Feeney, John M - DNR

From: Stollenwerk, Marita < MStollenwerk@trccompanies.com>

Sent: Wednesday, May 27, 2020 1:31 PM

To: Feeney, John M - DNR; Martinez, Joseph J - DNR **Cc:** Amber Thomas; Sellwood, Alyssa; Enright, Alia

Subject: Followup to Vapor Investigation Discussion - Lime Kiln Landfill, Village of Grafton **Attachments:** Private Well Log 1749 Manchester - 1974.pdf; MW8A and P8B.pdf; Monitoring Well

Information Form 2000.pdf

Hello John and Joe,

Thank you so much for taking the time to talk with us today.

As a follow-up to the call, attached is the boring log for MW8A (was drilled twice – final drill to 120 ft bgs) and a Groundwater Monitoring Well Information form from the 2000 Annual Report (dated November 8, 2001). The 2000 Annual report includes detailed information on the proposed and completed installation of the well nest of MW8A and P8B at the former private well location at 1749 Manchester Dr.

Of note, in the 2017 SI there is a well construction information for the private well at 1749 Manchester Dr which is the hole that P8B was installed into (see attached for only that historic well). In our next report discussing groundwater, we will ensure all site related well information is included in a Well Summary Table.

As you can see from the information from the 2000 report, well MW-8A is screened in zone A, but is not a water table well – the well information form indicates it is screened from 105-115 ft bgs. Of note, in looking closely at the boring logs / well construction documentation, I have a well construction report for P8B, but not MW8A. Our verification efforts during the field work during Q1 2020 confirmed the measured depth to bottom in MW8A at 115.75 ft bgs, which corresponds to the bottom of screen and supports the information in the Groundwater Monitoring Well Information form.

We will work on the COVID 19 compliance request as we discussed and likely get it to you next week.

Thank you, Marita

Marita D. Stollenwerk, P.G.
Senior Project Manager
mstollenwerk@trccompanies.com



150 North Patrick Blvd, Suite 180, Brookfield, WI 53045 **T** 262.901.2158 | **F** 262.879.1220 | **C** 262.328.4528 LinkedIn | Twitter | Blog | TRCcompanies.com

Please note that our domain name and email addresses have changed

GROUNDWATER MONITORING WELL INFORMATION FORM Chapter 281 and 289, Wis. Stats. Form 4400-89 Rev. 7-98

Facility LIME	Name KILN PA	RK		Facilit	y ID Number	Licens	e, Pem	nit or Monitoria		/19/200	1		eted By (Name a VID ZOLP/ EA		н		8	19		
WI		DNR		Dir.	22 1 2	Well	Casing	Eleva	tions		rence	0.1	Depths				****	7.6	-	Distant
Unique Well No	Well Name	Well ID Number	Well Location	N S	Date Established	Diam	Туре	Top of Well Casing	Ground Surface	MSL (√)	Site Datum (V)	Screen Top	Initial Groundwater	Well Depth	Screen Length	Well Type	Well Status		Grad- ient	- Distant to Was
			482193.9	X	81			91 5	73	6	751	8	1 3		6		É	8		No.
PN851	P2A		2544551	х	2/18/1998	2	P	713.2	711	x	8	10.5	15.8	20.5	10	11/mw	A	X	D	50
			482200.9	X				9 6				61	-		Re		9	à	Ħ	. 1
PN852	P2B		2544559.7	X	3/25/1998	2	P	713.8	711.5	X	1524.	73.5	17.2	75.2	10	12/pz	A	X	D	50
			482060.1	X		12		图用图	582			187	8 1		8.				-7	
PN853	РЗВ		2544019.5	X	3/26/1998	2	P	716.9	714.6	X		70	17	82.4	10	12/pz	A	Х	S	0
			482666.6	X											E E					
PN854	P4B		2544118.5	X	3/30/1998	2	P	733.9	731.3	X	-	79.5	20.4	92.9	10	12/pz	A	X	U	0
			482448.2	X	g or Eggs		15		1015	110		10	1				П.			
PN855	LW-01		2544360.7 482348.3	X	2/16/1998	6	P	731.9	728.8	X	15.14	13	27.5	33	20	24/lh	A	Х	N	0
				-								0.5	040	20	20	0475	Η,	,	N	
PN856	LW-02		2544422 479749.79	X	2/17/1998	6	P	0	726.9	X	2107	8.5	24.9	30	20	24/lh	A	X	N	0
TO 10.15	-			\vdash	2/15/2000		,	693,34	690.5		715	55	10.46	150	10	11/mw	A			0
PN857	P7B		2546382.69 481635.3	X X	3/17/2000	1.4	P	093.34	090.3	X	-	33	10.40	150	10	11/IIIW	A		-	
PN858	P8A		2544947.09	x	3/23/2000	2	P	745.27	745.62	x		105	0	120	10	11/mw	A			0
PNOSO	PoA		481544.32	X	3/23/2000	-	1	143.21	743.02	A		103	3 4	120	10	12/11/1	 "		-	
PN859	P8B		2544891.65	x	3/15/2000	2	P	740.29	740.35	x		188	52.44	210	10	11/mw	A			0
			481568.22	х								3-1	0.5		8					\vdash
PN860	Р9В		2544327.56	х	3/15/2000	2	P	737.81	736.47	x		95	45.17	105	10	11/mw	A		_	0
				H			8							4						
							31				2	E I	1 5	E E	1					w.
[X] Sta	Coordinate Plane C	cordinate	Local Gri	d	d Origin Locat	7.16		f estimated:			R	emarks:	# 3 4 E		Ē					<u>—</u>
į	☐ Centra☐ Southe	1			Plane			Long		s z	one									

Completion of this form is mandatory under s. NR 507.14 and NR 110.25 Wis. Adm. Code. Patture to file this form may result in forfeiture of not less than \$10 nor more than \$5,000 for each day of violation. Personally identifiable information provided is intended to be used by the Department for the purposes related to the waste management program.

E	A	R	T	Н	1	τ	ĸ	C	н	
---	---	---	---	---	---	---	---	---	---	--

FIELD BORING LOG W/ATMOSPHERIC MONITORING

CASING DEPTH

Sheet _	of_	_
BORIN	IG NO.	Dena

GROUND SURFACE ELEV.:

COORDINATE TYPE:

A tyco	INTERNATIONAL LTD.	COMPANY
	GRAFID	

PROJECT NO. _

WATER LEVEL READINGS

DATE/TIME WATER DEPTH

P1749 P84

IN FEET	GRAPHIC		COUL DECODED TION AND			_	NST/	IG DA	TA		IB M	WITOR	100
	LOG	uscs	SOIL DESCRIPTION AND DRILLING COMMENTS	В	N	A	_	S	AMPLE INTERVAL	TIME	PID	10 /	
			0-2" Aseyaut1	_								_	ļ
+			2"-8" - Koad base gravel		-	-	-					_	ł
			31 LTY SANDY CIAY WIND GRAVEL		-	-	-					†-	t
			mulse, moist		_		_					-	F
+					Н	\dashv	\dashv						ł
							_ †					<u> </u>	İ
_					_	_	-			-		-	-
20			25-40' GRAZIAL BOSTON LOYER 12		H	+	\dashv						+
	<u> </u>		Silt Sample clay with BRAVER	_									1
-			med to lad places _ allesur	_	-	-	-					-	F
+						+	\dashv						t
				_									1
-				_	_	-	-				<u> </u>	ļ —	ŀ
-					Н		ᅥ					\vdash	t
10													I
-			Wet at 43 feet	_	-		-					 	ŀ
+	-						\dashv						t
1			Brown to grayed brown										Į
-			wyay 3 to 5/2 Silly Sandy		-	-	-					 	ŀ
-			Coldson ull, non plasti	n									t
1													Į
7				_	-		-	_				+-	-
00													t
												\Box	1
-		<u> </u>	Bestout @ 71 5-Pt	_	$\left - \right $		-					 -	-
1			24 Wettle										t
			BUSE gange to Fire									\perp	F
-			to rall is the crary	_	-	-	-					 	-
+			BURNSTON C			-1				-			+

