dense. Light brown poorly graded gravel with sand, cobbles and boulders, **GP** dry and dense to very dense. 82.5 ...boulder to 5.0 1880 1877.5 ...boulder to 9.0 1875 72.5 1870 ...boulder to 15.0 15 ...more sand, fewer cobbles and boulders to 26.0 1867.5 17.5

Figure No. 23

### EXPLORATION LOG MW-L CONFIDENTIAL ELEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs **DESCRIPTION** 862.5 22.5 1860 SP-SC Reddish brown poorly graded sand with clay and isolated gravel, 1857.5 slightly moist to moist and dense. Possible mineralization and minor gypsum content. 27.5 1855 852.5 32.5 1850 35 SW Brown well graded sand with gravel, slightly moist to moist, partially 1_{847.5} cemented and dense. 37.5 SP-SC Reddish brown poorly graded sand with clay and fine gravel, slightly moist, partially cemented and dense to very dense. 1845 Figure No. 23 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



## **EXPLORATION LOG** CONFIDENTIAL MW-L ELEVATION/ DEPTH WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS uscs **DESCRIPTION** 317.5 ...dark brown to 81.0 67.5 1815 ...very moist to 71.5 1812.5 ...moist to 80.0 72.5 1810 107.5 1805 **GROUNDWATER ENCOUNTERED** GP Dark brown poorly graded gravel with sand, wet, partially cemented 802.5 and dense. 82.5 1800 85 Figure No. 23 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

# EXPLORATION LOG MW-L CONFIDENTIAL :LEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION USCS **DESCRIPTION** Š **END OF BORING AT 86.5 FEET** -87.5 1795 90 **'92.**5 92.5 1790 1787.5 -97.5 1785 100 **'82.**5 102.5 1780 - 105 1777.5 -107.5 Figure No. 23 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY PROJECT NO.: 97664V1 LE LOCATION: SEE SITE PLAN **EXPLORATION DATE:** 3-09-98 EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: **MOBILE B-61-HDX** G.S. ELEVATION: 1879.93 LOGGED BY: S. JOHNSON

INITIAL DEPTH TO WATER: 97 DATE MEASURED: 3-09-98

FINAL DEPTH TO WATER: 92.58 DATE MEASURED: 3-20-98 EVATION/ | SOIL & SAMPLE

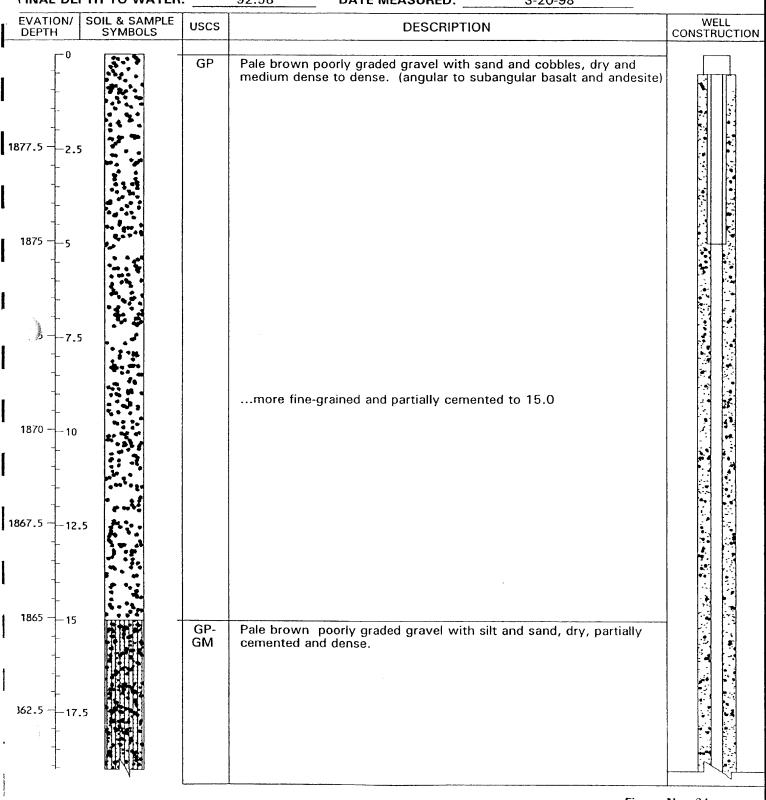
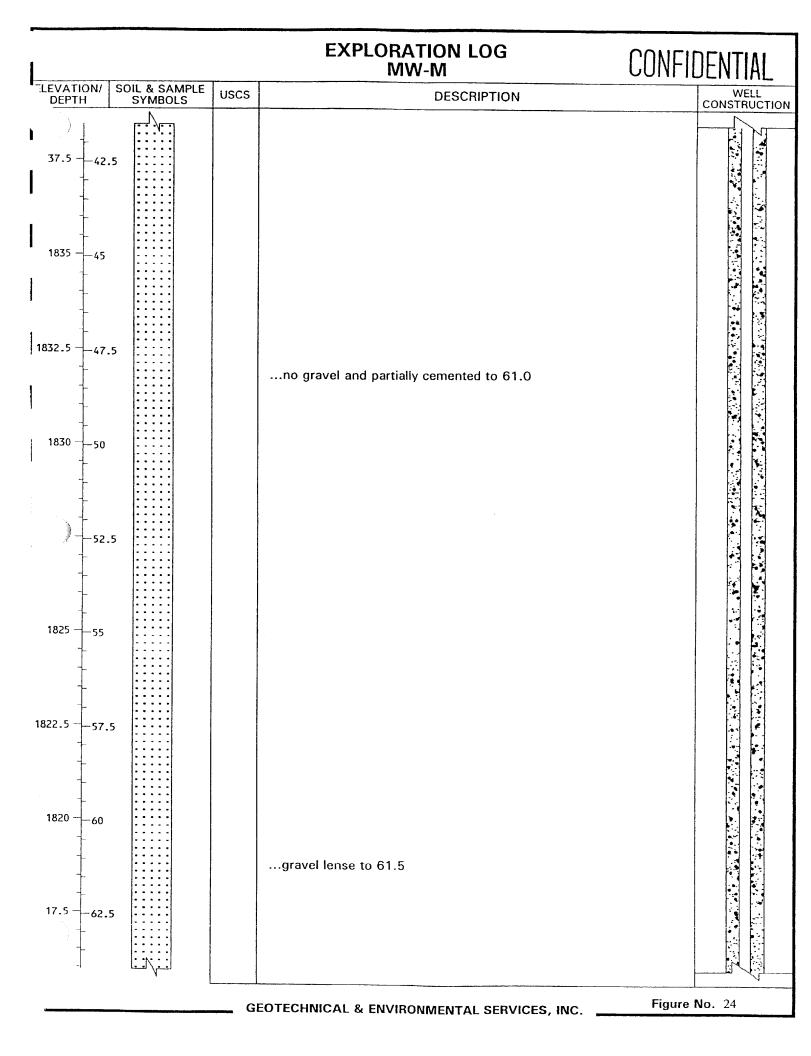


Figure No. 24

## **EXPLORATION LOG** CONFIDENTIAL MW-M SOIL & SAMPLE SYMBOLS LEVATION/ WELL CONSTRUCTION uscs **DESCRIPTION** DEPTH 1860 1857.5 -22.5 ...switch to air rotary GP Pale brown poorly graded gravel with sand, dry and medium dense to dense. 1855 152.5 -27.5 ...adding foam SP Pale brown poorly graded sand with gravel and isolated cobbles, dry -30 and medium dense. (stratified) 947.5 -32.5 1845 .342.5 -37.5 1840 Figure No. 24 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



## **EXPLORATION LOG** CONFIDENTIAL MW-M WELL CONSTRUCTION EVATION/ SOIL & SAMPLE SYMBOLS USCS **DESCRIPTION** -65 ...gravel lense to 67.0 1012.5 -67.5 1810 -GP Pale brown poorly graded gravel with sand, wet and dense. 07.5ك، -72.5 302.5 77.5 1800 80 ...partially cemented to 89.0 1797.5 -82.5 1795 --85 Figure No. 24 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

#### FACSIMILE

Broadbent & Associates, Inc. 8 West Pacific Avenue

Henderson, Nevada 89015 Voice: (702) 563-0600 Fax: (702) 563-0610

To:

Todd (10++ Date: 2-2-99

Bo6

Fax #:

486-2863

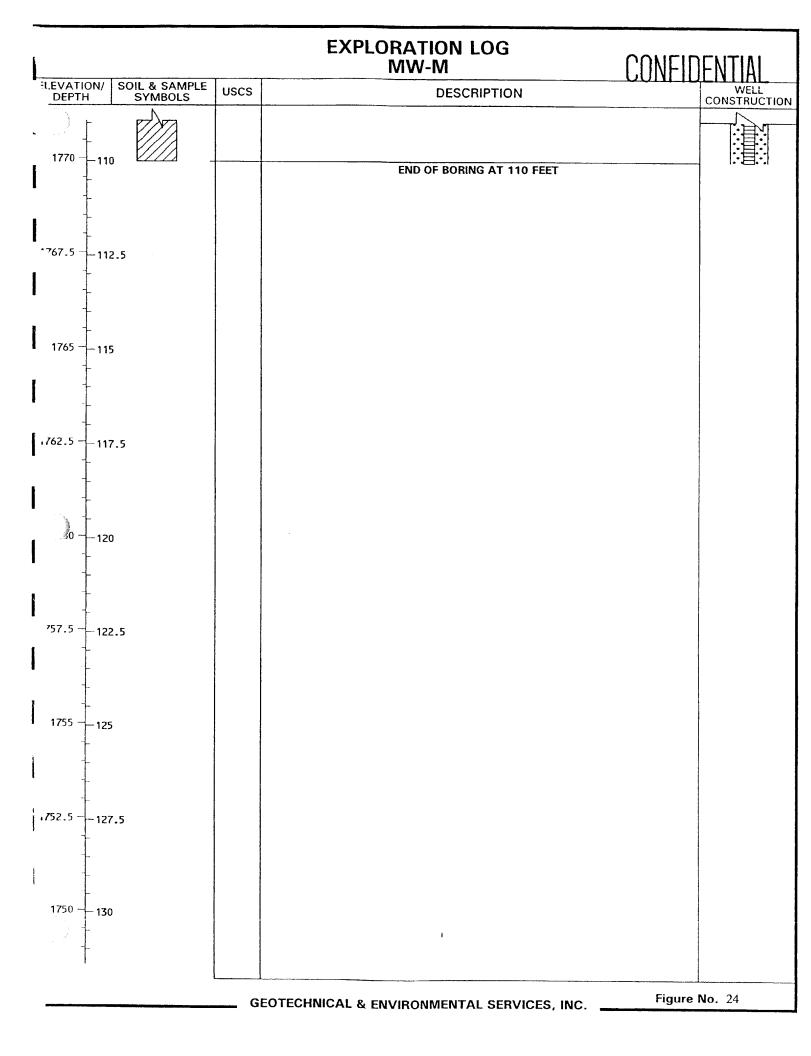
Bob Broadsont From: (702) 563-0610 Fax #:

Number of Pages Including Transmittal Sheet:

COMMENTS

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IF ALL PAGES ARE NOT RECEIVED, PLEASE NOTIFY US IMMEDIATELY



# EXPLORATION LOG MW-M CONFIDENTIAL FI.EVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs **DESCRIPTION** 1790 ...partially cemented to 97.0 1787.5 1785 ...Groundwater Encountered 1780 -100 102.5 1775 105 CL Reddish brown lean clay with sand, very moist to wet and stiff to very stiff. 772.5 -107.5 Figure No. 24 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

#### EXPLORATION LOG MW-N

CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY PROJECT NO.: 97664V1 **EXPLORATION DATE:** 12/22/97 LE LOCATION: SEE SITE PLAN LAPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-53 1649.24 LOGGED BY: S. JOHNSON G.S. ELEVATION: INITIAL DEPTH TO WATER: DATE MEASURED: ____ 29.5 12/22/97 FINAL DEPTH TO WATER: 28.17 DATE MEASURED: 12/29/97 SOIL & SAMPLE SYMBOLS EVATION/ WELL USCS **DESCRIPTION** CONSTRUCTION DEPTH Asphalt and roadbed aggregate. GP-Brown poorly graded gravel with silt and sand, slightly moist and GM dense. Gravel subrounded to subangular, mostly basalt. 47.5 ...more fine gravel and sand to 2.5 2.5 ...more coarse gravel to 5.0 (some rhyolite gravel) 1645 1642.5 7.5 C/G Brown cemented sand and gravel, dry to slightly moist, moderately cemented and medium hard to hard. 1640 37.5 SP-Light brown poorly graded sand with silt and fine gravel, dry to 12.5 SM slightly moist and dense. 1635 GP-Light brown poorly graded gravel with silt and sand, dry to slightly 15 **GM** moist, partially cemented and dense. ...cobble

Figure No. 25

Light brown cemented sand and gravel, dry, cemented and medium

1632.5

17.5

C/G

hard to hard.

#### **EXPLORATION LOG** CONFIDENTIAL MW-N WELL CONSTRUCTION FI EVATION/ SOIL & SAMPLE USCS DESCRIPTION **DEPTH SYMBOLS** 0 SP Dark brown poorly graded sand with fine gravel, dry to slightly moist and dense. 20 J27.5 22.5 1625 422.5 C/G Pale brown cemented sand and gravel, dry to slightly moist, 27.5 moderately cemented and medium hard. Calcium carbonate rinds and some limestone clasts. 1620 GROUNDWATER ENCOUNTERED ... Dark brown sandy lean clay, CL wet and stiff 17.5ن C/G Dark brown cemented sand and gravel, wet, cemented and hard. 32.5 1615 35 ...strongly cemented and very hard to 35.5 ...weakly cemented and medium hard to 36.0 strongly cemented and very hard to 37.0 512.5 CL Reddish brown lean clay with sand, wet and stiff to very stiff. 37.5 1610 40 **END OF BORING AT 40 FEET** Figure No. 25 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

#### EXPLORATION LOG MW-0

## CONFIDENTIAL

POJECT: FORMER PEPCON FACILITY

E LOCATION: SEE SITE PLAN

EXPLORATION SIZE (diameter): 2" MONITORING WELL

EQUIPMENT: MOBILE B-53

G.S. ELEVATION: 1643.82 LOGGED BY: S. JOHNSON

EVATIO DEPTH	ON/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
	-0	F	Asphalt and roadbed aggregate.	
342.5	-2.5	SP- SM	Dark brown poorly graded sand with silt and gravel, slightly moist to moist and dense. Gravel subrounded to subangular, mostly basalt.	
1640	5		more gravel to 5.0	
637.5 -				
-	-7.5			
- 1635 - -	10	GW	Dark brown well graded gravel with sand, slightly moist and dense to very dense.	
- 632.5 - - - -	-12.5			
1630 -		C/G	Dark brown cemented sand and gravel, dry, cemented and hard.	
<del>-</del> -	— 15 <b>30</b>		cobble	
.627 <b>.</b> 5 -		GP	Dark brown poorly graded gravel with sand, dry to slightly moist and dense.	
1625 -	17.5		more sand to 20.5	

#### **EXPLORATION LOG** CONFIDENTIAL MW-O 1 EVATION/ DEPTH SOIL & SAMPLE USCS **DESCRIPTION** CONSTRUCTION SYMBOLS C/G Dark brown cemented sand and gravel, dry, cemented and hard. 22.5 Dark brown poorly graded gravel with sand, slightly moist and GP 22.5 dense. Fine to medium grained gravel. C/G Dark brown cemented sand and gravel, moist, moderately cemented 1620 and medium hard. Mostly fine gravel and well-graded sand. 1617.5 SW-GROUNDWATER ENCOUNTERED ... Dark brown well graded sand SC with clay, wet and dense. 1615 30 C/G Dark brown cemented sand and gravel, wet, moderately cemented and medium hard to hard. 512.5 32.5 CL Dark brown sandy lean clay with gravel, wet and stiff to very stiff. 1610 C/G Dark brown cemented sand and gravel, wet, cemented and hard. 1607.5 -37.5 CL Reddish brown sandy lean clay, wet and stiff. 1605

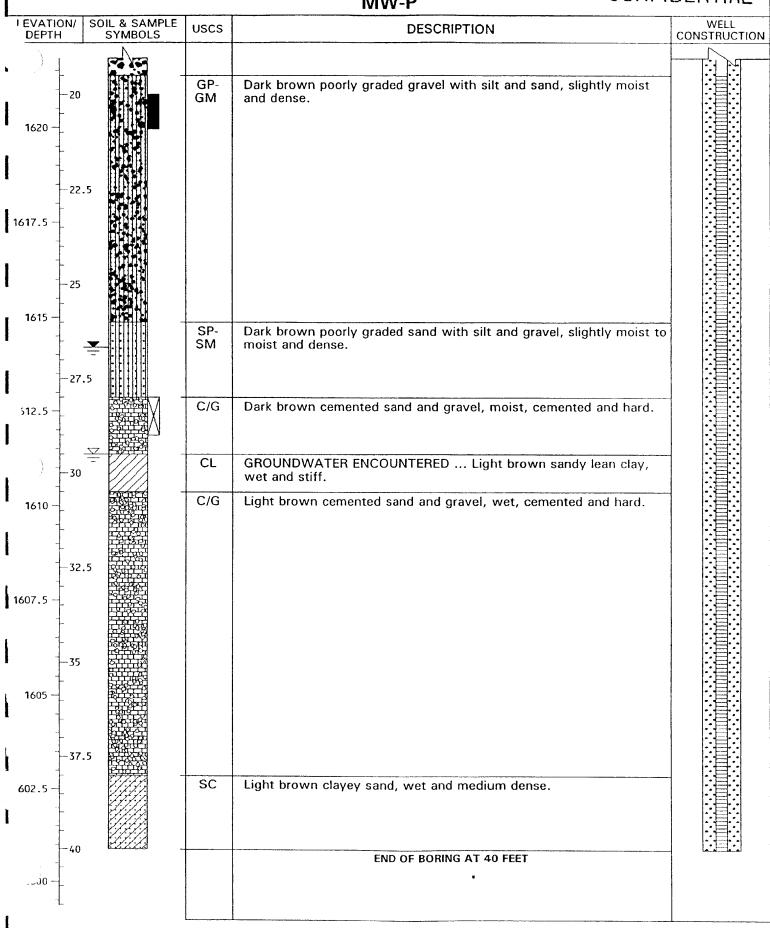
602.5

**END OF BORING AT 40 FEET** 

#### EXPLORATION LOG MW-P

INAL	DEPT	TH TO WATE	:	29.5 26.67	DATE MEASURED:	12/22/97 12/29/97	1 14/51
DEPTH	JN/   5	OIL & SAMPLE SYMBOLS	USCS		DESCRIPTION		WELL CONSTRUCT
1640 —	0		F	Asphalt and road	dbed aggregate.		   साहि
- - 57.5 —	-2.5		SM	Gravel subround	led to subangular, mostly l	. Fines are slightly plastic. basalt.	
635 — -	<b>5</b>			more gravel to	5 5.0		
- 2.5 –	-7 <b>.</b> 5		GP- GM	Dark brown poo and dense to ve	rly graded gravel with silt ry dense.	and sand, slightly moist	
- - 630	-10						
- - -7.5 –	-12.5		C/G	and medium har			
-	15		GP	Dark brown poo dense. Coarse g	orly graded gravel with san gravel.	d, slightly moist and	
625 - - -	17.5		C/G	Dark brown cem cemented and h	nented sand and gravel, dr pard.	y to slightly moist,	
2.5 -	-		GW	Dark brown wel	ll graded gravel with sand,	slightly moist and dense.	

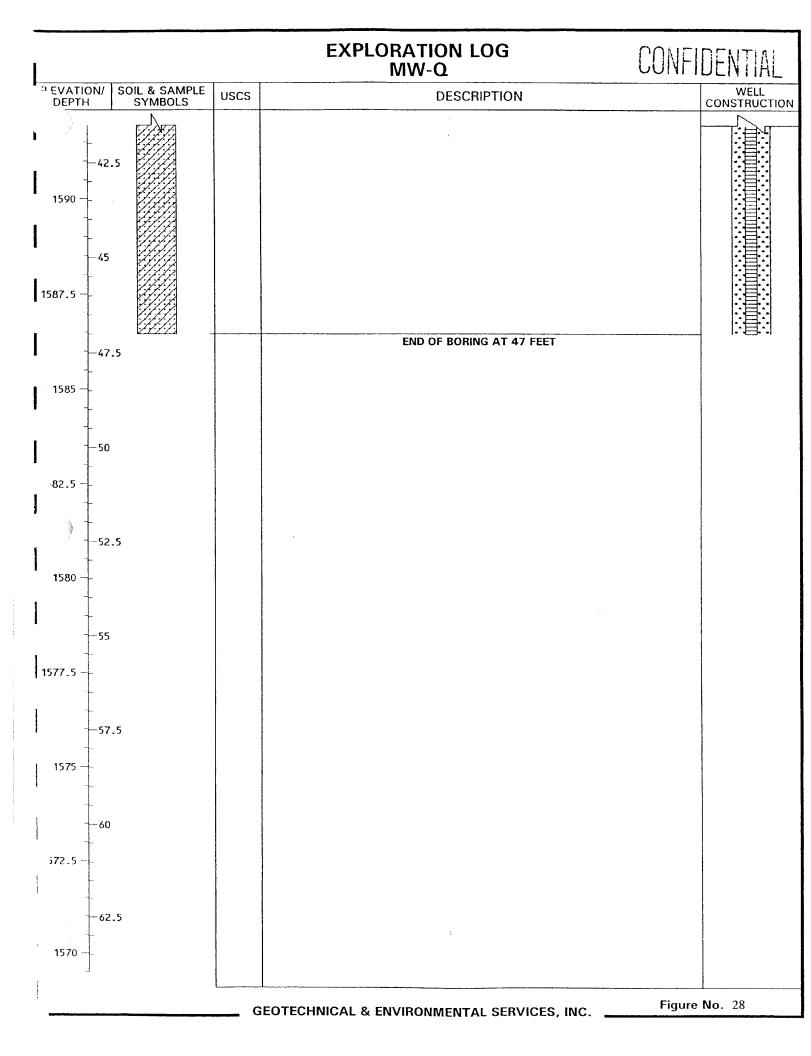
#### EXPLORATION LOG MW-P



#### EXPLORATION LOG MW-Q

LE LOCATION: SEE SITE PLA		PROJECT NO.:EXPLORATION DATE:	97664V1 12/23/97	7
EXPLORATION SIZE (diameter):	2" MONITORING WELL	EQUIPMENT:	MOBILE B-53	
G.S. ELEVATION:	1633.46	LOGGED BY: S. JOH	INSON	
INITIAL DEPTH TO WATER: FINAL DEPTH TO WATER:	36.0 DATE ME 31.45 DATE ME	ASURED: 12/31/ ASURED: 12/31/	97 97	
EVATION/ SOIL & SAMPLE SYMBOLS USCS		DESCRIPTION		WELL CONSTRUCTION
1632.5 GP- GM	dense to dense.	gravel with silt and sand,		
1630 —	Brown well graded sand vand dense.	with silt and gravel, slightly	moist to moist	
527.5 — GP	Brown poorly graded grav dense. Minor silt/clay con	vel with sand, slightly moist itent, basalt gravel.	t to moist and	
7.5				
1625 C/G	Brown cemented sand an	d gravel, dry, cemented and	d hard.	
1622.5 C	Pale brown caliche, dry, s	strongly cemented and very	hard.	
1620				
617.5 SC	Brown clayey sand, sligh	tly moist to moist and dens	e.	
1615	GEOTECHNICAL & ENVIRON	IMENITAL SERVICES INC	Figure	No. 28

### **EXPLORATION LOG** MW-Q SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION ".EVATION/ uscs **DESCRIPTION DEPTH** CL Pale brown sandy lean clay with nodules, moist and stiff to very stiff. ...white to 32.0 1612.5 22.5 1610 507.5 ...dry to slightly moist with gravel and dry hard clay nodules to 32.0 27.5 1605 1602.5 ...moist with no nodules or gravel to 36.0 32.5 1600 35 SC GROUNDWATER ENCOUNTERED ... Reddish brown clayey sand, wet and stiff. 1595 ...light brown to 47.0 Figure No. 28 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



# EXPLORATION LOG MW-QS

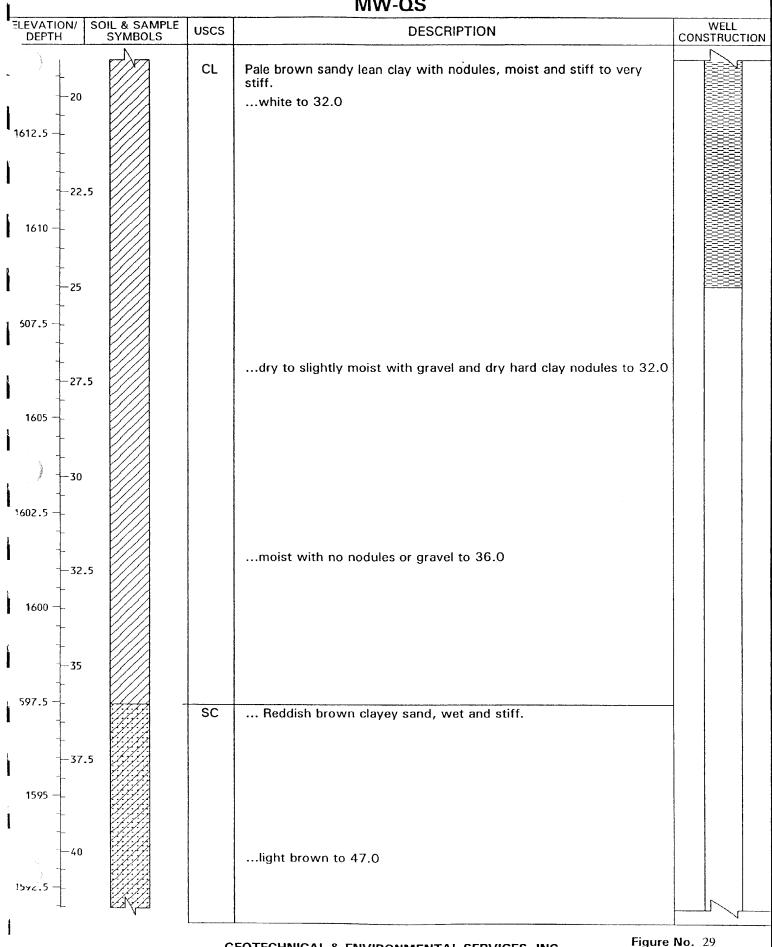
## CONFIDENTIAL

PROJECT: FORMER PEPCON FACE LOCATION: SEE SITE PLAN	PROJECT NO	 97664V1 12/23/97			
EXPLORATION SIZE (diameter): _ 3.S. ELEVATION:	2" MONITORI 1633.46	NG WELL	EQUIPMENT: LOGGED BY:	 MOBILE B-53 IOHNSON	
INITIAL DEPTH TO WATER:FINAL DEPTH TO WATER:	13.45 13.49		EASURED: EASURED:	 6/98 0/98	

FINAL DEPTH TO WATER:	:	13.49 DATE MEASURED: 4/20/98	
EVATION/ SOIL & SAMPLE DEPTH SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
1632.5 —	GP- GM	Pale brown poorly graded gravel with silt and sand, dry and medium dense to dense.	
1630 —	SW- SM	Brown well graded sand with silt and gravel, slightly moist to moist and dense.	
27.5 —	GP	Brown poorly graded gravel with sand, slightly moist to moist and dense. Minor silt/clay content, basalt gravel.	
/ -7.5	C/G	Brown cemented sand and gravel, dry, cemented and hard.	
1625 — 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 - 10 600 -			
-12.5	С	Pale brown caliche, dry, strongly cemented and very hardwhite to 16.0	
162015			
17.5	sc	Brown clayey sand, slightly moist to moist and dense.	
10.15		ř	
У	G	EOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figure	No. 29

#### EXPLORATION LOG MW-QS

### CONFIDENTIAL



			EXPLORATION LOG MW-QS	CONFIDEN	ITIAL
FLEVATION/ SC DEPTH	OIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	со	WELL NSTRUCTION
1590					
1587.5			END OF BORING AT 47 FEET		
<del>-47.5</del>					
1585					
50					
582.5					
52.5					
1					
1580					
-55					
+					
1577.5			,		
57.5					
1575 —					
-60					
1572.5					
1					
-62.5					
1570					
1		GEOT	ECHNICAL & ENVIRONMENTAL SERVICES, INC	Figure No	. 29

#### EXPLORATION LOG MW-QD

	PROJECT: FORMER PEPO LE LOCATION: SEE SI			PROJECT NO.:EXPLORATION DATE:	97664V1 12/23/9	7
1	EXPLORATION SIZE (diam			FOURMENT:	MOBILE B-53	/
ĺ	INITIAL DEPTH TO WATE FINAL DEPTH TO WATER	R:	14.55 DATE MI	EASURED: 4/16/9 EASURED: 4/20/9	98	
L	EVATION/ SOIL & SAMPLE SYMBOLS	USCS		DESCRIPTION		WELL CONSTRUCTION
!  -	1632.5 -	GP- GM	Pale brown poorly graded dense to dense.	gravel with silt and sand,	dry and medium	
	1630 -	SW- SM	Brown well graded sand and dense.	with silt and gravel, slightly	moist to moist	
	527.5 —	GP	Brown poorly graded gra dense. Minor silt/clay cor	vel with sand, slightly moist ntent, basalt gravel.	t to moist and	
ĭ	7.5				•	
I I	1625	C/G	Brown cemented sand an	d gravel, dry, cemented and	d hard.	
·   1	1622.5 — - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	С	Pale brown caliche, dry,	strongly cemented and very	hard.	
	12.5		white to 16.0	,		
-	1620 -					
	-17.5	SC	Brown clayey sand, sligh	tly moist to moist and dens	e.	
•	1615					
1	٧		FOTFOLINICAL		Figure	No. 30
		G	<b>EOTECHNICAL &amp; ENVIRON</b>	IMENTAL SERVICES, INC.	rigure	

### **EXPLORATION LOG** MW-QD LEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs **DESCRIPTION** Pale brown sandy lean clay with nodules, moist and stiff to very CL stiff. ...white to 32.0 1612.5 22.5 1610 07.5 ...dry to slightly moist with gravel and dry hard clay nodules to 32.0 27.5 1605 30 1402.5 ...moist with no nodules or gravel to 36.0 -32.5 1600 97.5 SC ... Reddish brown clayey sand, wet and stiff. 37.5 1595 ...light brown to 47.0 Figure No. 30 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

		EXPLORATION LOG MW-QD	CONFIDENTIAL
EVATION/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
1590 - 45			
47.5		END OF BORING AT 47 FEET	
1585			
582.5			
1580 —   55			
-577.5			
1575			
62.5			
1570	GE	OTECHNICAL & ENVIRONMENTAL SERVICES, INC	Figure No. 30

#### **EXPLORATION LOG** MW-R

CONFIDENTIAL

7 JECT: FORMER PEPCON FACILITY

LE LOCATION: SEE SITE PLAN

EXPLORATION SIZE (diameter): 2" MONITORING WELL

G.S. ELEVATION: 1667.7

PROJECT NO.: 97664V1

EXPLORATION DATE: 12/23/97

EQUIPMENT: MOBILE B-61

LOGGED BY: S. JOHNSON

DESCRIPTION  SOIL & SAMPLE SYMBOLS  SW Pale brown well graded sand with gravel, dry and dense. Basalt gravelbrown, slightly moist to moist to 2.0  SP- Brown poorly graded sand with silt and fine gravel, slightly moist and dense.		PTH TO WATER		31.0 DATE MEASURED: 12/23/97 21.40 DATE MEASURED: 12/30/97	
gravelbrown, slightly moist to moist to 2.0  SP-SM  Brown poorly graded sand with silt and fine gravel, slightly moist and dense.  GP Brown poolry graded gravel with sand, slightly moist and dense.  Basalt and rhyolite gravel, subrounded to subangular. more fine gravel and sand, dark brown and slightly moist to moist to 16.0  C/G Dark brown cemented sand and gravel, slightly moist, cemented and hard. Sand with fine gravel. light gravish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0	LLEVATION/	SOIL & SAMPLE		DESCRIPTION	WELL CONSTRUCTION
and dense.  SM and dense.  GP Brown poolry graded gravel with sand, slightly moist and dense. Basalt and rhyolite gravel, subrounded to subangular. more fine gravel and sand, dark brown and slightly moist to moist to 16.0  C/G Dark brown cemented sand and gravel, slightly moist, cemented and hard. Sand with fine gravel. light grayish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0	567.5		SW	gravelbrown, slightly moist to moist to 2.0	
GP Brown poolry graded gravel with sand, slightly moist and dense.  Basalt and rhyolite gravel, subrounded to subangular. more fine gravel and sand, dark brown and slightly moist to moist to 16.0  C/G Dark brown cemented sand and gravel, slightly moist, cemented and hard. Sand with fine gravel.  Light gravish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0	1665 - 2.5			Brown poorly graded sand with silt and fine gravel, slightly moist and dense.	
GP Brown poolry graded gravel with sand, slightly moist and dense.  Basalt and rhyolite gravel, subrounded to subangular. more fine gravel and sand, dark brown and slightly moist to moist to 16.0  C/G Dark brown cemented sand and gravel, slightly moist, cemented and hard. Sand with fine gravel. light grayish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0	1662.5				
1652.5 — 15  C/G Dark brown cemented sand and gravel, slightly moist, cemented and hard. Sand with fine gravel. light grayish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0	657.5 10		GP	Basalt and rhyolite gravel, subrounded to subangular. more fine gravel and sand, dark brown and slightly moist to moist	
C/G Dark brown cemented sand and gravel, slightly moist, cemented and hard. Sand with fine gravel. light grayish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0	1655 -	5			
light grayish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0	1652.5		C/G	Dark brown cemented sand and gravel, slightly moist, cemented and bard. Sand with fine gravel	d
more medium gravel to 20.0	50 - 17.	.5		light grayish brown, dry to slightly moist and strongly cemented	
	1			more medium gravel to 20.0	

#### EXPLORATION LOG MW-R

CONFIDENTIAL

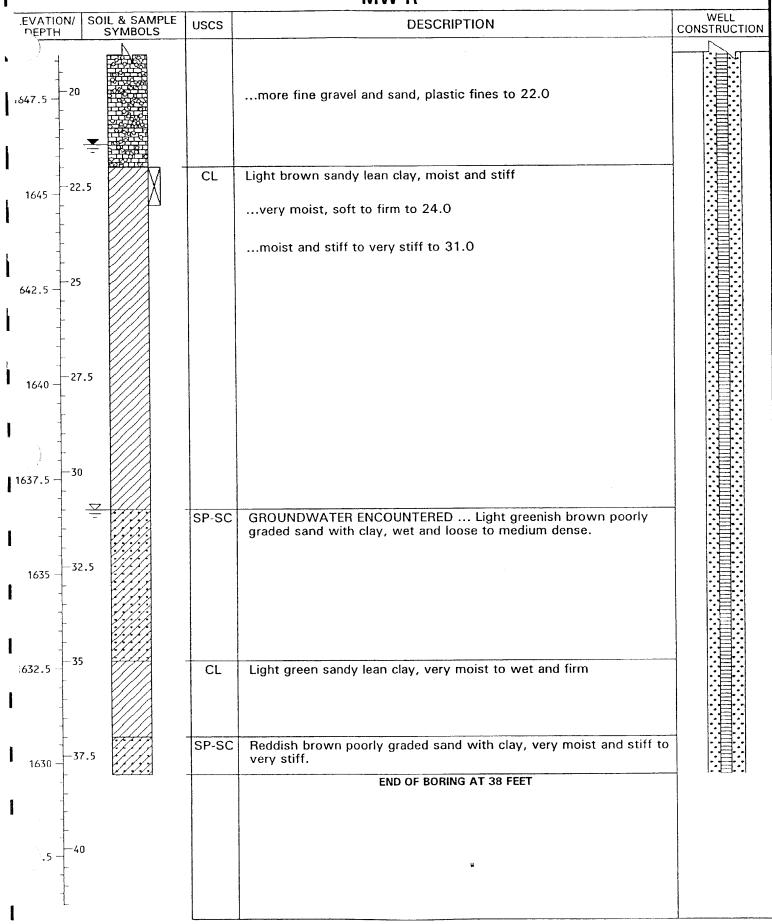


Figure No. 31

#### EXPLORATION LOG MW-S

CONFIDENTIAL

OJECT: FORMER PEPCON FACILITYPROJECT NO.:97664V1LE LOCATION: SEE SITE PLANEXPLORATION DATE:4-1-98EXPLORATION SIZE (diameter):2" MONITORING WELLEQUIPMENT:MOBILE B-61-HDX

