	2					COR	E TEM	PERATURE LOG
Project: K	irtland E	FF	40				The same of the same of	Project Number: 62735DM02.1017
Drilling C Lead Drill Drilling M	ompany:	asca	de					Start Time/Date: 0731 1/127/15
Lead Dril	ler: Cos	er Rox	4/8/14	20				Completion Time/Date:
Drilling N	lethod: So	nic Cori	ng					Final Depth:
Boring/W	ell ID: /	JFK-	1061			THE STATE		Logged By: (w+15 ander5 Page 1 of
								The state of the s
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
835	8	10	8-16	2	28.2			
	10	12	8'	2				
	12	14		2	282			
1	14	16	4	2	V			
0241	16	18	16-	2	31.3			
T	18	20	4'	2	¥			
0852	20	22	20- 26	2	255			
	22	24	6'	2				
<u>v</u>	24	26	*	2	4			
0900	26	28	26- 36	2	479			
	28	30	10	Z				
	30	32		2				
	32	34		2				
*	34	36	×	7	¥			
0912	36	38	36-	2	25.7			
-								*Nort Page

- Free		2				-	COR	E TEM	PERATURE LOG		
Proj	ect: I	Cirtland 1	BFF		-				Project Number: 62735DM02.1017		
Drill	ling (	Company:	(asca oger 1 onle Cori	de	7.1			. 10 0 1.1111	Start Time/Date: 083 / 11-27-18		
Lead	d Dril	ler:	paer 1	Zahria	4107				Completion Time/Date:		
Drill	ling N	Method: So	onie Cori	ng	-	1000			Final Depth:		
Bori	ing/W	/ell ID:	KAFBI	No S	1		- W-		Logged By: Cortis Landers Page 2 of		
				-				1	The state of the s		
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Тетрегание (°С)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments		
9	29	38	440	38- 46	2	28.2					
		40	42	8'	2						
1		42	44		2						
		100									
1	1	44	46	1	2	×					
4013	4	3 3	Cold		-	-					
09	1	46	48	46-	2	37.5					
		48	50	9'	2	11					
		10	50		-						
- 11		C-2000			180						
- 1		50	52		2						
			12								
		0	-11						*		
1		52	54		2				The state of the s		
_		100000000000000000000000000000000000000			-	1					
		54	-	Y	1						
1	1	154	55	The		W					
18	11	-	1	25	1	741					
W	10	55	56	55-	1	306					
+	1		-	LE		1		-			
		51	50	111	2						
		56	58	111	1				***************************************		
+		-	0.5	1							
		58	60		7						
		00	6		1						
1		201 040			11500						
		60	62		7						
		CO	100		-						
			to de la la constante de la co		-				LAWSENSKY DEG TO THE TOTAL CONTROL OF THE TOTAL CON		
		62	64		1			1			
		- Sec. (17.)	1		72.00						
		111	10		2						
1	/	6	66	*	2	24			4.1.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4		
	_	Contract of	THE SAME	-4-		"yes		-			
		SCORE SE							4		
									* Next Page		
		=	LOCK STORY	-		-			1000		

	3					COR	E TEM	PERATURE LOG
	Kirtland			1112111				Project Number: 62735DM02.1017
Drilling (	Company:	Caso	ade					Start Time/Date: 0831 / 11-27-18
Lead Dri	ller: K	ger D	odria	此吧				Completion Time/Date:
Drilling 1	vfethod: S	onic Cori	ing					Final Depth:
Boring/W	/ell ID;	KAFB	106	51				Logged By: (orhis ander's Page 3 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1038	66	68	76	Z	40,5			
	68	70	10'	2			- MI = 201==	
	70	72		Z				
	72	74		2				
*	74	76	*	2	×			
1100	76	78	76- 86	Z	39.4			*Added ~   gal HzO
	78	80	10'	2				
	80	82		2				
	82	84		Z				
V	84	86	不	Z	*			
1135	86	88	86-96	Z	H.I			
	88	90	10	2				
	90	92		2			7	
	92	94		2				
V	94	96	N.	2	×			
		41					-	* Next Page

The same	3					COR	E TEM	ERATURE LOG
roject: I	Kirtland I	3FF	200					Project Number: 62735DM02.1017
Orilling (	Company: ller: R Method: Se Vell ID:	Caso	ade					Start Time/Date: 0831 / 11-27-18
.ead Dril	ller: 2	DACK	Pofrig	STO				Completion Time/Date:
Orilling N	Method: Se	onic Cori	ng	0.00				Final Depth:
3oring/W	Vell ID:	KAFBI	06 51					Logged By: Curtis Landers Page of
		80						
	8	Interval bottom (ft bgs)		3			Water injection rate (gpm)	
	20	5	ŝ	3	0	\$	=	
	#	ton	29	2	9	Ra	Į.	
	do	pot	8	9.6	E I	no	3	
	ন	ਾਕ	E	5	era	nat o	.s	
ne	Interval top (ft bgs)	E .	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	ate m	
Time	Ti I	Į.	೦	ပိ	Te	Pe. (ft/	W; (g.r	Comments
	0.	1	96-					
1205	96	98	100	2	34.2			Added ~   gal H20
w	10	10	106	1	0,10			
			,	7-0				
A	98	100	10	Z				
	10	100	10			ocames.		
	3550	5000000		5/15				
	100	102		Z				
	100	107		-				
	1							
	102	104		2		1		
	107	TUT		6				and the state of t
		18 E			7			
	104	IN		2				
¥	104	106	水	-	1			
			106-		-			
1770	IM	108	106	7	1127	1		
1770	106	100	116	2	42Z			
		100	-					
	100	110	10	Z	111			
	108	110	10	1				
1	III	112	1 1 2	12				
	110	1116		1				WAS ALREAD TO SECURE A SECURE AND A SECURE AS A SECURE
	19.500							
1	112	114	. I N	7				
	111	IIT		1				
		100						
1/	TILL	111	1	2	1./			
-	117	110	-4-	6				
	100		111 -	1.0	Sec.			
1350	116	118	116	2	53.7			
UCU	110	110	126	-	19.1			
	The same of			12500				The second secon
9	118	170	10	2				
	110	ILU	10	-				
		1						
	120	177		7				
	120	16-6		6-				
				- Fish				
	177	174		2			E	4.446.5.2.2.0.2 IF \$1.7.00 PER
	166	14		-		1		
	174	171		17				
W.	107	160	¥	1	X			
	-				-			
								* Next Page
				1	1			TE IX ALLUMO