000		0.0.0																	
GW		ĢΡ	I GM	I GC	SW	I SP		SM	I SC	I M	LI	мн	1 0	L	CF	1	OL		H
AND F TERMS PERCE	PARTIEST.	25% 45%	TATED IN RANGE OF LOWS:	ANGOLAR	CRITERIA FOR OF COARSE-G PARTICLES RELATIVELY WITH UNPOL PARTICLES DESCRIPTION PARTICLES	CRITER CRITER HAVE SHARI PLANE SID ISHED SURF ARE SIMILA BUT HAVE	P EDGES ES ACES R TO A ROUND	ANO NGULAR ED EDGES	SPL HAMITHIN CASS	IT TUBI MER WI I WALL ING USI L ROD L BIT L BIT ER TYP	TUBE TOBE TYPE SIZE SIZE	SIZE		IC b LF (c	ı)		_0D drop 0D . Dla. _(b)	Tree.	Lorento P
	BIST	PENETRATIONEL OR DE	EMBITY	ROUNDED	BUT HAVE CORNERS AND PARTICLES SIDES AND	WELL-ROUND ID EDGES HAVE SMOOT	ED		HOLI	L DE	SCRIP	TION			MENT				
SOFT MEDIL STIFF VERY HARD VERY LOOSE MEDIL DENSE	SOFT (S) (M) (M) (ST) STIF! (H) COAI LOOS (L) IM DE! (D)	(VS)	0-2 3-4 5-9 9-16 17-30 >30	DESCRIPTION DRY MOIST WET	CRITERIA F MOISTURE C ABSENCE OF DRY TO THE DAMP BUT I VISIBLE FRI SOIL IS BEL	CRITER MOISTURE. TOUCH VISIBLE EE WATER.	DUSTY, WATER	Y	1 C 2 I 3 I 4 I 5 G 7 I 8 I 9 I 10	CONSISTENMUNSELL MUNSELL MUNSELL MUNSELL MUNSEL ROUNDNES ROUNDNES MOISTURE	ICY OR DI COLOR DI MUE/CHRO UP NAME TE RANGE S OR ANO TY SS IVE FEA DNAL ENV DN/MEMBI	(ALL CARTER SAN TURES PRONMENTER (OPTIO	BASED ON IN APSI ND B GR. (SAND 8	N VAL	UE1	es)	period to	7	
	CRITE	RIA FOR DE	ESCRIBING	STRUCTURE		RITERIA FO	M DESC	RIBING P	LASTICITY			AGES IN							Y
TRATIFIE		MATERIAL	OR COLOR	S OF VARYING WITH LAYERS AT NOTE THICKNESS		E ROLLED				-	ISEE EX	AMPLE BE	LOWI						
AMINATE	D	ALTERNATI MATERIAL LESS THAN	ING LAYER	S OF VARYING WITH THE LAYERS CK: NOTE THICKNE		THE THREAD AND THE LU DRIER THAN	MP CAN	NOT BE	FORMED WHE	N			80	CHA X	PIN COM	ECTION	TTH SLIP 5 CO. 1967		
LICKEN-	LESS THAN SAM THICK: NOTE THICK BREAKS ALONG DEFINITE PLANES OF FRACTURE WITH LITTLE RESISTANCE TO FRACTURING CKEN- FRACTURE PLANES APPEAR POLISHED OR GLOSSY, SOMETIMES STRIATED CKY COHESIVE SOIL THAT CAN BE BROKE					LASTIC LIN	IS REQU	IRED TO	DLL AND NOT REACH THE D CANNOT BE THE PLASTE	E		OW-STEM			NG DIAME	TER	AU CUTTING	GER HEA DIAMETI	
ICKEN- FRACTURE PLANES APPEAR POLISHED				нісн	T TAKES C KNEADING TO THE THREAD AFTER REAC	ONSIDER O REACH CAN B HING TI	LIMIT ABLE TIL THE PL E REROLI HE PLAST	WITHOUT CR	AND TIMES		2 1/4 2 3/4 3 1/4 3 3/4 1 1/4 1 1/4	7.6		5 5/8 5 1/9 5 5/9 7 1/8 7 5/8 9 5/8 1 5/8			6 1/4 6 3/4 7 1/4 7 3/4 8 1/4 10 1/4 12 1/2		
THOROUGH TUBE OR COARSE I FINER PA THE SAN THE RELATIVE	JAR. PARTICL D SIZE ATIVE E VOL	INE-GRAIM HAKING A AND THEN CLES WILL ES WILL ES WILL PROPORTI UME OF EA RRELATED	ATIVE PER ED MATERI MIXTURE (I ALLOWING FALL TO BE DEPOSIT ALL OUT (ONS CAN !	CENTAGE OF AL MAY BE ESTIM F SOIL AND WATE TO THE MIXTURE TO THE BOTTOM AND FED WITH INCREAS OF SUSPENSION IN BE ESTIMATED FROSEPARATE. THIS MILE-SIZE LABORAT	ATED BY R IN A TEST SETTLE. TH SUCCESSIVEL ING TIME: 20 TO 30 SE M THE ETHOD	VISUA SIZE I (OR 0' E SAME Y THEN TO ES C. SIEVE THE P MINUS	L METH PARTICL THER CO WITH T MENTAL TIMATE SIZE A ERCENT SIEVE	OD - MEI ES PLAC ONTAINER 'HE SAND LY COMP LY COMP ITHE PE IND MINUS AGES OF SIZE NO.	OF NTALLY VISI ED IN A SAI) OR SACKS,) SIZE PART ARE THE NU RCENTAGE 00 S NO. 4 SIZE SAND AND 0 4 MATERIA THE WASH T	THEN DO	THE D THE FI SACKS O. 4 PRESENT. THE	F S C A W H A A T T N W G X T T	INES. SEIZE MATIUT THE MD PLAC / ASH AND THEN HE PERCIMAT THE OT VOLUTILL PROVILL PROV	LECT A ERIAL T CUBE IN E THE () DECAN SH UNT COMPAI ENTAGE PERCE ME, HOW IDE A E PERCI ILE WA DOWN	NO MOIST O FORM I HALF, ! OTHER HA IT THE F IL THE OF SANG NTAGE !! VEVER TH REASONA REASONA SHING, !! LUMPS OF	TEN ENO A 1-IN SET ONE ALF IN 'INES OL 'INES OL TWO SA O AND F S BASED HE VOLL BLE INC T MAY E F FINES	ENTAGE UGH MINU (25-MM): "HALF TA SMALL IT OF THA ATER IS MPLES AF INES, REI ON WEIG MINE COMP DICATION DE NECES! WITH TH RCENTAGE	S NO. 4 CUBE OF O THE S DISH. E MATER CLEAR O ESTIM MEMBER HT, ARSION OF SARY	SIEVE SOIL. IDE,
IDENTI	FICAT		ORGANIC P	INE-GRADED SOILS		LUME OF SC			PIPE		Н				CASING		WEEN CA		-
SOIL	DRY	STRENGTH	DILAT	TANCY TOUGHNES		4" 1.66	1.38	0.	NEAR FT.		7	1/4"	GAL. CI	.29		2.03	0.27	SAND PE	21
ML	NOI	E TO LOW	SLOW		2 3 4	3.50 4.50	4.02	0. 0.	17 38 66 50		7 8 10	3/4" 1/4"	2.14 2.45 2.78 4.28	.29 .33 .37	5,	2.22 2.55 4.06	0.26 0.30 0.34 0.54	36 30 34 54	23 26 41
CL	MEDIL	M TO HIGH	H NONE SLOW	TO MEDIUM	B 12		7.98		60 .81		10	1/4"	4.29	.57	3,	3.79	0.30	51	38
мн	LOW	TO MEDIUM	MONE	TO . LOW TO ME	DIUM						8	1/4"	2.78	.82	4.	1.95	0.75	75	20
СН	HIGH	TO VERYH									12	1/4"	6.13 6.13	.82	4"	5.30 4.33	0.46 0.71 0.58	71 58	35 54
					EXAMP	£1	_				ــــــــــــــــــــــــــــــــــــــ								
I GALLO I CU. YE I GALLO I CU. FI PSI:.434 FEET OF I BARRE	N = . N = . N OF T. OF I X T HEAI L = 4	5 GAL. (AI 134 CU. FT 102 GAL. (I 1005 CU. YO WATER * FRESH WA HE HEIGHT D = PSI X 2 GALLONS	C. (APPROXI APPROXI D. (APPROXI 8.34 LBS. TER = 62. OF THE V 2.304 S (APPROXI	() (APPROX) 4 LBS. (APPROX) VATER COLUMN IN	DEPTH IN FEET	B N 3 4 4	A R	NO. T	GRAPHIC LOG	usc SP	Leon	S H GRAVEL	DRIL	LIN	G CO	MME	GRADED	SAND d,	
I SACK	OF CE	MENT : I	CU. FT. A	NO APPROX 86 LB		6 8	/ / /		1		1.							15/	5/00