G.S. ELEVATION: 1606.2 LOGGED BY: S. JOHNSON

INITIAL DEPTH TO WATER: 24 DATE MEASURED: 4-1-98
FINAL DEPTH TO WATER: 23.75 DATE MEASURED: 4-3-98

FINAL DEPTH TO WATER:		23.75 DATE MEASURED: 4-3-98	
DEPTH SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
1605 —	ML	Light grayish brown sandy silt, dry to slightly moist and stiff.	ACTIVATION OF THE
302.5 —	SP- SM	Brown poorly graded sand with silt, dry to slightly moist and dense.	
7.5		with gravel to 9.0	
597.5 10	GP	Brown poorly graded gravel with sand, dry to slightly moist and dense. (stratified)	
.592.5		more sand and fine gravel to 29.0	
1590 -			
·		SEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figure	• No. 32

# EXPLORATION LOG MW-S udin had SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION EVATION/ uscs **DESCRIPTION** 87.5 1585 22.5 1582.5 ...Groundwater Encountered 1580 27.5 .5 ...dark grayish brown, with coarse gravel to 31.0 Dark grayish brown cemented sand and gravel, wet, strongly cemented and very hard. C/G 1575 32.5 1572.5 1570 -37.5 567.5 Figure No. 32

## **EXPLORATION LOG** MW-S WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ SEPTH **DESCRIPTION** USCS 1565 Reddish brown sandy lean clay, very moist and stiff to very stiff. CL -42.5 1562.5 -45 **END OF BORING AT 45 FEET** 1560 -47.5 557.5 -50 5 52.5 552.5 55 1550 57.5 .547.5 -60 1545 62.5 Figure No. 32 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

#### **EXPLORATION LOG** MW-T

### CONFIDENTIAL

PROJECT NO.: JECT: FORMER PEPCON FACILITY EXPLORATION DATE: LE LOCATION: SEE SITE PLAN

97664V1 3-12-98

EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT:

MOBILE B-53

1592.02 G.S. ELEVATION:

LOGGED BY: S. ORNDORFF

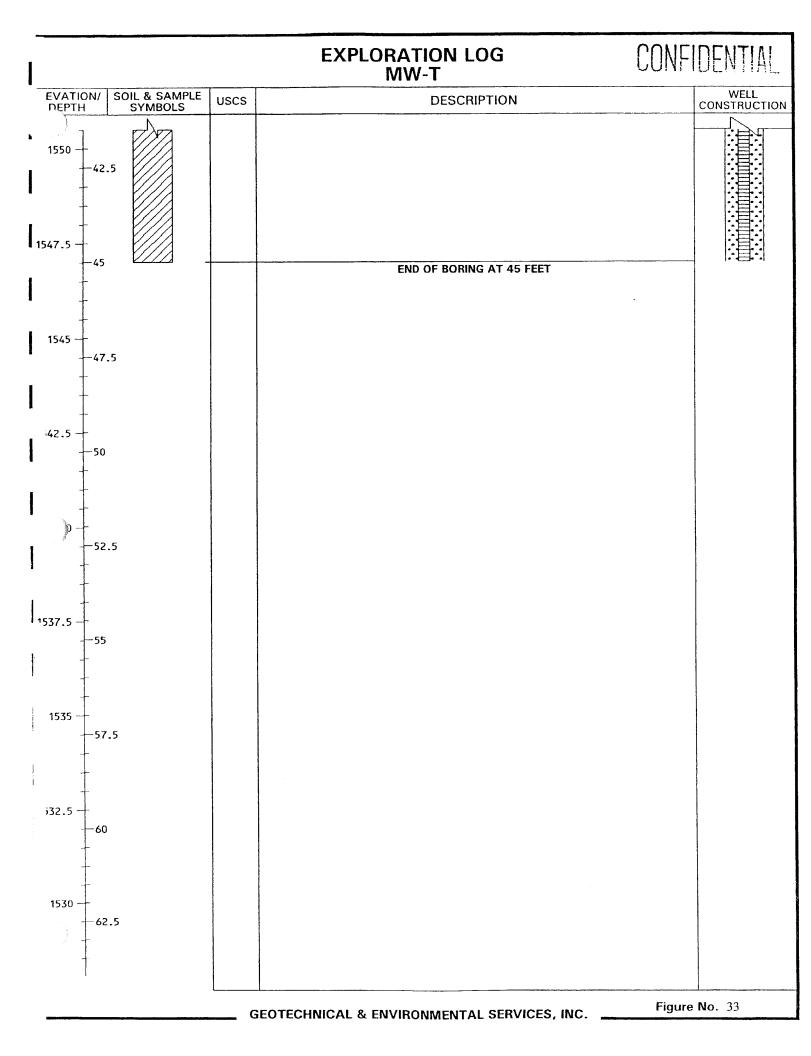
INITIAL DEPTH TO WATER

19.5

DATE MEASURED: 3-12-98

VATIO DEPTH	N/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCT
	-0 -	SP- SM	Pale brown poorly graded sand with silt and gravel, dry and very dense.	
1590 -	-2.5	GP	Brown poorly graded gravel with sand, slightly moist and very dense.	
37.5	-5		without sand to 6.0	
	-7.5 -		with more sand to 9.0	
32.5	- 10			
1		SP	Brown poorly graded sand with gravel, slightly moist and very dense.	
1580	-12.5 -	GP	Brown poorly graded fine gravel with sand, slightly moist and very dense.	
77.5	- 15 <b>2.5</b>	C/G	Brown cemented sand and gravel, slightly moist, moderately cemented and medium hard.	
1575 -	- 17.5 - 27.7.7			
-		sc	Brown clayey poorly graded sand, wet and very dense.	

### **EXPLORATION LOG** CONFIDENTIAL MW-T FI EVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION USCS **DESCRIPTION** 1572.5 -**Groundwater Encountered** C/G Brown cemented sand and gravel, moist, moderately cemented and medium hard. 1570 ...hard to 25.0 22.5 67.5 25 1565 27.5 ...weakly cemented to 31.5 1560 -32.5 - 57.5د. 35 1555 -37.5 ...weakly cemented to 39.0 CL Pinkish brown lean clay with sand, wet and firm. 552.5 --40Figure No. 33 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



#### **EXPLORATION LOG** MW-U

CONFIDENTIAL

OJECT: FORMER PEPCON FACILITY

PROJECT NO .:

97664V1

LE LOCATION: SEE SITE PLAN

**EXPLORATION DATE:** 

3-13-98

EXPLORATION SIZE (diameter): 2" MONITORING WELL G.S. ELEVATION:

1591.23

EQUIPMENT: **MOBILE B-61-HDX** S. JOHNSON LOGGED BY:

INITIAL DEPTH TO WATER:

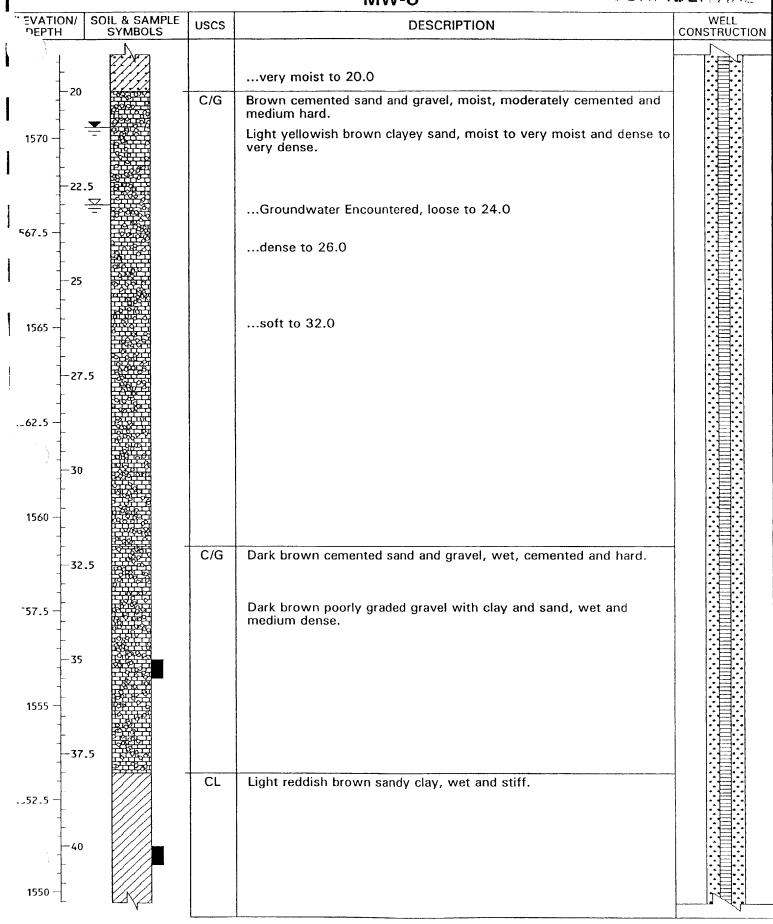
DATE MEASURED:

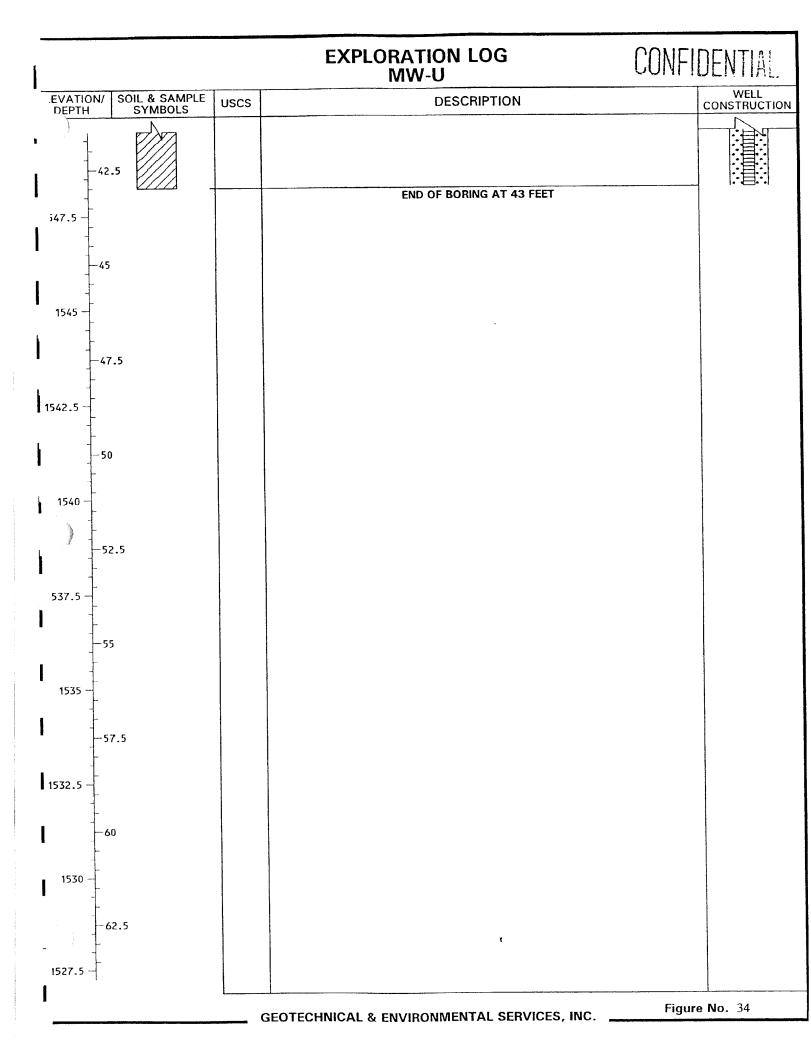
3-13-98

FINAL DEPTH TO WATER: 20.95 DATE MEASURED: 3-13-98 SOIL & SAMPLE SYMBOLS WELL .EVATION/ USCS DESCRIPTION CONSTRUCTION **DEPTH** SC Brown clayey sand with gravel, slightly moist and dense. 1590 2.5 Light brown poorly geaded gravel with clay and sand, dry to slightly GP-GC moist and dense. (stratified) 1587.5 1585 582.5 10 ...moist with wet sand nodules to 12.0 ...cobbles to 12.0 1580 SP Dark brown poorly graded sand, slightly moist, partially cemented 12.5 and dense. 1577.5 C/G Brown cemented sand and gravel, slightly moist, cemented and hard. GP Dark brown poorly graded gravel with sand, slightly moist, partially cemented and dense. 1575 SP-SC Dark brown poorly graded sand with clay, slightly moist, partrially 17.5 cemented and very dense.

Figure No. 34

#### EXPLORATION LOG MW-U





#### **EXPLORATION LOG** MW-V

CONFIDENTIAL

"OJECT: FORMER PEPCON FACILITY

PROJECT NO.:

97664V1

3-13-98

LE LOCATION: SEE SITE PLAN EXPLORATION SIZE (diameter): 2" MONITORING WELL

**EXPLORATION DATE:** 

EQUIPMENT:

MOBILE B-61-HDX

G.S. ELEVATION:

1597.47

LOGGED BY:

S. JOHNSON

INITIAL DEPTH TO WATER:

24.5

DATE MEASURED:

3-30-98

FINAL DEPTH TO WATER:

22.30

3-31-98

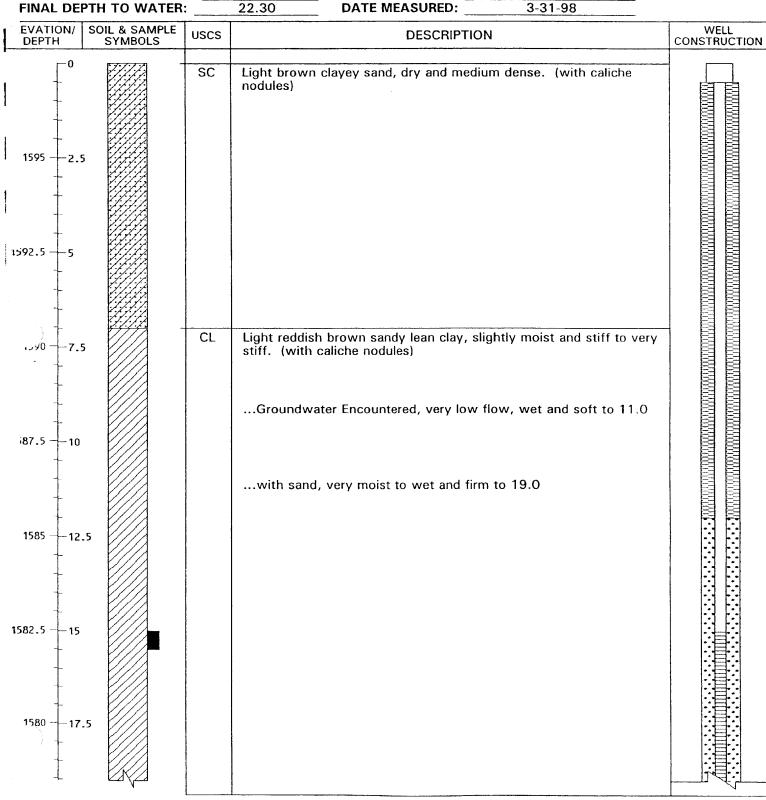


Figure No. 35

# **EXPLORATION LOG** MW-V WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ **DESCRIPTION** uscs ...moist and stiff to 21.5 ...very moist and firm to 24.5 -22.5 1575 -...Groundwater Encountered, very moist to wet to 30.0 1570 --27.5 567.5 -**END OF BORING AT 30 FEET** 1565 -- 32.5 1562.5 -- 35 1560 -37.5 7.5 ----40 Figure No. 35

#### EXPLORATION LOG MW-W

CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY

LE LOCATION: SEE SITE PLAN

EXPLORATION SIZE (diameter): 2" MONITORING WELL

G.S. ELEVATION: 1777.08

PROJECT NO.: 97664V1

EXPLORATION DATE: 3-11-98

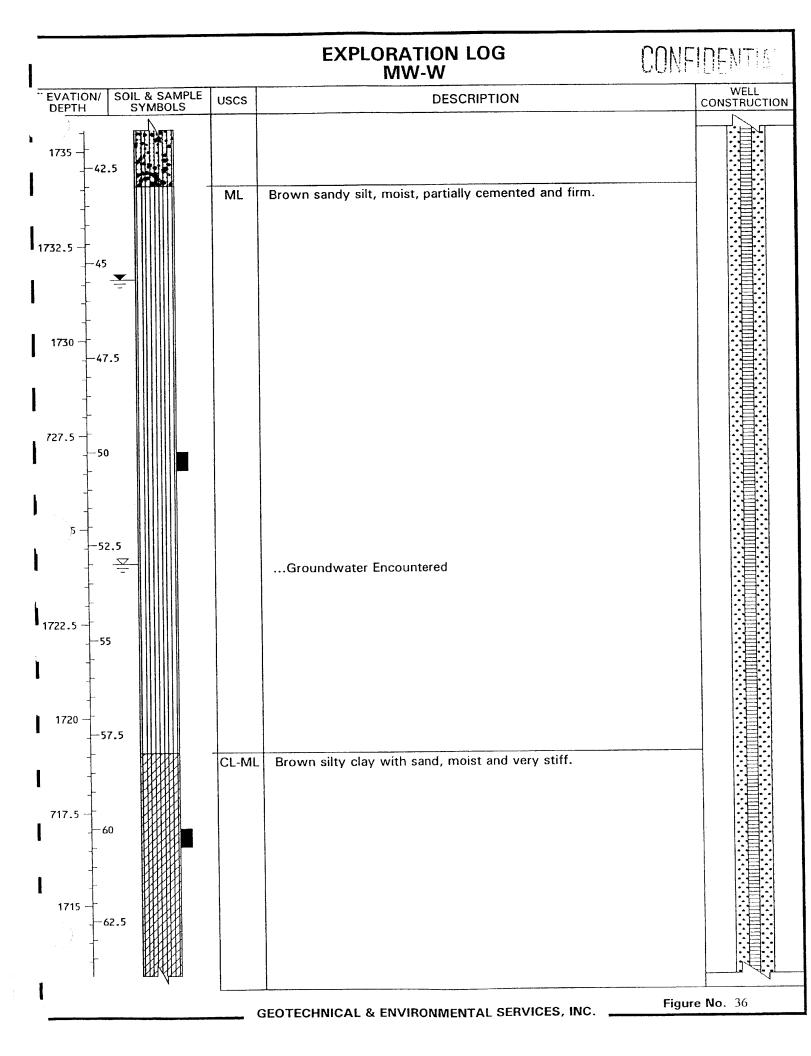
EQUIPMENT: MOBILE B-61-HDX

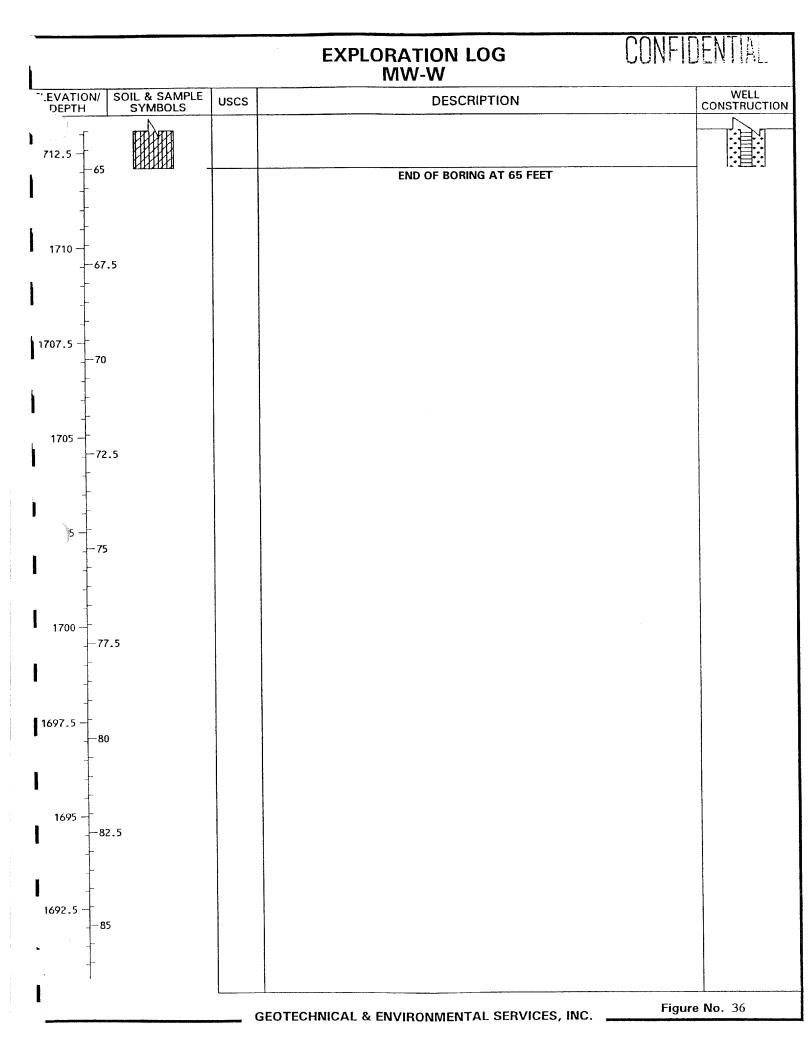
LOGGED BY: C. SCHMIDT

INITIAL DEPTH TO WATER: 53 DATE MEASURED: 3-11-98
FINAL DEPTH TO WATER: 45.45 DATE MEASURED: 3-16-98

EVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	USCS	DESCRIPTION  DATE MEASURED: 3-16-98  DESCRIPTION	WELL CONSTRUCTION
J-0	STIMBULS -			CONSTRUCTION
1775 2.:		GP- GM	Brown poorly graded gravel with silt, sand and cobbles, dry and dense.	
72.5 5			partially cemented to 7.0	
767.5			partially cemented to 11.5	
1765 12.	5		·	
52.5		C/G	Light brown comented and and grouply dry attendity assets to	
1760 17.	5	GP- GM	Light brown cemented sand and gravel, dry, strongly cemented and very hard.  Brown poorly graded gravel with silt, sand and cobbles, dry and dense.	

## CONFIDENTIAL **EXPLORATION LOG** MW-W EVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION uscs **DESCRIPTION** 1757.5 1755 22.5 ...cobbles to 24.0 ..52.5 ...medium dense to 33.0 **17**50 27.5 1745 -32.5 ...partially cemented to 43.0 1742.5 -35 1740 37.5 37.5 ...moist and very dense to 43.0 Figure No. 36 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.





### EXPLORATION LOG MW-X

CONFIDENTIAL

OJECT: FORMER PEPCON FACILITYPROJECT NO.:97664V1. LE LOCATION: SEE SITE PLANEXPLORATION DATE:2-6-98EXPLORATION SIZE (diameter): 2" MONITORING WELLEQUIPMENT:MOBILE B-61 HDXG.S. ELEVATION: 1818.53LOGGED BY: S. JOHNSONINITIAL DEPTH TO WATER: 23' DATE MEASURED: 2-6-98

EVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	CONSTRUCT
17.5		F	Fill: Dark brown poorly graded gravel with silt and sand, slightly moist and dense.	<b>V</b>
2. 2.	.5	SP-SC	Dark brown poorly graded sand with clay and gravel, slightly moist and dense.	
1815		GP- GM	Dark brown poorly graded gravel with silt and sand, slightly moist to moist and dense.	50000
12.5		SP	Dark brown poorly graded sand, slightly moist to moist and dense.	
-7	.5	SW- SC	Dark brown well graded sand with clay, moist and dense.	
1810	0		switched to air rotary at 8:00 a.m.	
1805	2.5	CL	Dark brown sandy lean clay, moist to very moist and stiff.	
802.5	17.5		dark gray poorly graded sand lense (3 inches), very moist	

## EXPLORATION LOG MW-X WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS "EVATION/ DEPTH **DESCRIPTION** USCS 97.5 22.5 ...groundwater encountered, low flow, wet to 33.0 1795 1792.5 27.5 ...gravel-size caliche nodules to 31.5 1790 **787.**5 32.5 **END OF BORING AT 33 FEET** 1785 35 1782.5 37.5 1780 -40 Figure No. 37 ${\tt GEOTECHNICAL~\&~ENVIRONMENTAL~SERVICES,~INC.}$

#### EXPLORATION LOG MW-Z

"POJECT: FORMER PEPCON FACILITY

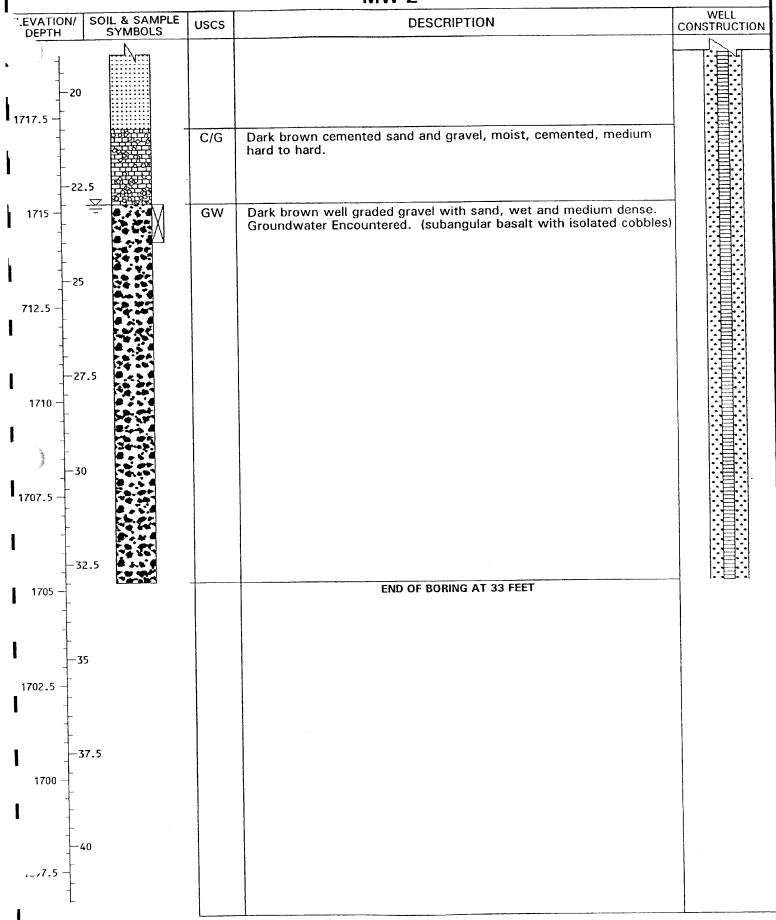
PROJECT NO .:

CONFIDENTIAL

**EXPLORATION DATE:** 2-6-98 LE LOCATION: SEE SITE PLAN MOBILE B-61 HDX 2" MONITORING WELL EQUIPMENT: **EXPLORATION SIZE (diameter):** LOGGED BY: S. JOHNSON 1738.20 G.S. ELEVATION: 2-6-98 23' DATE MEASURED: INITIAL DEPTH TO WATER: DATE MEASURED: 2-18-98 16.70' FINAL DEPTH TO WATER: WELL SOIL & SAMPLE .EVATION/ **DESCRIPTION** USCS CONSTRUCTION DEPTH SYMBOLS Fill: Dark brown poorly graded gravel with clay and sand, slightly F moist and dense. 1737.5 2.5 1735 SW Dark brown well graded sand, slightly moist and dense. (minor silt and gravel, mostly black basalt and andesite with some quartz) ...switched to air rotary at 11:01 a.m. 732.5 ...with gravel to 9.0 7.5 1730 ...brown, dry to slightly moist to 9.0 ...dark brown, slightly moist, minor cementation chips present, more fine grained to 14.0, (stratified yellow brown fine sand laminations) 10 1727.5 12.5 1725 1722.5 ...very moist to 21.0 17.5 .720 Figure No. 38

### EXPLORATION LOG MW-Z

CONFIDENTIAL

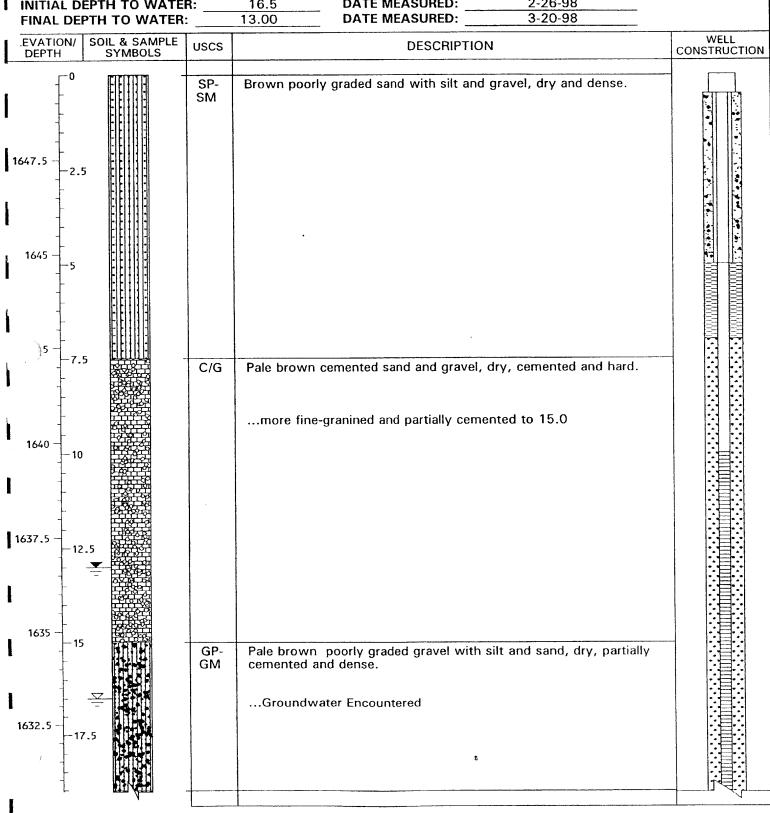


#### EXPLORATION LOG MW-AA

CONFIDENTIAL

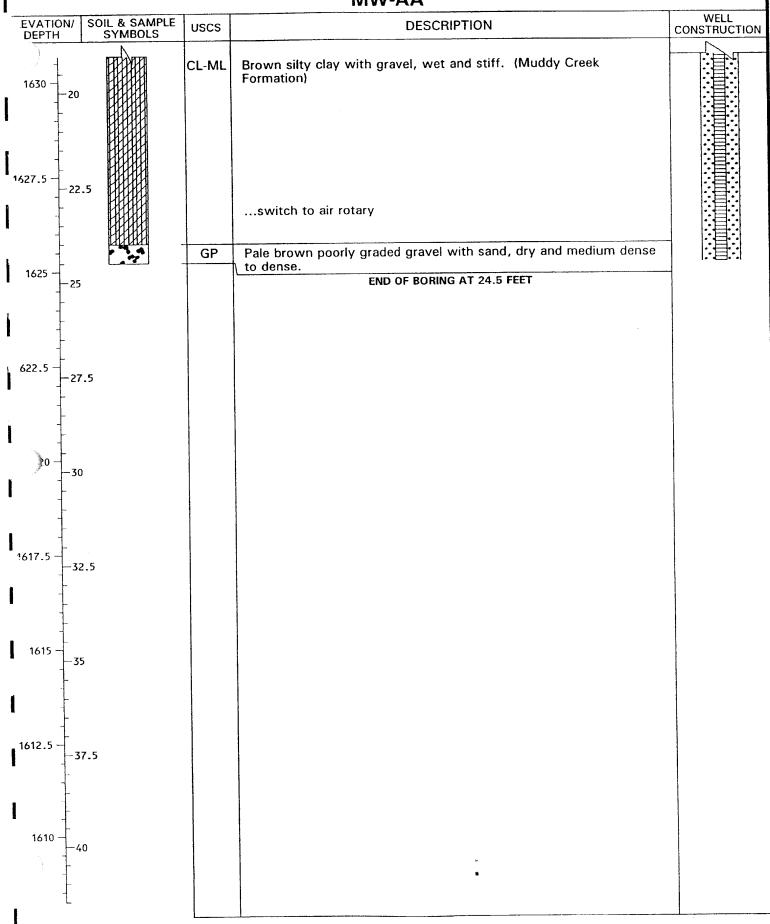
Figure No. 39

PROJECT NO.: 97664V1 PROJECT: FORMER PEPCON FACILITY **EXPLORATION DATE:** 2-26-98 LE LOCATION: SEE SITE PLAN EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-61-HDX LOGGED BY: 1649.72 R. WARD G.S. ELEVATION: 16.5 **DATE MEASURED:** 2-26-98 INITIAL DEPTH TO WATER: DATE MEASURED: FINAL DEPTH TO WATER: 13.00



### EXPLORATION LOG MW-AA

CONFIDENTIAL



#### **EXPLORATION LOG** MW-AB

CONFIDENTIAL

PROJECT NO.: PROJECT: FORMER PEPCON FACILITY

97664V1

LE LOCATION: SEE SITE PLAN

EXPLORATION DATE: 2-12-98

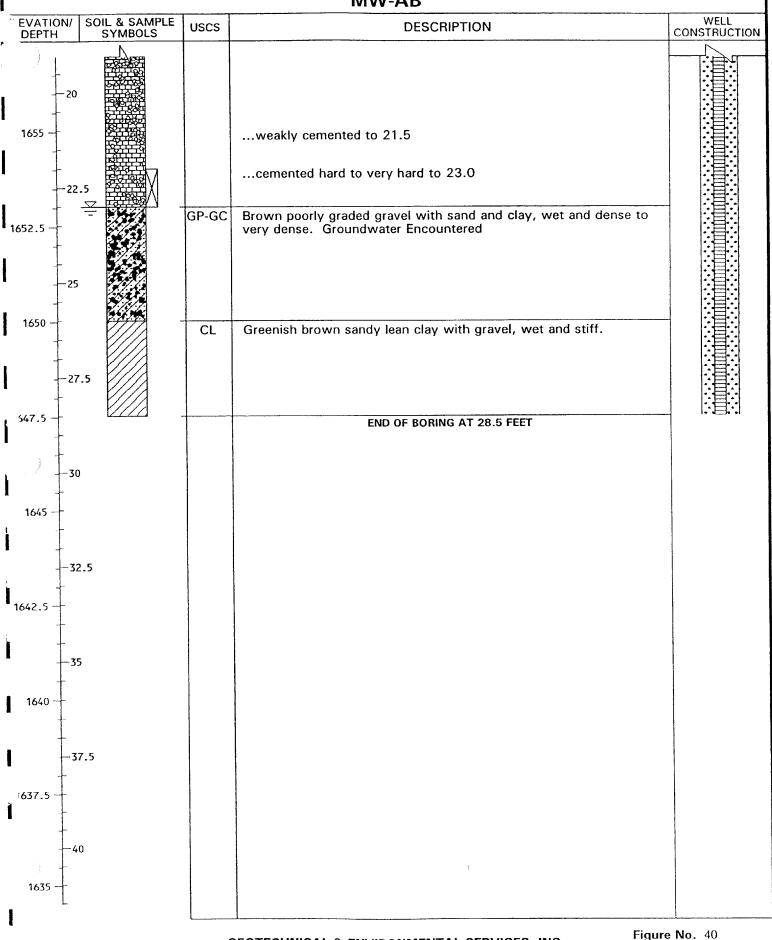
EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-61 HDX