	2					COR	E TEM	PERATURE LOG
Project: I	Cirtland E	BFF	Test					Project Number: 62735DM02.1017
Drilling (	ompany:	Casco	ade					Start Time/Date: 0831 / 11-27-18
Lead Dril	ler: Ko	ger	Rodri	wet	:			Completion Time/Date:
Drilling N	Method: Se	nic Cori	ing	0				Final Depth:
Boring/W	ell ID:	CAPB	0681				A	Logged By: Cortis Lancers Page 5 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (fuft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1413	126	128	126-	2	53.8			
	128	130	10'	2				
	130	132		2				
	132	134		2				
¥	134	136	ak.	2	4			
1435	136	138	136-	2	53%			Added ~1 gal HzD
	138	140	6	2				
$\checkmark$	140	142	*	2	×			
1537	142	144	142-	2	86.7			Disturbed Sample - 142-146 Added ~ 1 gal Hz0
¥	144	146	4'	2	1			
1607	146	148	146- 156	Z	39.5			
	148	150	10'	Z				
	150	152		Z				
	152	154		2				
¥	154	156	Y.	2	¥			Added algal HzO while pushing casing
-		-						* Next Page

		11212				COR	E TEM	PERATURE LOG
roject: 1 Boring/V	Kirtland I Vell ID:		106 51					Project Number: 62735DM02.1017 Logged By: Curts Landors Page of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
828	156	158	156- 166	Z	22.3			
	158	160	10	Z				
	160	162		2				
	162	164		2				
×	164	166	¥	2	¥			
1028	166	168	166- 176	2	32.2			
	168	170	10'	Z				
	170	172		2				
	172	174		Z				
Y	174	176	*	2	k			
1107	176	178	176-	Z	27.5			
	178		10	2				
	180	182		2				
	182	184		Z				
<u>x</u>	184	196	¥	7	¥		N	
				8				* Next Page

The second second	<u> </u>	DEE				COR	E TEM	PERATURE LOG			
	Kirtland I Well ID:	KAFB	106 5	1				Project Number: 62735DM02.1017 Logged By: Cortis Landors Page of			
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments			
1140	186	188	186-	2	33.3	3					
	188	196	10'	2							
	190	192		2							
	192	194		2							
¥	194	196	¥	2	1						
1206	196	198	196- 206	2	413	3					
	198	200	10'	2							
	Z00	202		Z							
	202	204		Z							
¥	204	206	×	Z	V						
407		208	206-	2	33.9						
	208	210	10'	Z							
	210	212		2							
	ZIZ	214		Z							
V	214	216	<u>v</u> .	2	¥						

	2					COR	Е ТЕМ	PERATURE LOG
Project: I Boring/W	Kirtland I Vell ID:	APRI	06 SI					Project Number: 62735DM02.1017 Logged By: Drif Page of
Time	Interval top (ff bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (fuft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1440	216	218	216- 226	2	34.6			Added ~1 gal HzO
	218	220	10'	2				
	220	222		2				
	222	224		2				
¥	224	226	1/2	2	4			
1507	226	24	<b>226</b> -234	2	45,4		14	
	228	230	8,	Z				
	230	32		Z				
V.	232	234	¥.	2	4			
1543	234	236	234- 246	2	42.7			
	236	238	12'	Z				
	238	240		2				
	240	242		2				
	242	244		2				
1	244	246	*	2	×			
•								* Next Page
								V

	Kirtland E		16/	21				Project Number: 62735DM02.1017
Boring/V	vell ID:	AFB	100	51				Logged By: Carto Page of
TIME THE	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature ('C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1614	446	270	256	-	701			
	248	250	16	2				
	250	252		2				
	252	254		Z				
¥	254	256	X	2	*			
0927	256	258	256-	Z	56.2			
	258	260	10'	Z				
	260	262		2	fr.			
	262	264		2				
×	264	266	*	2	Y		01	
1009	266	268	266	2	488			t whole Run disturbed (266-276)
	218	270	10	Z	20, 171-9			* Disturbed
	270		100	2				* Distribut
	272			Z				* Distribed
_	274			2	¥		Į.	t Disturbed
								* Next Page

E		2575	A 122-1-1			COI	RE TEM	PERATURE LOG
Project: I Boring/W	Kirtland I	CAPE	06 9	1				Project Number: 62735DM02.1917 Logged By: UP S Loud S Page O of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature ('C)	Penetration Rate	Water injection rate (gpm)	Comments
1055	276	278	285	2	60	1		
	278	280	9'	2				
10	280	282		Z				
	282	284		2				
¥	284	285	¥	1	J.	4		
1212	285	286	285-	1	41:	3		
1354	286	288	286- 296	Z	41.	7		
	288	290	10	2				
	290	292		2				
	292	294		2				* Disturbed (292-296)
	294		and the second	2	¥			* Disturbed
430	296	298	296- 306	Z	37.	2		
	298			2				
	300	302		2				
	302	304		2				
¥	304	306	1	2	1			
								- * Next Page

Project:	Kirtland I	BFF						PERATURE LOG Project Number: 62735DM02.1017
Boring/		CAFB/	06					Logged By: Curts (areas Page II o
<u> </u>	al top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
15:55 Ja	306	308	306- 310	2	39.2			
*	308	310	4.	2	*			
1815	310	312	310-	2	44%			
	312	314	6	2				
V	314	316	1	2	¥			
8,45	316	318	316-	2	50.4			* Added v3 gal HzO
	318	320	10	2				
	320	322		2				
	322	324		2				
*	324- 326	The state	N N	2	7			
1008		328	336	2	28.3			* Added ~1 gal HzO
	328	330	(p'	2				
	330	332		2				
	332	334		2				
1	334	336	1	2	1			
							-	+ Next Page

	3					COR	ETEM	PERATURE LOG
Project: I Boring/W	Kirtland I /ell ID:	KAFB	104 5	57				Project Number: 62735DM02.1017 Logged By: Lartes Larters Page Z of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1145	336	338	345	2	38.4			Added ~ 1ga 1 HzO
	338	340	9'	2				
	340	342		2				
	342	344		2				
×	344	345	7	1	1			
1228	345	346	345- 346	1'	6.6			
1355	346	348	346- 356	2	320			
1	348	350	lp'	Z				
	350	352		2				
	352	354		2				
1	354	356	×	2	V			
1532	356	358	356- 366	Z	29.1			
	35%	360	lo'	2				
	360	362		2				
	362	364		2				
$\checkmark$	364	366	V	2	1			
_								* Next Page

Project: Kirtland BFF CORE TEMPERATURE LOG Project Number: 62735DM02.1017 Boring/Well ID: KAPBIO6 5 Logged By: CRL Page 13 of Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature ('C) Core run (ft bgs) Time Comments 1618 366 368 Z 38.2 376 Z 368 370 10 2 2 0/10 42. 378 26. 382 0650 380 384 382 384 386 47.0° 1035386 388 388 390 1122 2 375 C 396-46 398 450