SITE SITE SICAL SE		Line co	SMBANY (A)	W/ATMOSPH PROJECT WATER LEVEL DATE/TIME DEPTH ABANDONMENT DATE: ABANDONMENT METH	READINGS HOLE DEPTH	CASIN	G	GROU COOR DATE	NO SIDINA	NORT EAS IME S	E ELEV.:		SA		
ь.			201	DESCRIPTION	AND	100		telle .		NG DA		10		NITOR	ING
DEPTH IN FEET	GRAPHIC LOG	uscs		L DESCRIPTION RILLING COMME		612-35 11 De	8		_	_			2071		
-						ama				TYPE	INTERVAL		7:34	LEI	
-			CLANCE	0040	11/40	7h	,								L
-		+	PHILLIP	organic	JONE.	11	_		+			-	1	-	+
					0 4200 0				-	1 6		1		_	I
F -	10 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1,000	Mark and		18 118	, e e e			+	- 1					+
							_		上				700	_	L
1	N 4	12					_							-	F
100				1				+	+		File of the		1 11	40.71	H
				1 1 1							Name :		l san		
							-					-		100	-
															t
									+						-
							-	-F	-	 		-		 	H
[-]							_		F		10.0	3 -		-	F
-124	<u> </u>		500 (a)	120 PC											t
	N SECTION								T						T
H -		+					-		-			-		-	+
									1			-			T
	E 1 10 1	- 1							+					_	1
							-		_					_	
							_		F					-	F
											40	1-1			+
									T						
		+					-	-	+					-	-
		1111	12-11-15												
		. Levery	,						+						1
			a spirit and the				-		+					-	-
1 -					n - 1 - H-44	14-1					11.4-59				T

000	2	90														
GW	G	P	GM	GC I	SW	SP	I SN	A L	SC I	ML	I M	1 (LLC	H	OL	OH
AND F TERMS PERCE RAGE I EW S ITTLE I	INTAGES OF TIMES MAY S INDICATII INTAGES AS PARTICLES EST. TO SE S TO ION IS TO 25% SO TO 45% SO TO 100%	BE STAT NG A RAN S FOLLOW ARE PRE	ED IN IGE OF ISI	DESCRIPTION ANGULAR SUBANGULAR SUBROUNDED	PARTICLES : RELATIVELY WITH UNPOL PARTICLES : DESCRIPTION PARTICLES :	DESCRIBING RAHED PART CRITERII MAVE SHARP PLANE SIDE ISHED SURFA ARE SIMILAR I BUT HAVE: WELL-ROUNDE	EDGES ANS EDGES ANS EGES TO ANGU ROUNDED	ND ILAR EDGES	SPLIT HAMME THIN I CASING DRILL DRILL	TUBE R WT. WALL T G USED ROD S BIT T BIT S	UBE SIZE		TA	-	_0D drop 0D _Dld, _(b) _(b)	1274
STAN	DARD FENE MEISTENCY FINE GR	OR DEME	TEST	ROUNDED	CORNERS AN	D EDGES HAVE SMOOTH		ED	SOIL	DESC			UIREMEN		- 41	
SOFT MEDIL STIFF VERY HARD VERY LOOSE MEDIL DENSE	SOFT (VSI (SI) JM (M) (ST) STIFF (VSI (H) COARSE (L) LOOSE (VL (L) (L) JM DENSE (E)	GRAINED	0-2 3-4 5-8 9-16 17-30 >30	DESCRIPTION ORY MOIST WET	ABSENCE OF DRY TO THE DAMP BUT N	CRITERI MOISTURE, I	A DUSTY, VATER SUALLY	RIA ETM	1 CON 2 MUR 3 MUR 4 USC 5 GRA 6 ROU 7 MOI 8 PLA 9 COH 10 DIS	SISTENCY NISELL CO NISELL MU IS GROUP AIM SIZE INDNESS (STURE ASTICITY HESIVESS STINCTIVE POSITION	OR DENSITY LOR DESCRIP E/CHROMA NAME (ALL RANGE (FOR DR ANGULAR! E FEATURES AL ENVIRONM	(BASED OF TION CAPSI SAND 8 GR	AVEL)		Y A COMMA	100 mm
		OR DESCI	>50 RIBING STRU LAYERS OF			RITERIA FOR			FICITY	N PI	OTE: INCLU	E ESTIMAT	E OF GRAVEL	SAND, AN		
AMINATE ISSURED LICKEN- IDED LOCKY ENSED	LEAS D ALTE MATE LESS BREAI FRAC' RESIS FRAC' OR GI COMES DOWN WHICH DIFFE LENSI A MA OUS SAME	T GMM THE REAL OR THAN THAN ENTER WITH THAN ENTER WITH THAN ENTER WITH THAN ENTER PLANCES TO SELVE SOLILI INTO SMH RESIST ISION OF REPORT SOLICES OF SA SS OF CL	HICK INOTE LAYERS OF COLOR WITH AM THICK: N G DEFINITE IN LITTLE OF FRACTURE MES APPEAL DMETIMES S THAT CAN MALL ANGUL FURTHER B SMALL POCI ILS SUCH AM	THE LAYERS OTE THICKNESS PLANES OF NG R POLISHED TRIATED SE BROKEN AR LUMP'S REAKDOWN KETS OF S SMALL RED THROUGH INICKNESS	MEDIUM TO PROPERTY OF THE PROP	THE THREAD IND THE LUM RIER THAN 1 THE THREAD RUCH TIME IS LASTIC LIMI EROLLED AFT HAN THE PL T TAKES COI NEADING TO THE THREAD AFTER REACH WHEN ORIER 1	CAN BARE P CANNOT THE PLAS' IS EASY IS REQUIRE T. THE T T. THE T CHE T COMP CRUM ASTIC LIB WISIDERABL REACH TI CAN BE R ING THE I N BE FORI	ELY BE RO BE FORM TIC LIMIT TO ROLL A D TO REA HING THE HELES WHE MIT LE TIME R HE PLAST LEROLLED PLASTIC I MED WITE	AND NOT CH THE NOTE PLASTIC EN DRIER ROLLING AN IC LIMIT. SEVERAL T LIMIT.	D		IAFTER CE	W-STEM AUGE DX AND PIN CO STRAL MINE E FLIGHTING DIA (IN.) 5 5/8 6 1/8 6 5/8 7 1/8 7 1/8 9 5/8 11 5/8	NOTE TIONS	AUGE CUTTING D	IT. R HEAD IAMETER (IN. 1/4 3/4 1/4 1/4 1/4 1/4
DARSE-INTOROUGH TUBE OR DARSE INTORE PARTIES SAN THE SAN THE RELATIVE SHOULD &	AND FINE-G HLY SHAKIP JAR, AND PARTICLES W D SIZES W ATIVE PROFE E VOLUME	RAINED ING A MIX THEN ALL WILL FALL FALL PORTIONS OF EACH	VE PERCENT. MATERIAL M TURE OF SO LOWING THE NLL TO THE DEPOSITED V CAN BE ES SIZE SEPAR	GRAVEL SAN AGE OF IAV BE ESTIMA* IL AND WATER MIXTURE TO 1 BOTTOM AND 8 MITH INCREASIN ISPENSION IN 20 TIMATED FROM LATE, THIS MET	TED BY IN A TEST SETTLE. THI SUCCESSIVEL G TIME: 0 TO 30 SEC	VISUAL SIZE PA (OR OTH E SAME W Y THEN W TO EST C. SIEVE 1 THE PE MINUS 1	METHOD ARTICLES HER CONTA /ITH THE ENTALLY HMATE TH SIZE AND RCENTAGE SIEVE SIZE	- MENTAL PLACED II AINER! OR SAND SIZ COMPARE RE PERCEN MINUS NO. S OF SAN E NO. 4 M	LLY VISUAL N A SACKS. TI SACKS. TI E PARTICL THE NUMBI ITAGE OF P. 4 SIEVE O AND FIN MATERIAL I WASH TES	HEN DO TES AND TES AND TER OF SAPLUS NO. SIZE PREES IN THE	HE THE FINES. CKS 4 SENT. E	FINES. SE SIZE MAT CUT THE AND PLAC WASH ANI IN THE D AND THEN THE PERC THAT THE NOT VOLU WILL PRO GRAIN SIZ X4.3.1 WH TO BREAK	ST- FOR RELA LOT AND MO LERIAL TO FOR CUBE IN HALF C THE OTHER D DECANT THE SH UNTIL THE ENTAGE OF SA FERCENTAGE ME. HOWEVER VIDE A REASO CILLE WASHING, DOWN LUMPS D GET THE CO	ISTEN ENOUND A 1-IN (, SET ONE HALF IN A FINES OU' WASH WASH WA E TWO SAN HAD AND FI IS BASED THE VOLUI NABLE IND ES. IT MAY B OF FINES	UGH MINUS (25-MM) CU A SMALL DI T OF THE I ATER IS CL MPLES AND INES, REME ON WEIGHT ICATION OF E NECESSAL WITH THE	NO. 4 SIEVE BE OF SOIL. THE SIDE, ISH. MATERIAL EAT ESTIMATE MBER T, SION
IDENT			ANIC FINE-C	RADED SOILS		UME OF SCH	EDULE 40	PVC PIPE			VOLUME OF	OPEN BORE	HOLE AND AN	_		NG AND HOLE
SOIL	DRY STRE	ENGTH	DILATANCE	TOUGHNESS	DIAME			O.OB			DIAMETER 7 1/4°	GAL. C	U. FT. DIA.	SAL. [0		ND PELLETS
ML	NONE TO		SLOW TO RAPID	LOW OR THREAD CANNOT BE FORMED	3 3 4 6	2.37 3.50 4.50	2.06 3.06 4.02	0.17 0.38 0.66 1.50			7 1/4° 7 3/4° 8 1/4° 10 1/4°	2.14 2.45 2.70 4.29	.29 2° .33 2° .37 2° .57 2°	1.91 2.22 2.55 4.06	0.26 2 0.30 3 0.34 3 0.54 5	6 20 10 23 14 26 14 41
CL	MEDIUM TO	HIGH	NONE TO	MEDIUM	8"	8.62	7.98	2.60 5.81			8 1/4° 10 1/4°	4.29	.37 3°	3.79	0.51	0 23
МН	LOW TO M	EDIUM .	NONE TO	LOW TO MEDI	УМ			= 1_		- 1=	8 1/4" 10 1/4"	6.13 2.78 4.29	.92 3 ⁴ .37 4 ⁵		0.26 2	5 57 6 20 6 35
СН	HIGH TO V	ERYHIGH	NONE	нісн						-	12 1/4"	6.13 6.13	.82 4°	5.30	0.71	54