G.S. ELEVATION: 1676.03 LOGGED BY: S. JOHNSON

VATIO		OIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCT
٦	T 0	<del>-</del>	F	Fill: Asphalt and roadbed.	
   16 <b>7</b> 5    -		3.4	GP	Brown poorly graded gravel with sand, slightly moist and dense.	
72.5 —	-2.5 -		SP-SC	Brown poorly graded sand with clay and gravel, dry to slightly moist and dense (basalt, subrounded, subangular).	
- - 1670 —	<b>-5</b>		GP	Brown poorly graded gravel with sand, dry to slightly moist and dense.	
) -	7.5	au Lau			
67.5 — - -	10		C/G	Light brown cemented sand and gravel, dry, cemented and hardswitch to air rotary	
1665 — - -				pale brown cemented, hard to very hard to 17.0	
- - 52.5 – -	+ 12.5 - - -				
- - 1660 –	-15				
· · · · ·	17.5	<u> </u>	GP	Pale brown poorly graded gravel with sand, dry and dense.	
57.5 -	+		C/G	Pale brown cemented sand and gravel, dry, cemented and hard.	1  :書:

### EXPLORATION LOG MW-AB

CONFIDENTIAL



### **EXPLORATION LOG** MW-AC

CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY 97664V1 PROJECT NO.: EXPLORATION DATE: 2-11-98 LE LOCATION: SEE SITE PLAN

EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-61 HDX

G.S. ELEVATION: 1697.94 LOGGED BY: S. JOHNSON

INITIAL DEPTH TO WATE FINAL DEPTH TO WATER		18'         DATE MEASURED:         2-11-98           17.12'         DATE MEASURED:         2-11-98	
EVATION/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
597.5 -	F GP- GM	Fill: Light brown poorly graded gravel with silt and sand, slightly moist and dense.  Brown poorly graded gravel with silt, sand, and cobbles, dry to slightly moist and densecobble	
1695 —	SP- SM	Brown poorly graded sand with silt and gravel, slightly moist and dense (slightly plastic).	
1692.5	GP- GM	Brown poorly graded gravel with silt, sand and cobbles, slightly moist and dense.	
7.5	C/G	Gray cemented sand and gravel, dry, cemented and hardswitched to air rotary at 10:30 a.m. (re-drilled with auger).	
687.5 - 12.5	GP- GM	Dark brown poorly graded gravel with silt, sand and cobbles, dry to slightly moist and densecobbleboulder to 13.0	
1682.5			
30		Groundwater Encountered, wet to 21.0	
I	(	GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figure	e <b>No</b> . 41

# EXPLORATION LOG MW-AC LEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION USCS **DESCRIPTION** 1677.5 SC Light brown clayey sand, moist and dense. 22.5 1675 **END OF BORING AT 23 FEET** 572.5 -27.5 1670 1667.5 32.5 1665 -35 562.5 -37.5 1660 Figure No. 41 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### EXPLORATION LOG MW-AD

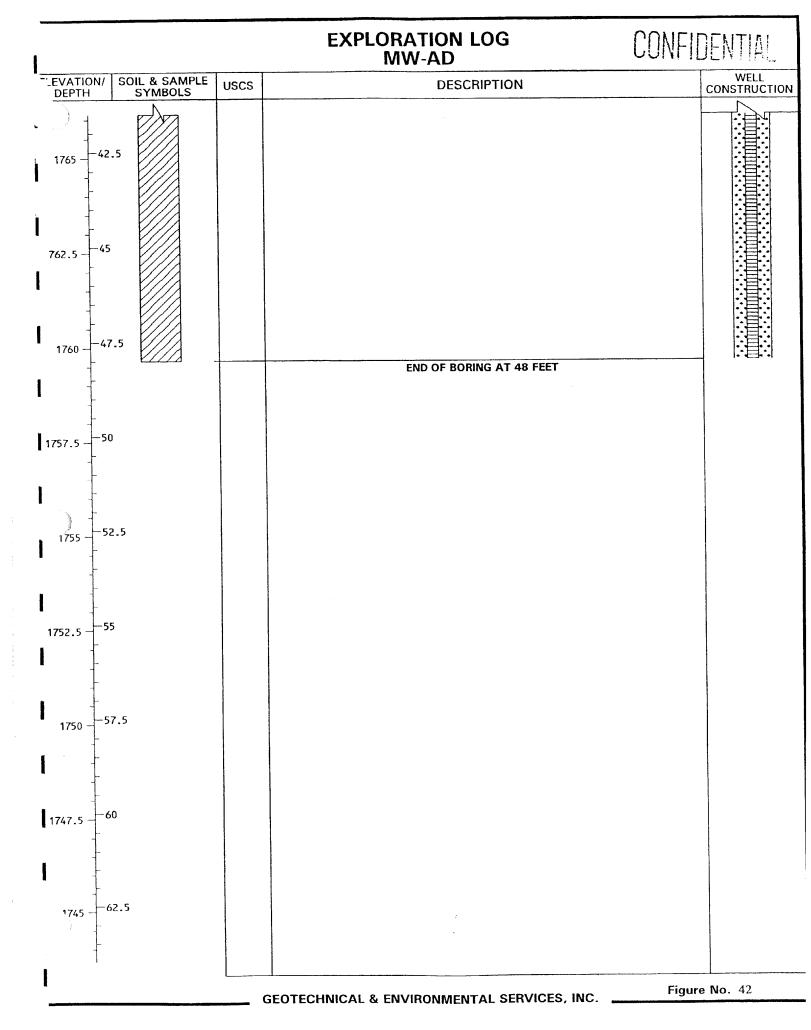
CONFIDENTIAL

EXPLORATION SIZE (diameter):  G.S. ELEVATION:  1807.65  LOGGED BY:  S. JOHNSON  INITIAL DEPTH TO WATER: FINAL DEPTH TO WATER: DEPTH TO WATER: DEPTH SYMBOLS  G.S. ELEVATION:  1807.65  LOGGED BY: S. JOHNSON  DATE MEASURED:  2-4-98  DESCRIPTION  CONSTRUCTION  807.5  G.S. ELEVATION: DESCRIPTION  CONSTRUCTION  BOT. 5  G.S. ELEVATION:  G.S. ELEVATION:  BOT. 5  G.S. ELEVATION:  G.S. ELEVATION:  G.S. JOHNSON  DESCRIPTION  CONSTRUCTION  BOT. 5  G.S. ELEVATION:  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. ELEVATION:  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. ELEVATION:  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  BOT. 5  G.S. JOHNSON  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTION  CONSTRUCTIO	PROJECT: FORMER PEPC			PROJECT NO.:	97664V1 2-4-98	
S. S. LEVATION: SUMBLE 1807.65 LOGGED 8Y: S. JOHNSON INITIAL DEPTH TO WATER: 40' DATE MEASURED: 2.4-98 INITIAL DEPTH TO WATER: 38,14' DATE MEASURED: 2.4-98  EVATION: SOIL & SAMPLE OCONSTRUCTION  BOT.5 O DESCRIPTION CONSTRUCTION  BOT.5 O DESCRIPTION CONSTRUCTION  GP GM SIIGhth brown poorly graded gravel with sand, slightly moist and densecoarse black basalt (also dark red) boulder to 5.5 boulder to 15.0 boulder to 15.0 boulder to 15.0 more sand to 19.5	LE LOCATION: SEE SI	IE PLAN	2" MONITORING WELL	EXPLUKATION DATE: _		
NITIAL DEPTH TO WATER:   38.14   DATE MEASURED:   2.4-98				LOGGED BY: S IC	HNSON	
DESCRIPTION SOIL & SAMPLE DSCS DESCRIPTION CONSTRUCTION  807.5						
DESCRIPTION SOIL & SAMPLE DSCS DESCRIPTION  807.5	INITIAL DEPTH TO WATER	R:	40' DATE M	EASURED: 2-4-	98 98	
BOTH SYMBOLS  SYMBOLS  F Fill: Brown poorly graded gravel with sand, slightly moist and dense.  GP-GM  Light brown poorly graded gravel with silt, sand, and cobbles, slightly moist and densecoarse black basalt (also dark red) boulder to 5.5 brown to 23.0 brown to 23.0 boulder to 15.0 more sand to 19.5		:	30.14 DATE W		30	WEI I
F Fill: Brown poorly graded gravel with sand, slightly moist and dense.  GP GM Light brown poorly graded gravel with silt, sand, and cobbles, slightly moist and densecoarse black basalt (also dark red) boulder to 5.5 brown to 23.0 brown to 23.0 brown to 15.0 more sand to 19.5	LEVATION/ SOIL & SAMPLE DEPTH SYMBOLS	uscs		DESCRIPTION	cc	NSTRUCTION
1805 - 2.5  GP GM Light brown poorly graded gravel with silt, sand, and cobbles, slightly moist and dense coarse black basalt (also dark red)  boulder to 5.5  brown to 23.0  brown to 23.0  boulder to 15.0  brown to 19.5				1		
1802.5 - 5boulder to 5.5boulder to 15.0boulder to 15.0more sand to 19.5more sand to 19.5	807.5	F	Fill: Brown poorly graded	gravei with sand, slightly	moist and dense.	
1802.5 - 5boulder to 5.5boulder to 15.0boulder to 15.0more sand to 19.5more sand to 19.5	]- 🔛					
1802.5 - 5boulder to 5.5brown to 23.0boulder to 15.0boulder to 15.0more sand to 19.5more sand to 19.5	]-					
1802.5 - 5boulder to 5.5brown to 23.0boulder to 15.0boulder to 15.0more sand to 19.5more sand to 19.5	<b>,</b> } 💥					
Slightly moist and densecoarse black basalt (also dark red) boulder to 5.5 boulder to 15.0 boulder to 15.0 boulder to 15.0 more sand to 19.5	1805 - 2.5	GP-	Light brown poorly grade	ed gravel with silt, sand, a	nd cobbles,	
1802.5 - 5boulder to 5.5brown to 23.0boulder to 15.0boulder to 15.0more sand to 19.5more sand to 19.5	FI HALL		slightly moist and dense	•	,	
1797.5 — 10  1795.5 — 12.5  1790. — 17.5 boulder to 15.0 more sand to 19.5			coarse black basalt (al	so dark red)		
1797.5 — 10  1795.5 — 12.5  1790. — 17.5 boulder to 15.0 more sand to 19.5						
1797.5 — 10  1795.5 — 12.5  1790. — 17.5 boulder to 15.0 more sand to 19.5						
1797.5 — 10  1795 — 12.5  1790 — 17.5  1790 — 17.5  Eigure No. 42	1802.5 - 5		boulder to 5.5			
1797.5 — 10  1795 — 12.5  1790 — 17.5  1790 — 17.5  Efoure No. 42						
1797.5 — 10  1795 — 12.5  1790 — 17.5  1790 — 17.5  Efoure No. 42						
1797.5 — 10  1795 — 12.5  1790 — 17.5  1790 — 17.5  Efoure No. 42						
1797.5 — 10  1795 — 12.5  1790 — 17.5  1790 — 17.5  Efoure No. 42	7.5		brown to 22 0			
1795 — 12.5  1795 — 15  1790 — 17.5  Figure No. 42	1800					
1795 — 12.5  1795 — 15  1790 — 17.5  Figure No. 42						
1795 — 12.5  1795 — 15  1790 — 17.5  Figure No. 42						
1795 — 12.5  1795 — 15  1790 — 17.5  Figure No. 42						
1795 — 12.5  1792.5 — 15  1790 — 17.5  Figure No. 42	1797.5 - 10					
1792.5 — 15  1790 — 17.5  1790 — 17.5  Figure No. 42						
1792.5 — 15  1790 — 17.5  1790 — 17.5  Figure No. 42						
1792.5 — 15  1790 — 17.5  1790 — 17.5  Figure No. 42						
1792.5 — 15more sand to 19.5	RIGHT		boulder to 15.0			
more sand to 19.5	1795 12.5					
more sand to 19.5						
more sand to 19.5						
more sand to 19.5						
more sand to 19.5	15					
1790 — 17.5 Figure No. 42	1792.5					
1790 — 17.5 Figure No. 42			more sand to 19 5			
Figure No. 42						
Figure No. 42						
Figure No. 42	1790 — 17.5					
GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.  Figure No. 42				ř.		
GEOTECHNICAL & ENVIRONMENTAL SERVICES INC. Figure No. 42						
GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figure No. 42						
			CENTECHNICAL & ENVIR	ONMENTAL SERVICES IN	C. Figure N	<b>o.</b> 42

### EXPLORATION LOG MW-AD

CONFIDENTIAL

MW-AD OOM BEATTER							
EVATIO DEPTH	N/ SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION			
787.5	- 20		no cobbles to 23.0				
1785 —	-22.5						
1782.5	25	SC	Yellow brown clayey sand, slightly moist to moist and dense.				
-	- · · · · · · · · · · · · · · · · · · ·	CL	Red brown sandy clay, moist and stiff to very stiff.				
1780 —	-27.5						
11/7.5	-30		switched to air rotary at 9:05 a.m.				
1775 — - - -	-32.5						
1772.5 — - - -	-35		red, less sand, moist to very moist to 39.5				
1770 - - -	-37.5 - -						
747.5 }	40 =		light red brown and very moist, with sand-sized pink hard clay/caliche nodules to 48.0				



### EXPLORATION LOG MW-AE

CONFIDENTIAL

97664V1 PROJECT: FORMER PEPCON FACILITY PROJECT NO.: **EXPLORATION DATE:** 3-12-98 LE LOCATION: SEE SITE PLAN EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-61-HDX LOGGED BY: C. SCHMIDT G.S. ELEVATION: 1784.92 INITIAL DEPTH TO WATER 45 DATE MEASURED: 3-12-98

EVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTI
782.5 - 2.5		GP- GM	Brown poorly graded gravel with silt and sand, dry and dense.	
1775 — 10			partially cemented to 9.0	
772.5 -12	.5			
1770 — 15			partially cemented to 17.0	
1767.5 - 17	7-5	GP- GM	Brown poorly graded gravel with silt, sand and cobbles, dry and dense.	

Figure No. 43

# EXPLORATION LOG MW-AE WELL CONSTRUCTION EVATION/ DEPTH SOIL & SAMPLE SYMBOLS **DESCRIPTION** uscs 1765 1762.5 -22.5 ...cobbles to 24.0 ...partially cemented to 24.5 1760 - 25 .757.5 -27.5 25 -30 ...partially cemented to 33.0 1752.5 -32.5 1750 -37.5 1745

Figure No. 43

## EXPLORATION LOG MW-AE WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS ".EVATION/ **DESCRIPTION** USCS DEPTH 1740 ...with cobbles, wet, Groundwater Encountered Brown silty clay with sand, wet and stiff. CL-ML 1737.5 -47.5 1735 -50 .5 --52.5 1730 -**END OF BORING AT 55 FEET** 1727.5 --57.5 1725 1722.5 ---62.5 Figure No. 43 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

# EXPLORATION LOG MW-AG

CONFIDENTIA

PROJECT: FORMER PEPCON FAC	CILITY	PROJECT NO.:		97664V1	
LE LOCATION: SEE SITE PLA	V	EXPLORATION	DATE:	3-4-98	
EXPLORATION SIZE (diameter):	2" MONITORING WELL	<b>EQUIPMENT:</b>		MOBILE B-61 HDX	
G.S. ELEVATION:	1744.66	LOGGED BY:	S. J	OHNSON	

OIL 8 SYN	SAMPLE MBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
44	••••	CD.		শ হ
		GP	Pale brown poorly graded gravel with sand, cobbles and boulders, dry and dense (subangular to subrounded basalt and andesite).	
	1 1 (r) (r) (r) (r) (r) (r) (r) (r) (r) (r)		boulder to 6.0	
4				SAN SAUSTERS OF THE
			boulder to 12.0	
			more fine grained, fewer cobbles, more sand to 17.0	3.5.6.7.6.7

### EXPLORATION LOG MW-AG

CONFIDENTIA

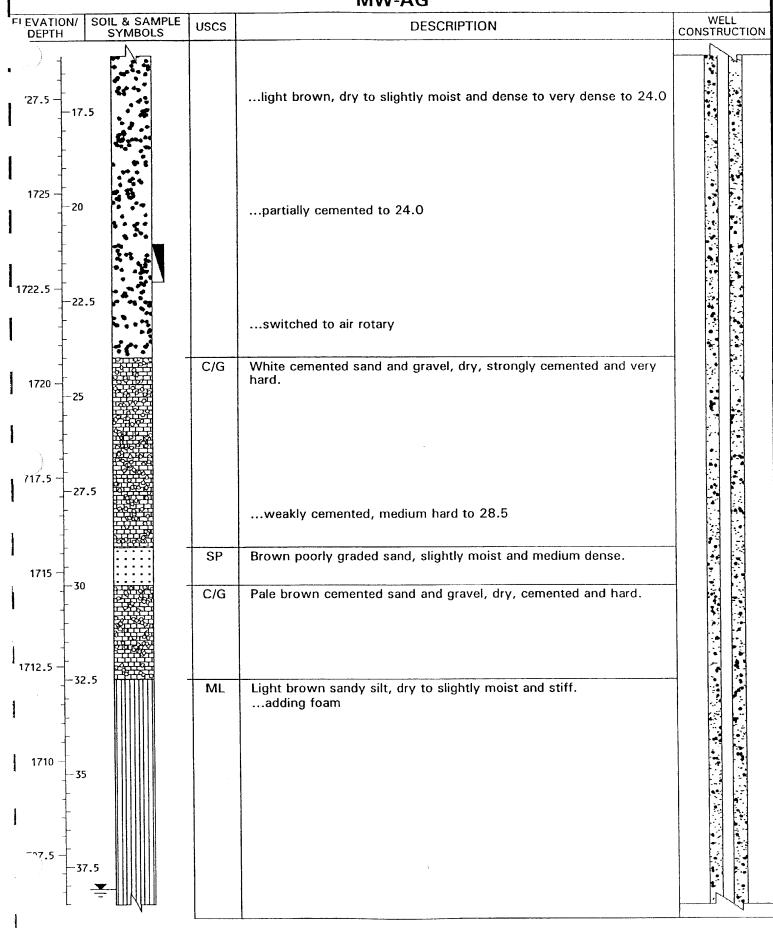
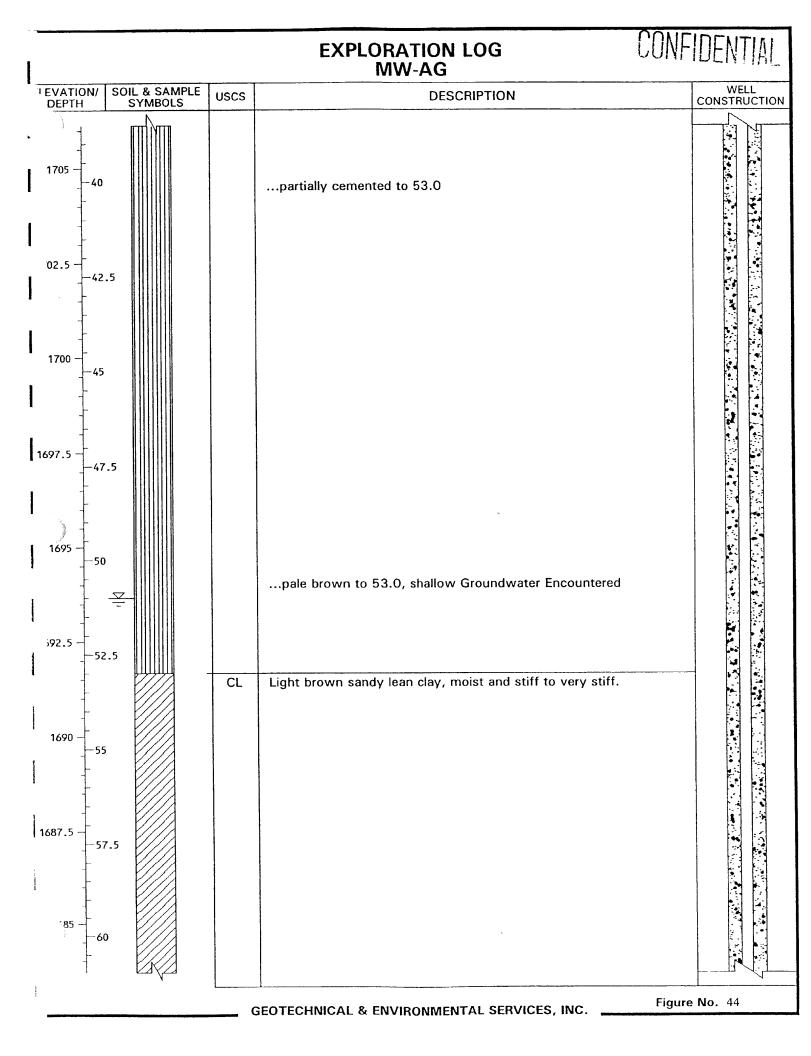
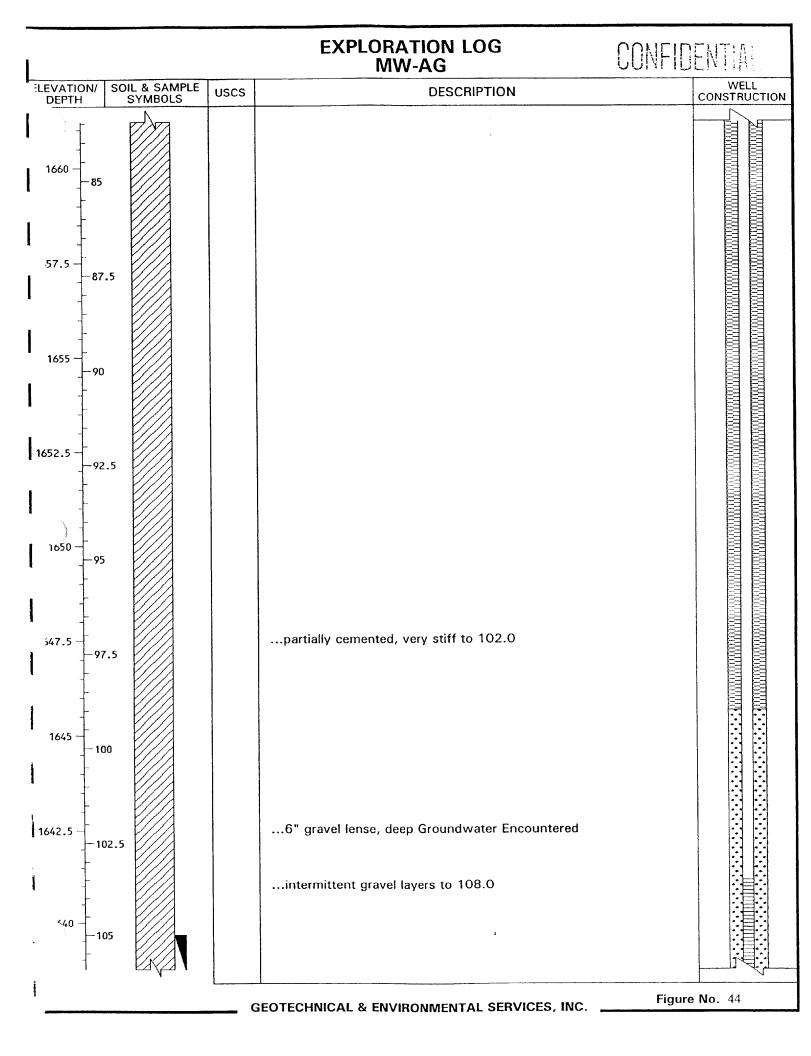


Figure No. 44



## CONFIDENTIAL **EXPLORATION LOG MW-AG** SOIL & SAMPLE SYMBOLS EVATION/ DEPTH WELL CONSTRUCTION **USCS DESCRIPTION** 62.5 ...light reddish brown, less sand, firm to stiff to 68.0 1680 65 1_{1677.5} --67.5 ...pale reddish brown with sand-size caliche nodules to 81.0 1675 72.5 1670 75 ***667.5** 77.5 1665 80 ...partially cemented, stiff to very stiff to 97.0 -82.5 Figure No. 44 **GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**



## EXPLORATION LOG MW-AG CONFIDENTIAL WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS FI EVATION/ DEPTH USCS **DESCRIPTION** 107.5 1635 110 1432.5 -112.5 1630 115 ، ن27.5 -117.5 1625 120 ...soft layer to 121.5 SC Pale reddish brown clayey sand, wet and medium dense. 622.5 -122.5 **END OF BORING AT 123 FEET** 1620 -125 `.5 --127.5 Figure No. 44 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### EXPLORATION LOG MW-AH

CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY PROJECT NO.: 97664V1 LE LOCATION: SEE SITE PLAN **EXPLORATION DATE:** 3-4-98 EXPLORATION SIZE (diameter): 2" MONITORING WELL **EQUIPMENT:** MOBILE B-61 HDX G.S. ELEVATION: 1736.58 LOGGED BY: S. JOHNSON 52' INITIAL DEPTH TO WATER: **DATE MEASURED:** 3-4-98 43.70' FINAL DEPTH TO WATER: **DATE MEASURED:** 3-9-98 .EVATION/ **SOIL & SAMPLE** WELL **USCS DESCRIPTION** DEPTH SYMBOLS CONSTRUCTION SP-Brown poorly graded sand with silt and isolated gravel, slightly moist SM and dense (mostly basalt and andesite). 1735 ...pale brown and dry to slightly moist to 17.0 2.5 ...with gravel to 16.0 ...partially cemented to 14.5 1730 7.5 1727.5 1725 12.5 1722.5 Figure No. 45 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### EXPLORATION LOG MW-AH CONFIDENTIAL SOIL & SAMPLE SYMBOLS FVATION/ WELL CONSTRUCTION uscs **DESCRIPTION** DEPTH 1720 GP Pale brown poorly graded gravel with sand, dry and dense. - 17.5 1717.5 1715 SP Pale brown poorly graded sand with gravel, dry and medium dense to dense (stratified sandy and gravelly layers). 22.5 12.5 27.5 1707.5 30 ...cobble 1705 32.5 **'02.**5 1700 ...more coarse gravel to 38.0 -37.5 C/G Very pale brown cemented sand and gravel, dry, moderately Figure No. 45 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### **EXPLORATION LOG** MW-AH WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS EVATION/ uscs **DESCRIPTION** DEPTH cemented and medium hard. 197.5 ...strongly cemented and very hard, switched to air rotary 1695 ...3" non-cemented layer ...3" non-cemented layer, moist brown fine sand ...light brown, dry to slightly moist, moderately cemented and 92.5وں medium hard to 52.0 45 1690 47.5 1685 Light brown lean clay with sand, wet and stiff with isolated CL 52.5 wet caliche nodules. GROUNDWATER ENCOUNTERED 1682.5 ...light reddish brown and very moist to wet to 68.0 1680 57.5 677.5 Figure No. 45 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

# CONFIDENTIAL EXPLORATION LOG MW-AH SOIL & SAMPLE SYMBOLS EVATION/ DEPTH WELL CONSTRUCTION USCS **DESCRIPTION** 1675 62.5 1672.5 1670 **END OF BORING AT 68 FEET** 67.5 72.5 1662.5 1660 77.5 657.5 1655 ~82.5 Figure No. 45 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### EXPLORATION LOG MW-AJ

## CONFIDENTIAL

PROJECT: FORMER PEPCON FACILITY

LE LOCATION: SEE SITE PLAN

EXPLORATION DATE: 2-12-98

EXPLORATION SIZE (diameter): 2" MONITORING WELL

G.S. ELEVATION: 1649.30

EXPLORATION SIZE (DIAMETER): MOBILE B-61 HDX

LOGGED BY: S. JOHNSON

INITIAL DEPTH TO WATER: 13' DATE MEASURED: 2-12-98

FINAL DEPTH TO WATER: 12.65' DATE MEASURED: 4-16-98

EVATIC DEPTH	ON/	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTIO
1	-0	<b>₩</b>	F	Fill: Asphalt and roadbed.	
,47.5 — - -	-2.5		SP-SC	Brown poorly graded sand with clay and gravel (fine), dry to slightly moist and dense (mostly subrounded basalt).	
1645	- -5 -			6" gravel lense	
642.5	- - -7.5				
1640 —	_		GP	Brown poorly graded gravel (fine) with clay and sand, dry to slightly moist and dense.	
-	-10		SP	Dark brown poorly graded sand with gravel (fine), very moist to wet and very dense.	
637.5 — - -	12 <u>.5</u>	<u> </u>		small gravel layer (3")Groundwater Encountered	
-	-			mercana vate. 2.165 antoroa	
1635 -			SC	Very pale brown clayey sand, wet and medium dense.	
~	-15 -		С	White caliche, dry, cemented and hard to very hard.	
632.5	17.	5		strongly cemented and very hard to 19.0	
-	-				

### EXPLORATION LOG MW-AJ LEVATION/ SOIL & SAMPLE WELL USCS **DESCRIPTION** CONSTRUCTION **DEPTH SYMBOLS** ...wet and weakly cemented to 19.5 ...strongly cemented and hard to very hard to 21.0 20 SC Brown clayey sand, wet and medium dense. ₋27.5 -22.5 CL-ML Pale grayish brown silty clay, very moist to wet and firm to stiff. 1625 25 1422.5 27.5 1620 ...green and partially cemented to 30.6 30 **END OF BORING AT 30.6 FEET** 17.5د. -32.5 1615 -35 312.5 -37.5 1610 Figure No. 46 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### **EXPLORATION LOG** MW-AL

### CONFIDENTIAL

Figure No. 47

PROJECT: FORMER PEPCON FACILITY

PROJECT NO.:

97664V1

E LOCATION: SEE SITE PLAN

**EXPLORATION DATE:** 

2-19-98

EXPLORATION SIZE (diameter): _ 4" MONITORING WELL

CHICAGO PNEUMATIC 700

G.S. ELEVATION:

EQUIPMENT: ____ 1951.81 LOGGED BY: ____

S. JOHNSON

INITIAL DEPTH TO WATER:

210'

**DATE MEASURED:** 

2-20-98

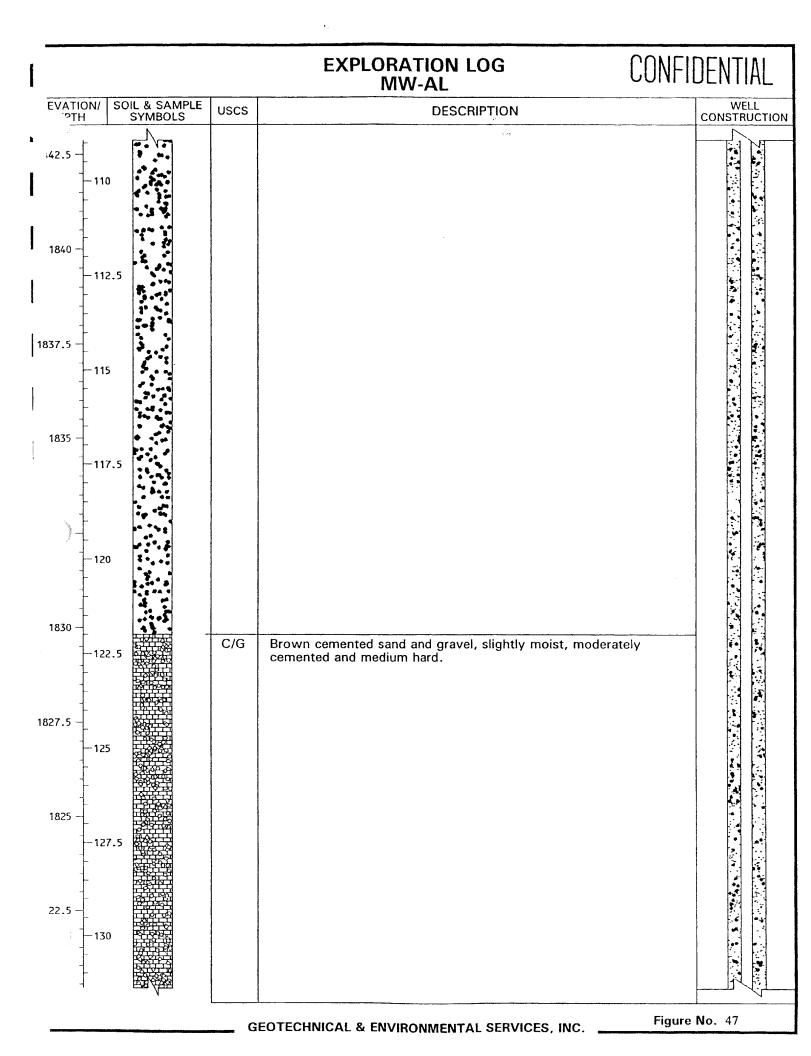
DATE MEASURED: 2-20-98 FINAL DEPTH TO WATER: 166.65 SOIL & SAMPLE SYMBOLS WELL EVATION/ USCS **DESCRIPTION** CONSTRUCTION **DEPTH** F Fill: Asphalt and roadbed. GP-Brown poorly graded gravel with silt and sand, dense to very dense (adding water), mostly subangular basalt. GM 1950 ...adding foam to maintain hole 1747.5 1945 7.5 .}42.5 1940 12.5 737.5 15 1935 17.5