12/2/18

CORE TEMPERATURE LOG Project: Kirtland BFF Project Number: 62735DM02.1017 Logged By: C. Now YA Boring/Well ID: CAPB-1065 Page 1 (4 of Interval hottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature ('C) Core run (ft bgs) Time Comments you 400 402 406 1405 422 454 400 404 406-44.76 404 1007 406 410 408 412 4/0 414 412 414-140 44 416 2 8.5 918 416 418 419 420 54.2 405 420 2 422 424 422 426

12/3/18

CORE TEMPERATURE LOG Project: Kirtland BFF Project Number: 62735DM02.1017 Interval top (ft bgs)

Interval top (ft bgs)

Interval bottom (ft bgs) Page 1/5 of Logged By: Co MontoyA Water injection rate (gpm) Penetration Rate (ft/min) Temperature (°C) Comments 52.14 70.4 31.4 459-25.3 35,6 

14/18

CORE TEMPERATURE LOG Project: Kirtland BFF Project Number: 62735DM02.1017 Logged By: C. Monty Boring/Well ID: KAFF- 1063/ Page 1 6 of Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature ('C) Core run (ft bgs) Time Comments 36-0 461 1613 2 Z 468 469 468 2/5/18 0855 461 22.7 476 472 470 2 2 472 24.3 035 2 486 450 Upo 482 494 1 486 486 488 16.4 3614 440 488 492 490 494 492 494 496

						COR	E TEM	PERATURE LOG
roject: I	Kirtland I	BFF	1011					Project Number: 62735DM02.1017  Logged By: Montage Page 1 of
oring/V	Vell ID:	AFO.	1065	/	1		-	Logged By: CMontoyA Page 1 7 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
5/2	494	498	500	2	21.8	ů.		
1	498	500						
	500	502						
	582	504						
	504	586						
	506	508					3	
	508	510			4			
			<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>				18.55	

						COR	E TEM	PERATURE LOG
Project:	Kirtland I	BFF						Project Number: 62735DM02.1017
Drilling	Company: ller: Roya Method: So	Casca	de					Start Time/Date: 945 / 15/6/18
Lead Dri	ller: Rog.	er Roc	legue	t				Completion Time/Date:
Drilling :	Method: So	onic Cori	ng '				-	Final Depth:
Boring/V	Vell ID:	AFB-	1065	2				Logged By: CMontoy Page 1 of 16
Time )	Activod: So Activod (ft bgs)	X Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetr <del>ation Rate"</del> (ft/min)	Water injection rate (gpm)	Comments
(000	8	12	8.4	£ .				
1	12	14.	16-Z	-38	31.7	S.		
	14	10	2	16	1			
1010	16	(8	2	5	1			
1010	19	20	2	<i>†</i>	27.4			
1010	20	22	2	B				
1010					-			
1048	22	24	2	N	22.3	6		
1015	24	26	2	2 2	1			
620	26	28	2	By By	7			
	28	30	2	12				
	30	392	2	1	30.6			
	30	34	2	20				
	74	24	0					
+	34	36	2	1	+			
1034	36	3%	5	138				
	39	40	2	1	248			
$\bigvee$	420	42	2	4	1			

	3					COR	E TEM	CORE TEMPERATURE LOG t: Kirtland BFF Project Number: 62735DM02.1017												
		BFF	2 16					Project Number: 62735DM02.1017												
Boring/V	Vell ID:	CATI	3-100	650				Logged By: Carlos Mantoya Page 17 of												
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	hh -9{ Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments												
1034	42	44	2		26,8															
1046	44	46	1	16	21.0															
1056	46	48	2	46- 56	16.5	,		roded 1941 of water												
	48	450	2																	
	50	52	2																	
	52	54	2																	
	54	56	2		+															
1114	56	58	2	29.2	56- 60															
	58	60	2				*													
	60	62	2																	
	62	64	2																	
	64	66	2		1		-													
1142	66	68	2	50.9	8															
	68	20																		
	70	72																		
	72	74																		
	74	76	1																	

	<u> </u>					COR	E TEM	PERATURE LOG
Project: I	Kirtland I	BFF	-101.6	. 7				Project Number: 62735DM02.1017
Boring/W	/ell ID: 🎉		1065	-				Logged By: C. Manday Page 1/3 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1157	76	78	Z	76- 84	37.1			
	78	80	2					
	80	82	Z					
1	82	84	2		1			
110	64	86	2	84-	32.8	\$		
	86	88	1					
	88	90	1	1	1	•		
1228	90	92	2	90-	33.	2_		
	92	99	2					
	94	96	1				-	
1345	96	98	2	96- 99	31-6			
1345	98	99	-	1		15		All I had at telem Niles Late
1415	99	100	1	49- 106	55.4	2		Added Igal of water. Dalle lost 2ft of flore fun. Will attempt to recover lost core or chem out run.
	[00	102	2					
	102	104	2		7			pore sintuited
1436	104	106		101/-	58-2			Core ontwhed
1	105	106	-(-	1	1		Em	•

						COR	E TEM	PERATURE LOG
Project: I	Kirtland I	BFF	1					Project Number: 62735DM02.1017
Boring/W	/ell ID: /	4 KB-	1065	<u> </u>				Logged By: ( Montay) Page 1 2/ of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1450	106	108	2	106-	34:			
	108	110	1					
	110	112	1					
	112	114	2					
	hy	11,6	2	1				
1569	city	117	l	116-	31,4	•		
1	117	12	3	_				
1528	623	112	2	126	25.9			•
	122	124	1					
	124	126	2					
1600	126	128	2	136	35.9			
	128	130	2					
	130	132	2			×		
	132	134	1					
	134	136	. 1					
1625	136	(78	2	136-	28.8		e e	
	138	140	2					

	Project: I	Cirtland E	PEF				COR	E TEM	PERATURE LOG
	Boring/W	ell ID:	AFB-10	0657					Project Number: 62735DM02.1017  Logged By: Laway Page 1 of
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Femperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
	1625	140	142	2	140	28.8			
1/7/18	0810	142	144	2	й2 -146	Cont			6ft of Core was lost down Hole during return Tip to Surface. Diller will lattery to returne Distribed Core
	1	144	146	2		1	12		Added (gat of water
A	0813	144	16						A 11/7/18
/	083	146	.148	2	152	84.6			
		148	150	2		-			
	1	150	152	7		1		G.	
45	0848	152	(59	2	-126	387			
	1	159	56	2		1			
	0915	156	157		No (1) Read				accidentally 9ft Rvn 156 = 1651 - couldn't get Last foot 165-166 my core Barrel
		157	158	21	156				two fout 165-166 wy was switch
		158	160	2			2		
	-	160	162	2	-7	59.4			
		162	164	2			Sa Sa		
	\$	164	165		1	+			
	0950	165	164		165-	1 2			
		(6 G	168	7		3/3			