МН	LOW TO MEDIUM	SLOW	LOW TO MEDIUM	4			1				T		10 1/4"	4.29	.57	4"	+
CH	HIGH TO VERYHIGH	NONE	нісн		-	+	+		-				12 1/44	6.13	.82	4*	
													12 1/4"	6.13	.82	6,	1 4
20	MISCELLAN	EQUE DATA		EXAMP	LEI												
ı cu. I	T.= 7.5 GAL. IAPPR			H.		SAI	MPLI	4G DA	ATA					SOIL	DES	CPI	DI
	ON = .134 CU. FT. (FEE			_		I	Ι.	LOG	USCS	-		ILLIN		
GALL	ON = .005 CU. YD. (APPROXI		30.5	18	N	^	R	NO.	1				UK	ILLIN	10 0	.01
	ON OF WATER = 8.3 FT. OF FRESH WATER				3		77	77	1	SS		CD	Loose, Ye	ellowish b	rown, (IC	YR 5/6	i), F
	34 X THE HEIGHT OF		R COLUMN IN FT.	 -	1-	1-	17	17				SP	WITH GRA	VEL. fine	to medic	ım, subc	engu
BARF	EL = 42 GALLONS IA	PPROX)			4		17	77					dry, Iron-	stained, L	ACUSTRI	NE	
	OF SAND = 1 CU. F			7	1=	8	1	17	1-								_
	OF BENTANITE BELL			L-2-			<u>v_</u>			Ь.				W. A.S			

SOIL DESCRIPTION AND DRILLING COMMENTS
Loose, Yellowish brown, (IOYR 5/6), POORLY GRADED SAND WITH GRAVEL, fine to medium, subangular to subrounded,
dry, Iren-steined, LACUSTRINE

FEET OF MEAD * PSI X 2.304

1 BARREL * 42 GALLONS (APPROX)

1 SACK OF SAND * 1 CU. FT AND APPROX 100 LBS.

1 SACK OF CEMENT * 1 CU. FT. AND APPROX 86 LBS.

1 PAIL OF BENTONITE PELLETS * 50 LBS. (APPROX)



FIELD BORING LOG W/ATMOSPHERIC MONITORING

Sheet 1 of 2 BORING NO. (ROAD)

SA ALA	THOO! U 4.7 L RUT J. KOCK	ARY.	151-1	25 et to 4	DATE/TH	WATER DEPTH	DEPTH	DEPT	<u></u>			NORT EAS	Ti	. 1.=		
ZDRILLE	B. BrAR	TION	hyere Tour. re	. Schma swenta	ABANDON ABANDON	MENT DATE:	7/2-	00		DATE	ZTIM	E COMP	TARTI	3	1710	<u></u>
DEPTH IN FEET	GRAPHIC LOG	USCS				RIPTION			-	T		ING DA			IR MO	
			0-2"	Donna	ult				В	N	-	TYPE	INTERVAL	TIME	PID	3/E1
Еd			1" -25 51671	BANK	mush 1	grown	104R5	KC_			\pm					
F			Dlush	6	Mois:	15	low	-		+	1			2.		
											Ŧ					
										1	丰	_				
20				7					7.4	士	上					
-			35'-40 SILTY	3AND	1 IEAU	CLAY	SP. N	last,		- -	- -			-	- 4	_
	_ =		Med 1	o low	PHSPL	Colhes	we tru	ce_		- -						_
			9,000							_	+		 			_
	_ =									\perp						
		1.5														
40			40 -		Blown	1 10	GRATI	SH	H		+					
			Blown	TIOTR	13/0WY	OF JOM	(12 5	ALD		1	\perp				-	
	_ =		Cares		100	B. Der	oct of	40.5			上			_		_
	_ =		tho air	anu	en oit	se that	wall i	11th			+			-		_
			Brim	1 104	RS13	refusa	RI Ci C	Uni			-	-		-		-
			Maist	- Meil	plast	L. Ca	herry			_	-					_
100	_ :										-					_
										_						-
			1100	11	deck	t rat	1 Cant		\Box	+	-	3				
			101	1 120	VIELL C	nic ion	+001			L	_ L	L _	J	$_{\rm L}$ $_{\rm -}$		