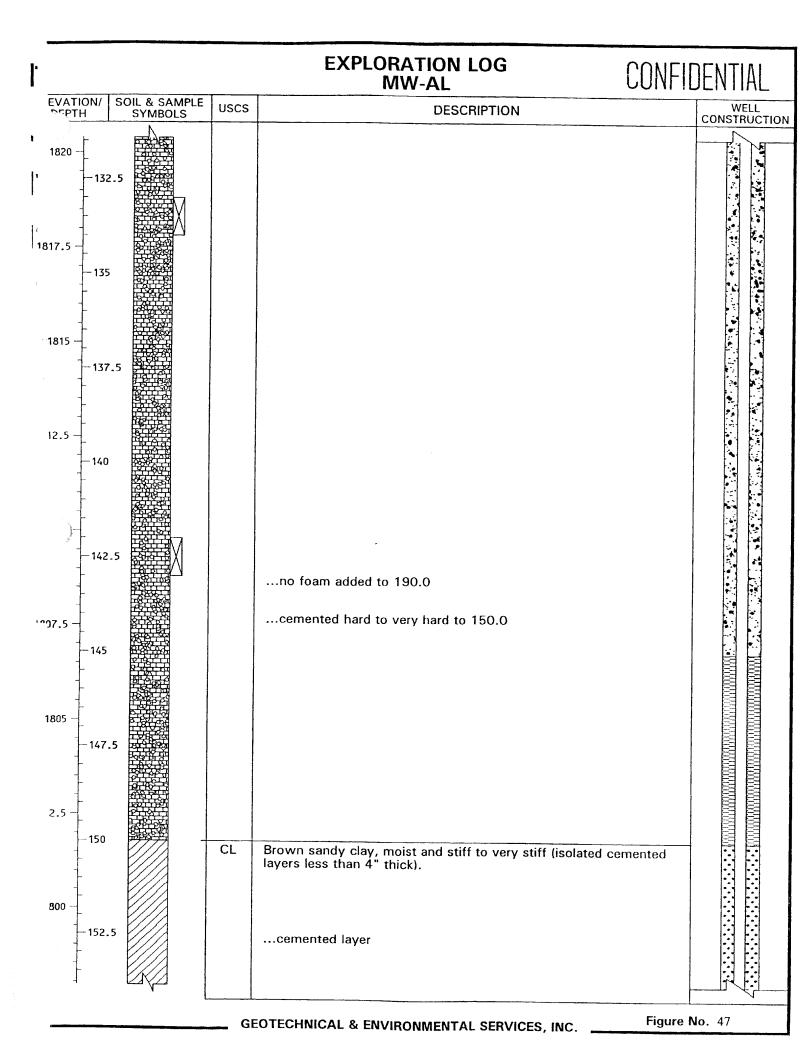
## EXPLORATION LOG MW-AL CONFIDENTIAL WELL CONSTRUCTION EVATION/ DEPTH SOIL & SAMPLE SYMBOLS uscs **DESCRIPTION** 20 1930 27.5 SP-Brown poorly graded sand with silt and gravel, dry and medium SM dense to dense. 1925 -27.5 1922.5 30 ...less gravel to 33.0 1920 -32.5 GP Brown poorly graded gravel with sand, dry and dense. 717.5 -35 1915 -37.5 1912.5 Figure No. 47 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

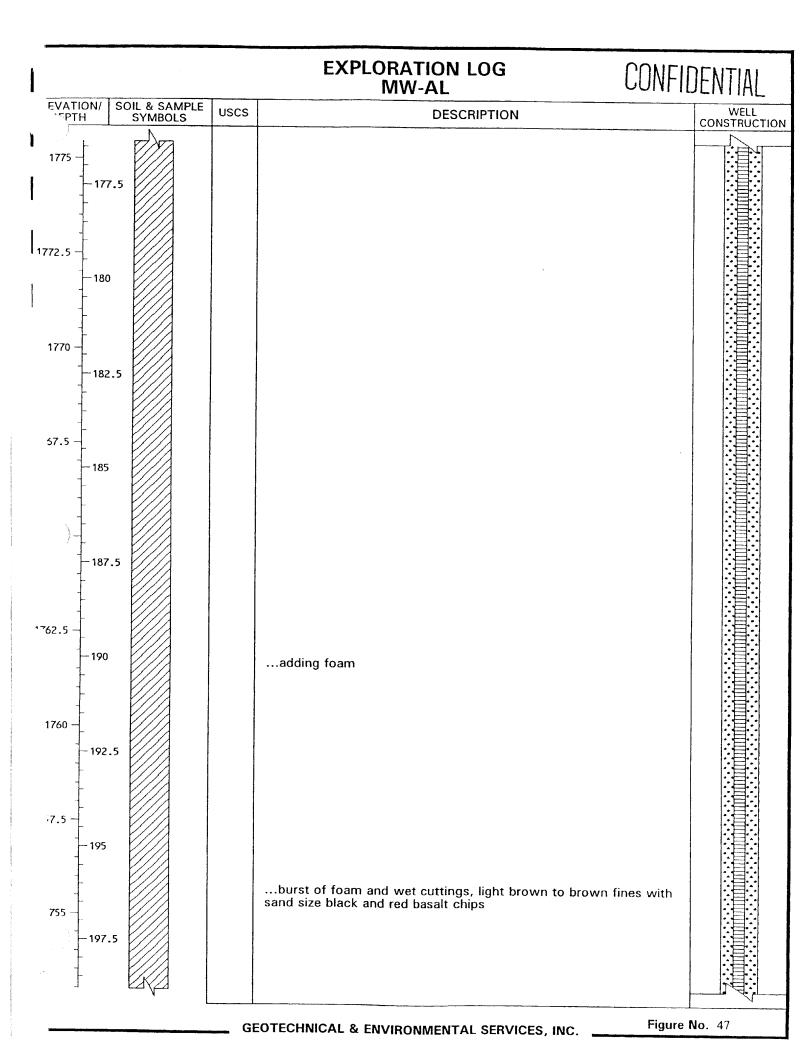
## EXPLORATION LOG MW-AL CONFIDENTIA WELL CONSTRUCTION LEVATION/ DEPTH SOIL & SAMPLE SYMBOLS uscs **DESCRIPTION** ...with cobbles and boulders, partly cemented, and dense to very dense to 57.0 .,07.5 1905 47.5 02.5 1900 52.5 าช97.5 ...boulder to 56.0 1895 C/G Brown cemented sand and gravel, dry, cemented and hard. -57.5 192.5 1890 62.5 Figure No. 47 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

## EXPLORATION LOG MW-AL CONFIDENTIAL WELL CONSTRUCTION EVATION/ DEPTH SOIL & SAMPLE SYMBOLS USCS **DESCRIPTION** - 5. .uc. أ ا 1885 67.5 182.5 70 Brown poorly graded sand with gravel, dry, partially cemented and dense to very dense. SP 1880 72.5 75 1875 77.5 372.5 80 1870 ...stratified, hard and soft layers to 87.0 82.5 1867.5 -85 Figure No. 47 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

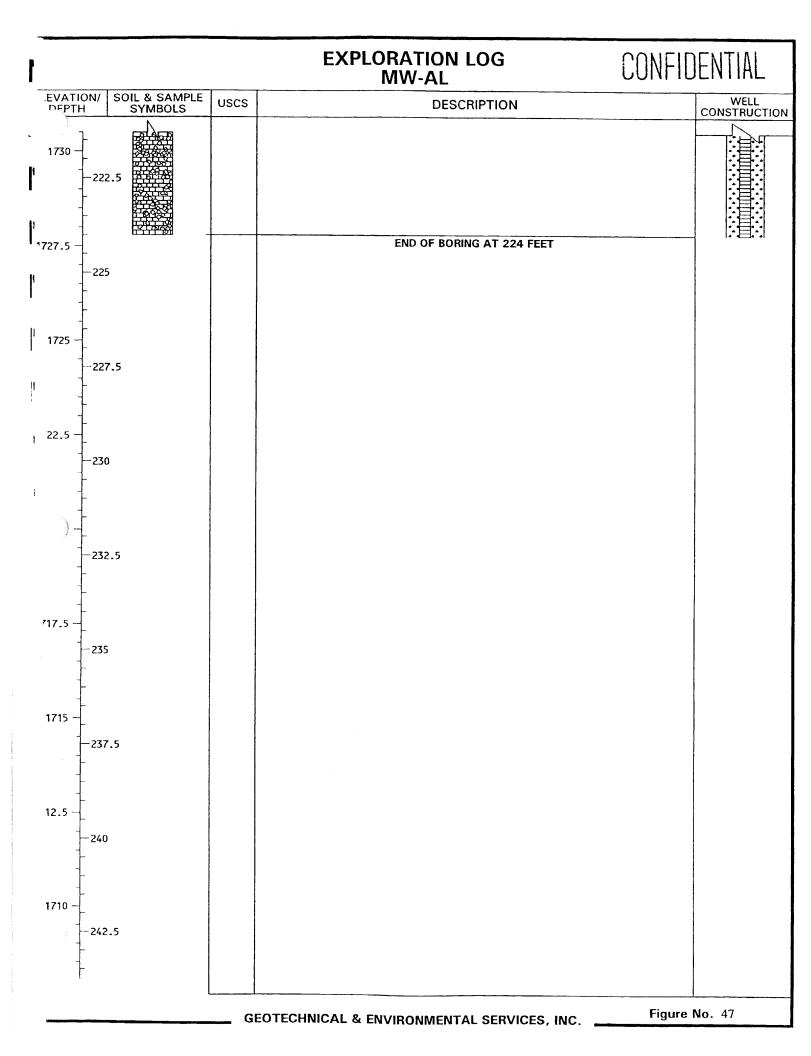
### EXPLORATION LOG MW-AL WELL CONSTRUCTION SOIL & SAMPLE SYMBOLS ' EVATION/ DEPTH **USCS DESCRIPTION** 1865 SP-Brown poorly graded sand with silt and gravel, dry and dense. 87.5 SM 1862.5 Brown poorly graded gravel with sand, dry, partially cemented and GP dense. 1860 -92.5 357.5 ...not partially cemented to 99.0 97.5 ...light brown and partially cemented to 122.0 1852.5 100 1850 102.5 847.5 105 1845 107.5 Figure No. 47 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.







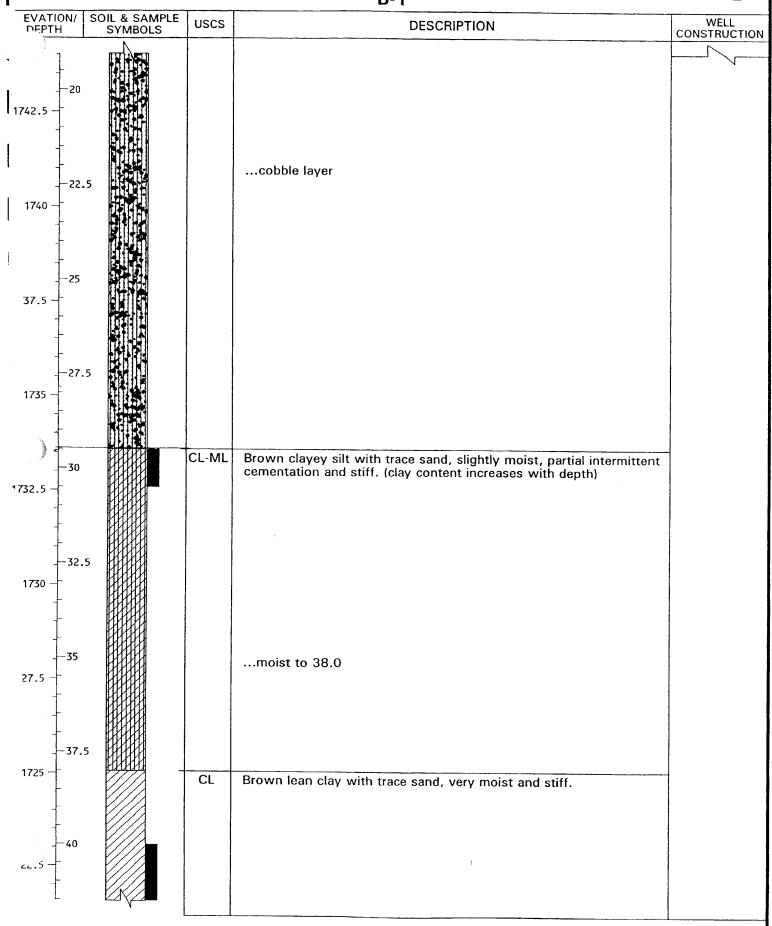
# EXPLORATION LOG MW-AL CONFIDENTIAL -EVATION/ SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION USCS **DESCRIPTION** 752.5 -200 1750 202.5 1747.5 205 1745 207.5 5 210∑ ...groundwater encountered 1740 C/G Light brown cemented sand and gravel, wet, moderately cemented 212.5 and hard. ...brown, finer grained to 214.0 ...lighter brown to 218.0 1737.5 1735 217.5 ...brown to 224.0 **73**2.5 --220 Figure No. 47 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



#### EXPLORATION LOG B-1

CONFIDENTIAL

Figure No. 48



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

# **EXPLORATION LOG** LEVATION/ DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTION USCS **DESCRIPTION** 1720 ...partially cemented to 45.8 **.717.**5 ...Groundwater Encountered **END OF BORING AT 45.8 FEET** 47.5 1715 712.5 -52.5 1710 1707.5 -57.5 1705 702.5 -62.5 .700 -Figure No. 48 GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### **KEY TO SYMBOLS**

CONFIDENTIAL

Symbol Description

Strata symbols



Poorly graded gravel with silt



Symbol

Silty sand



Silt



Strongly cemented sand and gravel



Poorly graded sand



Poorly graded gravel



Poorly graded sand with silt



Well graded gravel



Poorly graded sand with clay



Low plasticity clay



Poorly graded gravel with clay



Clayey sand



Fill



Silty gravel

## **KEY TO SYMBOLS**

CONFIDENTIAL

Symbol Description

Well graded sand with clay

Symbol

California sampler

Description

Well graded gravel with silt



Bulk/Grab sample



Silty low plasticity clay



riser with cover and protective casing

Monitor Well Details



Caliche



Neat Cement seal



Well graded sand



bentonite pellets



Well graded sand with silt

<u> Misc. Symbols</u>



Boring continues



Final water level at date indicated



Initial water level at date indicated

Soil Samplers



Standard penetration test



No recovery



Bulk sample

#### **KEY TO SYMBOLS**

CONFIDENTIAL

Symbol Description silica sand

Symbol Description

silica sand, blank PVC

covered riser



slotted pipe w/ sand



no pipe, filler material

flush-mount cover



protective casing set in concrete



Bentonite pellet seal



silica sand, no pipe
(end plug)

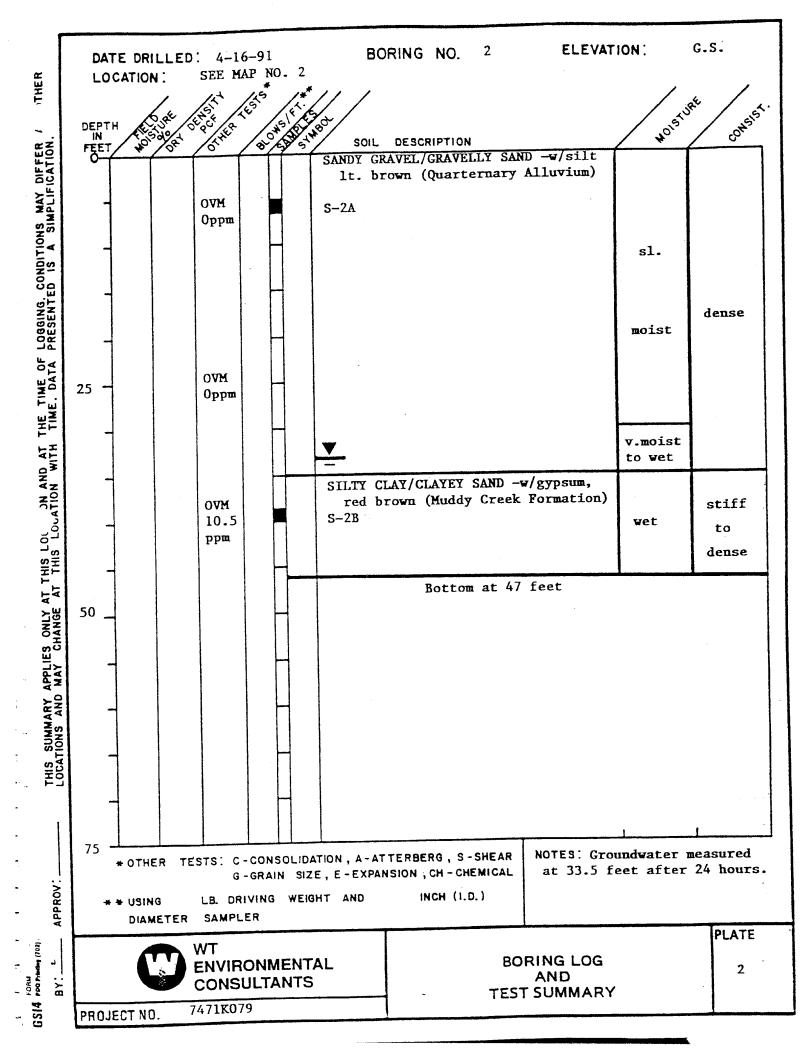


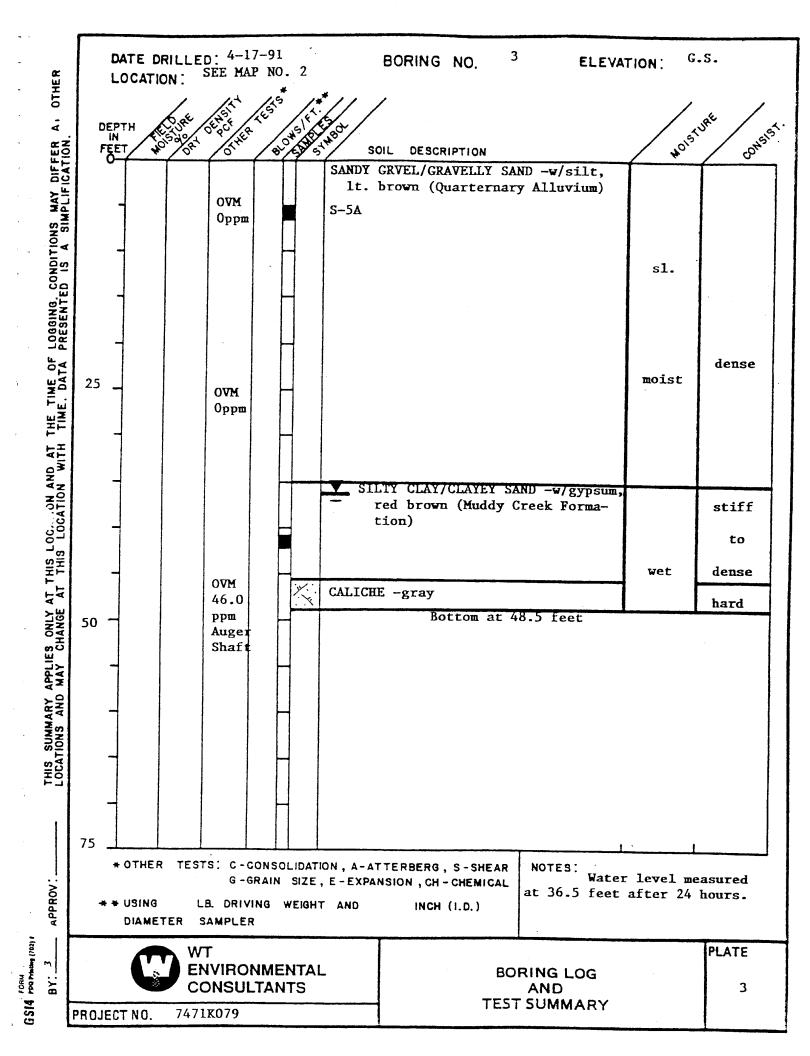
end of well
installation

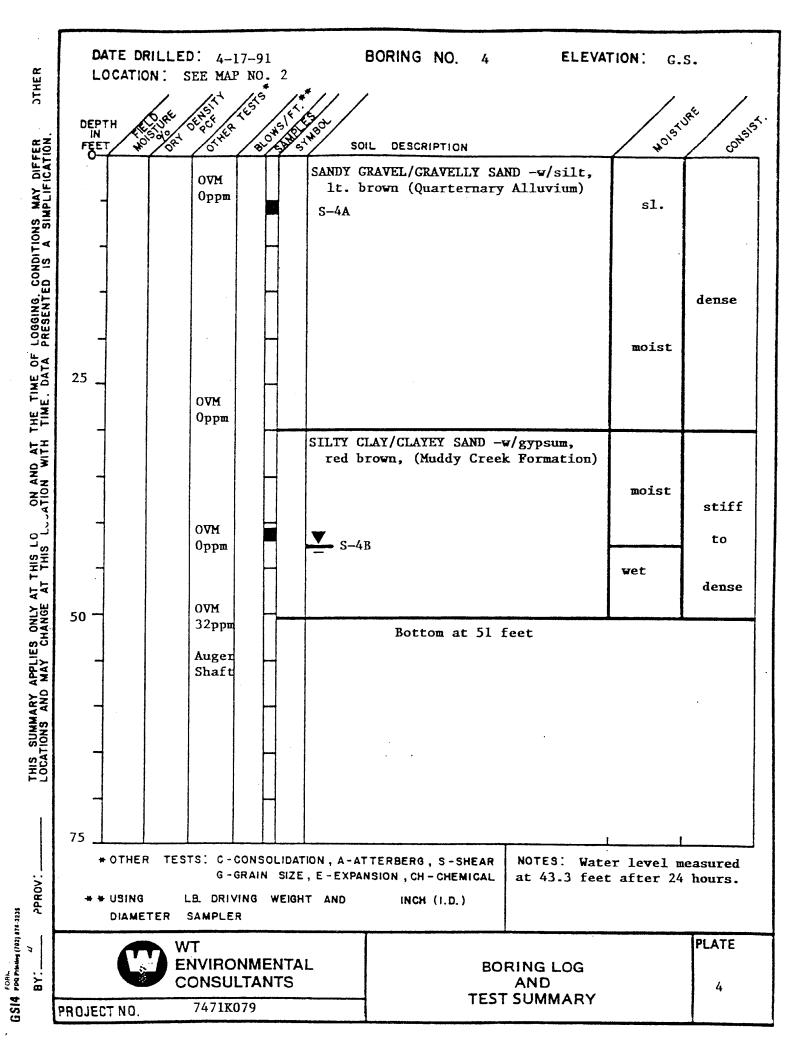
#### Notes:

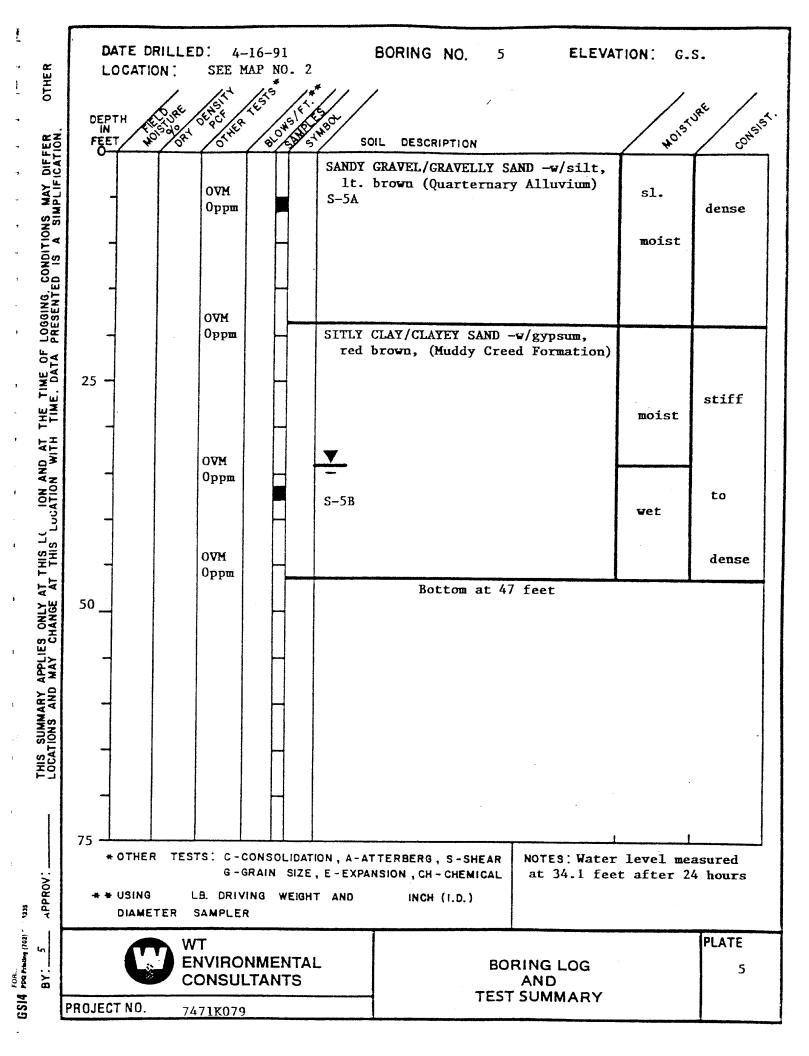
- 1. Exploratory borings were drilled on date shown using a Mobile B-61 drill rig.
- 2. California sampler or Standard Penetration Test sampler driven with 140 pound hammer falling 30 inches as noted.
- 3. Boring locations shown on site plan estimated by pacing from existing features.
- 4. Two-inch diameter PVC monitoring wells with .020 inch slotted screen sections set at depths noted in exploration logs.
- 5. These logs are subject to the limitations, conclusions, and recommendations in this report.
- Results of tests conducted on samples recovered are reported on the logs and attached plates/figures.

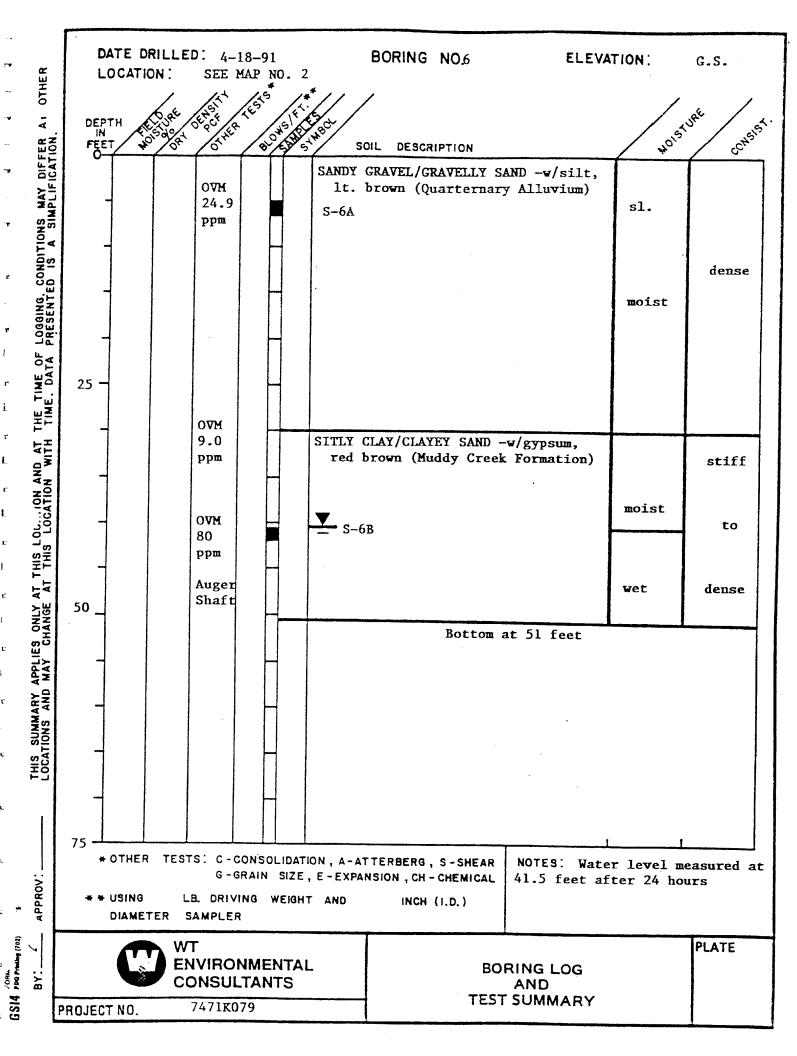
PROJECT NO.