	<u> </u>					COR	E TEM	PERATURE LOG
	Kirtland I			4.5				Project Number: 62735DM02.1017
Boring/W	/ell ID:	CAPI	3-106	252			·	Logged By: \ \( \text{Ancres} \) Page \( \text{Page} \) of \( \text{Or} \)
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0951	168	170	2	1	1			
1118	170	172	2	170-	583°	,		added (galler wall at 170'
	172	174	2	176				Referred of Next Coff Row So that 174-176' is unlisted
1	174	176	2		1			
1146	174	178	2	176-				
	178	180	2	778	A13°	C		
	180	182	2	1	1			added I gallon of water
1205	182	184	7	182-	T			
1	184	186	2	1	44.4			
1325	186	188	2	186			2	
	188	190	2	194				
	190	192	2		o			
	192	194	2		Tors			
1427	194	196	2	144-	445			
	196	198	7					
4	198	70)	2		+	-		
1454	200	202	2	200-	377			,

	<b>S</b>	A DECEMBER OF THE PERSON NAMED OF THE PERSON N			*************	COR	E TEM	PERATURE LOG
	Kirtland I	3FF	2 10	(5)				Project Number: 62735DM02.1017
Boring/\	well ID:	KAF	5-10	625				Logged By: \ A TOSS Page 1 7 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1454	202	204	2	200- 206				
1	204	206	2		317			
(522	206	208	2	206	50.9			
	208	no	2					
	210	212	~					
+	112	214	2	L				
1540	214	216	2	214-	yaz			added Igalon worter
1615	216	218	2	216-	(Js)			
	212	200	2		G1.1			
	220	W	2				A	
	222	224	2			T		
	224	226	2		1			
1648	226	228	2	226-	T			
	228	230	2	D34	62.			
	230	232	2	3	ž.			
	132	234	2					
0718	234	236	2	234-	43.1			core posterbut fell at a care borred

						COR	E TEM	PERATURE LOG
	Kirtland I							Project Number: 62735DM02.1017
Boring/W	/ell ID:	KAF	5-166	75				Logged By: ( Page Y of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
6H8	236	238	2	234 242	43.1			
	238	240	2					
1	249	742	2	1	1			
OFMF	242	244	7	242-	T		4	
	244	246	2		61.Z			
6817	246	248	2	246- 253	22			
7	148	250	2		+			
	250	252	2		52.9			
1	252	253	, 1					added togother of water at 253
0858	253	254	1	254 254	321			
1	254	256	2	1	1			
09.29	256	258	7	264 264	T			}
	258	260	7		35.4			
	262	764	2		1			
1038	244	266	2	244- 272	51.1°C			
	744	768	2					
	268	270	2					

	CORE TEMPERATURE LOG  Project: Kirtland BFF  Project Number: 62735DM02.1017													
			h -	11	7									
Boring/W	/ell iD:	S K	ats.	1065	, _			Logged By: ( me Andre S) Page 19 of						
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments						
[038	270	272	7		51.12	<i>y</i> .		added (gallen of water						
tus	272	274	2	272-	7									
	274	276	2					- A-1						
	276	278	2		77.7			core from 2+8 276 to 280 is disturbed. It fell out of the core borrel & was re-retrieved						
	278	280	2		1	ç								
1145	280	282	2	284- 286	69.9									
1	282	284	2				(4)							
1	284	286	2					added I galler of water before						
1221	286	288	2	286	Ferzo	†								
1	288	290	2	1	1									
1350	290		.2	290- 296	T									
	292	294	2											
L	294	796	2		44.1									
1430	296	998	2	296	T									
	298	300	2	1	35.9 L	(4)								
1500	300	Zer	2	306	70.5									
	301	304	2			1								

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Boring/Well ID: KAGBIOGS) Logged By: J. WINGSTON Page 10 of Interval bottom (ft bgs) Core recovery (fl/ft) Water injection rate (gpm) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Comments 204 306 306 2 1592306 308 312 1 308 310 56.1 312 300 316 -314260.45 318 -316 37 8:04 316 318 2 318 32 39) 320 务 324 326 328 330

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Boring/Well ID: WAPB 10652 Logged By: CURTS WWOEDS Page 1 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Comments 1/13/18 1009 334 336 Z 336 2/2 3多 3/2 338 340 4/2 340 1102 2 2/2 350 352 356 453

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 WAPB 10652 Boring/Well ID: Logged By: CURTES LANGERS Page 12 of Interval bottom (ft bgs Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Time Comments 3/2 370 368 370 1618 372 38! 42 40.1 0747 376 378 2 380 2 378 380 382 372 384 386 ADDED I GALLON HIS 386 387 387 52.8 093 388 ADDED IGAMON HOD 3/2 388 2 390 2/2 390 392

1/14/18

	<u></u>			-		COR	PERATURE LOG	
Project: 1 Boring/V	Kirtland B	BFF CO	2 105	<u> </u>				Project 1 mber: 62735DM02.1017  Logged I : CURTS LANCES Page 1 3 of
Boring/ v	ven ib:	8	3100	200				Logged I .: CULTTS CAMPESPage 1 3 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1112	396	398	_	Ø	-			Sample fell down hole, will attempt to receiver on next run
1112	3984	2798	2';	398 402	75.9			396-398 Disturbed
4	400	402	2'				а	
V	402	Y02 404	z'	¥	×			
1202	404	404	2	402-	49.6	¥.		YOD-YOY distribed
1	404	406	2	¥	¥			
1433	408	404	2	406			4	
1433	406	408	2	406-	733			
	408	410	2					
	410	412	2			1		
	412	414	Z					
*	414	416	2	¥	V.			
1522	416	418	2	416-	51.7			
*	418	419	2	1	1			
0854	419	420		419-	23.3			
	420	422	1			187		
K	422	424	2	Y	L			Addal Igal H28

11/12

	<u> </u>					COR	E TEM	PERATURE LOG
Project: I Boring/W	Kirtland E	SFF VAC	13 IA	662				Project Number: 62735DM02.1017  Logged By: CHATS CANDERS of Of
Boring/ w	l lib.		טוכי	657				Logged By: CHATS CAMS (25Page 1 9 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0954	424	426	Z	424-	49.1			
	426	428	Z					
	428	430	2					
×	430	432	2	K	×			
1118	432	434	2	432	42.4			
1	434	436	2	X	1			
1201	436	438	2	436-	455			
	438	440	2					
1	440	442	1	*	4			
1336	442	444	2	442-	40.1	-		
	444	446	2					
*	446	448	2	1				
1431	448	450	2	450	31.6	6		
1517	450	452	2	45456	42.2	•		Disturbuel sample
	452		2					Disturbed Sample
Annual Control of the	454		2	1	1			Disturbed Sample
600	456	458	۶,	458	25/3°C		×	

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Boring/Well ID: \$2 Logged By: CRL /15R Page 15 of Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) remperature (°C) Core run (ft bgs) Comments 61.3 put on dry & wet ice 260 31.9 - case bound -14.00 going in 473-21.6 475 1020 22.4 ADDED IGNAM HIC TO CLEANOUT 481 232 481 483 479-33.6 1215 483 485 C.MC 985 487 25.0 489 487 25.4