202000	*1*1*1	-0-0-0	<i>5259</i> 59							
5000	GP	I GM	I GC I	SW	I SP	I SM I	SC I N	AL I MH	I CL I CH	I OL , OH
AND FINE TERMS IN PERCENTA TRACE PART EST.	AGES OF GRAY S MAY BE ST DICATING A P AGES AS FOLL TICLES ARE F	VEL.SAND ATEO IN RANGE OF OWS:		RITERIA FO F COARSE-G	R DESCRIBING MAINED PARTI	ANGULARITY CLES	ADDITION SPLIT TUE HAMMER W THIN WALL CASING US	NAL DRILLING BE SIZE IT. TUBE SIZE BED	DATA ID	_ OL _ OHODODOIG.
LITTLE 15 T SOME 30 T MOSTLY 30 T	10 45%	ON TEST	SUBROUNDED	PARTICLES DESCRIPTIO PARTICLES BUT HAVE CORNERS AI	HAVE NEARLY WELL-ROUNDED NO EDGES	TO ANGULAR ROUNDED EDGES PLANE SIDES	DRILL BIT DRILL BIT AUGER TYI HOLLOW S	TYPE SIZE	(o) (a) OD ID	(b) (b)
VERY SOFT (S) MEDIUM (FINE GRAINED FT (VS)	The second second	ROUNDED	SIDES AND	OR DESCRISING		1 CONSISTE 2 MUNSELL	ED IN THIS ORDER W NCY OR DENSITY (BA COLOR DESCRIPTION		BY A COMMAN
HARD (H) CO VERY LOC LOOSE IL	DARSE GRAINE DSE (VL) DENSE (MO)	9-16 17-30 >30 D 0-4 5-9 10-29 30-49		ABSENCE OF DRY TO THE DAMP BUT VISIBLE FR	CRITERIA MOISTURE, D	ATER	4 USCS GRI 5 GRAIN SI 6 ROUNDNE: 7 MOISTURI 9 PLASTIC: 9 COMESIVE 10 DISTINC	ITY ESS TIVE FEATURES IONAL ENVIRONMENT	D & GRAVEL) SAND & GRAVEL)	
CRIT	TERIA FOR DE ALTERNATI MATERIAL LEAST GMM ALTERNATI MATERIAL	THICK INOT NG LAYERS OF OR COLOR WIT	VARYING H LAYERS AT E THICKNESS	NON- PLASTIC	A 1/2-IN (3MM) BE ROLLED AT THE THREAD CAND THE LUMP	DESCRIBING PL I) THREAD CAN ANY WATER (CAN BARELY BE P CANNOT BE F HE PLASTIC LI	ASTICITY NOT CONTENT ROLLED DRMED WHEN	MOTE: INCLUDE E PERCENTAGES IN L ISEE EXAMPLE BEL TYPICAL	AL, IF KNOWN-ALL CAPSI STIMATE OF GRAVEL, SAND, OWER RIGHT CORNER OF DES OWI MOLLOW-STEM AUGER SIZES BOX AND PIN CONNECTION FOR CENTRAL MIME EQUIPMENT	WITH SLIP-FIT,
ILOCKY	FRACTURE RESISTANCE FRACTURE OR GLOSSY. COMESIVE S DOWN INTO	ONG DEFINITE WITH LITTLE TO FRACTUR PLANES APPEA SOMETIMES SOIL THAT CA SMALL ANGUL	ING AR POLISHED STRIATED N BE BROKEN AR LUMPS	,	MUCH TIME IS PLASTIC LIMIT REPOLLED AFT	S EASY TO ROI REQUIRED TO I. THE THREAD ER REACHING T JMP CRUMBLES ASTIC LIMIT	REACH THE CANNOT BE THE PLASTIC	HOLLOW-STEM INSIDE DIAMETER (1)	FLIGHTING DIAMETER	AUGER HEAD CUTTING DIAMETER (IN.) 6 1/4 8 3/4
ENSED	INCLUSION DIFFERENT LENSES OF A MASS OF	ST FURTHER OF SMALL POOL SOILS SUCH A SAND SCATTE CLAY: NOTE R AND APPEAL T	KETS OF S SMALL RED THROUGH THICKNESS	EG	KNEADING TO THE THREAD O AFTER REACHI THE LUMP CAN	REACH THE PLANT BE REROLL ING THE PLAST	ED SEVERAL TIMES IC LIMIT.	3 1/4	6 5/8 7 1/8 7 5/8 9 5/8 11 5/8	7 1/4 7 3/4 8 1/4 10 1/4 12 1/2
COARSE-AND THOROUGHLY TUBE OR JAP COARSE PARTI THE SAND SI THE RELATIVE RELATIVE VO	FINE-GRAINE SHAKING A I R, AND THEN TICLES WILL CLES WILL FA VE PROPORTION OLUME OF EA CORRELATED	TIVE PERCENT D MATERIAL MIXTURE OF S ALLOWING TH FALL TO THE E DEPOSITED ALL OUT OF S DNS CAN BE E CH SIZE SEPA		TED BY IN A TEST SETTLE. TH SUCCESSIVE IG TIME: 0 TO 30 SE THE	VISUAL SIZE PA (OR OTH SAME W TO ESTI SIEVE S THE PER MINUS E	METHOD - MEN RTICLES PLACE ER CONTAINER! ITH THE SAND INTALLY COMPA MATE THE PER IZE AND MINUS ICENTAGES OF IEVE SIZE NO.	TALLY VISUALIZE 1	FII SIZ CU AN THE GRAVEL WA IN THE FIMES. TH SACKS TH SACKS TH SACKS TH THE GR THE GR THE GR THEN X4 33) TO	ASH TEST- FOR RELATIVE PE MES. SELECT AND MOISTEN E TE MATERIAL TO FORM A 1-1 T THE CUBE IN HALF, SET O D PLACE THE OTHER HALF II SH AND DECANT THE FINES THE DISN UNTIL THE WASH D THEN COMPARE THE TWO S E PERCENTAGE OF SAND AND AT THE PERCENTAGE IS BAS T VOLUME. HOWEVER THE VO LL PROVIDE A REASONABLE I AIN SIZE PERCENTAGES. 3.1 WHILE WASHING, IT MAY BREAK DOWN LUMPS OF FINI MOGER TO GET THE CORRECT I	MOUGH MINUS NO. 4 SIEVE N (23-MM) CUBE OF SOIL. NE MALF TO THE SIDE. N A SMALL DISH. OUT OF THE MATERIAL WATER IS CLEAR BAMPLES AND ESTIMATE FINES, REMEMBER ED ON WEIGHT, LUME COMPARSION NOICATION OF 7 BE NECESSARY ES WITH THE

IDENTIFICATION OF INORGANIC FINE-GRADED SOILS FROM MANUAL TESTS

SOIL	DRY STRENGTH	DILATANCY	TOUGHNESS
ML	NONE TO LOW	SLOW TO RAPID	LOW OR THREAD CANNOT BE FORMED
CL	MEDIUM TO HIGH	NONE TO SLOW	MEDIUM
МН	LOW TO MEDIUM	NONE TO .	LOW TO MEDIUM
СН	HIGH TO VERYHIGH	NONE	HIGH

DIAMETER	0.0.	I.D.	VOLUME GAL/LINEAR FT.
1 1/4"	1.66	1.38	0.08
2.	2.37	2.06	0.17
3,	3.50	3.06	0.38
4"	4.50	4.02	0.66
6'	6.62	6.06	1.50
6,	8.62	7.98	2.60
12*	12.75	11.93	5.81
		_	

SAMPLING DATA

R

GRAPHIC LOG

T

SS

USCS

SP

EXAMPLE

DEPTH IN FEET

3 4

4

HOLE DIAMETER		LIN. FT.	CASING DIA.		LIN. FT.	LBS/L	IN. FT. PELLETS
7 1/4"	2.14	.29	1 1/4"	2.03	0.27	27	21
7 1/4"	2.14	.29	5.	1.91	0.26	26	20
7 3/4"	2.45	.33	2,	2.22	0.30	30	23
8-1/4"	2.78	.37	2,	2.55	0.34	34	26
10 1/4"	4,28	.57	2,	4.06	0.54	54	41
8 1/4"	2.78	.37	3,	2.20	0.30	30	23
10 1/4"	4.29	.57	3,	3.79	0.51	51	38
12 1/4"	6.13	.02	3.	5.62	0.75	75	57
8 1/4"	2.78	.37	4"	1.95	0.26	26	20
10 1/4"	4.29	.57	4"	3.46	0.46	46	35
12 1/4"	6.13	.02	4	5.30	0.71	71	54
12 1/4"	6.13	.82	6'	4.33	0.58	58	44

MISCELLAMEOUS DATA

- MISCELLAMEOUS BATA

 I CU. FT.= 7.5 GAL. (APPROX)

 I CU. YD. = 202 GAL. (APPROX)

 I GALLON = .005 CU. YD. (APPROX)

 I GALLON OF WATER = 8.34 LBS. (APPROX)

 I CU. FT. OF FRESH WATER = 82.4 LBS. (APPROX)

 PSI=.434 X THE HEIGHT OF THE WATER COLUMN IN FT.

 FEET OF HEAD = PSI X 2.304

 I BARREL = 42 GALLONS (APPROX)

 I SACK OF SAND = 1 CU. FT. AND APPROX 86 LBS.

 I PAIL OF BENTONITE PELLETS = 50 LBS. (APPROX)

HOLE	VOLUME	LIN. FT.		VOLUME	LIN. FT	LBS/L	IN. FT.
DIAMETER	GAL.	CU. FT.	DIA.	GAL.	CU. FT.	SAND	PELLETS
7 1/4°	2.14	.29	1 1/4"	2.03	0.27	27	21
7 1/4"	2.14	.29	5.	1.91	0.26	26	20
7 3/4"	2.45	.33	2,	2.22	0.30	30	23
B 1/4"	2.78	.37	5,	2.55	0.34	34	26
10 1/4"	4.28	.57	2,	4.06	0.54	54	41
8 1/4"	2.78	.37	3,	2.20	0.30	30	23
10 1/4"	4.29	.57	3.	3.78	0.51	51	38
12 1/4"	6.13	.02	3.	5.62	0.75	75	57
8 1/4"	2.78	.37	4"	1.95	0.26	26	20
10 1/4"	4.29	.57	4"	3.46	0.46	46	35
12 1/4"	6.13	.82	4	5.30	0.71	71	54
12 1/4"	6.13	.82	8"	4.33	0.58	58	44

SOIL DESCRIPTION AND

DRILLING COMMENTS Loose, Yellowish brown, (10YR 5/6), POORLY GRADED SAND WITH GRAVEL, fine to medium, subenquier to subrounded,

dry, Iren-stained, LACUSTRINE

15/85/00



FIELD BORING LOG

Sheet 2 of 2

BORING NO.