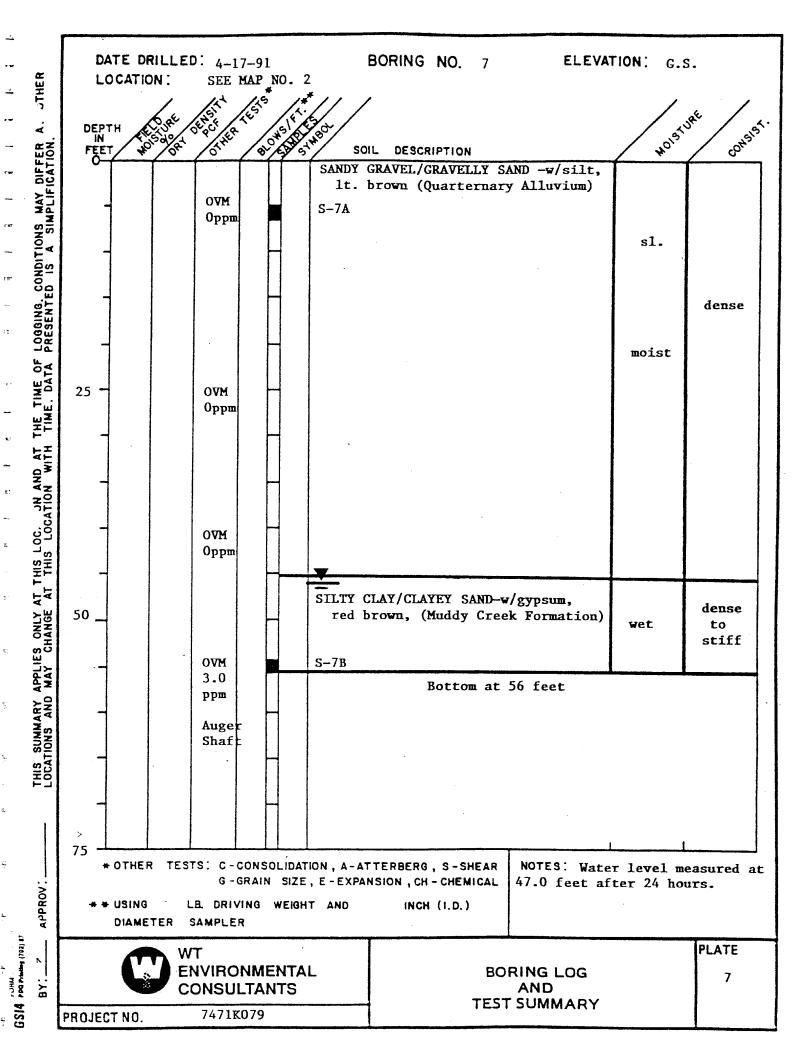


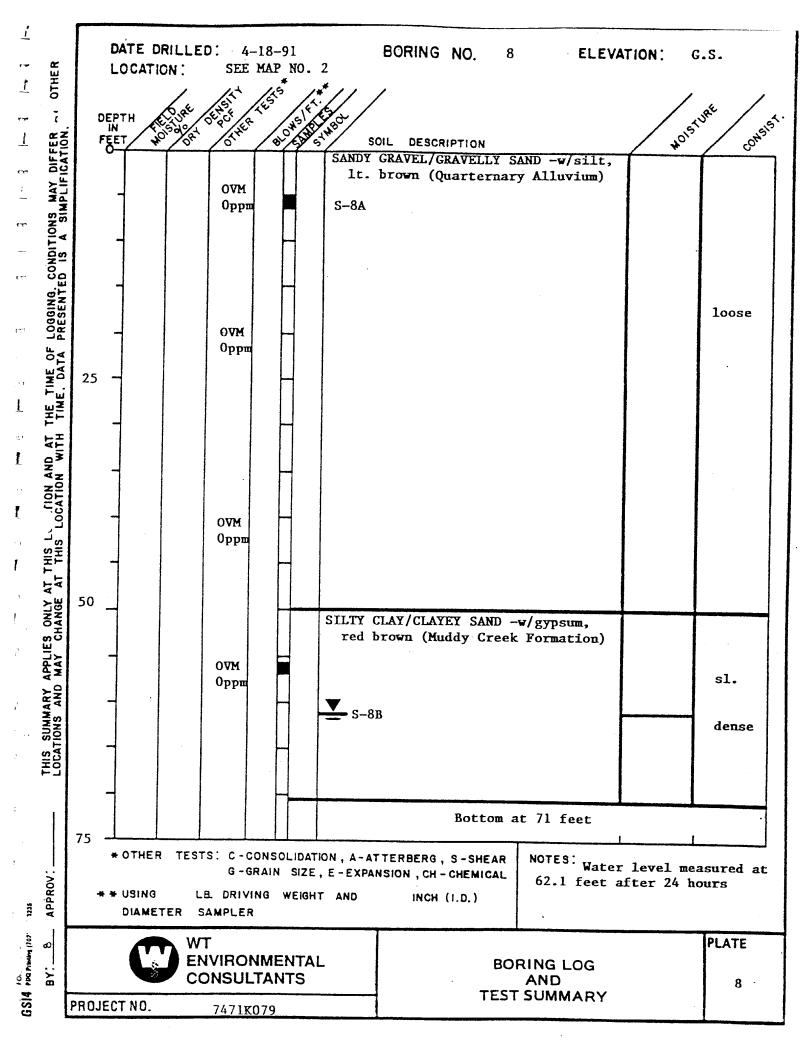


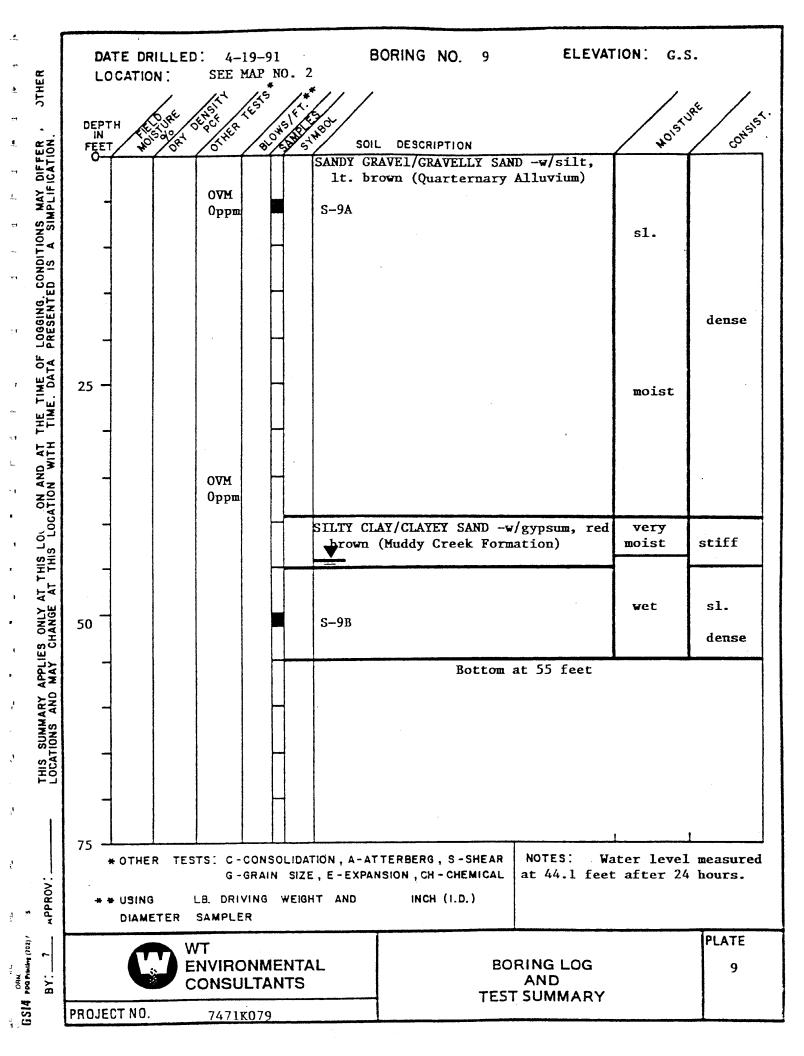


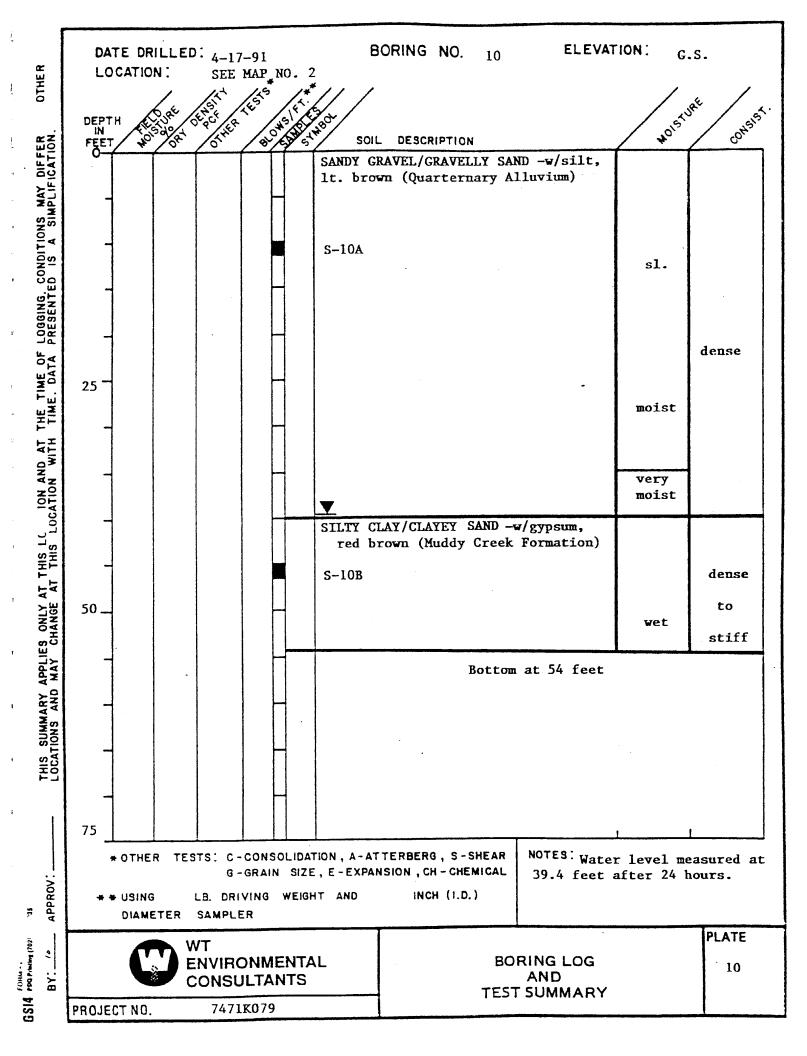






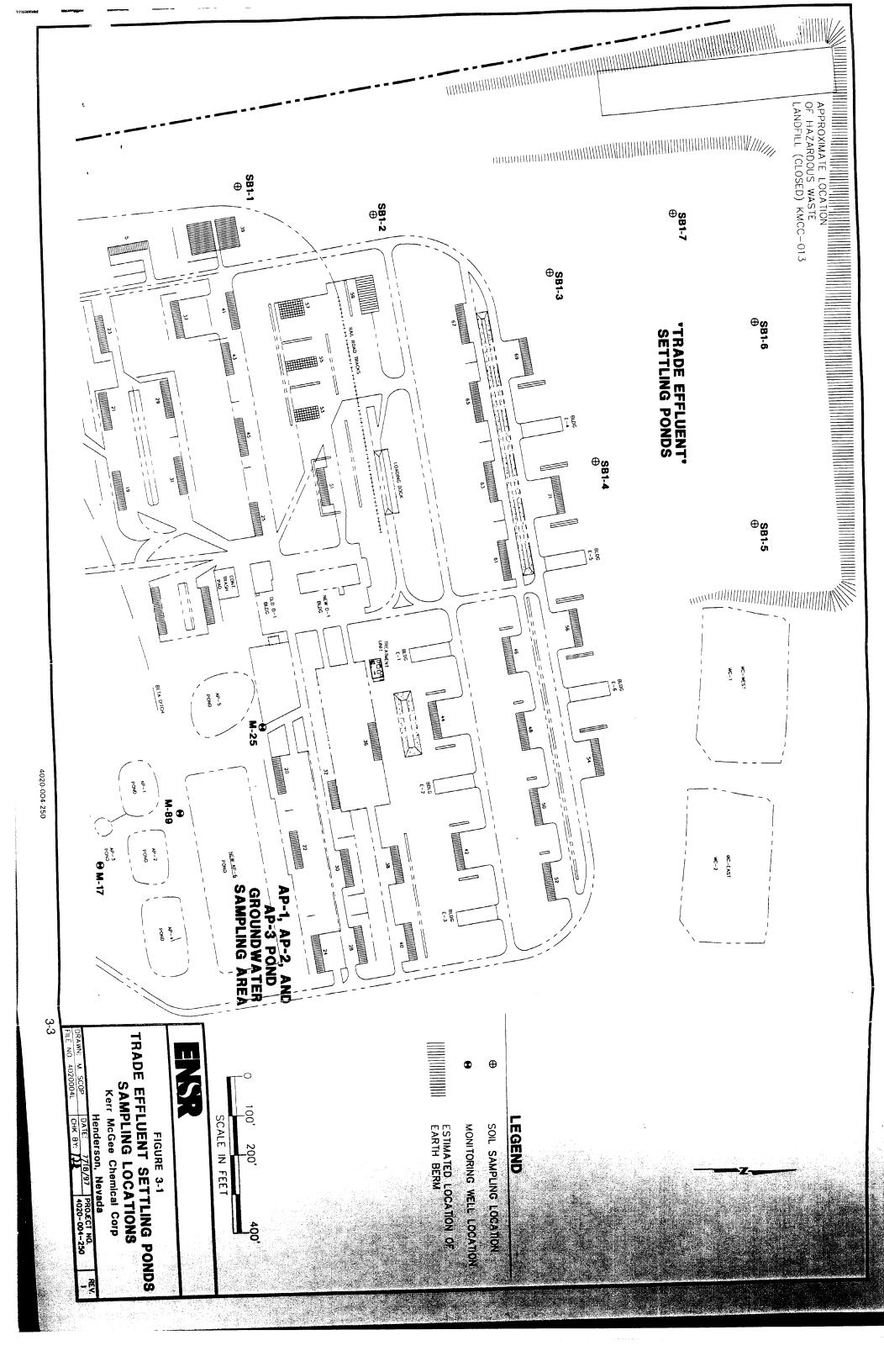


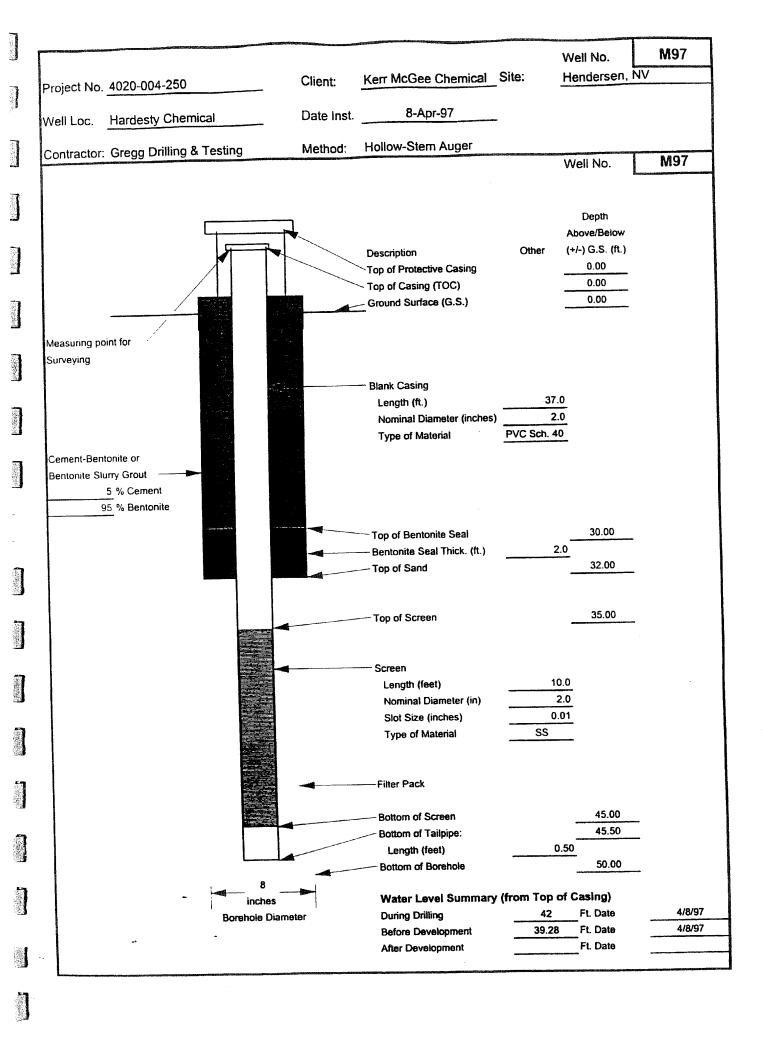




# APPENDIX B

**Boring Logs and Monitoring Well Completion Diagrams** 







BORING NUMBER: SB1-1

CLIENT: Kerr McGee Chemical Corporation

GEOLOGIST: DJ Poehis DATE DRILLED: 4/9/97 TOTAL DEPTH: 10 Feet DRILLING METHOD, HSA

JOE NUMBER: 4020-004-250 LOCATION. Hendersen, NV

DRILLING COMPANY: Gregg Drilling & Testing

SAMPLE METHOE SS EASTING: 26318.777

BOPING LOCATION. Trade Effluent Settling Ponds NORTHING: 19471.568

BOPIN					,	UNIOS NORTHINE. 1547 1.550	<del></del>		<del></del>
SAMPLES	SAMPLE HUMBER	TIME	01d (mdd)	BLOW	RECOVERY %	GEOLOGIC DESCRIPTION	5011 CLA5S.	GRAPHIC LOG	CIEPTII
	SE:-1-1	1705	C	7 15 15	70	<u>SILTY SAND</u> -grayish black with white powdery inclusions, very poorly graded, fine-grain sand, mildly reacts with HCL, no odor.			
	SS:	:710	O	5 7 10	60	SILTY SAND-very poorly graded, 85% fine grain sand, trace gravel to 2cm, dry, non-consolidated, no staining, no odor.	SM		φ
	: : : : : : : : : : :	1715		6 5 5	80	Same as above - no staining, no odor			10
		!720				Soil boring terminated by field geologist at 10 feet bgs.  Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.  Soil boring backfilled with hydrated bentonite chips.			
:5	مند ا					Fig. 10			15

HA - HAND SAMPLER CC - CONTINUOUS CORE SS - SPLIT SPOON
ST - PRESSED SHELBY TUBE



CLIENT, Kerr McGee Chemical Corporation

JOB NUMBER: 4020-004-250

LOCATION, Hendersen, NV

BORING NUMBER: SB1-3

TOTAL DEPTH. 10 Feet

DRILLING METHOD: HSA

SAMPLE METHOD, SS EASTING: 26555.432

GEOLOGIST: DJ Poehls DATE DRILLED: 4/9/97 DRILLING COMPANY: Gregg Drilling & Testing

BORING LOCATION. Trade Effluent Settling Ponds NORTHING: 20241.750 RECOVERY % BLOW COUNT PIO (ppm) SAMPLE NUMBER GEOLOGIC DESCRIPTION 6 GRAVELLY SILT-light brown, dry, soft, fine grain gravel < 8%. 9 100 0 non-consolidated, no staining, no odor. 9 7 SILTY SAND-moderate brown, dry, loose, very fine to medium grain 12 sand (60%), no staining, no odor. 17 90 SM SILTY SAND-moderate brown, dry, loose, very fine to medium grain 20 sand (60%), trace fine grain gravel, subrounded, no staining, no 17 odor. 80 18 0 581-3-10 1500 Soil boring terminated by field geologist at 10 feet bgs. 1810 Groundwater not encountered. Soil cuttings contained in a BOT approved 55-gallon drum. Soil boring backfilled with hydrated bentonite chips.



#### SUBSURFACE EXPLORATION LOG GEOLOGIST: DJ Poehis

DUTENT. Kerr McGee Chemical Corporation

JOB NUMBER. 4020-004-250

JOCATION. Hendersen, NV

30R1NG LOCATION. Trade Effluent Settling Ponds NORTHING: 20733.155

BORING NUMBER: SB1-5

TOTAL DEPTH: 10 Feet

DRILLING METHOD: HSA

SAMPLE METHOD, SS EASTINE: 27193.819

DATE DRILLED: 4/10/97 DRILLING COMPANY: Gregg Drilling & Testing

SAMPLE SAMPLE SAMPLE	1 IME	(mdd)	BLOW	RECOVERY %	GEOLOGIC DESCRIPTION	SOII. CLASS.	GRAPHIC 10G DEPTH feet
SB1-5-1	10943	С	7 12 17	75	SILT-dark blackish gray, dry, parts well indurated, non plastic, musty odor.		
SB1-5-5	C949	С	10 14 20	65	SILT-dark blackish gray, dry, parts well indurated, non plastic, musty odor, small inclusions of white powder material, HCL reactive color change yellow to blue, non-cohesive, slight musty odor.  SILTY SAND-medium to light brown, obserseved from soil cuttings.	M!	d.
	10 10955	0	7 7 23	50	SILTY SAND / SANDY SILT—light brown, dry, dense, very poorly graded fine grain sand, non-consolidated, no stainining, no odor.	SM	10
	1000		-		Soil boring terminated by field geologist at 10 feet bgs.  Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.  Soil boring backfilled with hydrated bentonite chips.		
5				-	BORING METH		



CLIENT: Kerr McGee Chemical Corporation

JOB NUMBER. 4020-004-250

LOCATION. Hendersen, NV

BORING LOCATION. Trade Effluent Settling Ponds NORTHING: 20549.135

BORING NUMBER: SB1-7

TOTAL DEPTH: 10 Feet

DRILLING METHOD, HSA

SAMPLE METHOD, SS

EASTING: 26416.037

GEOLOGIST: DJ Poehls DATE DRILLED: 4/10/97 DRILLING COMPANY: Gregg Drilling & Testing

1119711	SAMPLES	SAMPLE HUMBER	1 IME	010 (ppm)	BLOW COUNT	RECOVERY %	GEOLOGIC DESCRIPTION	S011. CLASS.	GRAPHIC LOG	DEPTH feet
		\$8: <del>-</del> "-"	1120	C	7 8 7	60	SILT-blackish gray with white inclusions, no staining, no odor.  SILTY SAND-medium brown, dry, some gravel, very fine to fine grain sand, no staining, no odor.	ML		
Ę		SB1+ 7+ 5		0	6 9 10	70	SILT-blackish gray with white inclusions.  SILTY SAND-medium brown, dry, some gravel, very fine to fine grain sand, no staining, no odor.	ML		5
		; 58!-7-10	1126	0	16 17 15	70	GRAVELLY SILTY SAND-light brown, dry, dense, poorly graded, very fine grain sand, subangular gravel, no staining, no odor.  Soil boring terminated by field geologist at 10 feet bgs.	SM		10
							Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.  Soil boring backfilled with hydrated bentonite chips.			

SAMPLER TYPE

HA - HAND SAMPLER CC - CONTINUOUS CORE SS - SPLIT SPOON ST - PRESSED SHELBY TUBE



CLIENT, Kerr McGee Chemical Corporation

JOB NUMBER: 4020-004-250 LOCATION. Hendersen, NV

ORING LOCATION, Old P3 Pond

GEOLOGIST: D. Dirkin DATE DRILLED: 4/9/97 DRILLING COMPANY: NA

NORTHING: 18447.975

#### BORING NUMBER: SB2-2

TOTAL DEPTH: 2.33 Feet DRILLING METHOD: Hand Auger

SAMPLE METHOD: HA EASTING. 27623.717

GEOLOGIC DESCRIPTION  SANTIFIED  THE PROPERTY SAND - medium brown, dry, moderately loos	SOII CLASS. GRAPHIC LOG DEPTH
SB2-2S 1536 NA NA NA SILTY SAND—medium brown, dry, moderately loos grain, no staining, earthy odor.	se, fine to medium
ORGANIC SILT-dark brown, very dense, dry, abustaining, musty odor.	undant organics, no OL —2
Refusal at 2.33 feet bgs.	-3
Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gas  Soil boring backfilled with bentonite chips.	allon drum.
	-5
	-6
	-7
	-8
	9

SAMPLER TYPE

SS - SPLIT SPOON ST - PRESSED SHELBY TUBE

HA - HAND SAMPLER CC - CONTINUOUS CORE

# ENR

#### SUBSURFACE EXPLORATION LOG

CLIENT, Kerr McGee Chemical Corporation JOB NUMBER: 4020-004-250

LCCATION, Hendersen, NV BORING LOCATION: Old P3 Pond GEOLOGIST: D. Dirkin DATE DRILLED: 4/9/97 DRILLING COMPANY: NA NORTHING: 18390.012

BORING NUMBER: SB2-4

TOTAL DEPTH: 3 Feet

DRILLING METHOD: Hand Auger

SAMPLE METHOD: HA EASTING: 27619.994

III FIIII	SAMPLES	SAMPLE TRIMBER	1 IME	(mdd)	BLOW	RECOVERY %	GEOLOGIC DESCRIPTION	S011. CLASS.	GRAPHIC LOG DEPTH (eel
		SB2-45	1609	NA NA	NΔ	NΔ	SILTY SAND—medium brown, dry, moderately loose, no staining, earthy odor.	SM	
1 <u>-</u>							ORGANIC SILI-dark brown, dry, very dense, abundant organics, non plastic, no staining, musty odor.	OL	2
) <del>-</del>		SB1-40	: '762 :	: NA	NA	NA	Soil boring terminated by field geologist at 3 feet bgs.		3
							Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.  Soil boring backfilled with bentonite chips.		4
					:				-5
	-			:					-6
	-		i : :				·		-7
â									-8
ټ	·;								9
15	-						DODING METH		10

SS - SPLIT SPOON HA - HAND SAMPLER
ST - PRESSED SHELBY TUBE CC - CONTINUOUS CORE

CLIENT, Kerr McGee Chemical Corporation JGB NUMBER: 4020-004-250

LCCATION. Hendersen, NV ANRING LCCATION: Old P3 Pond

GEOLOGIST: D. Dirkin DATE DRILLED: 4/9/97 DRILLING COMPANY: NA

NORTHING: 18374.451

## BORING NUMBER: SB2-6

TOTAL DEPTH: 3 Feet DRILLING METHOD: Hand Auger

SAMPLE METHOD, HA EASTING: 27559 447

BORING LCCATION: Old P3 P	ond		
SAMPLE SAMPLE TUMBER 11ME	(ppm) BLOW COUNT RECOVERY	GEOLOGIC DESCRIPTION	SOIL CLASS. GRAPHIC LOG DEPTH feet
2	AN AN AN	SILTY SANDtannish brown, moderately loose, earthy odor.	SM
		ORGANIC SILI-dark brown, dry, very dense, abundant organics, non plastic, siltstone gravel or rock fragments, some silty sand stringers, no staining, musty odor.	OL -2
SEI-60 : 1763	AN AN AN	Soil boring terminated by field geologist at 3 feet bgs.  Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon grum.  Soil boring backfilled with bentonite chips.	, T
			-7
	_		-6



CLIENT: Kerr McGee Chemical Corporation

UGB NUMBER: 4020-004-250 LOCATION. Hendersen, NV POPING LOCATION: Old P3 Pond GEOLOGIST: D. Dirkin DATE DRILLED: 4/9/97 DRILLING COMPANY: NA

NORTHING: 18443.946

BORING NUMBER: SB2-8

TOTAL DEPTH. 3 Feet DRILLING METHOD. Hand Auger

SAMPLE METHOD. HA EASTING 27581.796

BORIN	ie LOCATIOI	N: Old	P3 Pon	a 		NURTHING: 18443.940	<del></del>		
Treet SAMPLES	SAMPLE NUMBER	1 JME	P10 (ppm)	BL.OW COUNT	RECOVERY %	GEOLOGIC DESCRIPTION	SOII. CLASS.	GRAPHIC LOG	DEPTH feet
	SB2-8S	1737	NA	NA	NA	<u>SILTY SAND</u> -medium brown, dry, moderately loose, medium grain, some siltstone gravel or rock fragments, earthy odor.	SM		
:- T	\$82+89- ; DUP.	1813	NA	NA	АИ	ORGANIC SILT-dark brown, dry, very dense, organics, some sand and silt stringers, no staining, musty odor.			
:-							OL		2
	SB1-60	1827	NΔ	NA	NA	Soil boring terminated by field geologist at 3 feet bgs.			3
				1		Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.			4
_						Soil boring backfilled with bentonite chips.			بل
*									-7
ģ —									-8
									9
у— , :									
+ <del>4</del> 10 <del></del>			Ц			DODING METH			10

SAMPLER TYPE

SS - SPLIT SPOON HA 
ST - PRESSED SHELBY TUBE CC -

HA - HAND SAMPLER CC - CONTINUOUS CORE

HSA - HOLLOW STEM AUGER HA - HAND AUGER CFA - CONTINUOUS FLIGHT AUGER MD - MUD DRILLING

BORING METHOD



CLIENT: Kerr McGee Chemical Corporation
JOB NUMBER: 4020-004-250

LOCATION: Hendersen, NV
BORING LOCATION: Old P2 Pond

GEOLOGIST: D. Dirkin DATE DRILLED: 4/10/97 DRILLING COMPANY: NA NORTHING: 18459.027 BORING NUMBER: SB2-10

TOTAL DEPTH: 1.7 Feet

DRILLING METHOD: Hand Auger

SAMPLE METHOD: HA EASTING, 27805.678

E	BORIN	G LCCATIO	N: Old	P2 Pon	d		NORTHING: 18459.027 EASTING.	27803.076	<del></del> 1
30	SAMPLES	SAMPLE LIUMBER	TIME	(שוטט) הוטט)	BLOW	RECOVERY %	GEOLOGIC DESCRIPTION	SOII.	COG LOG DEPTH Feet
		SB2-10S	0904	NΔ	NA	NΑ	SANDY SILT-pinkish tan, dry, very dense, medium to coarse grain sand, trace gravels, gravels up to 20 mm.	M.	
		SB3-100	0924	NA AM	NA	ΝΔ	Same as above.		-2
	-						Refusal at 1.7 feet bgs.  Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.		-3
;	-		1				Soil boring backfilled with bentonite chips		-4
								,	15
		i							-6
	~~		:						<del>-</del> 7
	_								-8
<b>A</b>				-					-9
10			٠٠		-		TODANC ME		10

SS - SPLIT SPOON HA - HAND SAMPLER
SS - PRESSED SHELBY TUBE CC - CONTINUOUS CORE



CLIENT, Kerr McGee Chemical Corporation

JOB NUMBER: 4020-004-250 LOCATION: Hendersen, NV

GEOLOGIST: D. Dirkin DATE DRILLED: 4/10/97 DRILLING COMPANY: NA NORTHING: 18447.267

BORING NUMBER: SB2-12

TOTAL DEPTH: 3 Feet

DRILLING METHOD. Hand Auger

SAMPLE METHOD: HA EASTING. 27746.989

LOCATION: HE BORING LOCAT	naersen. TION: Old	NV I P2 Pond	ב		NORTHING: 18447.267	T		
GERTING GERT SAMPLE SAMPLE NUMBER		(mdd)		RECOVERY %	GEOLOGIC DESCRIPTION	SOIL	GRAPHIC LOG	DEPTH
SB2-1	25 0943	3 NA	АИ	NA	SANDY SILT-medium brown, upper siltstone layer approximately 3 inches thick, well stratified and cemented with calcium carbonate, augering difficult from 0.75 to 1.0 ft. bgs, no staining, earthy odor.	M.		1
2-					SILTY SAND-dark brown, dry, fine to medium grain, some siltstone gravel or rocks, no staining, earthy odor.	SM		-2
a-, Z : 3B2-	-12D   11C	,7 NA	NA	NA	Soil boring terminated by field geologist at 3 feet bgs.			
					No groundwater encountered.			-4
<i>≟</i> →		·			Soil cuttings contained in a DOT approved 55-gallon drum.			
		1			Soil boring backfilled with bentonite chips.			
								5
<u> </u>								
		į						
								-6
5 <del>-</del>	1							
								-7
								Γ΄
· · · · · · · · · · · · · · · · · · ·								-8
5-								
				1				9
								10
10 -1		SAMPL	ER TYPE	<b>_L</b>	BORING M	A - HAND	AUGER	



CLIENT, Kerr McGee Chemical Corporation JOB NUMBER: 4020-004-250

LCCATION: Hendersen, NV

BORING LOCATION. Truck Unloading Area

GEOLOGIST: D. Dirkin

DATE DRILLED: 4/8/97 DRILLING COMPANY: NA NORTHING: 18118.238

BORING NUMBER: SB4-1

TOTAL DEPTH: 3 Feet

DRILLING METHOD: Hand Auger

SAMPLE METHOD: HA EASTING: 26577.620

SAMPES SAMPE	TIME PID (ppm)	COUNT	KECUVERY %	GEOLOGIC DESCRIPTION	SOIL CLASS.	GRAPHIC LOG DEPTH feet
maj —	AN 225	NA I	NA	<u>SILTY SAND</u> —tan, dry, loose, fine to medium grain, no staining, earthy odor.	SM	
				SANDY GRAVEL—tan, dry, loose, subangular to subrounded, no staining, earthy odor.	GW	
\$84-10	1616 NA	NA	AM			0000
				Soil boring terminated by field geologist at 3 feet bgs.  Goundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.		-4
<b>-</b>				Soil boring backfilled with bentonite chips.		-5
	!		!			-6
						-7
						-8
	-					-9
		-		*:		10

SAMPLER TYPE

SS - SPLIT SPOON
ST - PRESSED SHELBY TUBE

HA - HAND SAMPLER CC - CONTINUOUS CORE

BORING METHOD



CLIENT: Kerr McGee Chemical Corporation JOB NUMBER: 4020-004-250

LOCATION, Hendersen, NV

BORING LOCATION. Truck Unloading Area

GEOLOGIST: D. Dirkin DATE DRILLED: 4/8/97 DRILLING COMPANY: NA NORTHING: 18055.318

BORING NUMBER: SB4-3

TOTAL DEPTH. 3 Feet

DRILLING METHOD: Hand Auger

SAMPLE METHOD: HA EASTING: 26644.253

116PTH (cct 5AMP155	SAMPLE DUMPRER	1 IME	(mdd)	BLOW	RECOVERY %	GEOLOGIC DESCRIPTION	SOIL CLASS.	GRAPHIC 106 DEPTH
	994-35	1711	NA	NΔ	NA	<u>SILTY SAND</u> —tan, dry, loose, fine to medium grain, no staining, earthy odor.	SM	
						SANDY GRAVEL—tan, dry, loose, subangular to subrounded, no odor.	GW	
- <u>_</u>	SE4-30	1732	. NA	NA	NA			0013
-			!			Soil boring terminated by field geologist at 3 feet bgs.  Groundwater not encountered.  Soil cuttings contained in a DOT approved 55-gallon drum.  Soil boring backfilled with bentonite chips.		-4
								5
		1						+6
~		: :						-7
<del>5 -</del>								8
<del>9</del>								9
13						DODING METHO		10

HA - HAND SAMPLER CC - CONTINUOUS CORE SS - SPLIT SPOON
ST - PRESSED SHELBY TUBE

BORING METHOD

HSA - HOLLOW STEM AUGER HA - HAND AUGER CFA - CONTINUOUS FLIGHT AUGER MD - MUD DRILLING



CLIENT: Kerr McGee Chemical Corporation

JOB NUMBER: 4020-004-250 LOCATION: Hendersen, NV

BORING LOCATION: Truck Unloading Area

GEOLOGIST: D. Dirkin DATE DRILLED: 4/9/97

DRILLING COMPANY: NA

NORTHING: 18089.653

BORING NUMBER: SB4-5

TOTAL DEPTH. 3 Feet

DRILLING METHOD. Hand Auger

SAMPLE METHOD: HA EASTING: 26522.756

SAMPLES	NUMBER TIME	PID (ppm)	BLOW	RECOVERY %	GEOLOGIC DESCRIPTION	SOIL CLASS.	GRAPHIC LOG	DEPTH feet
	3:-5S   0837	NA	АИ	NΔ	<u>SILTY SAND</u> -brownish tan, dry, moderatly loose, medium grain, little gravel ( $G=5\%$ , $S=80\%$ , Silt=15%), earthy odor.	CM		-1
						SM		-2
5 S	84-52 1133	AN	NA	NA	Soil boring terminated by field geologist at 3 feet bgs.  Goundwater not encountered.			3
					Soil cuttings contained in a DOT approved 55-gallon drum.  Soil boring backfilled with bentonite chips.			7
								5
]								-6
								7
								8
		-						-9
10	+	AMPLER			_BORING METH	OD		10

SS - SPLIT SPOON HA -ST - PRESSED SHELBY TUBE CC -HA - HAND SAMPLER CC - CONTINUOUS CORE HSA - HOLLOW STEM AUGER HA - HAND AUGER CFA - CONTINUOUS FLIGHT AUGER MD - MUD DRILLING

# ENSR

#### SUBSURFACE EXPLORATION LOG

CLIENT: Kerr McGee Chemical Corporation

JOB NUMBER: 4020-004-250

LOCATION. Hendersen, NV

BORING LOCATION: Truck Unloading Area

GEOLOGIST: D. Dirkin DATE DRILLED: 4/9/97 DRILLING COMPANY: NA NORTHING: 18055.189 BORING NUMBER: SB4-7

TOTAL DEPTH. 3 Feet

DRILLING METHOD: Hand Auger

SAMPLE METHOD, HA EASTING: 26450.992

(0.1	± 200 € 10		1			NORTHING: 18055.189 EAS	STING: 26450.993		1
Georgian Samples	SAMPLE LUMBER	T IME	PID (ppm)	BLOW	RECOVERY %	GEOLOGIC DESCRIPTION	SON. CLASS.	GRAPHIC LOG	DEPTH
-	884-78	0644	NA	NΔ	NA	GRAVELLY SAND-tannish brown, dry, difficult augering, medicoarse grain, subrounded gravels up to 50 mm, poorly sorted earthy odor.	um to		1
							5		-2
: <u> </u>	SE4-70	1101	Ν÷	NA	NA	Soil boring terminated by field geologist at 3 feet bgs.			-3
			1			No groundwater encountered.			
			!	;		Soil cuttings contained in a DOT approved 55-gallon drum.  Soil boring backfilled with bentonite chips.			7
· <del></del>						John Borning Backfilled with Berttoffile Chips.			5
		!							-6
	:								
;	: : :								-7
									-8
è									-9
10									

SAMPLER TYPE

SS - SPLIT SPOON HA - HAND SAMPLER CC - CONTINUOUS CORE



CLIENT. Kerr McGee Chemical Corporation GEOLOGIST: DJ Poehls

JOB NUMBER: 4020-004-250

LOCATION: Hendersen, NV

BORING LOCATION: Hardesty Chemical Site

BORING NUMBER: M97

TOTAL DEPTH: 50 Feet

DRILLING METHOD. HSA SAMPLE METHOD: SS

EASTING: 27491.925

DATE DRILLED: 4/8/97
DRILLING COMPANY: Gregg Drilling & Testing

NORTHING: 17793.352

TECOVER) BLOW COUNT P[] (ppm) SAMPLE رضا GEOLOGIC DESCRIPTION GRAVELLY SILT-well rounded gravel (up to 2cm), moderately loose, non plastic, dry, no structure, medium orangish brown, no stain, no odor. 12 85 NA 8 GRAVELLY SILTY SAND-alternating with silty sand, very poorly 10 graded, gravel rounded to subrounded, loose, dry, medium brown, no stain, no odor. SM 12 -10 80 1136 Same as above with 6 inch zone of sandy gravel - well graded NA 21 angular gravel to 3cm - dark gray, dry, moderately dense. 27 GW 10 NA 70 SM SILTY SAND-trace medium grain gravel, increasing silt (30%), dry, 12 16 medium brown, no stain, earthy odor. Caliche CALICHE GRAVELLY SILT-little sand, soft caliche nodules, carbonate gravel, 24 40 Ni angular to 3cm, very well graded, dry, light reddish brown. 14 10 ML5 0 1200 NA GRAVELLY SILTY-possibly very fine grain sand, little very fine 14 grain gravel, subangular, HCL ractive, dry, light brown. 15 16 10 1215 NΑ NA 50/5" SILT-compacted, stratified, HCL reactive, dry, firm to very firm. 40 1220 NA NΑ CLAY - SILTY CLAY-moist, no gravel, very slightly plastic, soft, 5 CL 5 orangish brown, no stain, no odor. 5 100 1235 NA

SAMPLER TYPE 9

SS - SPLIT SPOON HA - HAND SAMPLER CC - CONTINUOUS CORE

#### **EXPLORATION LOG** SRB-1

PROJECT:	SOUTHERN	RAPID	INFILT	RATION	BASIN

HOLE LOCATION: SEE FIGURE 1

PLORATION SIZE: 4 1/4" I.D. H.S. AUGER

ELEVATION: EGS

PROJECT NO.: 20011195V1

EXPLORATION DATE: 05/25/01

EQUIPMENT: DIEDRICH D-50 TURBO

DRILLER/LOGGER: CLINE/COOKE

INITIAL DEPTH TO WATER: 50.0 FEET

DATE MEASURED: 05/25/01

EVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWE
	30	GM	Pale brown (10 YR 6/3) silty gravel with sand, dry and dense. PID = 0.0 ppmV. No odors or stains.					
- 5 7.	5	GP	Brown (10 YR 5/3) poorly graded gravel with sand, slightly moist and very dense.					
- 10 12.	51 92		dark yellowish brown (10 YR 4/4)PID = 0.0 ppmV, no odors or stains					
	.5					·		
15 								
17	.5							

Figure No. 2

PROJECT:	SOUTHERN	<b>RAPID</b>	INFILTRATION BASIN	ĺ
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"OLE LOCATION: SEE FIGURE 1

LORATION SIZE: 4 1/4" I.D. H.S. AUGER

D. H.S. AUGER EQU

ELEVATION: EGS

**PROJECT NO.:** 20011195V1

EXPLORATION DATE: 05/25/01

EQUIPMENT: DIEDRICH D-50 TURBO

Figure No. 2

DRILLER/LOGGER: CLINE/COOKE

INITIAL DEPTH TO WATER: 50.0 FEET

DATE MEASURED: 05/25/01

ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWEL!
<u> </u>								
- 20 - - - - 22.	.5	SM	Dark yellowish brown (10 YR 4/4) silty sand with gravel, slightly moist and very dense. PID = 0.0 ppmV, no odors or stains.					
-		GP	Dark yellowish brown (10 YR 4/4)					
- - 25		SM	poorly graded gravel with sand, slightly moist and very dense.  Dark yellowish brown (10 YR 4/4) silty sand with gravel, slightly moist and very dense.					
- - - 27	.5							
- - 30	90 140		PID = 0.0 ppmV, no odors or stains					
— 32 -	- 5							
- 35 -								
- 37	- 5		,				E	