11/16 -

		2					COR	E TEM	PERATURE LOG
Proj	ect: I	Kirtland I	BFF	1/0/	-				Project Number: 62735DM02.1017
Bor	ing/W	/ell ID: 🏅	1 <del>11-15</del>	106	29	Г			Logged By: <b>33</b> Page <b>1</b> of
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	CONCE BARREL TEMP & \$32.
		489	167			26.9			COICE ISMAGE TEMPERSE.
		491	493			¥.0		-	
Jul	40	493	495	489- 499		35.1			
		495	497	711		<b>35.</b> /		-	
١		497	499			21.88	2		
16:	30	499	500	499=	事	22.5			
		500	502	Z	499-	24.4			
		502	504	Z	1	37.8			
		504	506	Z		24.0			
		506	508	2		24.1			
7	L	508	510	2	K	248			
-							(1)		
							34		

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Cascade

Lead Driller: Roger Poor ques

Drilling Method: Sonic Coring Start Time/Date: 1528 Completion Time/Date: 0930 11-21-18 512 Final Depth: Boring/Well ID: KAFB - 10653 Logged By: Cosy La Page of 4 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Time Comments 00 409 1528 400 402 68.2 404 2 402 404 406 2 408 408 409 409 410 1620 60.7 410 412 79 Z 412 414 Z care barrel -4°C - 1.9°C an entry NR 418 0843 78. 418 7# 420 2 420 2 423 core barrel @-2-7°C 0926 29.1 425 427 328 40.6

711

CORE TEMPERATURE LOG									
	Cirtland E		_					Project Number: 62735DM02.1017	
Drilling (	Company:	(asca	de					Start Time/Date: 1/18/18 @ 1528	
Lead Dri	ller: 200 Method: Sc	er k	odna	LCZ				Completion Time/Date: 0930 / 11-21-18	
Boring/W	Vietnod: So	KAFBI	ng S	2			-	Final Depth: 5/2 Logged By: (usfr's Landers Page 2 of 4	
Doring vi	l l		060	9	I 1			Logged by. [Airis Corres 1 age 2 01 4	
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments	
			429-	,		<b>H</b>	7 0		
1028	429	431	429- 431	2	42.9			Added N gal Hill	
1114	431	432	431-	1	828	8			
1			100	-					
	432	434	5'	2					
V	434	436	×	2	*		7/4 7/47)	Added ~/ gal H20	
1215	436	438	436-	2'	466				
V	438	440	4'	2'	Y				
1355	440	442	446-	2	52.3				
	442	444	6ft	Z					
¥	444	446	1	Ž	V			Added ~ Igal HeD	
1442	446	448	446-	2'	45.6				
1540	448	450	448-	Z	82.4				
	450	452	7	2'					
	452	454		2'					
V	454	455	L	1'	×				
1637	455	457	455- 457	Z	66.4			Added ~ 1/2 gal Hz0	
*	457	459	4.	2'	¥				

	<u></u>		Water Control of Control			COR	E TEM	PERATURE LOG
Project: I	Cirtland E	FF	•				Project Number: 62735DM02.1017	
Drilling (	Company:	Casca	de.				Start Time/Date: 1528 / 11/18/18	
Lead Dril	ler: KC	ger l	20dril	1V62	?		Completion Time/Date: 0930 / 11-21-18	
Drilling N	Aethod: So	nic Cori	ng				Final Depth: 572	
Boring/Well ID: KAPS 10683								Logged By: Curtos Landers Page 3 of 4
		pg		Œ			e.	₽
	ogs	<b>£</b> )		ft/f	0	9	La	9
	(ft.)	u o	pgs	y (	5	Zat	no	
	do	ott	#)	ver	l ii	l nc	ecti	
	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	
9	ı.	Ž.	ė r	e r	ape	etr	n)	
Time	nte	nte	Į.	Cor	len l	en ft/r	∛a gpı	Comments
		janut .	1150		-	<b>—</b> —		Odamotic
0943	H50	1110	421-	1	19/			
0742	757	76	460	l	19.6			and the Charles from the annual substitute and the annual substitute a
1		,	-/					
	III A	1117	5	2	22.0			
	TOU	766	0		1460			
		, .		_				
1	1117	UIU		2	26.5			
4	TOL	101	X	6	20.0			
		.110	del					
IINO	4(4	Ш	464	2	69.9			Added 1/2 gal H20
MUD	101	700	470	_	101.1			annuari annuari de la compania del compania de la compania del compania de la compania del la compania de la compania del la comp
	.1		. /					
	411		6	2				
	100	760	1	6				
	. 1	110			,			
W_	418	471	W	2				
	100	170	4	6				
1			1	2				SAMPLE WAS DISTURBED - FIELD OUT
	470	47)		2	50.4			SAMPLE WAS DISTURSED - FEW OUT OF CORE BARREL THICK (4701-4741)
INUN	10	. 19	ij'	6	00.7			
1911	1.00	1/		0			K	
	472	474		9	62.7			
1			L		90			
			474-		2 0			
1330	474	475	ilen	v	23.9	-		
1330	111	113	480	0 ,5	///			
	1100	1171	,1					
	445	476	6		243			
	110	110	-	•	ヘいン			
	1101	.1		_				
	476	478		2	23.5			
	110	110						
,	1170	1100		1	211			
L	478	480	V	2.	24.D			Last 3 (1112 - VOS') Rellat
	110	,,,						Last 3 (480-483) will be retrawed
1/21-	HOA	1100	4.80-		199			Next run & will be desembed
1510	480	LXP	Well	2	27.3			
-			191					
	497	111711	111	2				
	482	4 X 4	7	2				
-		. 0 1	(un)		Garban .			
1-20	1101	100	484-		017			
1529	YXY	4 45	489		21.7	á	1	
1001	V -1	- 10	101	ı	****	40		
	Vor	Un	= 1	7	17 A			
	485	48+	2	2	220		200	