	GLAR			ROJECT LEVEL RE						=	1	COA	0
			DATE/TIME	WATER	HOLE	CASING	GR	OUND	SURFAC	E ELEV.	_		_
LING METHOD:		- \ 	-	DEPTH	DEPTH	DEPTH	_ cc	ORDIN	ATE TY	PEı			
	1	11 0					_		NOR				
9 4	10 A	104					-		EAS				
BY:	1	* 0					-			TART:			-
SICAL SETTING	il a		ABANDONMEN ABANDONMEN	Tarry A. Andrewson (Discrete						PLETE:			
							W	LL II	STALLA	TION DATE			
± ₩ GRAI	PHIC	SOI	L DESCRIP	TION A	ND			SAM	LING D	ATA	A	IR MO	
IN PEET	USCS		RILLING CO				BN	A	R	INTERVAL	TIME	PID	2
		CARLASYISH GO	AN/18, 1	DURT	iu		+	H	ITTPE	INTERVAL			
		Downie			Vein		- -	一片	-	1	 		-
		Philous,	1	100-1	1		1						
]	T -		_
]			
						-	_ _				L_		_
	4					_	-	Н	-				_
							- -	\vdash			-		-
100					2	_	+						_
		+ <i>+</i> -					- -	\vdash	-	 			-
- +	-						+		+-	-			-
		/					- -	\vdash	-	 	-		-
							+-						\vdash
		77											-
		7				= 17							
	ALS												
										I			
1/2													
		Bottom of	Note @ -	150 th	<u> </u>		- -	\vdash					-
		Becourse of	clay on	hole bu	ion	-	+					 -	
		where cosing	was sel	0 (41	s) and	0	-	\vdash	-	 			-
		the grouns	STOW ADWIN	MILL ME	anne u	7		\vdash	_				_
		into Full Sur	ation of the	12 Pine	B. 138	w _ -	- -	\vdash					-
		LOS FORT	7100 10 - AVI	Hinc he	10 21514	(+		+				_
		ues fut. t	h - haile	TO CA	Carl.	g - -		1	-	1			_
	137	Continued to	Well inte	n'dle	and c	lua			100				
		plucaco que	Huan.	Could	not a	00				1 - 1			_
		the hole	advanced	bast	70 FE	ut_							
		because of	cewe in.	T Am	indoned								
		hole with	bentonia	e Chic	25 .		- -						_
	2.4	bottom	and Mysest	· de	Ha to								

000													
GW	GP I GM	I GC I	SW I	SP		SM	I SC	M	L I MH	CL CH	OL OH		
AND FINES TERMS IND PERCENTAGE ACE PART EST. W 5 TO TILE 15 TO ME 30 TO STLY 50 TO STANDARD COMBIST	0 25% 0 45% 0 100% DEMETRATION TEST FENCY OR DEMEITY INE GRAINED	DESCRIPTION ANGULAR SUBANGULAR SUBROUNDED	R PARTICLES HAVE SHARP EDGES AND RELATIVELY PLANE SIDES WITH UNPOLISHED SURFACES ULAR PARTICLES ARE SIMILAR TO ANGULAR DESCRIPTION BUT HAVE ROUNDED EDGES NDED PARTICLES HAVE NEARLY PLANE SIDES BUT HAVE WELL-ROUNDED CORNERS AND EDGES D PARTICLES HAVE SMOOTHLY CURVED SIDES AND NO EDGES CRITERIA FOR DESCRIBING MOISTURE COMDITION				SPL HAM THIF CAS DRII DRII S DRII AUG HOL	ADDITIONAL DRILLING DATA SPLIT TUBE SIZE ID OD HAMMER WT. ID In drop THIN WALL TUBE SIZE OD CASING USED LF DIG. DRILL ROD SIZE DRILL BIT TYPE (G) (b) AUGER TYPE OD HOLLOW STEM AUGER ID SOIL DESCRIPTION REQUIREMENTS ITO SELISTED IN THIS ORDER WITH EACH IVEM SEPERATED BY A COMMAIN 1 CONSISTENCY OR DESCRIPTION 3 MUNSELL COLOR DESCRIPTION 3 MUNSELL HUE/CHROMA 4 USCS GROUP NAME (ALL CAPS) 5 GRAIN SIZE RANGE (FOR SAND B GRAVEL) 6 ROUNDINESS OR ANGULARITY ISAND B GRAVEL) 7 MOISTURE 9 PLASTICITY 8 COMESIVESS 10 DISTINCTIVE FEATURES 11 DEPOSITIONAL ENVIRONMENT 12 FORMATION/MEMBER (OPTIONAL, IF KNOWN-ALL CAPS)					
SOFT (S) MEDIUM (N STIFF (ST VERY STII MARD (M)	3-4 41	MOIST					2 3 4 5 6 7 8 9 10						
CRITI	ERIA FOR DESCRIBING S	TRUCTURE	CI	ITERIA FO	DESC	RIBING F	LASTICITY			STIMATE OF GRAVEL, SAND,			
	ALTERNATING LAYERS MATERIAL OR COLOR V LEAST GMM THICK :N	OF VARYING	NON- A 1/2-IN (3MM) THREAD CANNOT PLASTIC BE ROLLED AT ANY WATER CONT						ISEE EXAMPLE BEL	OWER RIGHT CORNER OF DESC OW)	MINISTRA INTERVAL		
MINATED	ALTERNATING LAYERS MATERIAL OR COLOR W LESS THAN SMM THICK	WITH THE LAYERS	A	HE THREAD ND THE LUI RIER THAN	IP CAN	NOT BE	FORMED WHE	N -		HOLLOW-STEM AUGER SIZES BOX AND PIN COMMECTIO FER CENTRAL MINE EQUIPMENT	HES		
SURED	BREAKS ALONG DEFINIT FRACTURE WITH LITTL RESISTANCE TO FRACT FRACTURE PLANES APP	LE TURING	MI	MUCH TIME IS REQUIRED TO REACH THE					HOLLOW-STEM	FLIGHTING DIAMETER	AUGER HEAD CUTTING DIAMETER (IN.		
CKA	OR GLOSSY. SOMETIMES STRIATED COMESIVE SOIL THAT CAN BE BROKEN DOWN INTO SMALL ANGULAR LUMPS REROLLED AFTER REACHING T LIMIT. THE LUMP CRUMBLES V THAN THE PLASTIC LIMIT						THE PLAST	C	2 1/4	5 5/8	6 1/4		
	WHICH RESIST FURTHE	HIGH IT	TAKES CO	MSIDER	ABLE TI	ME ROLLING	AND	2 3/4 3 1/4	6 1/8 6 5/8	8 3/4 7 1/4			
SED INCLUSION OF SMALL POCKETS OF OIFFERENT SOILS SUCH AS SMALL LENSES OF SAND SCATTERED THROUGH AFTE					CAN B	THE PLAS	LASTIC LIMIT LED SEVERA TIC LIMIT.	T. L TIMES	3 3/4 4 1/4 6 1/4 9 1/4	7 1/6 7 3/8 9 5/8 11 3/8	7 3/4 8 1/4 10 1/4 12 1/2		
OGENEOUS	SAME COLOR AND APPE THROUGHOUT						WITHOUT CR STIC LIMIT	CMBLING					
DARSE-AND HOROUGHLY SUBE OR JAR. DARSE PARTICHER PARTICHE SAND SIZHE RELATIVE VO	- THE RELATIVE PERCE FINE-GRAINED MATERIA SHAKING A MIXTURE OF IGLES WILL FALL TO 1 CLES WILL FALL TO 1 CLES WILL FALL OUT OF E PROPORTIONS CAN BE ILUME OF EACH SIZE SE ORRELATED TO PARTICL	L MAY BE ESTIMA' SOIL AND WATER THE MIXTURE TO THE BOTTOM AND 1 ED WITH INCREASIN SUSPENSION IN 2: ESTIMATED FROM PARATE, THIS ME'	TED BY IN A TEST SETTLE. THE SUCCESSIVELY IG TIME: D TO 30 SEC THE	VISUAL SIZE PION OF SAME THEN I TO ESTAIL THE PION OF	METH ARTICL HER CO WITH T MENTAL TIMATE SIZE A ERCENT. SIEVE	OD - MEES PLACE INTAINER HE SANGLY COMP THE PER NO MINU AGES OF SIZE NO	NTALLY VISI ED IN A SA I) OR SACKS.	CK THEN DO ICLES AND MBER OF IF PLUS NI VE SIZE F FINES IN AL CAN TH	FIN SIZ CUT	SH TEST- FOR RELATIVE PE IES. SELECT AND MOISTEN EN IE MATERIAL TO FORM A 1-11 I THE CUBE IN MALF, SET OO D PLACE THE OTHER MALF IN ISH AND DECANT THE FINES OF THE DISH UNTIL THE WASH IN D THEN COMPARE THE TWO SE PERCENTAGE OF SAND AND AT THE PERCENTAGE IS BASI I VOLUME. HOWEVER THE VOI L PROVIDE A REASONABLE II AIN SIZE PERCENTAGES. 3.1 WHILE WASHING, IT MAY BREAK DOWN LUMPS OF FIME GGER TO GET THE CORRECT P	OUGH MINUS NO. 4 SIEVE (125-MM) CUBE OF SOIL. WE MALF TO THE SIDE, I A SMALL DISH. OUT OF THE MATERIAL WATER IS CLEAR AMPLES AND ESTIMATE FINES. REMEMBER ED ON WEIGHT, LUME COMPARSION WOIGATION OF BE NECESSARY S WITH THE		
IDENTIFICA	TION OF INORGANIC PIN FROM MARIAL TEST		DIAME	UME OF SCH	€DULE	Vo	LUME		HOLE VOL	N BOREHOLE AND ANNULUS BE	LIN. FT LBS/LIN. FT.		
MBOL DRY	Y STRENGTH DILATA	LOW OR	1 1/4	1.66	1.38	0	NEAR FT.		7 1/4° 2. 7 1/4° 2.		CU. FT. SAND PELLETS 0.27 27 21 0.26 26 20 0.30 30 23		
ML NO	ONE TO LOW RAPID	THREAD CANNOT BE FORMED	4° 6° 8°	3.50 4.50 6.62 8.62	4.02 6.06	1.	.66 50		8 1/4° 2. 10 1/4° 4.	78 .37 2° 2.55 28 ,57 2° 4.06 78 .37 3° 2.28	0.34 34 26 0.54 54 41 0.30 30 23		
CL MEDI	IUM TO HIGH NONE T	MEDIUM	12*	12.75			. 61			29 .57 3° 3.79 13 .02 3° 5.62	0.51 51 38 0.75 75 57		
	TO MEDIUM NONE T	LOW TO MEDI	UM				147 147 150 (1)		8 1/4" 2. 10 1/4° 4. 12 1/4" 6.	78 .37 4° 1.95 29 .57 4° 3.46 13 .82 4° 5.30	0.26 26 20 0.46 46 35 0.71 71 54		
								91-7-7	12 1/4° 6.	13 .82 6° 4.33	0.58 58 44		
GALLON = CU. YD. = GALLON = GALLON OF CU. FT. OF SI=.434 X 1 EET OF MEA	MISCELLANEOUE DAY 7.5 GAL. (APPROX) 7.6 GAL. (AP	APPROX) LBS. (APPROX)	EXAMPL 1334 30 N	5 N /	ING DA	NO. T	GRAPHIC LOG	usc SP	Loose, Yellowi	DIL DESCRIPTION DRILLING COMM	ENTS		
SACK OF S	SAND . I CU. FT AND A				4/				dry, iron-stains	LACOSIRINE	15/85/00		