PROJECT: SOUTHERN RAPID INFILTRATION BASIN

"OLE LOCATION: SEE FIGURE 1

'LORATION SIZE: 4 1/4" I.D. H.S. AUGER

**LLEVATION: EGS** 

PROJECT NO.: 20011195V1

EXPLORATION DATE: 05/25/01

**EQUIPMENT:** DIEDRICH D-50 TURBO

Figure No. 2

DRILLER/LOGGER: CLINE/COOKE

INITIAL DEPTH TO WATER: 50 0 FEET

INITIA FINAI	AL DEP	PTH TO WA	/ATER:	50.0 FEE	DATE MEASURED: 0	)5/25/0 )5/29/	<u>01</u> 01				
ELEVATI DEPTI		SOIL & SAN SYMBOL		USCS	DESCRIPTION		PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)
	- - 40		56 120		PID = 0.0 ppmV, no odors or sta	tains					
	- 42.5										
	- 47.5 - - - 50-	_	- 85 204		PID = 0.0 ppmV, no odors or sta	+oine					
	- 52.5	_	204	GP	Dark yellowish brown (10 YR 4/4) poorly graded gravel with sand, mo and very dense.	)					
MESTI ACTION COMPANIENCE CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTRACTION CONTR	- 55 -	WANTER STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF TH		SC-SM	Strong brown (7.5 YR 5/6) silty, class sand, moist to wet and very stiff.	layey					
A Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Comp	- 57.5	5					Ĺ				

PROJECT: SOUTHERN RAPID INFILTRATION BASIN

"'ALE LOCATION: SEE FIGURE 1

LORATION SIZE: 4 1/4" I.D. H.S. AUGER

**ELEVATION: EGS** 

PROJECT NO .: 20011195V1

**EXPLORATION DATE**: 05/25/01

EQUIPMENT: DIEDRICH D-50 TURBO

Figure No. 2

DRILLER/LOGGER: CLINE/COOKE

INITIAL DEPTH TO WATER: 50.0 FEET

DATE MEASURED: 05/25/01

PROJECT: SOUTHERN RAPID INFILTRATION BASIN

"CLE LOCATION: SEE FIGURE 1

LORATION SIZE: 4 1/4" I.D. H.S. AUGER

**LLEVATION: EGS** 

PROJECT NO.: 20011195V1

**EXPLORATION DATE: 05/25/01** 

**EQUIPMENT:** DIEDRICH D-50 TURBO

Figure No. 3

DRILLER/LOGGER: CLINE/COOKE

INITIAL DEPTH TO WATER: 70.0 FEET

DATE MEASURED: 05/25/01

SYMBOLS	USCS	DESCRIPTION	PI	LL	CONTENT (%)	(pcf)	(%)
24 50	GM	Pale brown (10 YR 6/3) silty gravel with sand, dry and dense. PID = 0.0 ppmV, no odors or stains.					
	GP	Brown (10 YR 5/3) poorly graded gravel with sand, slightly moist and very densedark yellowish brown (10 YR 4/4)					
31 72		brown (10 YR 5/3). PID = 0.0 ppmV, no odors or stains					
		P					
	24 50	GP	GP Brown (10 YR 5/3) poorly graded gravel with sand, dry and dense. PID = 0.0 ppmV, no odors or stains.  GP Brown (10 YR 5/3) poorly graded gravel with sand, slightly moist and very densedark yellowish brown (10 YR 4/4) brown (10 YR 5/3). PID = 0.0 ppmV, no odors or stains	GM Pale brown (10 YR 6/3) silty gravel with sand, dry and dense. PID = 0.0 ppmV, no odors or stains.  GP Brown (10 YR 5/3) poorly graded gravel with sand, slightly moist and very dense. dark yellowish brown (10 YR 4/4) brown (10 YR 5/3). PID = 0.0 ppmV, no odors or stains	GP Brown (10 YR 5/3) poorly graded gravel with sand, slightly moist and very densedark yellowish brown (10 YR 4/4) brown (10 YR 5/3). PID = 0.0 ppmV, no odors or stains	GP Brown (10 YR 5/3) poorly graded gravel with sand, slightly moist and very densedark yellowish brown (10 YR 4/4) brown (10 YR 5/3). PID = 0.0 ppmV, no odors or stains	GP Brown (10 YR 5/3) poorly graded gravel with sand, dry and dense. PID = 0.0 ppmV, no odors or stains.  GP Brown (10 YR 5/3) poorly graded gravel with sand, slightly moist and very densedark yellowish brown (10 YR 4/4) brown (10 YR 5/3). PID = 0.0 ppmV, no odors or stains

PROJECT: SOUTHERN RAPID INFILTRATION BASIN

"QLE LOCATION: SEE FIGURE 1

LORATION SIZE: 4 1/4" I.D. H.S. AUGER

**ELEVATION: EGS** 

PROJECT NO.: 20011195V1

EXPLORATION DATE: 05/25/01

EQUIPMENT: DIEDRICH D-50 TURBO

DRILLER/LOGGER: CLINE/COOKE

INITIAL DEPTH TO WATER: 70.0 FEET

FINAL DEPTH TO WATER: 56.26

DATE MEASURED: 05/25/01

DATE MEASURED: 05/29/01

FINAL DEF	TH TO WATER:	56.26	DATE MEASURED: <u>05/29</u>	/01				
ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL (%)
- 20 - - - - 22.	48 79		PID = 0.0 ppmV, no odors or stains					
- - - 25								
- 27. 						·		
- - - 32.	53 160	SM	brown (10 YR 5/3) silty sand with gravel, slightly moist and very dense. PID = 0.0 ppmV, no odors or stains.					
35	5		E.					
i-	TELES ZEERI	GEC	TECHNICAL & ENVIRONMENTAL SERVIC	L ES,	INC	. Fi	gure No. 3	

PROJECT: SOUTHERN RAPID INFILTRATION BASIN

HOLE LOCATION: SEE FIGURE 1

PLORATION SIZE: 4 1/4" I.D. H.S. AUGER

**LLÉVATION: EGS** 

PROJECT NO.: 20011195V1

EXPLORATION DATE: 05/25/01

**EQUIPMENT:** DIEDRICH D-50 TURBO

DRILLER/LOGGER: CLINE/COOKE

INITIAL DEPTH TO WATER: 70.0 FEET

DATE MEASURED: 05/25/01 DATE MEASURED: 05/29/01 FINAL DEPTH TO WATER: 56.26 ELEVATION/ **SOIL & SAMPLE** MOISTURE DRY DENSITY SWELL USCS **DESCRIPTION** LL DEPTH **SYMBOLS** CONTENT (%) (pcf) (%) ...PID = 0.0 ppmV, no odors or stains 42.5 47.5 ...PID = 0.0 ppmV, no odors or stains 136 52.5

PROJECT: SOUTHERN RAPID INFILTRATION BASIN PROJECT NO.: 20011195V1

"OLE LOCATION: SEE FIGURE 1

PLORATION SIZE: 4 1/4" I.D. H.S. AUGER

ELEVATION: EGS

INITIAL DEPTH TO WATER: 70.0 FEET

EXPLORATION DATE: 05/25/01

EQUIPMENT: DIEDRICH D-50 TURBO

DRILLER/LOGGER: CLINE/COOKE

DATE MEASURED: 05/25/01

.EVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	PI	LL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWEI
- - - - - -	45 60		PID = 0.0 ppmV, no odors or stains					
- 62.								
- 67	.5							
- 70 - - - 72	.5		wet					
75			END OF BORING AT 75 FEET GROUNDWATER ENCOUNTERED AT 70.0					

### KEY TO SYMBOLS

Symbol Description

Symbol Description

#### Strata symbols

### Soil Samplers



Silty gravel



California sampler



Poorly graded gravel



Silty sand



Silty, clayey sand

### Misc. Symbols

Boring continues

Water table at date indicated

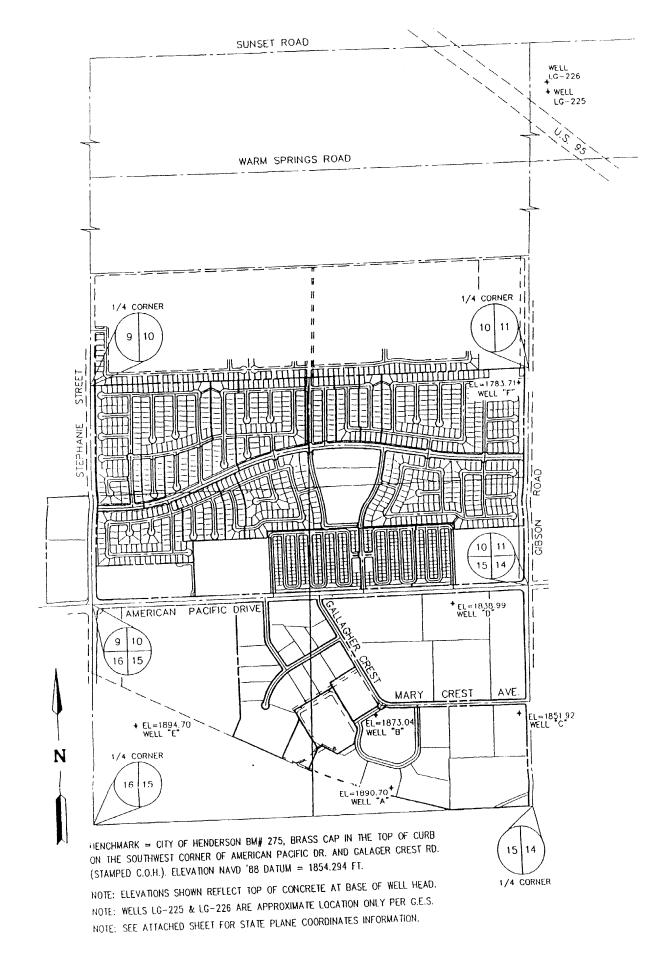


Water table at date indicated

### Notes:

- Exploratory borings were drilled on date shown on the logs with a Diedrich D-50 Turbo track rig using 4 1/4 inch inside diameter hollow stem augers.
- 2. California sampler driven with a 140 pound hammer falling 30 inches.
- 3. Boring locations shown on site plan estimated by pacing from existing features.
- 4. This log is subject to the limitations, conclusions, and recommendations in this report.
- 5. Results of tests conducted on samples recovered are reported on the logs and attached plates/figures.

FIGURE NO. 4





W.O. #503-C375 File: C375EX06.DOC September 30, 1997

By: TLH Checked By: GDR

SURVEYOR'S NOTE: The State Plane Coordinates shown hereon are derived from Clark County's Record of Survey recorded in File 88, Page 53 of Surveys. The reference points, which this survey was cased upon, were "Whitney 2" and "W51" as shown per said Survey. The coordinates shown hereon are in U.S. Survey feet and are Grid Coordinates rotated and translated to the North American Datum of 1983 (NAD 83), Nevada East Zone, #2701. See the E.S.I. exhibit labeled A320EX62.DWG for the location of the well heads as referenced to local streets within the City of Henderson.

BENCHMARK - City of Henderson BM# 275, Brass Cap in the top of curb on the southwest corner of American Pacific Drive and Galager Crest Road (Stamped C.O.H.).

Elevation NAVD 88' Datum = 1854.294 ft.

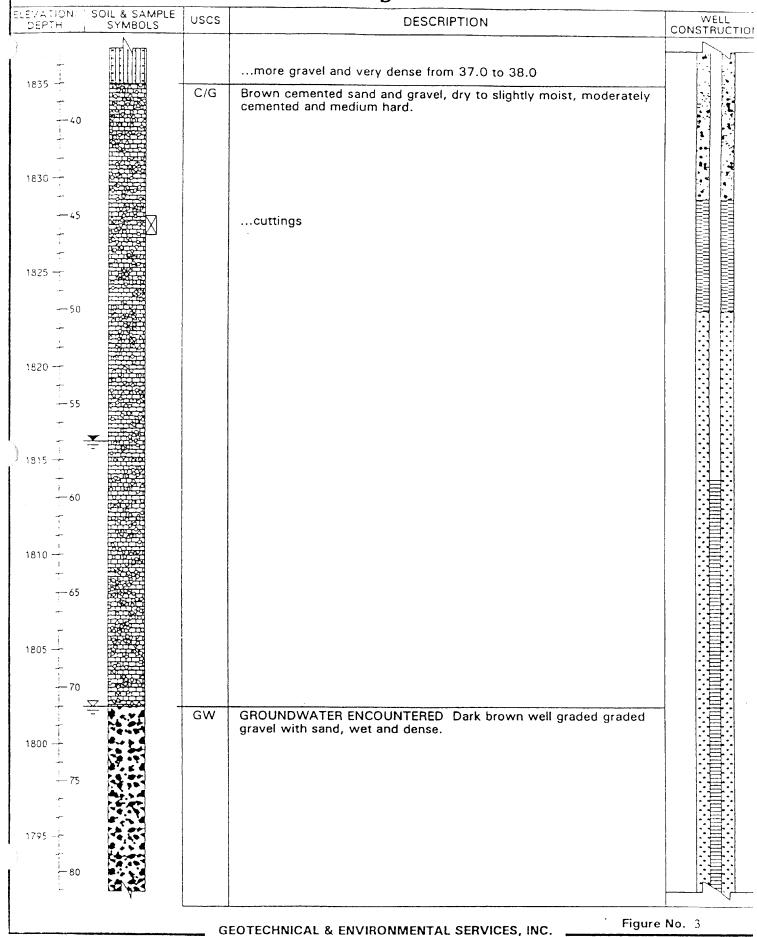
<u>POINT</u>	NORTHING	EASTING	ELEVATION	DESCRIPTION
2000	26719788.77	819909.85	1783.71	WELL "F"
2001	26717131.48	819059.66	1838.99	WELL "D"
2002	26715809.72	819813.04	1851.92	WELL "C"
2003	26715849.02	818114.18	1873.04	WELL "B"
2004	26714962.98	818267.11	1890.70	WELL "A"
2005	26715804.75	815276.80	1894.70	WELL "E"

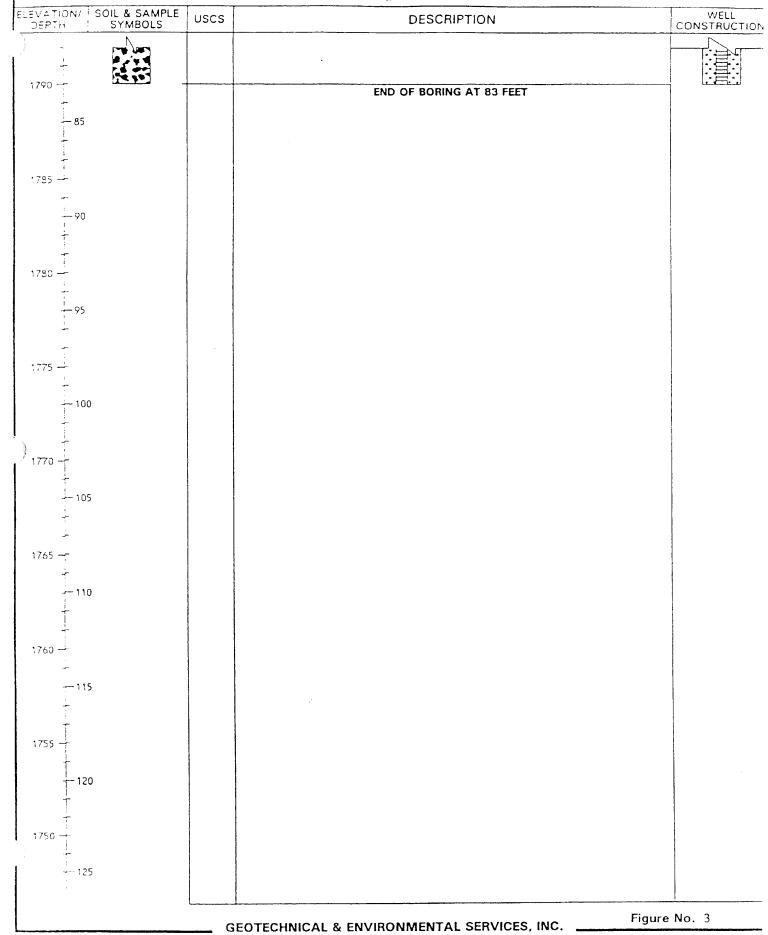
	: PEPCON MON CATION: SEE SI			PROJECT NO.: EXPLORATION DATE:	96189V2	
			4" MONITORING WELL	EQUIPMENT:	8-28-97 MOBILE B-53	
	ATION:			· · · · · · · · · · · · · · · · · · ·	OHNSON	
NITIAL D	EPTH TO WATE	R.	89 DATE ME			
	PTH TO WATER			•	5-97	
VATION:	SOIL & SAMPLE					1 11/5
)EPTH	SYMBOLS	USCS		DESCRIPTION		WE CONSTR
ē						,
-						
<del>-</del> -0	THE STORES					
895 <u>—</u> _		GP- GM	Pale brown poorly graded very dense.	gravel with silt and sand	, dry and dense to	1.4
	Fig. 1	J.W.	very derise.			
~_						7
~_						
5						
885 <u>-</u>	PILA CE SO					
						4
-		C/G	Pale brown cemented san	d and gravel, dry, cemen	ted and hard.	
10 580			cemented material, no s	sample taken		
-						1
<b>-</b>						[ خ
-						1
-	-	SP	Dark brown poorly graded	I sand with gravel, slightl	v moist and dance	
·5	17	0.	to very dense.	i sana witi graver, siigitti	y moist and dense	100
= C C	50					
					i i	F - 1
-						
-			dry and light brown from	m 19 0 to 31 0	į	- 4
~- 20	100		, and again brown as	11 10.0 to 01.0		
670 —_						
-	:::::					
<b>~</b>						-5
						a 1
_ _ 25						4
365 —						•
:	:::::					
4						
-30						
— 30 60 —						
-		C/G	Light grey cemented sand	and gravel, dry, strongly	cemented and	
_			very hard.	•		
-						
		SP	Brown poorly graded sand	d with gravel, dry to sligh	tly moist, partially	
35 855 —	:: <u>;</u> :::\X		cemented and very dense	•	,	
	السام لي					<u> </u>

E. E. C. T. D. L.	2011 2 0 1 1 2		Α	
ELEVATION/ DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCT
1850 1850 1850 1850 1850 1850 1850 1850				Z. No. John St. St. St. St. St. St. St. St. St. St.
1845				
—55 1835 —		C/G	Dark brown cemented sand and gravel, dry, cemented and hard to very hard.	
1830 -				
1825 - 65 1825 - 70 1820 - 1				
75 - 1815 — - 			less gravel from 74.0 to 78.0	
7_80 1810 -		G	EOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figur	e No. 2

600 4 644 10 5	т	A	
ELEVATION/   SOIL & SAMPLE DEPTH   SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTIO
			:畫:
	GP	Dark brown poorly graded gravel with sand, very moist to wet, partially cemented and dense.	: []:
-85		partially certified and delise.	
:805 -			:    :
- =		GROUNDWATER ENCOUNTEREDvery few fines, predominantly	
-90		coarse sand and largermore coarse gravel and very dense from 90.0 to 93.0	:畫:
1800 —		more coarse graver and very dense from 90.0 to 93.0	
- 25			
95 1795'			:    :
			:喜:
- 100 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1790 - 1		END OF EXPLORATION	
<u> </u>		END OF BORING AT 100 FEET	
<u>,</u>			
105			
1785 —			
- - -			
- 110			
1780 -			
1			
115			
1775 —			
-			
-			
120			
1770 1			
7—125 1765 —			
		SEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figur	e No. 2

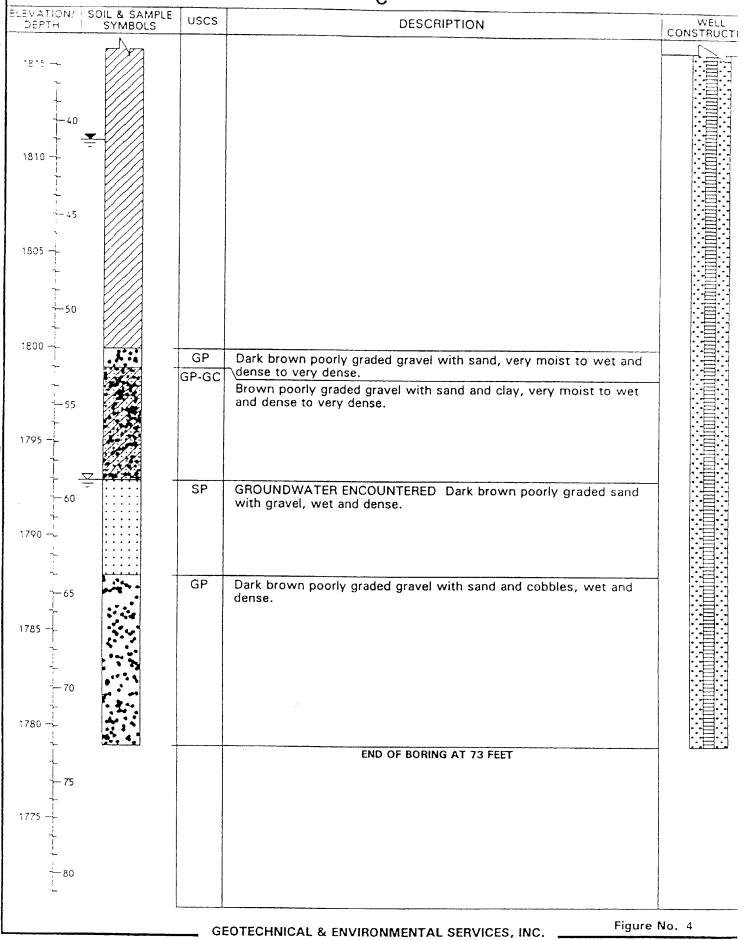
OLE LO	: PEPCON MC	SITE PLA	N WELLS	PROJECT NO.: EXPLORATION DATE:	96189V2 9-5-97	
				EQUIPMENT:	MOBILE B-53	
	ATION:		1873.04		JOHNSON	
וודואו ה	EPTH TO WA	rep.	71 DATE ME			
	PTH TO WATE		71 DATE ME. 57 DATE ME.		5-97 1-97	
ZATION/	SOIL & SAMPL	- 1			1-57	
EPTH	SYMBOLS	USCS		DESCRIPTION		WEL CONSTRU
375 <del></del>		•				
~						
<del></del> 0						
~~	Ser.	GP	Brown poorly graded grave moist and dense.	el with sand and cobble	s, slightly moist to	
			moist and defise.			
	• •					
·~						
-~- <u>5</u>	17 Feet 17	, 📗				
<u>.</u>	25		Light brown poorly graded	gravel with silt and sa	nd, slightly moist to	
<i>-</i> -	20		moist and dense.			
; 65 <del>-</del>		SP	Brown poorly graded sand	with fine gravel, moist	and dense.	
	:::::					
10			slightly moist to moist fi	rom 9.5 to 17.5		
	19		<b>3</b> ,			•
<del></del>	26	•				
SC	:::::					
						-12
<del> 15</del> :	13					
-	31				,	3
-	:::::		dry from 17.5 to 33.0			و
55 -						2
~ <del>-</del> 20	27					
7						
<u> </u>	:::::					
50 -						
<del>-</del>	:::::					
25						
			7			
<u>.</u>						
5						
	:::::		cobble			
30						
-	::::					[4
-						
4C		SP-	Brown poorly graded sand	with silt and gravel of	ightly moist and	
<u>.</u>		SM	dense.	min sin and graver, si	ignay moist and	
<b>3</b> 5						
	EN MI					





	TION: SEE S			EXPLORATION DATE:	96189V2 9-5&6-9	7
			4" MONITORING WELL	EQUIPMENT:	MOBILE B-53	
S. ELEVA	rion:		1851.92	LOGGED BY: S	JOHNSON	
	TH TO WATE H TO WATEF		59 DATE M 41 DATE M	EASURED: 9-1	6-97 5-97	
ATION/ SEPTH	OIL & SAMPLE SYMBOLS	uscs		DESCRIPTION		CONSTRU
	No.	GP	Brown poorly graded gra	vel with sand, cobbles a	nd boulders, moist	
50			light brown and dry to	slightly moist to 12.0		
5	20		more fine gravel and sa	and, no boulders and iso	lated cobbles to	
— 10 ———————————————————————————————————	<b>5</b> 50	CB	12.0	d arough with ailt and an	ad day a dishat.	
-_ -_		GP- GM SP-SC	Light brown poorly grade moist and dense.  Light brown poorly grade			
~ 15 ~	31 21 26			_ 30 3.3,, angila	, 4.10 4011301	3
 	26	CL	Reddish brown lean clay	with sand, moist and sti	ff.	
~ 20 	19 30 37		sandy lean clay with m	ninor gypsum from 19.0	to 31.5	78
30	37					
25 72 25 ~~ 2						4.5
						725. <b>7</b> All IIII
	V///	1	small gravel lense from	21 5 +0 22 0		1 53

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.



DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTI
  1800				TAN.
40  				
1795 — —45		GP	Brown poorly graded gravel with sand, very moist to wet and dense.	
-		SC	Brown clayey sand, moist to very moist and dense.	
790 <del></del>				
785 <del></del> 55				
780				
7775 — 	- ///			:: <b>書</b> :: :: <b>書</b> ::
		GP	GROUNDWATER ENCOUNTERED Dark brown poorly graded gravel with sand, wet and dense.	
1770 <del>-</del> 70 - 70				
755				
1760 - 30				
	<b>!</b>	l	EOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figure	No. 5

ELEVATION/   SOIL & SAME DEPTH SYMBOLS	PLE USCS	DESCRIPTION	WELL CONSTRUCTIO
क्रिया । इस्या			
1		END OF BORING AT 82 FEET	(e. 5 he g)
1755 <del></del>  85			
1			
1		<b>&amp;</b>	
1750 -			
90			
† 1745 <del> </del>			
<del> 95</del>			
<u>-</u>			
+ + !			
174C + 100			
+			
<del></del>			
1735			
. — 105 —			
1730 —			
110			
†			
+			
1725 + 115			
<u> </u>			
!			
1720			
120			
<u> </u>			
1715			
125			
			Figure No. 5
	GEOTECHN	ICAL & ENVIRONMENTAL SERVICES, INC. 🔔	rigure ivo. 5

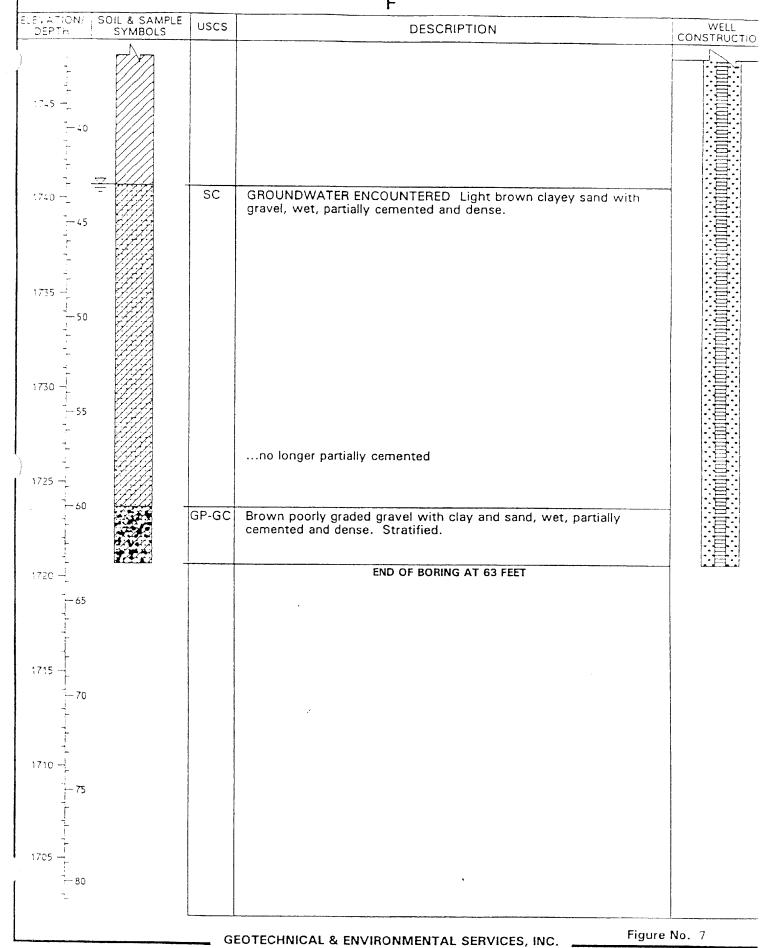
EXPLORA	ATION: SEE SI TION SIZE (dian ATION:	neter):	4" MONITORING WELL 1894.7	EQUIPMENT:	MOBILE B-53	/
NITIAL DI		R:		EASURED:		
VATION/	SOIL & SAMPLE SYMBOLS	uscs		DESCRIPTION		WELL
						CONSTRUC
-						
1805		SP	Brown poorly graded san	d with ground aliabet		
-			brown poorly graded same	u with graver, slightly	moist and dense.	
-						3
890			slightly moist to moist	from 4.0 to 6.5		
^						
-	नगाम	SP-	Brown poorly graded sand	d with silt and fine or	avel slightly moist to	
-		SM	moist and dense.		ever, originally morst to	
-						
385 — 10						닉
-	FIFTING -	GP	Brown poorly graded grav	vel with sand slightly	maist to maist and	
-			dense. Stratified with sai	ndy layers.	moist to moist and	
	-:3					
<b>→</b>						湯塔
	<u> </u>		boulder			
-		SP	Brown poorly graded sand dense.	d with gravel, slightly	moist to moist and	
175 —— 20		.	331133.			
-						
		GP	Brown poorly graded grav	el, with sand, slightl	y moist to moist and	
-	इंग्लेख	GP-	dense to very dense.  Brown poorly graded fine	gravel with eilt and a	and all-hali	
75		GM	moist and dense to very of	lense.	sand, slightly moist to	
— 25 -	234		,			
-	F1 734		·			
			very dense from 27.5 to	o 31.0		
55 3C	12.5		partially cemented from	29.0 to 31.0		
_	¥ \$ 5.					
		C/G	Greyish brown cemented	sand and gravel, dry	, cemented and hard.	
- 1 - 10 − 1						
——————————————————————————————————————						
	-> P=					

DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUC
1855 F. J. L., L., L., L., L., L., L., L., L., L.			·	
1850 — 45				
18-5 50		GP	Greyish brown poorly graded gravel with sand, dry, partially cemented and medium hard.	
1840 - 55		SP	Dark brown poorly graded sand with gravel, slightly moist, partially cemented and very dense. Stratified sandy and gravelly levels.	
1835 - 60		C/G	Greyish brown cemented sand and gravel, dry, cemented and hard to very hard.	
1830 - 65		GP	Greyish brown poorly graded gravel with sand, dry to slightly moist,	
1825 - 70	¥		partially cemented and dense.	
1820 - 75	¥	C/G	Greyish brown cemented sand and gravel, dry to slighly mooist, cemented and hard to very hard.	
1815 - 80			dark brown and slightly moist from 78.0 to 87.0moderately cemented and medium hard from 79.0 to 87.0	

ELETATION. DEPTH SOIL & SAMPLE SYMBOLS WELL CONSTRUCTIO USCS DESCRIPTION 1810 -85 GP GROUNDWATER ENCOUNTERED Dark brown poorly graded gravel with sand, wet, partially cemented and dense. 1800 -_95 ...larger gravel from 96.5 to 97.0 **END OF BORING AT 97 FEET** 1790 - 105 1780 -- 115 1770 -- 125

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. _

	: PEPCON MON CATION: SEE SI			_ PROJECT NO.: _ EXPLORATION DA	96189V2 NTE: 9-6-97	
XPLORA	TION SIZE (diam	neter):	4" MONITORING WELL	EQUIPMENT:	MOBILE 8-53	
.S. ELEV	ATION:	-	1783.71		S. JOHNSON	
VITIAL D INAL DEI	EPTH TO WATE PTH TO WATER	R: :	43 DATE M 29 DATE M	-	9-6-97	
TATION, DEPTH	SOIL & SAMPLE SYMBOLS	uscs		DESCRIPTION		WELL
-						
735						
		F	Brown poorly graded gramoist and dense.	ivel with sand, cobbl	es and boulders, slightly	
			light brown and dry to	slightly moist to 4.0	)	
.ac						4
~-5 ~-	50	GP- GM	Light brown poorly grade slightly moist and dense	ed gravel with silt, sa to very dense.	and and cobbles, dry to	
			boulder			
7— 10 12	50 ≥ 50					
- - -						
:5						
		C/G	Dark brown cemented sa hard.	ind and gravel, ceme	nted and hard to very	
á≅ - <u>.</u> 30		GP- GM	Dark brown poorly grade dry to slightly moist and	d gravel with sand, o dense to very dense	cobbles and boulders,	
		C/G	Dark brown cemented sa boulders.	ind and gravel, dry a	nd hard. Isolated	
1.						
- 25 						
-30 -30	¥					
		CL	Reddish brown sandy lea	in clay with gravel, n	noist and stiff.	
~ 35 ~						



### KEI IU STIVIDULS

### Symbol Description

#### Strata symbols



Poorly graded gravel with silt



Strongly cemented sand and gravel



Poorly graded sand



Poorly graded gravel



Poorly graded sand with silt



Well graded gravel



Poorly graded sand with clay



Low plasticity clay



Poorly graded gravel with clay



Clayey sand



Fill

### Misc. Symbols

_______

Boring continues

### NEI IU STIVIDULS

### Symbol Description

Final water level at date indicated

Initial water level at date indicated

### Soil Samplers

Standard penetration test

No recovery

 $\bigcirc$  Bulk sample

California sampler

### Monitor Well Details

riser with cover and protective casing

Neat Cement seal

bentonite pellets

silica sand, blank PVC

slotted pipe w/ sand

### ILL IU STIVIDULS

#### 

- 1. Exploratory borings were drilled on date shown using a Mobile B-53 drill rig.
- 2. California sampler or Standard Penetration Test sampler driven with 140 pound hammer falling 30 inches as noted.
- 5. Boring locations and elevations were determined by an E.S.I. survey crew.
- Four-inch diameter PVC monitoring wells with .020 inch slotted screen sections set at depths noted in exploration logs.
- 5. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 6. Results of tests conducted on samples recovered are reported on the logs and attached plates/figures.

FIGURE No. 8

# CONFIDENTIAL

Figure No. 2

		FORMER PEPC ATION: SEE SI			PROJECT NO.:	96189V2	
				2" MONITORING WELL	EXPLORATION D	ATE: 12/1/97	
G.S.	ELEVA	TION:	ieteri.	EGS	LOGGED BY:	S ORNDORFE	
ENITIAL DEPTH TO WATER:100.0 DATE M			EASURED:	12/2/97			
8. A.		OCIL & SAMPLE SYMBOLS	uscs		DESCRIPTION		WELL
			F GP- GM	Pale yellow brown silty g and very dense. Calciumlight brown to 10.5 andgravel with sand, cobblpoorly graded gravel wwith silt to 9.5silty gravel with sand to Pale brown poorly graded dense.	carbonate rinds on d dry to slightly modes and boulders to lith sand to 9.5	gravel. bist to 5.0 6.5, dry to 10.5	
, politicos.			SP- SM GP- GM SP- SM GP-	Light reddish brown poor slightly moist and very de Light reddish brown poor to slightly moist and very Light reddish brown poor slightly moist and very de Light reddish brown poor	ense. ly graded fine grav dense. ly graded sand with ense.	el with silt and sand, dry	
	- 25 -		GM SP- SM	slightly moist and very de Light reddish brown poor dry to slightly moist and	ense. ly graded coarse sa very dense.	and with silt and gravel,	
	- 35		GP- GM C/G	Reddish brown poorly graslightly moist and very de Reddish brown cemented cemented and moderately% gravel > % sand% sand > % gravel% gravel > % sand	ense. sand and gravel, o hard to hard.	dry to slightly moist,	
) -			SP- SM	Reddish brown poorly grapartially cemented and ve	aded coarse sand very dense.	vith silt and gravel, dry,	

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	SCIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL
·· • • •				
		GP- GM	Reddish brown poorly graded gravel with silt and sand, dry, partially cemented and very dense.	
-		SP- SM	Reddish brown poorly graded sand with silt and gravel, dry, partially cemented and very dense. Calcium carbonate rinds on gravel.	
50			boulder	
		GP- GM	Medium brown poorly graded gravel with silt and sand, dry and very dense.	
53		C/G	Medium brown cemented sand and gravel, dry, moderately cemented to cemented and medium hard. Extensive calcium carbonate rinds.	
		GP- GM	Medium brown poorly graded gravel with silt and sand, dry and very dense. Calcium carbonate rinds.	
)		SP- SM	Reddish brown poorly graded sand with silt and gravel, dry and very dense.	2007
		C/G	partially cemented to 61.5  Light brown cemented sand and gravel, dry to slightly moist, moderately cemented and medium hard. medium hard to hard to 66.0	
55 -			Light grayish brown cemented sand and gravel, dry, cemented to strongly cemented and hard. Calcium carbonate rinds.	
73 			weakly cemented to 71.0% gravel > % sand	
75  -			medium hard to hard to 80.5	
g(		GP- GM	Reddish brown poorly graded gravel with silt and sand, dry and dense.	