Project Kirland BFF		<u></u>					COR	E TEM	PERATURE LOG
Dilling Company: Crest   State   Sta	Project:	Kirtland I	BFF	<u> </u>					
Lead Driller   Lead	Drilling	Company:	Case	ade.					
Dorling Method: Sorfice Coring   Boring: Well ID:   LAFF - 106 \	Lead Dr	iller: 2	2005	Rodi	ieve	2			
Dring/Well ID:   LAFE - 106 S 2   Logged By Car's Landers   Proof of 4		Method: Se	onic Cori	ing	.0.				Final Danille [12]
Comments   Comments					106	( >			Logged By C. (Pac Land OCC / Page of 44
Comments   Comments	Bornig ,	T T		10-	O.	7	Г		DOSSOU DI COM CY CHADE S 1 1 5 1
1529   487   489   489   489   2 241			pg			1		e l	con Rhores)
1529   487   489   489   489   2 241		(SS	3	_	t/fi	6		rat	8
1529   487   489   489   489   2 241		1 2	B	gs	) V	1 5	at a	uc	·
1529   487   489   489   489   2 241		D (d	l #	E F	'er	ıre	n B	cti	
1529   487   489   489   489   489   2 241		1 5	P	)	00	atı	tio	nje	
1529   487   489   489   489   2 241		-Va	- Va	1 2	re	ber	音道	er i	
1529   487   489   489   489   2 241	ii.	l fer	lte.	ore	ore	em	t/m	/at	G
1529   187   189   189   2   241	H	<del>  =</del>	=	244701	0	F	a y	<b>5</b> 9	Comments
07444       489       490       496       1       15.45         490       492       7'       2       18.5         492       494       2       21.0         494       496       4       2       21.1         0930       496       498       5572       2       23.7         498       500       16'       2       23.7         500       502       2       24.5         502       504       2       24.8         504       506       2       258.24.4         506       508       2       23.8         508       570       2       22.4	1900	1114			7	ALL			
0744 489 490 496 1 1545  490 492 7' 2 185  492 494 2 2 21.1  0930 496 498 512 2 2 23.4  500 502 2 24.5  502 504 2 14.8  506 508 2 23.8  508 510 2 21.4	1529	184	489	489	1	14.1			
1			101		-/	-	ļ		
1	101	ilas	ila.	489-	,		L		
490 492 7' Z 1859  492 494	M	. 4X9	1470	491		115.40	b		
492 494	1	101	110	110		., 10	<u> </u>		
492 494		110-	1100	7'	1	10-			
492       494       2 31.0         ✓       494       496       ✓       2 31.1         0930       496       498       512       2 37.37.0         498       500       16'       2 33.9         500       502       2 34.5         502       504       2 11.8         504       506       2 23.8         508       570       2 72.4		4410	147/	1	6	1/8.5			
Y       494       496       X       Z       21.1         0950       496       498       552       Z       33.2       X         498       500       16'       Z       23.4       X         500       502       Z       24.5       X         502       504       Z       24.8       X       Y         506       508       Z       23.8       X       Y	-	1 10	1	1		1 02/			·
Y       494       496       X       Z       21.1         0950       496       498       592       Z       33.2       23.9         498       500       16'       Z       23.9       23.9         500       502       Z       24.5       24.9         502       504       Z       24.8       24.4         506       508       Z       23.8       23.8         508       510       Z       22.4       3.2         508       570       Z       22.4       3.2		1100	1101		7	1710			
Y       494       496       X       Z       21.1         0950       496       498       592       Z       33.2       23.9         498       500       16'       Z       23.9       23.9         500       502       Z       24.5       24.9         502       504       Z       24.8       24.4         506       508       Z       23.8       23.8         508       510       Z       22.4       3.2         508       570       Z       22.4       3.2		1497	1474		1	di.U			
498       500       16'       2       23.4'         500       502       2       24.5'         502       504       2       24.8'         504       506       2       23.8'         506       508       2       23.8'         508       510       2       22.4'		116	. , ,	<del>                                     </del>	<del> </del>	<del></del>	<b> </b>		
198 500 16' Z 23.4'  500 502 Z 24.5  502 504 Z 24.8  504 506 Z 23.8  508 570 Z 22.4  T D = 1.0 502 T D = 1.0 502  T D = 1.0 503 T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503	1	11011	1101	1	1	111			
198 500 16' Z 23.4'  500 502 Z 24.5  502 504 Z 24.8  504 506 Z 23.8  508 570 Z 22.4  T 2 22.4		1474	1476	1	1	01.1			
198 500 16' Z 23.4'  500 502 Z 24.5  502 504 Z 24.8  504 506 Z 23.8  508 570 Z 22.4  T 2 22.4	<b> </b>		1	IIa.		AL			
198 500 16' Z 23.4'  500 502 Z 24.5  502 504 Z 24.8  504 506 Z 23.8  508 570 Z 22.4  T D = 1.0 502 T D = 1.0 502  T D = 1.0 503 T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503  T D = 1.0 503	NO121	1/19/	1190	470-	11	173	7/5		aurungsahapathathan anahin disakan anahin anahin anahin anahin anahin anahin ahin
500 502	1012	1716	TID	517	6	97.0	754.0		
500 502	1					1	-		
500 502		490	EM	16	7	mil			
502 504 2 11.8 504 506 2 23.8 506 508 2 23.8 508 510 2 22.4		1119	VVV	10		45.4			
502 504 2 11.8 504 506 2 23.8 508 510 2 22.4						1,,,			
502 504 2 11.8 504 506 2 23.8 508 510 2 22.4		510	EN7		7	115			
504 506		200	JUL		-	オソン			
504 506		_			0	10			
504 506	11	517	514		1	N.VC			
504     506     2     238       506     508     2     238       508     510     2     224       700     700     700     700		JUL	1			17			
506 508		1.1	FAA			1 K			
506 508		1504	1506		Z	25.8	24 V		
508 510 2 724		1					all		
508 570 2 724		800	ex.		7	mo			
508 570 2 724		1506	150%		6	15.8			
1 00 00 1 7 20 50	<b>—</b>	-				•			
1 00 00 1 2 mg TD = 1		FA19	MIN		~	77.1			out-distribution are also programment of some or some distribution of some or some distribution of some or sot
1 00 00 1 7 20 50		1508	210		1	14.4			namanananananananananananananananananan
1 510 512 1 2 232 Fotal Death = 512	-	-	-						
* 510 512 x 2 624 total Depth > 512		Ma	100	,	7	220		-	and a second sec
	X	1510	1514	V	4	Wal			total Death = 512
		<del> </del>					<b></b>		1-11-2
		+	<b> </b>	-		<del> </del>			
				-33					
						1			
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				L	<u></u>		L	L	

141/18

						CORI	ETEM	PERATURE LOG
Project: I	Kirtland B	FF						Project Number: 62735DM02.1017
Drilling (	Company:	asins	e_					Start Time/Date:
Drilling 1	iller: [04] Method: So	e Rox	Legipe					Completion Time/Date:
Boring/V	Well ID: K		10654					Final Depth:  Logged By: /* M whow A Page 1 of
- villag ,	1		10050				-	Logged By: C. M into A Page 1 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1049	340	342	2	345	259			
	342	344	2		27.8			
	344	346	2		41.6			
1230	34k	348	7	346- 356	33.6			Cose Brood Cooled with pry Tite
	348	350	2	J. No.	38,1			
	350	352	1		34.4			
	352	354	1		343	/		
	354	35%	1		39.7			
440	35/0	358	2	356 366				Core Barrel cooled with Dry the
	358	380	1		22.4			
	360	362	2		24.8			
	362	364	1		30.0			
	364	366	V		31.8			
1608	366	368	Z	366- 376				Core was lost on return try to surface.  Drilly successfully retrived bistorial corelloft).  Thosefore cores have tigh temps
	368	370	L		56.6			
	370	372	2		55.			