Well No.



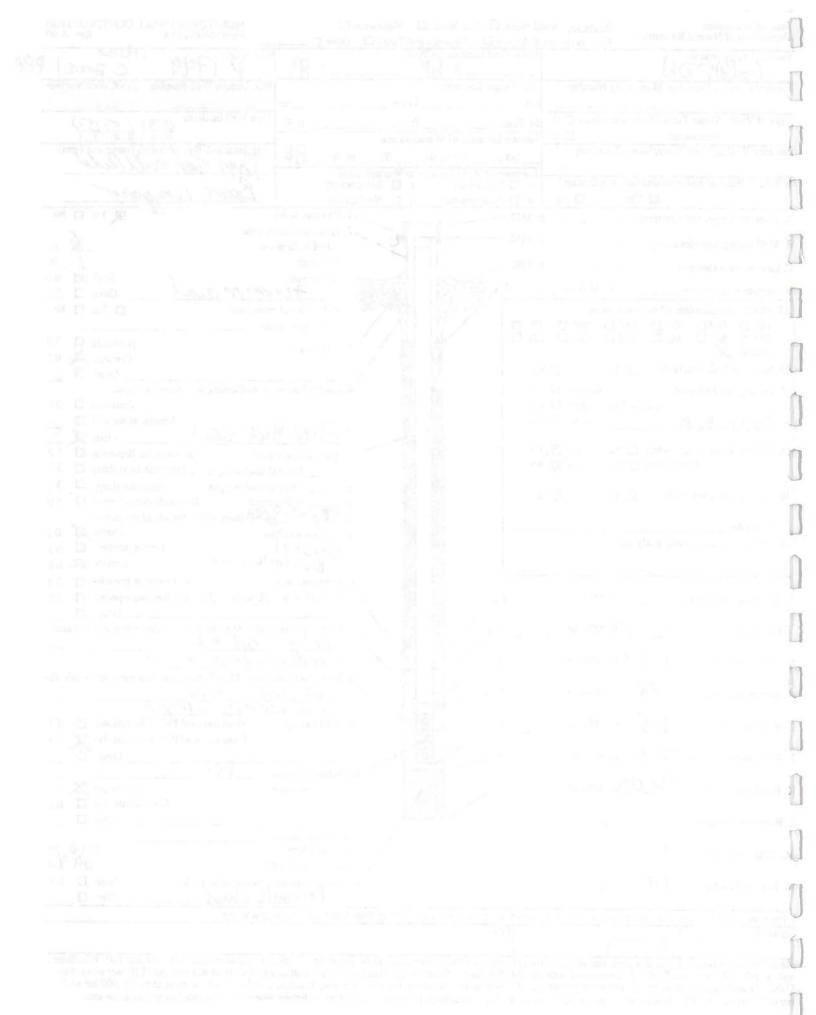
Date: 21,00 Mon. Tues. Weds. Thurs. Fri.

Site: SR	AFTON		21		,							
Weather: Sc	Site: GRAFION Weather: Sunna Coo light S- wifroject No.:											
Davidonment	Mathadi	Dummad th	Bailed	Ot	her:							
Pump Type:	Keul			Ba	iler Type:							
Volume Calcu	Volume Calculation (15.30 50.13) O.U. + (200 x 17 x 1.24) - 1.3 1 (0.3-16)											
(D.T.B. – D.T.W. x vol./ft. = PVC/well volume) + (N* x H* x Annulus vol./ft.) = Total Well Volume * (Wells that cannot be purged dry, 10x's the Total Well Volume must be purged) (Wells that can be purged dry, slowly removing water, without surging until dry)												
Time Depth to Water (D.T.W.) Depth to Bottom (D.T.B.) (gal.) pH Cond. Temp. Color YAN Turbidity												
7.02	54.13	115,30)	7.27	6553	14	1.9			98	484.9	
1215			15	6.75	745	(2	- l			179	520.3	
				1070	748.4	12	.4			190	5222	
1259 60 681 745.8 128 175 520.2												
1215			75	4.77	7526	17	9			180	5233	
1330			110	6.71	7469	12	2.			186	524-0	
1340			130	6.74	7502	- 11	7			182	524.4	
1350			145	6168	7521	12	0			199	527.1	
1400			1460	668	70-1	11	7	9.1	03	188	524.7	
							1					
Comments:					Ann	ulus	vol	./ft.	Ir	nside Diame	ter vol./ft.	
					4"		0	.42		1"	0.04	
					6"		1	.24	1	1.25"	0.06	
*N = pc $*H = let$	rosity of filten	r pack back or lengt	h of saturated	d	8"		2	.38	╨	2"	0.16	
file	er pack (wate 30-minute su	r level within	n sereen leng		10	"	3	.85		4"	0.65	
10x's the Total Well Volume HNu/PPM LEL/% 02/% H2S/PPM CO/PPM												
Signature: (£ .	2										
	Signature:											
•	*					\perp					+	