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		G	
EVATION SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
		moist (sandstone, gravel pieces moist inside)	
		cobbles and slightly moist to moist to 103.0	
- - - 100 = - - :		GROUNDWATER ENCOUNTERED	
- 105 - 105	C/G	Reddish brown cemented sand and gravel with cobbles, wet, moderately cemented and medium hard.	
110	SP- SM GP	Medium brown poorly graded sand with silt and gravel, wet and very dense.  Reddish brown poorly graded gravel with sand, wet and very dense.  High flow groundwater.	
		END OF BORING AT 110 FEET	
-			
<u>.</u>			
— 115 :-			
· · · · · · · · · · · · · · · · · · ·			
120			
; ;			
<del></del> 125			

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PROJECT: FORMER HOLE LOCATION: SI	EE SITE PLA	N		PROJECT NO. EXPLORATION	V DATE:	96189V2 11/24/97	7
EXPLORATION SIZE	(diameter):	2" MONITO	ORING WELL	EQUIPMENT:	N DATE	11:24/97 10BILE B-53	/
G S ELEVATION: _		EGS		LOGGED BY:	S. ADAMS-		
INITIAL DEPTH TO WA	VATER:	185.0 148.0	DATE MEA	ASURED:	11/28/97 12/5/97		
LE ATION SOIL & SAN LEFTH SYMBOL	MPLE USCS			DESCRIPTION	<u> </u>		WELL CONSTRUCTION
	GM	gravel with	silty gravel with n calcium carbor alt boulder with	sand, dry and	l medium dense	e. Basalt	CONSTRUCTOR
30	SM	more coa	brown silty sand arse gravel to 33 and boulders to	3.0	dry and mediun	n dense.	
35 25 35 45 45 45 45 45 45 45 45 45 45 45 45 45	C/G	Light gray	brown cemente	d sand and gra	avel, dry and m	edium dense.	
	SM	Light grayi	sh brown silty s	and with grav	el, dry and med	dium dense.	

 EPTH	SCIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
- 43		C/G	Light grayish brown cemented sand and gravel, dry, moderately cemented and medium hard.	
		SM	Light roddish has up site and site	
	-	C/G	Light reddish brown silty sand with gravel, dry and medium densemore gravel to 48.5	
··· \$-3		0,0	Light grayish brown cemented sand and gravel with silt, dry, strongly cemented and very hard.	
-			cemented and hard to 53.0	
 55  		SM	Reddish brown silty sand with gravel, dry and medium dense.	
60				
— ა5 - -		ML	Reddish brown sandy silt, dry and stiff.	
70 				
· - 75 - ·			stiff to very stiff to 80.5	
90 		SM	Reddish brown silty sand with gravel, dry and very dense.	

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		Η	OOM IDENTIAL
ATUM ; SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
- 35	ML	Reddish brown sandy silt, dry and very stiff.	
90			
95 - - - - 100		isolated cobbles to 125.0	
1C5			
- 110 - 110		with sand to 125.0	
115		firm to stiff to 124.5	
120   125	SP-	Reddish brown poorly graded sand with silt and gravel	dov to
	SM	Reddish brown poorly graded sand with silt and gravel, slightly moist and dense.	

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H						
TEVATION S DEPTH	OIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTI		
			rhyolite gravel with calcium carbonate rinds to 150.0			
- 140 145 150		SM	Reddish brown silty coarse-grained sand, dry, partially cemented and medium dense.			
155 						
— 165			slightly moist to 170.0			
; 170  :-	Ž.	GP- GM	Reddish brown poorly graded gravel with silt and sand, moist to ver moist and medium dense.	y Jan		

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H CONTIDEN					
DEPTH S	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION	
175 175 7			cobbles to 178.0		
130 170 170		SP	Reddish brown poorly graded sand with gravel, very moist and medium dense.		
— 185 <u>—</u>	2		GROUNDWATER ENCOUNTERED		
:- -	·····		END OF BORING AT 188 FEET		
190					
1					
: :- :					
– – 195					
200					
lam.					
-					
: 205 					
<del></del>					
210					
. 210					
-					
<b></b>					
<del></del> 215					
, ····································				ļ	
k		1			

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PLE LOCA EXPLORAT	FORMER PEPC ATION: SEE SI ION SIZE (diam ATION:	TE PLANneter): _	4" MONITORING WELL	PROJECT NO.:  EXPLORATION DATE:  EQUIPMENT:  LOGGED BY: S. JO	MOBILE B-53	7
	PTH TO WATE		49.0 DATE ME 41.0 DATE ME	EASURED: 11/19 EASURED: 12/	/97 3/97	
naturi Ngptu	SOIL & SAMPLE SYMBOLS	USCS		DESCRIPTION		WELL CONSTRUCTION
+ 3 5 5		F SP GW	gravel, slightly moist and Brown poorly graded san	iterial, dark brown well gra dense. d with isolated gravel, den l with sand and cobbles, sl	se to very dense.	
		SW- SC	Brown well graded sand and dense to very dense.	with clay and gravel, slight Hard clay nodules.	Ily moist to moist	
-15	35		stratified, light brown h layers to 31.0	nard clayey layers and redo	lish brown sandy	
- 25 - 25 			more gravel to 40.0			

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# CONFIDENTIAL **EXPLORATION LOG** SOIL & SAMPLE SYMBOLS LEVAT ON: WELL CONSTRUCTION uscs DESCRIPTION Static Groundwater Level ...dark brown and slightly moist to moist to 49.0 GROUNDWATER ENCOUNTERED ...light brown, more gravel and wet to 55.0 **END OF BORING AT 55 FEET** ··· 60 <del>-</del>65 ·-- 70

- 30

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### CONFIDENTIAL

PROJECT: FCRMER PEPCON FA	CILITY PROJECT EXPLOR.	T NO.: 9	6189V2 11/23/97
G.S. ELEVATION:	2" MONITORING WELL EQUIPMI EGS LOGGED	BY: S. ADAMS-LO	BILE B-53 WE
INITIAL DEPTH TO WATER:	23.0 DATE MEASURED:  21.3 DATE MEASURED:	11/23/97 12/3/97	
ELATION   SOIL 3 SAMPLE USCS	DESCRIF	NOIT	WELL CONSTRUCTION
SOIL & SAMPLE USCS SM  SM  18 55 GM  CL-MI  - 25	Yellowish red silty sand with grave dense. Vesicular basalt and trachyt rinds. more gravel and some cobbles tosampler on rock more fine gravel to 11.0  Yellowish red silty gravel with sand dense. Trachyte cobbles.  Yellowish red cemented sand and ghard. Basalt and trachyte gravel.  Light brown well graded gravel with moist and medium dense. Basalt ancarbonate rinds.  Yellowish red silty clay, slightly mo GROUNDWATER ENCOUNTERED	and cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly mand cobbles, slightly	dium arbonate noist and nented and slightly
	CENTECHNICAL & ENVIRONMENTAL	CEDVICES INC	Figure No. 5

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HOLE LOCATION: SEE SEE SEE SEE SEE SEE SEE SEE SEE SE			ORIN	IG V	VELL	_ E>	KPLO		)N Ō	ATE:			1/22.9 B-53	9.7	
G.S ELEVATION:		EGS	J 7 111 Y					D BY:		S. AD,					
INITIAL DEPTH TO WATER			_	DA DA	TE N	1EAS	URE	D: D:		11/2 12/4	2/97 4/97				
LELATIN BOIL & SAMPLE SYMBOLS	uscs					DI	ESCF	RIPTIO	Ν					CON	WELL
110 arcasa															
	SM GM	Light brow \dense.	n silt	ty m	rediur	m-gra	ained	sand	with	grave	i, dry	and m	iedium,	-1	
-5 -5 5		Light brow and mediu rinds and t	n de	ense	. Ma										
	GW	Brown wel	l grad	ided	grav	el, sl	ightl	y mois	t and	d medi	um de	ense.		]	
	SM	Brown silty medium de	/ med	diur	n to d	coars	e-gra	ained s	and,	slight	ty moi	ist and	ł		
—10 <b>(10)</b> 100 24 1	GW SM	Brown wel								to slig	htly n	noist a	ınd ,	1	
	C/G	dense. Gray silty	20216	SA (1	raina	d car	ad wi	th fine		val dr	v to s	lightly	maist		
		\and dense.												<u> </u>	: <b>昌</b> ::
		Brown cen and hard.	nente	ed s	and a	and g	rave	l, dry t	to sli	ghtly r	noist,	cemei	nted		
20 ¥ (2)															
8 6 6 8	CL-ML	Light yello and stiff.				clay	with	n some	e cen	nented	grave	el, very	y moist		
	SC	Light yello	wish	rac	t clay	/OV 61	and	wet ar	ad de	anse				_	
-30 (22/2)	1 30	Light yello		1100				NG AT							
														1	
··· 35														i	
	L	1						NI SEE		FO			Figure	e No.	6

### CONFIDENTIAL

OLE LOCATION: SEE SIT XPLORATION SIZE (diam	eter):	2" MONITORING WELL		MOBILE B-5	
S ELEVATION:		EGS	_ LOGGED BY:	S. JOHNSON	
NITIAL DEPTH TO WATER INAL DEPTH TO WATER:		80.0 DATE N 59.0 DATE N	IEASURED:	11/20/97 12/2/97	
VATION SOIL & SAMPLE SEPTH SYMBOLS	uscs		DESCRIPTION		WELL CONSTRUCT
	F	Asphalt and roadbed ma	iterial, light brown p	poorly graded sand with	भ जान
	GP	Light brown poorly grad dry and dense to very de boulder to 5.0	ed gravel with sand	t, cobbles and boulders	
21 21		boulder to 9.0			
- o					
15		boulder to 15.0 more sand, fewer cobl	bles and boulders to	o 26.0 ·	
20					
	SP-SC	Reddish brown poorly gr slightly moist to moist ar gypsum content.	aded sand with cland dense. Possible	y and isolated gravel, mineralization and mine	
-30					
35					
		Brown well graded sand			1 1 1 1 1 1 1

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SOIL & SAMPLE USCS DESCRIPTION SYMBOLS CONSTRUCTION SP-SC Reddish brown poorly graded sand with clay and fine gravel, slightly moist, partially cemented and dense to very dense. -- 40 **-50** ...moist to 70.0 -- 65 ...dark brown to 81.0 ...very moist to 71.5 ...moist to 80.0 **GROUNDWATER ENCOUNTERED** GP Dark brown poorly graded gravel with sand, wet, partially cemented and dense.

Figure No. 7

# CONFIDENTIAL **EXPLORATION LOG** SOIL & SAMPLE SYMBOLS USCS WELL CONSTRUCTION DESCRIPTION - 35 END OF BORING AT 86.5 FEET --- 90 :- 95 ;-- 100 105 -- 110 -115 -120 -- 125

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Figure No. 7

### KEY TO SYMBOLS

Ayrest Description Symbol Description <u>ltiata symbols</u> Silty low plasticity clay Fill Clayey sand Poorly graded gravel with silt Poorly graded sand with clay Poorly graded sand with silt Well graded sand Strongly cemented sand and gravel Misc. Symbols Poorly graded gravel Boring continues Silty gravel Silty sand Silt Poorly graded sand Well graded gravel Well graded sand with clay Well graded gravel with silt

KEY TO SYMBOLS Tympal Description Final water level at date indicated Initial water level at date indicated Soil Samplers Bulk sample California sampler No recovery Monitor Well Details flush-mount cover protective casing set in concrete Neat Cement seal

bentonite pellets

silica sand, blank PVC

slotted pipe w/ sand

### KEY TO SYMBOLS

#### 11 1.-1.21

- 1 Exploratory borings were drilled on date shown using a Mobile B-53 drill rig.
- 1 California sampler or Standard Penetration Test sampler driven with 140 pound hammer falling 30 inches as noted.
- Esting locations shown on site plan estimated by pacing from existing features.
- Two-inch diameter PVC monitoring wells with .020 inch slotted screen sections set at depths noted in exploration logs.
- These logs are subject to the limitations, conclusions, and recommendations in this report.
- Results of tests conducted on samples recovered are reported in the logs and attached plates/figures.

FIGURE No. 8

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100	LE LOC	<u>FORMER PEPO</u> CATION: <u>SEE SI</u>	TE PLA	N	PROJECT NO.: EXPLORATION DAT	97664V1 E: 12/22/9	) 7
EXF	PLORA	TION SIZE (dian	neter):	2" MONITORING WE	LL EQUIPMENT:	MOBILE B-53	
		ATION:		1649.24	LOGGED BY:	. JOHNSON	
		EPTH TO WATER				2/22/97 2/29/97	
		SOLL & SAMPLE SYMBOLS	uscs		DESCRIPTION		WELL CONSTRUCTED
			F	Asphalt and roadbed	aggregate		
Ç.			GP- GM	Brown poorly graded dense. Gravel subroumore fine gravel an	gravel with silt and sand, nded to subangular most	ly basalt.	
			C/G	Brown cemented sand	d and gravel, dry to slightl	y moist, moderately	
٠	;- 10)  			cemented and mediur			
	27		SP- SM	Light brown poorly gr slightly moist and der	aded sand with silt and finese.	ne gravel, dry to	
	- : 5		GP- GM	Light brown poorly gr moist, partially cemer cobble	aded gravel with silt and sited and dense.	sand, dry to slightly	
.53)	)		C/G SP	Light brown cemented hard to hard.	d sand and gravel, dry, ce	mented and medium	
	20 :			Dark brown poorly grand dense.	aded sand with fine grave	l, dry to slightly moist	
ind:	- 35 - 35						
1.31		▼ 100 mm	C/G	Pale brown cemented moderately cemented and some limestone c	sand and gravel, dry to sl and medium hard. Calciu lasts.	ightly moist, m carbonate rinds	
	30		CL	GROUNDWATER ENC wet and stiff	OUNTERED Dark brow	n sandy lean clay,	
1217			C/G	Dark brown cemented	sand and gravel, wet, ce	mented and hard.	
	; = 35 			strongly cemented an	nd medium hard to 36.0 d very hard to 37.0		
		النزك	CL	Reddish brown lean c	lay with sand, wet and sti	ff to very stiff.	

_ GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. _

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				IOCHTINE
DEPTH	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
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1			SEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. Figur	e No. 2

# CONFIDENTIAL

3.5 (MIT),	ar De	ATION: PTH TO WATE	R:	2" MONITORING WELL EQUIPMENT: MOBILE R 1643.82 LOGGED BY: S. JOHNSON  27.0 DATE MEASURED: 12/22/97	3-53
		TH TO WATER SOIL & SAMPLE		27.32 DATE MEASURED: 12/29/97	_
<u>l</u> ent	1	SYMBOLS	USCS	DESCRIPTION	WE CONSTRI
			F	Asphalt and roadbed aggregate.	
			SP- SM	Dark brown poorly graded sand with silt and gravel, slightly mo moist and dense. Gravel subrounded to subangular, mostly base	ist to alt.
îşe	:5 :			more gravel to 5.0	
	5 1-13 5 -		GW	Dark brown well graded gravel with sand, slightly moist and der to very dense.	nse
1630	i. 1 - 15		C/G	Dark brown cemented sand and gravel, dry, cemented and hardcobble	
1-05	- 20		GP	Dark brown poorly graded gravel with sand, dry to slightly mois densemore sand to 20.5	t and
			C/G	Dark brown cemented sand and gravel, dry, cemented and hard	
		3 - (	GP ·	Dark brown poorly graded gravel with sand, slightly moist and dense. Fine to medium grained gravel.	
1636	t 25 		C/G	Dark brown cemented sand and gravel, moist, moderately ceme and medium hard. Mostly fine gravel and well-graded sand.	inted
15,15	- 30	* 1868 1868 1868 1868 1868 1868 1868	SW- SC	GROUNDWATER ENCOUNTERED Dark brown well graded sa with clay, wet and dense.	and i
			C/G	Dark brown cemented sand and gravel, wet, moderately cemen and medium hard to hard.	ted
			CL	Dark brown sandy lean clay with gravel, wet and stiff to very s	uitt.
	35		C/G	Dark brown cemented sand and gravel, wet, cemented and hard	d

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LEVATION S DEPTH S	SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION		WELL CONSTRUCTION
1		CL	Reddish brown sandy lean clay, wet and stiff.		
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		G	SEOTECHNICAL & ENVIRONMENTAL SERVICES, INC	Figure	No. 3

Figure No. 4

HOLE LOCATION: SEE SITE PLAN  EXPLORATION DATE: 12/22/97  EXPLORATION SIZE (diameter): 2" MONITORING WELL  EQUIPMENT: MOBILE B-61	
MOBILE R.61	
LOGGED BY: S. JOHNSON	
DESCRIPTION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF	
FINAL DEPTH TO WATER: 29.5 DATE MEASURED: 12/22/97 DATE MEASURED: 12/29/97	
FLATON SON & SAMPLE	14:51:1
Fig. Sympole 10303 1 DESCRIPTION	WELL CONSTRUCTION
F Asphalt and roadbed aggregate.	
SM Brown silty sand, slightly moist and dense. Fines are slightly plastic.	
Gravel subrounded to subangular, mostly basalt.	
more gravel to 5.0	
GP- Dark brown poorly graded gravel with silt and sand, slightly moist GM and dense to very dense.	
and delise to very delise.	
1537	
C/G Dark brown cemented sand and gravel, dry, moderately cemented	
and medium hard to hard.	
GP Dark brown poorly graded gravel with sand, slightly moist and dense. Coarse gravel.	
dense. Coarse graver.	
C/G Dark brown cemented sand and gravel, dry to slightly moist,	冒冒
cemented and hard.	
GW Dark brown well graded gravel with sand, slightly moist and dense.	
GP- Dark brown poorly graded gravel with silt and sand, slightly moist	
GM and dense.	
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1-25	:書:
SP- Dark brown poorly graded sand with silt and gravel, slightly moist to	:畫:
SM moist and dense.	:冒::
C/G Dark brown cemented sand and gravel, moist, cemented and hard.	:計:
CL GROUNDWATER ENCOUNTERED Light brown sandy lean clay,	:書:
C/G wet and stiff.	
Light brown cemented sand and gravel, wet, cemented and hard.	
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GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

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		Ψ	
LEVATION   SOIL & SAMPLE SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
	sc	Light brown clayey sand, wet and medium dense.	
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			Figure No. 4

## $\begin{array}{c} \mathsf{EXPLORATION} \ \mathsf{LOG} \\ \mathsf{Q} \end{array}$

### CONFIDENTIAL

HOLE LOCATION: SEE SITE OF SEE SITE OF SEE SEE (diam G.S. ELEVATION:	eter):	2" MONITORING WELL	PROJECT NO.:  EXPLORATION DAT  EQUIPMENT:  LOGGED BY:	MOBILE B-53	7
INITIAL DEPTH TO WATER:	R:		EASURED: 1 EASURED: 1	2/31/97 2/31/97	
STABOLS	USCS		DESCRIPTION		WELL CONSTRUCT
	GP- GM	Pale brown poorly grade dense to dense.	d gravel with silt and s	and, dry and medium	
53	SW- SM	Brown well graded sand and dense.	with silt and gravel, sl	ightly moist to moist	
	GP	Brown poorly graded gradense. Minor silt/clay co	vel with sand, slightly ntent, basalt gravel.	moist to moist and	
	C/G	Brown cemented sand ar	nd gravel, drγ, cemente	ed and hard.	
	С	Pale brown caliche, dry, white to 16.0	strongly cemented and	I very hard.	
	SC	Brown clayey sand, sligh	tly moist to moist and	dense.	
-20 -20 -20 -20 -20 -20 -20 -20 -20 -20	CL	Pale brown sandy lean cl stiff. white to 32.0	ay with nodules, moist	and stiff to very	
-25		dry to slightly moist w	ith gravel and dry hard	clay nodules to 32.0	
-30			,		
		moist with no nodules			
	SC	GROUNDWATER ENCOUNSEL and stiff.	INTERED Reddish bi	rown clayey sand,	

1		EXPLORATION LOG Q	CONFIDENTIAL
DEPTH SOIL & SAMPLE DEPTH SYMBOLS	uscs	DESCRIPTION	WELL CONSTRUCTION
1590 -		light brown to 47.0	
		END OF BORING AT 47 FEET	المشاهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة المساهدة الم
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1	G	EOTECHNICAL & ENVIRONMENTAL SERVICES, INC.	Figure No. 5

PROJECT: FORMER PEPCON FACILITY PROJECT NO .: 97664V1 HOLE LOCATION: SEE SITE PLAN **EXPLORATION DATE:** 12/23/97 EXPLORATION SIZE (diameter): 2" MONITORING WELL EQUIPMENT: MOBILE B-61 S & ELEVATION: 1667.7 LOGGED BY: S. JOHNSON MATTIAL DEPTH TO WATER: 31.0 DATE MEASURED: 12/23/97 FINAL DEPTH TO WATER: 21.40 DATE MEASURED: 12/30/97 LEVATION | SOIL & SAMPLE USCS WELL DESCRIPTION SYMBOLS CONSTRUCTION SW Pale brown well graded sand with gravel, dry and dense. Basalt gravel. ...brown, slightly moist to moist to 2.0 SP-Brown poorly graded sand with silt and fine gravel, slightly moist SM and dense. Brown poolry graded gravel with sand, slightly moist and dense. GP Basalt and rhyolite gravel, subrounded to subangular. ...more fine gravel and sand, dark brown and slightly moist to moist to 16.0 C/G Dark brown cemented sand and gravel, slightly moist, cemented and hard. Sand with fine gravel. ...light grayish brown, dry to slightly moist and strongly cemented and hard to very hard to 22.0 ...more medium gravel to 20.0 ...more fine gravel and sand, plastic fines to 22.0 CL Light brown sandy lean clay, moist and stiff ...very moist, soft to firm to 24.0 ...moist and stiff to very stiff to 31.0 30 SP-SC GROUNDWATER ENCOUNTERED ... Light greenish brown poorly graded sand with clay, wet and loose to medium dense. CL Light green sandy lean clay, very moist to wet and firm SP-SC Reddish brown poorly graded sand with clay, very moist and stiff to very stiff. END OF BORING AT 35.99 FEET Figure No. 6

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

### KEY TO SYMBOLS

Sympol Description

Symbol

Description

Strata symbols

Caliche

Fill



Well graded sand



Poorly graded gravel with silt



Poorly graded sand with clay



Strongly cemented sand and gravel



Poorly graded sand with silt



Poorly graded sand



Low plasticity clay



Well graded gravel



Poorly graded gravel



Well graded sand with clay



Silty sand



Clayey sand



Well graded sand with silt

### KEY TO SYMBOLS



Description



slotted pipe w/ sand

#### Notes:

- Exploratory borings were drilled on date shown using a Mobile B-61 drill rig.
- 1. California sampler or Standard Penetration Test sampler driven with 140 pound hammer falling 30 inches as noted.
- 3. Boring locations shown on site plan estimated by pacing from existing features.
- 4. Two-inch diameter PVC monitoring wells with .020 inch slotted screen sections set at depths noted in exploration logs.
- 5. These logs are subject to the limitations, conclusions, and recommendations in this report.
- 8. Results of tests conducted on samples recovered are reported on the logs and attached plates/figures.



#### **VOLUME I**

DRAFT
PHASE II ENVIRONMENTAL
CONDITIONS INVESTIGATION
REPORT
FORMER MONTROSE FACILITY
HENDERSON, NEVADA

Submitted by

SECOR International Incorporated

1830 West University Drive, Suite 106

Tempe, Arizona 85281

for Montrose Chemical Corporation of California 600 Ericksen Avenue, NE, Suite 380 Bainbridge Island, WA 98110

August 21, 1997

sampling and analysis results, to further address (by drilling and sampling deeper soil borings) various portions of the former Montrose plant site.

#### 1.2 SITE LOCATION AND HISTORY

The former Montrose facility is located approximately 13 miles southeast of Las Vegas, Nevada and immediately northwest of the City of Henderson, Nevada. Features of note at the former Montrose facility with respect to the ECI include:

- The former plant site, which includes the following areas:
  - The process sewers;
  - The former chemical production plant;
  - The hydrochloric acid (HCL) truck loading station and "Second Avenue" area;
  - The former "f-storage" tank;
  - The plant perimeter drainage ditch system;
  - The storm water sewer system;
  - The redwood tank;
  - The settling basin; and
  - A former transformer area north of the settling basin.
- The rail car loading area and the former benzene storage tank.
- The still bottoms residue (SBR) area and the former SBR drum storage area.
- The ponds area.
- The former tank farm area.
- The monochlorobenzene (MCB) spill area.
- The demolition debris disposal area.

The locations of these features (with the exception of the demolition debris disposal area, for which the location is not certain) are shown on Figure 1-1 and Figure 1-2. A detailed discussion of former Montrose operations in these areas is presented in the Phase I ECA report.

Organic chemicals produced by Montrose at the facility included:

- MCB;
- polychlorinated benzenes;
- chloral; and
- dichlorobenzil.

Date: August 21, 1997 1-2

In 1975, Montrose began discharging wastewater from the production facility to four wastewater evaporation ponds (Ponds 1 through 4). A fifth pond (Pond 5) was added in 1979 to handle HCL wastes. In 1976, Montrose added a sixth pond (Pond 6) to accept polychlorinated benzene SBRs. All six ponds have been closed in a reportedly dry condition (Ponds 1 through 5 in 1989, and Pond 6 in 1981) according to NDEP-approved closure plans. Several phases of soil and groundwater investigations have been performed in the vicinity of these ponds. The results from these investigations indicate that chemicals from the ponds have impacted groundwater. However, the exact migration pathway of the chemicals to groundwater is not known. The ponds are now closed with an engineered cover that prevents infiltration of storm water, and prevents future chemical movement from the ponds. A joint groundwater remediation program in an area downgradient of the ponds has been performed by Montrose and Pioneer/Stauffer since 1983.

Production of organic chemicals at the facility ceased in 1983 and the production portion of the facility was dismantled in 1983 and 1984. All process areas and approximately one foot of underlying soil were removed at that time and properly disposed off-site. Reportedly, approximately one foot of clean fill soil was placed over the excavated area.

#### 1.3 INVESTIGATION OBJECTIVES AND APPROACH

A substantial amount of environmental work has been performed at the former Montrose facility, including:

- Significant investigation of soil and groundwater conditions in the vicinity of the lined wastewater evaporation ponds;
- Closure of the lined wastewater evaporation ponds;
- Demolition of the tank farm and other storage areas;
- Demolition of the plant manufacturing areas, including removal of the top one foot of soil; and
- Construction of a groundwater containment, treatment and infiltration system downgradient from the facility.

The ECI Workplan required additional activities to be performed at certain study items on the former Montrose facility to: 1) supplement the information provided in the Phase I ECA Report; and 2) to determine if some of these study items may contain residual concentrations that, over time, may represent a potential threat to public health and the environment.

The primary objectives of the ECI are to: 1) satisfy the requirements of the Phase II Consent Agreement; and 2) to collect data of adequate technical quality to support the development and evaluation of potential remedial alternatives at the former Montrose facility, if such an evaluation is deemed necessary.

Based on information presented in the Phase I ECA report, the LOU and the Initial ECI Project Workplan, the ECI for the former Montrose facility focused on activities at the 24 study items, as summarized on Table 1-1. As shown on Table 1-1, activities for certain study items required the review of additional documentation, while activities at other study items required the collection of soil samples. Study items where the review of additional information was the primary task (i.e., no sampling was to be performed) included:

• The SBR residue storage tank area (study item 6);

# APPENDIX C EDITED BORING LOGS

Logged By:		Date	Drilled:	l: Drilling Contractor: Method/Equipment: HSA					;	Boring Number:		
CAROLE FARR		12/	20/96	,	WES	ST HAZMAT		CME 75		]	FBT-1	
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory	Bo Dian	oring n.(in.): 4	F	Ground Elev.(ft.): 1792.49	Groundwater Elevati	on (ft.):	Total Depth (ft.): 6.0	Drive wt.(lbs. 140		Drop Dist.(in.): 30	
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)	
Bentonite			11 17		moderate v	GRADED SAND WI'vellowish brown (10Y) ledium dense, approx	R5/4), dry	, medium	0	7-8	3 1-2	
Sluff	10-		32 50/6"			minated at 6 feet belo on 12/20/96.	w ground	surface (bgs).	0	8	5-6	

Project No. M0071-001-01

Date

Log of Boring

Logged By:	Dat	te Drilled:		Drilli	ing Contractor:	N	Method/Equipment:		Boring Number:		
CAROLE FARR		2/20/96		WES	ST HAZMAT		HSA CME 75		F	BT-2	
See "Legend to Logs" is sampling method, classifications and laboutest methods	for Di	Boring am.(in.):	Ele	round ev.(ft.): 793.14	Groundwater Elevat ♥ ▼	ion (ft.):	Total Depth (ft.): 6.0	Drive wt.(lbs.)	: Г	Drop Dist.(in.):	
Well Construction	Depth (ft.)	Blows/6"			Descrip	tion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)	
Bentonite		11 15		SILTY SA brown (10' dense, app	ND WITH GRAVEL YR6/2), dry, medium rox. 10% gravel, sub	(SM), pala grained, pangular	e yellowish 35% silt, mediun	3		1-2	
Sluff	5	36 50/6"		-Very den Boring ter Backfilled	se to hard minated at 6 feet belo on 12/20/96.	ow ground	surface (bgs).	0		5-6	

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Date

Log of Boring

Logged By:	D	ate	Drilled:	 Drilli	ng Contractor:	N	Method/Equipment: HSA			Boring Number:		
CAROLE FARR		12/	18/96	WES	ST HAZMAT		HSA CME 75			$\mathbf{F}$	PS-1	
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory	Bo Dian	oring n.(in.): 4	Ground Elev.(ft.): 1807.16	Groundwater Elevation	on (ft.):	Total Depth (ft.): 10.0	Driv wt.(lb	s.):	Г	Drop Dist.(in.): 30	
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading	( A midd)	Soil pH (S.U.)	Sample Depth (ft.)	
Bentonite	5		> 50/6" > 50/6" > 50/6" > 50/6" > 50/6"	moderate t very dense -Color cha	GRADED SAND WIT brown (5YR4/4), dry, c, approx. 20% gravel nges to pale yellowish umps (dichlorobenzil?	fine to me, subangu h brown (I	edium grained, lar	760		7 11 4-5	0-1 1-2 5-6	
Sluff	10		9 21 32	-No yellov Boring ter Backfilled	v clumps minated at 10 feet bel on 12/18/96.	ow ground	d surface (bgs).	,			9-10	

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:	 Drilli	ng Contractor:	1	Method/Equipment: HSA			ng Number:
Carole Farr		6/	4/97	We	eber Drilling	1	Mobile Drill B-61	<u>.                                    </u>	F	PS-1D
See "Legend to Logs" f sampling method, classifications and labo test methods	- 1	Diar	oring n.(in.): <b>8</b> "	Ground Elev.(ft.): 1806.69	Groundwater Elevat ↓ ↓	ion (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.)	:	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descrip	tion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
	5 –			moderate y grained, a	GRADED SAND (SF yellowish brown (10Y pprox. 20% gravel yellow crystals (dich	(R5/4), de	ense, medium			
Bentonite/Co slurry	15 - 20 -		28 50/5" 8 16 24	-Color cha	rained, approx. 30% ange to pale yellowishange to dark yellowishow WITH GRAVE brown (10YR5/4), n	h brown ( sh brown (	10YR6/2) 10YR4/2) ry, moderate	400		4.5

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Log of Boring

Figure

(sheet 1 of 2)

Logged By:		Date Drilled: Drilling Contractor: Method/Equipmet						Method/Equipment		Borin	g Number:
Carole Farr		6/-	4/97		We	eber Drilling	. 1	Mobile Drill B-61			PS-1D
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Dian	oring n.(in.): 8"	F	Ground Elev.(ft.): 1806.69	Groundwater Elevati	on (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.)	:	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Sluff	30 35 40		8 24 26 25 37 31		-Color cha gravel, me SILT, dry -Color cha	nge to grayish orange codium dense to dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense of the dense	R7/4], de	ense, trace sand 10YR4/2) wn (10YR5/4)	780		6

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Log of Boring

**Figure** 

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Logged By:			Drilled:			ing Contractor:	N	Method/Equipment: HSA			Number:
CAROLE FARR  See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory		19/96 oring n.(in.): 4	Е	Ground lev.(ft.):	ST HAZMAT  Groundwater Elevati	on (ft.):	Total Depth (ft.):  10.0	Drive wt.(lbs.)		Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion	OIA			Sample Depth (ft.)
Bentonite			>50/6' >50/6' 19 25		moderate	GRADED SAND WIT yellowish brown (10Y yery dense, approx. 20	R5/4), dr	y, fine to medium	5.6	9	0-1
	5-		16 20						5.3	8	5-6
Sluff	10-		25 22		Boring te Backfilled	rminated at 10 feet be d on 12/19/96.	low groun	nd surface (bgs).	5	7	9-10

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Log of Boring

Figure

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Logged By:		Date	Drilled:	: Drilling Contractor: Method/Equipment HSA					:		Boring Number:	
CAROLE FARR		12/	17/96		W	EST HAZMAT		CME 75			F	PS-3
See "Legend to Logs" is sampling method, classifications and labotest methods	for ratory	Bo Diar	oring n.(in.):		Ground Elev.(ft.): 1807.21	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	wt	Drive .(lbs.) 140	: I	Drop Dist.(in.): <b>30</b>
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		:	PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			>50/6' >50/6' 12 16		yellowish very den	GRADED SAND WIT brown (10YR6/2), dry se, approx. 20% gravel GRADED GRAVEL brown (5YR4/4), med d	y, fine to a , subangu WITH SA	medium grained llar ND (GP),	$\overline{}$	8 81	5	1-2
	5 -		> 50/6 ¹ > 50/6 ¹		-Very de	nse				140	9	5-6
Sluff	10-		> 50/6 > 50/6		Boring to Backfille	erminated at 10 feet bel ed on 12/17/96.	ow groun	d surface (bgs).		20		9-10