								COR	E TEM	PERATURE LOG
			Kirtland							Project Number: 62735DM02.1017
	Во	ring/	Well ID:		10654		1			Logged By: CM 7 Page Z of
		Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
	16	80	372	374	366-	-	48.	}		
	-	1	374	376	1	2	50.0	ر		
	17	35	376	378	376- 386	2	21°6	°C		Core Burrel Louled with Dry the
			378	380		2	21.40			1
			380	38 Z		2	23.9	د		
			382	384		2	236	2		
	_	L	384	386		2	98.0	°C		
VIN	00	115	386	3 <b>8</b> 8	386- 396	2	24.7			Pose Sweet Cooled with Dry ICE
			388	390		2	27.1			
			390	392		2	35.2			
v.			392	394		2	39,0			
			3943			2	37.	8		
	110	5	396	398	426		NA			Core was lost on return trap to Sirface, Driller successfully detrined 10ft core Run. While Bagging Gorce Drillers lost some core into
			397.5 398	100		2	184			Continues and have high temps
			348	400 Hot		2	ŬЬ.O			
			401	433		OF	59,9			
			404	406		2	45.3		-	2

Appendix C

						CODE	TTTM	PERATURE LOG
Parient	Kirtland B	FF				CUKI	LILIVII	Project Number: 62735DM02.1017
	Well ID:		654					Logged By: C. Marty Page 13 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
132	406	408	2	406-	50.0			
1	408	410	2	1	56.7			
1500	410	412	2	410-	31.8			
	912	414	1		28.8			
	414	415			29.4			
154	, 415	417	2	415-	24.2			
	417	419	2		76.0			
1	419	420	1	1	35.7			Pare power could with An Ili.
1010	4/20	422	2	426	496	c C		Drille intermed us that he core ion has been lost down hile while tripping to surface.
Í	422	424	2		53.6			Driller Successivily Reference 6ft fore Bishubed core run
	424	426	1	1	60.7	Skinger.		
112	426	428	2	426-	66.6			
1	428	430	2	1	55.1	1		
1205	430	432	2	426	31.2		•	
[	432	434	2		38.			
1	429	436	1	1	467	-		
1504	436	438	2	146	65,7			Allel & IGA of WHER

11/3/18

Crujes Cremond RDP Brown Well D. J. A. E. C. 108-57 CORE TEMPERATURE LOG Project Number: 62735DM62.1617 exped By / Made 1 Page 18 1 of Comments 47.7 39.7 Surface had remake several attempts.
Added I trai at heath 0758 446 53.6 46.6 63.2 20. C Paral Colled with Dy ILE 26: .85-453 23,6 24.46 31.4 0955 460 35.1 123.1 1040 464 18,5 4.1c 

11/4/17

Quein - NI	irtland	Mary and Address of the Parket				Same a State of the State of the	Appendix of the Party of the Pa	PERMITURETOG
Paratice A	/ell ID	A contract the contract to the	10654					Property Supplies 417 Just Set 1817
		Secryal bottom (P.Des)						This by Call A 2/4 more 1881
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in .	(cod laboral topo)		Core ress (A type)	8	Conpensions (C)	(T)		[마닷컴 ] 이 선생님에 나를 다녔다.
			G .	Core recovery (PM)	LE.	25	188	Constant
Paul	1112	MA	464-	11	a	2 2 2 2		The Cooks with so the
1733	461	17	470	-1	Mª			and the second state of the second
	con							
	470	472		2	13.9			the state of the s
-1-	3374	11		-	1			and the second second second second with the second
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	177	170	1	2	265			management with a second of the second of
		1	476-	2007				BUIG Cooled + the U1 The
1420	476	478	1	至2	21.2			The second secon
			1.67	T				mentioned and applications are accompanies on the second of the second o
	Mo	429		11	21.4			e management arrangement as processing of processing of the second and the second arrangement and the second arrangement are second as the second
	478	180		5	4			kanggan dan mengangan dan penergapan sebagai penergapan sebagai penergan penergan dan dan penergan penergan pe
	479							The second section of the
	480	481		2	219			entagente operation membrane production of the second control of the control of t
-	1	101	++-		11.1			
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100	481	483	C		223			tan kan menakuri sebahan menganan dari meninganan dari meningan pada menuntah ngapa menggan penggan sebahan sebahan sebahan sebahan penggan penggan penggan sebahan se
		G^	17	b				145 Fidney by terefits 444, bills 3 ft Down hale Driver Succession Rel
	483	484		12	-	-	-	31 + Down hale Driver Succession Pul
4	V 4 /	-	-	3	Lor			mitted core
1	Buch	481	1 92 2	W:-				ог отвериван потериват выселения и по регивара ответся поводу видент просторы в посторы выстрытовых приверы и в при по воду и от в выполняем.
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+	New	440			~			
	488	ues	1		24			
	10	17/6		1	-			
	490	492	1-	1.				enterprise de la constitución de la distribución enterprise de la distribución de la dist
~   ~	445	499	_ [	-	25.4			ann ann an air an air an
	11/2	1/42	100					
	774							
1620	17/2							
10			1102		. 0			and a simple state of the contract of the cont
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	463	701	va L					and the second s
	16		445	2	12d	i i		and the second and th
	Цан	486		h	~			
	444	10	1		7		e de la constante de la consta	The second secon
		1	1 4 1	1	22			allogs your registrates are colored ghraphoroglosses and a construction of the constru

**CORE TEMPERATURE LOG** Project Number: 62735DM02.1017 Project: Kirtland BFF Page 6 of 6 Boring/Well ID: KAFB-10654 Logged By: (Manage Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Temperature (°C) Penetration Rate (ft/min) Core run (ft bgs) Time Comments 483-75 724.0 488 1630 490 443 24.7 410 992 993 492 25.4 495-0725 493 494 21.1 494 496 13. 496 498 2 25/123 0905 496 504 500 498 234 502 500 502 504 25.8 10-504