				1 4	

Department of Natural Resources Route to: Solid Was		Wastewater□ d Tanks □ Other □	MONITORING WEI Form 4400-113A	L CONSTRUCTION Rev. 4-90
	Grid Location of We		Well Name	Hause
- VAIZION	ft. S.	ft. 🗆 E.	1749	CZONE) P86
Facility License, Permit or Monitoring Number Grid C	Drigin Location		WAS STATE OF THE S	
			Wis. Unique Well Number	DINK WELL INUMDER
	L	_		
Type of Well Water Table Observation Well 11 St. Pla	ne fi	i. N, ft. E.	Date Well Installed 0.3	115107)
Piezometer 12 Section	n Location of Waste/	Source	<u> </u>	
Distance Well Is From Waste/Source Boundary	4 of 1/4 of Sec	, t N, r 🖁 🤃	Well Installed By: (Person	
	ion of Well Relative		IND. Sehma	Ufula
Local Local		Sidegradient	10	
	Downgradient r	_	Dewe Consu	rear
1	Downgraulent	1. Cap and lock?	10	Mary Yes □ No
		2. Protective cov		16 10
3. Well casing, top elevation ft. MSI				d .
,		a. Inside diame	eter:	_ in.
C. Land surface elevation ft. MSI		b. Length:		_ _ ft.
2 Conference Lawrence 6: MCI on		c. Material:		Steel 🛮 04
D. Surface seal, bottom ft. MSL or f			whomment	Other
12. USCS classification of soil near screen:	1000	d. Additional	protection?	☐ Yes ☐ No
GP GM GC GW SW SP G	/ (1)	If yes, desc	ribe:	
SM SC ML MH CL CH CH		11 /		Bentonite 30
Bedrock D		3. Surface seal:		A 4
13. Sieve analysis attached? Yes No		**		Concrete 01
		X		Other 🛮 🏬
14. Drilling method used: Rotary 50		4. Material between	een well casing and protective	e pipe:
Hollow Stem Auger 41		3. Surface seal: 4. Material between		Bentonite 30
Imenoun Other -			Annula	ar space seal
./		title t	teck Sand Amount	Other (SE)
15. Drilling fluid used: Water 0 0 2 Air 0 1		5. Annular space	0.9.8	ar Bentonite 33
Drilling Mud 03 None 99		KO1	al mud weight Bentonite	
				· , —
16. Drilling additives used? Yes X No			al mud weight Bent	
		d % Ber	ntonite Bentonite-c	ement grout 50
Describe			olume added for any o	f the above
17. Source of water (attach analysis):		f. ← How install	led:	Tremie 21 01
17. Source of water (attach allarysis).		8 661010	Tren	nie pumped 🗖 02
		Renton	ic chips Tren	Gravity 2 08
		6. Bentonite seal		nite granules 📋 33
E. Bentonite seal, top ft. MSL or	fr 🔛	000	3/8 in. 1/2 in. Bent	
E. Demonite seat, up	\ 1883 B	XX /		
Fine sand, top	. \	7. Fine sand mat		Other 🔲 🔠
. Fine said, top	···/ /	. Fine sand mat	erial: Manufacturer, produ	et name & mesh size
126		a Div 97	BB #7	
G. Filter pack, top1_3 ft. MSL or	Ir / F	b. Volume ad	ded 1150 Lb ft3	1
.11		8. Filter pack ma	terial: Manufacturer, produ	ct name and mesh size
A. Screen joint, top _ 188 _ ft. MSL or	ft.	a EUD FLI		
	-		Hed iox50 LB My ft-	
Well bottom _ 195 ft. MSL or	ft.	9. Well casing:	Flush threaded PVC so	
			Flush threaded PVC se	
J. Filter pack, bottom 20 ft. MSL or		*	a resit un caucu F A C 20	
J. Piller pack, bollom it. Mod of			al. PUC	Other 🔲
L. Borehole, bottom 200ft. MSL or		10. Screen materi		
L. Borehole, bottom	II.	a. Screen typ		Factory cut 11
			Cont	tinuous slot 🗖 01
L. Borehole, diameter in.		9		Other 🗖
		b. Manufactur	er	QL ELL
1. O.D. well casing _20 _ in.		c. Slot size:		0. 1 <u>d_i</u> in.
		d. Slotted len	gth:	09.8 ft.
CL ID well assiss 1 (1)		\	ial (below filter pack):	None 1 14
V. I.D. well casing \(\frac{1}{2} \frac{1}{2} \) in.			ial (below filter pack):	
				Other 🔲
hereby certify that the information on this form		ect to the best of my	rnowledge.	
Signature	Firm			

lease complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each ay of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.



_	INTERNATIONAL LT	D. COMPANY		783	5				. 1	
Project No	GRAPTO	N	Well No. [□ Bailed □	शिक	19 Site	: (S/C	AF	101	U	
Purging M		Numped	☐ Bailed ☐	Other:						
Pump Type	e: Keek	100 T			Bailer Type:					
Weather C	onditions:	ilde	Va	7]			2			
Volume Ca	alculations: 19	8.45-52	.44 Jaro.	25 /	(0 lu) t	- (0.25)	P)	-30 x	17 3	24
	D.T.W. x vol./ft.					12	. /			
(Gals./well	vol. $X = Tota$	l Volume to b	e removed)		Gals./well vo	1.: <u>nd</u>	9_			
	Depth to	Depth to	Volume			Light.				The
Time	Water (D.T.W.)	Bottom (D.T.B.)	Removed (gal.)	pН	Cond.	Temp.		Color	Odor Y/N	TDS Turbidity
	52.44	198.45	25	1.94	(.5)	11.7-		700		444.4
11:24	30.44	(28-42	50	1,97	1,377	114	1	loca	Λ/	UUC
11.67			7/	697	(0)4.i	11,2	7	100	1	436.
1157			140	7/6/	120.7	11.2	1	Lev	N	436.
1717	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		176	7.00	625.4	11 2	_	•		43/0/
1210	11.		9 121	7.19	1 -1	11, 8	0	Clear	2,	CRULI
1007			186	7.02	(1) (1)	11.4	7		^/	434.4
(241			187	7.07	(-20	11.1	0	leav	/0	137.)
135			900	[40]	(.860)	11-1	0	Les	N	435 -
1307			200	7.03	633	11.4	u	Va-	10	441.4
	5.0				*					
	<u> </u>		Readings							
	DO	- 4,=	HO	at	Saupu			12		T
	ORI	157)	7/4	~					
Commen	ts:							Inside	Diameter	vol./ft.
				-					1"	0.04
			-4%			e-rel		1	1.25"	0.06
		ē.							2"	0.16
									4"	0.65
			_						•	a m
Field Bla	nk Taken 🛚	Time:		Hnu/PI	PM LEL/9	% 0 ₂ /%	H ₂ S	S/PPM	CO/PPM	1
Well Dup	olicate No.:								l'a	
Signature	- /		<u> </u>						1	14.1
Date:	3 12	100	L							F521/E

198.45

146.01 $\times 0.14 = 23.34 + 1.0.7$ $4 + 17 \times TM(3^2) \times .30$ $17 \times 28.24 \times .30$ $17 \times 0.20 \times .3 \cdot 1.02$ $17 \times 0.20 \times .3 \cdot 1.02$

25 XW

NOTE
WHITE COPY - DIVISION'S COPY
GREEN COPY - DRILLER'S COPY
YELLOW COPY - OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY					ECK ONE	2	NAI			· · · · · · · · · · · · · · · · · · ·	
Oza				X Town			City Graf				
FOCATIO	The state of the s				Range	3. OWNER AT T		NG			
(SE. 15W.				10 21	E	Dennis J	Johnson				
Ok Grid or 1749	street no.		ect name anches	ter Dr.	X	ADDRESS 3421 C11	ubview Ct	ė			
AND -If avai	ilable subdivisi	on name, lot	& block no.	9		POST OFFICE					
4. Distance	in feet from	well to nea	rest:			FLOOR DRAIN	FOUNDATI				ATER DRAIN
/		nnunniata bi	a als)		. I. TILE	C. I. TILE SE	EWER CONNECTI		ENDENT	C. I.	TILE
	ord answer in a		1	14 SEEPAGE PIT	ABSORPTION		I SILO IABAI	14	WELL LOIN	V 1101 B	
C. I.	TILE	EFTIC TANI	RIGHT	SEEPAGE PII	ABSORPTION	BARRY	SILO ABAI	NDONED Y	VELL SIN	K HOLE	
OTHER POLI	LUTION SOUI	RCES (Give o	lescription s	uch as dump, q	iarry, drainage	well, stream, pond,	lake, etc.)				
5. Well is in	tended to su	pply water									357133477
			Hous	<u>e </u>		r = ======		many and			
6. DRILLH			I	1		9. FORMATION			1		
Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)		Kind			From (ft.) To (ft.)
10	Surface	40	6	40	212	Stoney	clay	A. A. C.		Surface	38
						Hardpan				38	66
7. CASING Dia. (in.)	, LINER, CU	JRBING, A ind and Weigi		EN From (ft.)	To (ft.)	Limesto	ne 🦯			66	212
							ad f				
6	19.45#	new b	1 stee	1 Surface	66		go.				
	T&C we	11 cae	20						e e		
	TOO ME	II Cab	•			grander.					
						J					
				<u> </u>	\	7	55011W6W	OHINE I	IOED		
8. GROUT	OR OTHER		MATERIA	ř	1 - 10 \		DRILLING MA				0000
	Kin	d		From (ft.)	To (ft.)	Cable Tool		Direct Rot			erse Rotary
clay	slurry			Surface	49	Rotary — ai w/drilling m		Rotary — I th drilling n		Jet	ting with Air UWater
	V				, v	Well construct	ion completed of	on 2/	19/74		19
11. MISCE Yield test:	LLANEOUS 12	DATA	Hrs. at	15	GPM	Well is termina		inches	X	above below	final grade
***************************************	surface to n	ormal wate		50	ft.	Well disinfecte	d upon comple	tion		x ·	Yes No
				·		Well sealed wa	tertight upon c	ompletion		X	Yes No
	ater level wh	en pumping]	55	ft.						10
Water samp					iison			ry on: 2	·		19
type of casi	on concerning ng joints, me reverse side.	g other poll thod of fin	ution haza ishing the	rds, informati well, amount	on concernin of cement use	g difficulties ence ed in grouting, bla	ountered, and d asting, sub-surfa	ata relatir ice pumpr	ng to near rooms, ac	cess pits,	etc., should
SIGNATURE	1 /	<u> </u>				COMPLETE MA	AL ADDRESS				
Reli	ut d	01:	Ar.			631 South	Washin A.	ري ري	denhe	ro =	14 a :
170		nu	all 1	Registered We		te in space below		/e. e	uarbu	-8,	T20
COLIFORM	TEST RESUL	T		GAS – 24 HRS		- 48 HRS.	CONFIRMED		REMARK	S	41.314.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4
CODII OKM	-20. KBOOL	-			1	II AS AND STREET, STRE					