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Log of Boring

Logged By:	Ι		Drilled:			ing Contractor:	N	Method/Equipment:		Boring Number FPS-4		
CAROLE FARR  See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory		718/96 oring n.(in.):	E	WES Ground Elev.(ft.): 1809.15	ST HAZMAT  Groundwater Elevati	on (ft.):	CME 75  Total Depth (ft.):  10.0	Drive wt.(lbs.)		Drop Dist.(in.): 30	
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	PID Reading		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)	
Bentonite	-		> 50/6" > 50/6" 14 19 28		orange (10 20% grave	GRADED SAND WIT YR7/4), dry, fine gra il, subangular inge to moderate yello	ined, very	dense, approx.	110	7	1-2	
	5—		21 50/4"		-Very dens	se			92	8	5-6	
Sluff		_	21 >50/6'		Boring ter Backfilled	minated at 10 feet bel on 12/18/96.	ow ground	d surface (bgs).	95	. 7	9-10	

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Log of Boring

Figure

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Logged By:		Date	Drilled:		Drill	ling Contractor:	N	Method/Equipment HSA	•	Boring Number:		
Carole Farr		6/	4/97		w	eber Drilling	ľ	Mobile Drill B-61	l	F	PS-4D	
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory	Diar	oring n.(in.): <b>8</b> "	E	Ground Elev.(ft.): 1808.46	Groundwater Elevati <del>¥</del> <del>▼</del>	on (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.)	):	Drop Dist.(in.): 30	
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)	
Bentonite/Co slurry	10 ncrete 15		50/5"		-Color ch	GRADED SAND WI'yellowish brown (10Y) upprox. 20% gravel ange to dark yellowish ange to moderate yellowish gravel, trace silt	R5/4), dei	nse, medium				

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Log of Boring

Logged By:		Date	Drilled:		Drilli	ing Contractor:	N	Method/Equipment	:	Boring Number:		
Carole Farr		6/-	4/97		We	eber Drilling	ľ	HSA Mobile Drill B-61		F	PS-4D	
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Dian	oring n.(in.): 8"	I	Ground Elev.(ft.): 1808.46	Groundwater Elevati ▼ ▼	on (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.)	):	Drop Dist.(in.):	
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	cion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)	
Sluff	30 35 40		34 50/5" 8 21 26 8 12 26		SILT (ML sand and g	o coarse grained, no solution of the coarse grayish orange gravel	ē (1 <b>0</b> ŸR7/		270		7-8	

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Log of Boring

Figure

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Logged By:		Date	Drilled:	 Drilli	ing Contractor:	N	Method/Equipment	:	Borir	g Number:
CAROLE FARR		12/	18/96	WES	ST HAZMAT		HSA CME 75		F	PS-5
See "Legend to Logs" is sampling method, classifications and laboutest methods	for ratory	Bo Diar	oring n.(in.): 4	Ground Elev.(ft.): 1808.80	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs. 140	):	Drop Dist.(in.): <b>30</b>
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			>50/6' >50/6' 45 23	moderate y 5-10% silt.	GRADED SAND WIT yellowish brown (10Y), very dense, approx. nge to pale yellowish	R5/4), dry 20% grav	y, fine grained, rel, subangular	84	7	0-1
	5-		4 6		inge to moderate yello			62	8	5-6
Sluff	10		35 50/5"	-Very dens Boring ten Backfilled	minated at 10 feet belo on 12/18/96.	ow ground	1 surface (bgs).		8	9-10

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Log of Boring

Logged By:		Date	Drilled:		Drilli	ing Contractor:	N	Method/Equipment	!:	Bori	ng Number:
CAROLE FARR		12	/19/96		WES	ST HAZMAT		HSA CME 75		F	FPS-6
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory	B Dia	oring m.(in.):	E	Ground Elev.(ft.): 1807.72	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	):	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			> 50/6' > 50/6' 20 32		moderate t dense, app	GRADED SAND WIT brown (5YR4/4), dry, rox. 30% gravel, sub	medium į angular	grained, very	3	8	1-2
	5 -		> 50/6' > 50/6'		-Very dens -No silt	se			4	8	5-6
Sluff	10 -		> 50/6' > 50/6'		Boring tern Backfilled	minated at 10 feet bel on 12/19/96.	ow groun	d surface (bgs).	4	8	9-10

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Log of Boring

Figure

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Logged By:		Date	Drilled:	 Drilli	ng Contractor:	N	Method/Equipment		Borin	g Number:
Carole Farr		6/	3/97	We	ber Drilling		HSA Mobile Drill B-61		FI	PS-6D
See "Legend to Logs" t sampling method, classifications and labo test methods	or ratory	Diar	oring n.(in.): <b>8</b> "	Ground Elev.(ft.): 1807.11	Groundwater Elevati <del>♥</del> <b>▼</b>	on (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.) <b>140</b>	):	Drop Dist.(in.): <b>30</b>
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
	5 –			moderate y grained, ap	GRADED SAND WIT rellowish brown (10Y oprox. 20% gravel	R5/4), der	nse, medium			
	15 –		33 33 45	decrease gr						
			10 14 23	yellowish b grained, ap	ND WITH GRAVEL prown (10YR5/4), der oprox. 10% gravel	ise, mediu	r, moderate im to fine	680		6

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Log of Boring

Logged By:		Date	Drilled:	 Drilli	ng Contractor:	N	Method/Equipment	:	Borin	g Number:
Carole Farr		6/	3/97	We	eber Drilling	1	HSA Mobile Drill B-61		FI	PS-6D
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory	Dian	oring n.(in.): <b>8</b> "	Ground Elev.(ft.): 1807.11	Groundwater Elevati	on (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.) 140	: 1	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
	30 -		9 16 22 14 8 33	-Increase s Sandy silt approx. 20 -Trace gra	(ML), dry, grayish or % sand, few gravel	range (10)	YR7/4), dense,	300		6-7
	40 -		8 18 23	Boring term	minated at 41.5 feet.	Backfille	d on 6/5/97	620		7

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Log of Boring

Figure

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Logged By:		Date	Drilled:		Drilli	ing Contractor:	N	Method/Equipment  HSA	•	Borir	g Number:
CAROLE FARR		12/	18/96		1	ST HAZMAT		CME 75		F	PS-7
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Be Diar	oring n.(in.): 4	E	Ground Elev.(ft.): 1807.40	Groundwater Elevati	ion (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	):	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			>50/6" >50/6" >50/6" >50/6"		yellowish t 5-10% silt	GRADED SAND WITH brown (10YR6/2), dry , very dense, approx. unge to light brown (5'	, fine to i 20% grav	nedium grained,	500	5	0-1
Sluff	5 -		>50/6" >50/6" >50/6'		Boring ter	minated at 10 feet belon 12/18/96.	-		350	7	9-10

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Log of Boring

Logged By:			Drilled:			ing Contractor:	N	Method/Equipment HSA	:		Number:
CAROLE FARR	for 1		/18/96		WES Ground	ST HAZMAT  Groundwater Elevati	on (ft.)	CME 75	Drive	F.	PS-8
See "Legend to Logs" sampling method, classifications and labo	ratory	Dia	oring n.(in.):	E	Elev.(ft.):	Glodiidwatei Elevati	on (it.).	Depth (ft.):	wt.(lbs.)	: I	Drop Dist.(in.):
test methods	latory	Т	4	1	1810.52	<u>*</u>		10.0	140		30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
			>50/6" >50/6"		yellowish t	GRADED SAND WIT brown (10YR6/2), dry e, approx. 20% gravel	, fine gra	ined, 5-10% silt		8	0-1
Bentonite			>50/6"  >50/6"		-Color cha medium gr	inge to moderate yello rained, no silt	wish brov	wn (10YR5/4),	118	8	1-2
	5 –		17 32		-Fine grain	ned, dense			79	8	5-6
Sluff	10-	-	>50/6 ¹ >50/6 ¹		-Very dens Boring ter Backfilled	minated at 10 feet bel on 12/18/96.	ow groun	d surface (bgs).	82	8	9-10

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Log of Boring

Logged By:		Date	Drilled:		D	Orilling Contractor:	Ŋ	Method/Equipment: HSA		Borin	g Number:
CAROLE FARR		12/	17/96		N W	VEST HAZMAT		CME 75		F	PS-9
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Bo Diar	oring n.(in.): 4	F	Ground Elev.(ft.): 1809.29	Groundwater Elevation	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.) 140	): ]	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
			19 38 > 50/6" > 50/6"		yellowis	LY GRADED SAND (SP) sh brown (10YR6/2), dry approx. 20% gravel, suba dense	, fine to i	RAVEL, pale medium grained,	8	7	0-1
Bentonite	5		19 38			change to dark yellowish change to pale yellowish	-		3.4	9	5-6
Sluff	10 -		50/6" 50/6"		-Very d Boring Backfill	dense terminated at 10 feet bele led on 12/17/96.	ow ground	d surface (bgs).			9-10

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Log of Boring

Logged By:		Date	Drilled:		Drilli	Method/Equipment:		Boring	Number:		
CAROLE FARR		12/	17/96		WES	ST HAZMAT		HSA CME 75		FI	PS-10
See "Legend to Logs" f sampling method, classifications and labo- test methods	or ratory	Bo Dian	oring n.(in.): 4	E	Ground Elev.(ft.): 1809.63	Groundwater Elevation	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	: I	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			11 16 50/6" 50/6"		orange (10 approx. 20	GRADED SAND (SP) YR7/4), dry, fine gra 1% gravel, subangular nge to dark yellowish	ined, med	lium dense,	0.4	7	0-1
	5-		26 40						0.3	7	5-6
Sluff	10-		>50/6 >50/6		Boring ter	minated at 10 feet bel on 12/17/96.	ow groun	d surface (bgs).	2.2	9	9-10

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Log of Boring

Figure

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Logged By:		Date	Drilled:	 Drilli	ng Contractor:	N	Method/Equipment:		Borir	ng Number:
CAROLE FARR		12/	17/96	WES	ST HAZMAT		CME 75		F	PS-11
See "Legend to Logs" is sampling method, classifications and labotest methods	or ratory	Bo Diar	oring n.(in.): <b>4</b>	Ground Elev.(ft.): 1807.97	Groundwater Elevati <del>¥</del> <del>¥</del>	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	):	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite	5		> 50/6' > 50/6'	POORLY yellowish to very dense subangular	GRADED SAND (SP) brown (10YR6/2), dry (well compacted), ap	WITH G	RAVEL, pale nedium grained, gravel,	39 18 320	9	0-1 1-2 5-6
Sluff	10 -		13 18	Boring ter	dense ange to dark yellowish minated at 10 feet bel on 12/17/96.			170		9-10

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Log of Boring

Figure

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(sheet 1 of 1)

Logged By:		Date	Drilled:		Drilli	ng Contractor:	Ŋ	Method/Equipment	:	Boring	g Number:
Carole Farr		6/	3/97		We	ber Drilling	1	HSA Mobile Drill B-61	L	FP	S-11D
See "Legend to Logs" for sampling method, classifications and laboratest methods	i	Dian	oring n.(in.): <b>8</b> "	E	Ground Elev.(ft.): 1807.53	Groundwater Elevati ⊈ ▼	on (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.) 140	: 1	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite/Corslurry	5		38		moderate y grained, ap -Color cha -Color cha -Color cha -Color cha -Color cha -Color cha -Some silt,	GRADED SAND WI'vellowish brown (10Y oprox. 20% gravel onge to pale brown (5) onge to light brown (5) onge to moderate browninge to moderate browninge to dark over dense medium	R5/4), dry YR5/2) YR5/6) vn (5YR4/	y, dense, mediur  (4)	n		
	20 —		50/4" 6 7 14		silt, few gr	o, very dense, mediun ravel, dark orange mo ange to moderate yello lt, dense	ottling		6		4
The substrata descri						ILT (ML), dry, grayi orox. 20% very fine s		(10YR7/4),			

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Log of Boring

Figure

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Logged By:		Date	Drilled:		Drill	ing Contractor:	ì	Method/Equipment HSA	:	Borin	g Number:
Carole Farr		6/	3/97		w	eber Drilling	1	HSA Mobile Drill B-61	L	FP	S-11D
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory		oring n.(in.): <b>8</b> "	F	Ground Elev.(ft.): 1807.53	Groundwater Elevati	on (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.	):	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
	30 —		16 38 14		-Color cha	ange to dark yellowish	orange ()	10YR6/6)	225		5
Sluff	35 — 40 —		16 21 24 12 24 31		Boring ter	minated at 41.5 feet b	ogs. Back	filled on 6/5/97.	220		6

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Date

Log of Boring

Figure

17

(sheet 2 of 2)

Logged By:		Date	Drilled:	 Drilli	ng Contractor:	N	Method/Equipment	:	Borir	g Number:
CAROLE FARR			/17/96	WES	ST HAZMAT		HSA CME 75		F	PS-12
See "Legend to Logs" sampling method, classifications and labotest methods	for ratory	B Dia	oring m.(in.):	Ground Elev.(ft.): <b>1810.80</b>	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	<u> </u>	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			23 29 29 >50/6" >50/6"	medium de	GRADED SAND (SP) prown (10YR6/2), dry ense, approx. 20% gra e (well compacted)	WITH G	RAVEL, pale nedium grained, ngular	69	7	0-1
	5 –		>50/6" >50/6"	-Color cha	nge to light brown (5°	YR5/6), n	nottled	25	7	5-6
Sluff	10 -				nge to dark yellowish minated at 10 feet beloon 12/17/96.		ŕ	3	9	9-10

Project No. M0071-001-01

Date

Log of Boring

Figure

18

(sheet 1 of 1)

Logged By:		Date	Drilled:	 Drilli	ng Contractor:	N	Method/Equipment: HSA		Boring	g Number:
CAROLE FARR		12/	17/96	 WES	ST HAZMAT		CME 75		Fl	PS-13
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Bo Diar	oring n.(in.): 4	Ground Elev.(ft.): 1807.97	Groundwater Elevati	on (ft.):	Total Depth (ft.): 21.5	Drive wt.(lbs.)	): I	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
			22 38 13 21	WITH GRA dry, fine gr gravel, sub	AL FILL (AF): POOR AVEL, moderate yellorained, 5-10% silt, ve angular	owish bro	wn (10YR5/4),	1.4	9	0-1 1-2
Bentonite	5 –			-Dense	nge to dark yellowish	orange (1	10YR6/6)	58	7	5-6
	10 -		11 19	-Color char	nge to moderate brow	n (5YR4/	4), dense		7	9-10
			24 23 15	-Dense				36	7	11-12
				ARTIFICIA (10YR4/2)	AL FILL (AF), dark y , some sand and grave	vellowish el, wet, oi	brown ily, loose	300	7	14-15

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:	 Drilli	ing Contractor:	N	Method/Equipment		Borin	g Number:
CAROLE FARR			17/96	 	ST HAZMAT		HSA CME 75		F	PS-13
See "Legend to Logs" is sampling method, classifications and laborest methods	for ratory	Be Dian	oring n.(in.):	Ground Elev.(ft.): 1807.97	Groundwater Elevati	on (ft.):	Total Depth (ft.): 21.5	Drive wt.(lbs.)	):	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Sluff	25 -		9 13 18	Boring ter	GRADED GRAVEL of moist, 5-10% sand, of minated at 21.5 feet b on 12/17/96.			21	7	20-21

Project No. M0071-001-01

Date

Log of Boring

Logged By:	Date Drilled: Drilling Contractor: Method/Equipmen							t:		Boring	g Number:	
Carole Farr		6/	2/97		We	eber Drilling	Ŋ	HSA Mobile Drill B-6	1		FP	S-13D
See "Legend to Logs" sampling method, classifications and labotest methods		Dian	oring n.(in.): <b>8</b> "		Ground Elev.(ft.): 1807.39	Groundwater Elevati <del>♥</del> <b>¥</b>	on (ft.):	Total Depth (ft.): 20.0		Drive t.(lbs.) 140	: I	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion			PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite/Coslurry  Concrete liner	10— ncrete		7 7 7 7 10		-Some cobles -Color characters, some silt -Black stair -Black stair -Brown (5Y)	nge to dark yellowish ne white crystals	brown (1st to wet, DYR4/2), s	moderate to daysoft, grayish	rk			

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:	HSA						Bori	ing Number:
Carole Farr		6/	3/97		We	ber Drilling	N	Mobile Drill B-61	L	FI	<b>PS-13D2</b>
See "Legend to Logs" for sampling method, classifications and labor test methods	or ratory	Dian	oring n.(in.): <b>8</b> "		Ground Elev.(ft.): 1807.71	Groundwater Elevat ¥ ▼	ion (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.) 140	):	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	cion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite/Corslurry	10 ncrete 15		18 50/5" 27 50/4" 18 50/4"		grayish ora 20% grave  -Color cha -Fine to ma	nge to moderate yello edium grained, appro edium grained, appro in in in in in in in in in in in in in i	e, mediun owish brov x. 10% si	n grained, approvin (10YR5/4)	- 02		7

Project No. M0071-001-01

Date

Log of Boring

Figure

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Logged By:		Date	Drilled:	HSA						Borin	g Number:
Carole Farr		6/	3/97		W	eber Drilling	] 1	Mobile Drill B-61		FP	S-13D2
See "Legend to Logs" for sampling method, classifications and laboratest methods	or ratory	Dian	oring n.(in.): <b>8</b> "		Ground Elev.(ft.): 1807.71	Groundwater Elevat  \[ \tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\tilde{\	ion (ft.):	Total Depth (ft.): 41.5	Drive wt.(lbs.)	):	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	tion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
	30 -		12 16 27 12 27 35		moderate 30% grave	GRADED SAND WI'yellowish brown (10Y el, trace clay and silt silt with trace clay and silt silt (ML), dry, mode (1), dense, trace gravel	'R5/4), de	nse, approx. 20 to	24		7
Sluff	35 40 45		10 27 39 7 8 12		trace clay				6.5		7

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Date

Log of Boring

Logged By:		Date	Drilled:	HSA						Bori	ing Number:
CAROLE FARR		12	17/96		WE	ST HAZMAT		CME 75		I	PS-14
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	B Dia	oring n.(in.):		Ground Elev.(ft.): 1809.48	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.) 140	):	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite	5-		>50/6" 17 23 26 34 50/6" >50/6"		-Color chadense  Boring ter	GRADED SAND (SP) brown (10YR6/2), dry c, approx. 20% gravel ange to dark yellowish see	orange (1	nedium grained, lar OYR6/6)			0-1 1-2 5-6
The substrate descri											

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Date

Log of Boring

Logged By:	HSA							Method/Equipment:		Borir	ng Number:
CAROLE FARR		12	/18/96		w	EST HAZMAT		HSA CME 75		F	PS-15
See "Legend to Logs" sampling method, classifications and laborest methods	for oratory	B Dia	oring m.(in.):		Ground Elev.(ft.): 1810.45	Groundwater Elevati	ion (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.	,	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
		Ш	> 50/6" > 50/6"		ASPHAI				10	7	0-1
Concrete	:		> 50/6" > 50/6"		yellowish very den -Color c	Y GRADED SAND WITH the brown (10YR4/2), dry ise, approx. 20% gravel hange to grayish orange horange (10YR6/6)	, fine to r , subangu	nedium grained, lar	1.2	7	1-2
Sluff	10 —		>50/6" >50/6" >50/6" >50/6"		Boring to Backfille	erminated at 10 feet belo ed on 12/18/96.	ow ground	l surface (bgs).	2	7	5-6 9-10

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Date

Log of Boring

Figure

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(sheet 1 of 1)

Logged By:		Date	Drilled:	HSA						Bori	ng Number:
CAROLE FARR		12/	17/96		WES	ST HAZMAT		CME 75		F	<b>PS-16</b>
See "Legend to Logs" f sampling method, classifications and labo test methods		Bo Diar	oring n.(in.):	Ŧ	Ground Elev.(ft.): 1810.41	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	):	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			300/6"		yellowish l	GRADED SAND (SP) brown (10YR6/2), dry rox. 20% gravel, sub- nge to dark yellowish	/, medium angular	grained, very	200	7	1-2
	5 -	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s				nge to moderate yello	owish brov	wn (10YR5/4)	300	7	5-6
Sluff	10 -	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	50/6 50/6 50/6		yellowish grained, a	RADED SAND (SW) brown (10YR5/4), dr pprox. 20% gravel, si minated at 10 feet bel on 12/17/96.	y, very de ubrounded	nse, fine to coarsel gravel		7	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date Drilled: Drilling Contractor: Metho								Borin	Number:
CAROLE FARR		12/	19/96		WE	ST HAZMAT		HSA CME 75		Fl	PS-17
See "Legend to Logs" is sampling method, classifications and labotest methods	for	Bo Dian	ring n.(in.): 4	F	Ground Elev.(ft.): 1806.27	Groundwater Elevation	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	: I	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			22 23 8 11		yellowish medium d -Medium	GRADED SAND (SP) orange (10YR6/6), dry ense, approx. 20% gradense ery fine grained	y, fine gra	ined, few silt,	7	7-8	1-2
	5		9 13		-No silt, n	nedium grained			4.9	7-8	5-6
Sluff	10		38 46		-Very den Boring ter Backfilled	rminated at 10 feet beld on 12/19/96.	ow ground	d surface (bgs).			9-10
	-										

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:	HSA						Borin	g Number:
CAROLE FARR			19/96		1	ST HAZMAT		CME 75		F	TF-1
See "Legend to Logs" f sampling method, classifications and labor	or	Bo Diar	oring n.(in.):	I	Ground Elev.(ft.):	Groundwater Elevati	ion (ft.):	Total Depth (ft.):	Drive wt.(lbs.)	):	Drop Dist.(in.):
test methods	latory		4		1819.95	<u> </u>		10.0	140	ot	30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	cion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			9 12		brown (10	GRADED SAND (SP YR5/4), dry, fine gra ense, approx. 20% gra	ined, 5-10	% silt, loose to	4	8	1-2
	5 -		> 50/6" > 50/6"		-Color cha very dense	inge to moderate yello	owish brow	wn (10YR5/4),	6	8	5-6
Sluff	10-		> 50/6" > 50/6"		Boring ter Backfilled	minated at 10 feet bel on 12/19/96.	ow ground	d surface (bgs).	7	8	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:		Drilli	ing Contractor:	Method/Equipment:		Borir	g Number:	
CAROLE FARR		12/	19/96		WES	ST HAZMAT		CME 75		F	TF-2
See "Legend to Logs" f sampling method, classifications and labo test methods	for ratory	Be Dian	oring n.(in.):	E	Ground Elev.(ft.): 1820.18	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	:	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			28 32		moderate y	GRADED SAND WI'yellowish brown (10Y), dense, approx. 30%	R5/4), dry	y, fine grained,			1-2
	5-		45 >50/6"		-Dense to	very dense			6	8	5-6
Sluff	10-		38 >50/6"		Boring ter Backfilled	minated at 10 feet bel on 12/19/96.	ow ground	d surface (bgs).	6	7-8	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:	[	Date	Drilled:		Drilli	ing Contractor:	N	Method/Equipment:		Borin	g Number:
CAROLE FARR		12/	19/96		WES	ST HAZMAT		CME 75		F	TF-3
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory	Be Dian	oring n.(in.):	E	Ground Elev.(ft.): 1820.85	Groundwater Elevati	ion (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	):	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	tion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			19 18		POORLY moderate y 5-10% silt	GRADED SAND WI'yellowish brown (10Y), dense, approx. 20%	TH GRAV R5/4), dry gravel, st	VEL (SP), y, fine grained, ubangular	7	5	1-2
	5-		> 50/6' > 50/6'		-Very den	se			10	4	5-6
Sluff	10-		> 50/6 > 50/6		Boring ter	ange to light brown (5 minated at 10 feet be on 12/19/96.			6	5	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:	 Drilli	ing Contractor:	Ŋ	Method/Equipment	:		Boring	g Number:
CAROLE FARR		12/	19/96	WES	ST HAZMAT		HSA CME 75			F	TF-4
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Be Diar	oring n.(in.): 4	Ground Elev.(ft.): 1819.56	Groundwater Elevati <del>♥</del> <b>▼</b>	on (ft.):	Total Depth (ft.): 10.5	Dri wt.(ll	os.):	Г	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"	Description  POORLY GRADED SAND WITH GRAVEL (SP),					(Amdd)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			19 23	POORLY (moderate y grained, de	GRADED SAND WIT rellowish brown (10Y) ense, approx. 20% gra	TH GRAV R5/4), dry avel, 5-10	EL (SP), y, fine to mediun % silt, subangul	ar 6		7	1-2
	5 —		23 34	-Very dens	nge to grayish orange se sedium grained	(10YR7/4	4)	50	)	7-8	5-6
Sluff	10 —		19 23 31	Boring terr Backfilled	minated at 10.5 feet b on 12/19/96.	elow grou	and surface (bgs)	30		7	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:		Drill	ing Contractor:	N	Method/Equipment HSA	:	Bor	ing Number:
CAROLE FARR		12/	19/96		WE	ST HAZMAT		CME 75			FTF-5
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Be Diar	oring n.(in.): 4	E	Ground Elev.(ft.): 1822.64	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Driv wt.(lbs 140	:.):	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (nnmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			22 26		orange (10	GRADED SAND WIT DYR7/4), dry, fine gra bangular, approx. 20%	ined, dens	EL (SP), grayis se, approx. 20%	2.5	8	1-2
	5 –		50/6" >50/6'		-Color change to light brown (5YR5/6), few silt, very dense						5-6
Sluff	10-		> 50/6' > 50/6'		Boring ter	ange to dark yellowish minated at 10 feet bellon 12/19/96.		·	2	8	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:		Drilli	Method/Equipment HSA	:	Bor	ing Number:		
CAROLE FARR		12/	19/96		WES	ST HAZMAT		CME 75		,	FTF-6
See "Legend to Logs" f sampling method, classifications and labor	or	Be Diar	oring n.(in.):	F	Ground Elev.(ft.):	Groundwater Elevati	on (ft.):	Total Depth (ft.):	Drive wt.(lbs.)	):	Drop Dist.(in.):
test methods	ratory		4	1	1821.91	<u> </u>		10.0	140		30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			30 27		moderate v	GRADED SAND WI'vellowish brown (10Yery dense, approx. 20	R5/4), dry	y, medium	4	9	1-2
	5		> 50/6° > 50/6°		-Color cha	5	8	5-6			
Sluff	10-		> 50/6 > 50/6	" " " " " " " " " " " " " " " " " " " "	-Few silt Boring ter Backfilled	minated at 10 feet bel on 12/19/96.	ow groun	d surface (bgs).	6	8	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By: Date Drilled: Drilling Contra	HSA
CAROLE FARR 12/18/96 WEST HAZE	MAT CME 75 MSA-1
See "Legend to Logs" for sampling method, classifications and laboratory test methods    See "Legend to Logs" for Diam.(in.):   Ground Elev.(ft.):    See "Legend to Logs" for Diam.(in.):	dwater Elevation (ft.):     Total Drive wt.(lbs.):     Drop Dist.(in.):       6.0     140     30
Well Construction Blows/6"  Blows/6"  Both (ft.)	PID Reading (ppmV) Soil pH (S.U.) Sample Depth (ft.)
>50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6" > 50/6"	O SAND WITH GRAVEL (SP), light ry, fine to medium grained, very dense,

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date Drilled: Drilling Contractor: Method/Equ HSA 12/18/96 WEST HAZMAT CME								Borir	g Number:
CAROLE FARR		12/	18/96		WE	EST HAZMAT		CME 75		N	ISA-2
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Bo Diar	oring n.(in.):	F	Ground Elev.(ft.): 1811.33	Groundwater Elevati	on (ft.):	Total Depth (ft.): 6.0	Drive wt.(lbs.)	):	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Concrete			50/6" 50/6"		ASPHAL' POORLY moderate dense, ap	T GRADED SAND WIT brown (5YR4/4), dry, prox. 20% gravel, sub	TH GRAV medium angular	VEL (SP), grained, very	0.3	7-8	1-2
Sluff	5—		50/6" >50/6"		-Fine to very fine grained  Boring terminated at 6 feet below ground surface (bgs).  Backfilled on 12/18/96.					7-8	5-6
	10 —										

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:		Drilli	ng Contractor:	N	Method/Equipment	:	Boring	Number:
CAROLE FARR		12	/19/96		WES	ST HAZMAT		HSA CME 75		P	SS-1
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	B Dia	oring m.(in.):	F	Ground Elev.(ft.): 1811.14	Groundwater Elevat <del>▼</del> <del>▼</del>	ion (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	: I	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	tion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Concrete	10-		> 50/6" > 50/6" > 50/6"		SILTY SA 5-10% gra	GRADED SAND WI orange (10YR6/6), dr., approx. 20% grave evel, very dense, approx. 20% grave minated at 10 feet be on 12/19/96.	y, fine gra I, subangu ange (10Ÿ ox. 20% s	ained, 5-10% sili lar (R774), dry,	6	7-8	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:		Drill	ing Contractor:	Ŋ	Method/Equipment HSA	t:	В	Boring	Number:
CAROLE FARR		12/	20/96		WE	ST HAZMAT		CME 75			PS	SS-2
See "Legend to Logs" f sampling method, classifications and labo	or	Be Diar	oring n.(in.):	Ele	Ground ev.(ft.):	Groundwater Elevati	on (ft.):	Total Depth (ft.):	Dri wt.(ll	ve os.):	D	Drop list.(in.):
classifications and labo test methods	ratory		4		819.52	Ā		10.0	14			30
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Description  POORLY GRADED SAND WITH GRAVEL (SP), pale						5011 pt. (5.0.)	Sample Depth (ft.)
Concrete	10-		19 11 6 8		yellowish dense, app	GRADED SAND WIThorown (10YR6/2), dry prox. 20% gravel, substraction of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of	∕, medium angular	grained, mediu	7		6	5-6 9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:		Drilli	ing Contractor:	N	Method/Equipment	:	Boring	Number:
CAROLE FARR		12/	19/96		WES	ST HAZMAT		HSA CME 75		P	SS-3
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Bo Diar	oring n.(in.): 4	E	Ground Elev.(ft.): 1822.74	Groundwater Elevati	on (ft.):	Total Depth (ft.): 10.0	Drive wt.(lbs.)	: Г	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite	5-		38 45 >50/6" >50/6"		-Very dense -Color cha	GRADED SAND WITzellowish brown (10Y rox. 20% gravel, substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the substance of the subs	R5/4), dry angular, 5	y, fine grained, 5-10% silt	3.5	7-8	9-10

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:		Drilli	ing Contractor:	N	Method/Equipment HSA	:	Bor	ing Number:
CAROLE FARR		12/	20/96		WES	ST HAZMAT		CME 75			RCL-1
See "Legend to Logs" sampling method, classifications and laborest methods	for ratory	Bo Diar	oring n.(in.): <b>4</b>	I	Ground Elev.(ft.): 1796.37	Groundwater Elevatio	on (ft.):	Total Depth (ft.): 6.0	Drive wt.(lbs 140	.):	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite	10-				-Color cha decrease g	inge to dark yellowish	md auger atted at 6 for	y, medium to 0% gravel, 0%R4/2), and sampled usi	ng d		5-6

Project No. M0071-001-01

Date

Log of Boring

Logged By:		Date	Drilled:	HSA						Bori	ng Number:
CAROLE FARR		12/	20/96		WES	ST HAZMAT		CME 75		F	RCL-2
See "Legend to Logs" f sampling method, classifications and labo test methods	or ratory	Bo Diar	oring n.(in.):	F	Ground Elev.(ft.): 1793.90	Groundwater Elevati	on (ft.):	Total Depth (ft.): 6.0	Drive wt.(lbs.)	):	Drop Dist.(in.): 30
Well Construction	Depth (ft.)	Sample Type	Blows/6"			Descript	ion		PID Reading (ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
Bentonite			12 29		SILTY SA (10YR6/2) approx. 10	ND SAND (SM), pale, dry, fine grained, 33 % gravel, subangular	e yellowis 5% silt, m	h brown ledium dense,	0	7	1-2
Sluff	5 -		34 50/6"		-Very dens	se minated at 6 feet belo	w ground	surface (bgs)	0	8	5-6
					Backfilled	on 12/20/96.	S	(0)	,		
	10-										

Project No. M0071-001-01

Date

Log of Boring

Logged By:	1	Date	Drilled:	HSA				Method/Equipment	:		Boring	y Number:
CAROLE FARR		12/	18/96		WES	ST HAZMAT		CME 75			T	LS-1
See "Legend to Logs" f sampling method, classifications and labor test methods	or ratory	Bo Dian	oring n.(in.):	E	Ground Elev.(ft.): 1811.67	Groundwater Elevati <del>¥</del> <u>¥</u>	on (ft.):	Total Depth (ft.): 10.0	wt.	rive (lbs.) 1 <b>40</b>	: Г	Drop Dist.(in.):
Well Construction	Depth (ft.)	Sample Type	Blows/6"		Description					(ppmV)	Soil pH (S.U.)	Sample Depth (ft.)
		Ш	>50/6"		ASPHALT	1			4	1.1	7-8	0-1
	-		>50/6" >50/6" >50/6"		POORLY brown (5Y (well comp	GRADED SAND WIT R5/6), dry, fine grain pacted), approx. 20%	TH GRAV ed, 5-10% gravel, su	EL (SP), light 6 silt, very dense bangular	;	2	7	1-2
Concrete	-	1111										
	5		>50/6" >50/6"		-Color cha	inge to moderate brow	/n (5YR4/	4)		7		5-6
Sluff	10-		> 50/6" > 50/6"		Boring ter Backfilled	minated at 10 feet belon 12/18/96.	ow ground	d surface (bgs).			7	9-10

Project No. M0071-001-01

Date

Log of Boring

**E** TO

PROJECT: PEPCON MON			PROJECT NO.: EXPLORATION DATE:	96189V2	
		4" MONITORING WELL	EQUIPMENT:	8-28-97 MOBILE B-53	,
G.J. ELEVATION:		1894.7		JOHNSON	
INITIAL DEPTH TO WATER			ASURED: 8-	28-97 11-97	
EVATION/ SOIL & SAMPLE DEPTH SYMBOLS	uscs		DESCRIPTION	11.07	WELL CONSTRUCTION
					TOMSTRUCTION
<del> </del>					
1895 - 0					
1 [::::]	SP	Brown poorly graded sand	d with gravel, slightly m	noist and dense.	
1 1::::					
					1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
1 1::::					
1890		slightly moist to moist	from 4.0 to 6.5		[ [ [ [ ]
1 ::::					
- Inninia -	SP-	Proven appella and discount	de de la contraction		
	SM	Brown poorly graded sand moist and dense.	with silt and fine grav	el, slightly moist to	
1885					
_10 EIIIIII					
	GP	Brown poorly graded grav	vel with sand slightly m	noiet to majet and	
		dense. Stratified with sar	ndy layers.	ioist to moist and	
T					
1880 15					
		boulder			
ļ					
1 ::::	SP	Brown poorly graded sand dense.	d with gravel, slightly m	oist to moist and	
1875 - 20		, wense.			
1 1::::1	1				
	GP	Brown poorly graded grav	el with sand slightly n	noiet to major and	
		dense to very dense.	ar, with sails, siightly h	noist to moist and	
	GP-	Brown poorly graded fine	gravel with silt and san	d, slightly moist to	
1870 — 25	GM	moist and dense to very o	iense.	<b>,</b>	
4 4 1		,			
	•	•			
		very dense from 27.5 to	- 21 0		
THE HERE		very defise from 27.5 (	0 31.0		
1865 —		partially cemented from	29.0 to 31.0		
-30					
	C/G	Greyish brown cemented	sand and gravel day or		
		= / Stottil Gemented	auno ano graver, ery, cr	emented and hard.	
35	-		r.		
r ====================================	- 1				
I	L				7
	GE	OTECHNICAL & ENVIRON	MENTAL SERVICES, IN	C. Figure	No. 6

## FACSIMILE

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Number of Pages Including Transmittal Sheet:

2

**COMMENTS** 

I found MWE.