145/18

	<u>S</u>					CORI	E TEM	PERATURE LOG
	Kirtland B							Project Number: 62735DM02.1017
Drilling	Company:	Caren	c					Start Time/Date: 0953 10/21/18
Lead Dr	iller: No5	1 1 Do	riquet					Completion Time/Date:
Drilling	Method: So	onic Cori	ng '					Final Depth:
Boring/	Well ID:		0655					Logged By: C. Mintun Page of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	(1330) Comments
411	400	402	400-	2	34.1			401-405 merce Wes desped down hate on return try to surface. Drill will afficient to return Distribut core
1	402	434		1	43.8			-This interval is transition from Arch Drilling to Source, ~2tt of possibly SNFF. High
1	you	406	1	1	435			I Bertel on first school try to silace
1454	406	407	406-	1	223	c		
	407	409		1	220	c		
1	409	411	1	1	11.10			
1546	411	413	to	2	413	e		HISA temps are due to repeated to iss of Set core down hole During return trip to Surface.
	417	415	S. A.	2	62.8	C		
	415	416	The same	1	717			
177	416	418	416-	2	21.9			Care Bit Temp: -6.8 C
	418	420		2	12:	+		
	420	421		1	142			
153	421	423	42	2	30,0			Core Bit Temp: -6.2 C
1	427	425	416	1	32.2			
	425	uu		1	39.2			
902	426	428	431	1	22.8			Core Bit Temp: -6.80

Appendix C

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44 of 124

		S						CORI	E TEM	PERATURE LOG
		Kirtland Vell ID:	BFF							Project Number: 62735DM02.1017  Logged By: Page ** Bod of
Doin	ig/ v		Interval bottom (ft bgs)		ft bgs)	ery (ft/ft)	ıre (°C)	n Rate	ction rate	20000000
Time		Interval top (ft bgs)	_	_	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
90	2	428	43 -	4	16	1	24.0			
1		430	432			2	28.9			
		432	474			1	174			that 5ft of cor fellow of we Birch parthungs
1		B4	43,6	-	-	L.	484			trip to surface Dalla successfully Return 16ft core for afte returning for Bottom 5ft home high temps on First 5ft.
1041	0	436	438	リリ	6- 46	2	49.5			This court is the second of th
		438	440			2	407	1		
		440	442			2	38.8	,		
		412	494			1	44.1			
	-	444	441			1	60.9	_		
321	L	146	448	44	6-	2	25.1			Care Bit Temp: -4.1 C
	4	148	144			1	25.90			
	Т		451	1	-	1	168			
415	4	51	453	45	7-	1	41.3			
1	ų.		455	1		2	42.8			
			456	I		,	4941			
,00		564	100	156	6-		212			Core Potter - 6.C Adle 1 Gol of Liter
	4	58 1	160	1		2	219			

spect Kirtland BFF CORE TEMPERATURE LOG Project Number 62735DM02.1017 Logged By: Water injection rate (gpm) 461 458-Comments 1600 460 2450 Added I God of water 461 463 466 44.7 465 49.2 463 466 465 364 10/23 hd 0840 466 Core Barry Cooled 4/ bry the 468 441 10.7 468 470 TLL 471 470 23.2 Core Barrel cooled by Dry Ile 471-199 0920 471 473 476 473 207 475 195 476 475 Care Barrel cooled W/ Diy ICE 486 478 20.5 1102 476 480 20.7c 482 480 21.30 482 484 224 486 484 25.74 488 UKL-1331 21.3 986 488 490 488 216

	Kirtland					COR	ETEM	PERATURE LOG
	Kirtland	BIF						Project Number: 62735DM02.1017
	Well ID:	1 =		T-	-		9.0	Logged By: Page of
T.	Interval top (R bgs)	faterval bottom (A bys	Core run (ft bgs)	Core recovery (NVR)	Temperature (C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1731	490	492	446	2	220			
1	412	494		1	25.0			
T	494	494	466-	1	26.3			
1645	496	498	506	2	20.8			
+	418	500		1	20.8			
	500	504		2	21.3			
Co	594	50b		1	225			
上	504	506		1	244			

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Cascado Start Time/Date: Lead Driller: Roger
Drilling Method: Sonic Coring Lead Driller: Kodique Z Completion Time/Date: Final Depth: Boring/Well ID: KAPB Logged By: Page 1 of G Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) remperature (°C) Penetration Rate (ft/min) Core run (ft bgs) Comments 401 402 401 39,0 411 21 404 402 406 464 408 406 408 410 910 41 411 26.9 411 0935 412 414 412 414 416 416 32.7 418 1025 416 418 418 1110 419 423 33,0 419 421 421 923 2 423 30.4 423 424 1300 430 426 424 428 426

1-21-19

							COR	E TEM	PERATURE LOG
		Kirtland							Project Number: 62735DM02.1017
	Lead Dr	Company	<u>':</u>						Start Time/Date:
		Method: §	Sonia Con						Completion Time/Date:
	Boring/\	Well ID:	ome Co	ing				~~~	Final Depth:
	Doing.	T T	T	Т	Τ	Т	T		Logged By: Page of
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
	1	428	430	1	2'	1			<i>4</i>
-	1348	430	432	432	2'	68.9			
	1445	437	434	436	2'	58.6		¥	
	7	434	436	1	1	1			
	1535	436	438	436	21	67,5			26.5
		438	440				TOME	guer Eddy	
		440	442			649			569-0 <sub>2,1</sub> 0
		947	444						
	4	444	446	4	4	4			
	1630	446	448	446-	Zi	34.3	E.		
		448	450		1	1			
	No.	450	452		61. L		8		
		452	454					1	
<u> </u>	10	454	456	الم		ما			
9	0832		458	456	2'	45.4	7		
		958	460	1		1			

		***************************************				COR	E TEM	ERATURE LOG	
	Kirtland				*******************			Project Number: 62735DM02.1017	
	Company	:					-	Start Time/Date:	
Lead Dr								Completion Time/Date:	
	Method: S	onic Cor	ring					Final Depth:	AM
Boring/\	Well ID:							Logged By:	age f of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments	age 3 ab 4
0920	460	462	460-	2(	46.9				
	462	469							
	usu	468	T		1				
1615	466	468	468	2'	31,1				
1055	468	110	468-	2"	23.6				
£	470	472		2'	1				
0	472	473		11		-7			
1035	973	474	480	11	27.7				
1.	474	446		2'	1				
	476	478		2'					
a	418	480	0	2'					
325	480		480	1'	30.6		A .		
420	481	482	486	1'	39.9		\		
	482	484		2"				483-486 gravel - di licu through and laised temp. Sc	it to did
1	484	486	1	1'	7		ř.		

	2					COR	E TEM	PERATURE LOG
Project: 1	Kirtland 1	3FF						Project Number: 62735DM02.1017
	Company:							Start Time/Date:
Lead Dri								Completion Time/Date:
	Method: S	onic Cor	ing					Final Depth: JM
Boring/V	Vell ID:					_		Logged By: Page 1 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Page 4 of 4  Comments
1,20	486	488	506	21	31.1			
	488	490		1			1	
	490	492			1			
1	492	494		ž				
1	494	496						
1	496	498		$\top$		- 73		
	498	500		+				
-	110	000	H	-	-			
	500	502					-4	
	502	504						
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		2 3		and the state of t		COR	E TEM	PERATU			2 8		
	Kirtland I	BFF							Project Number		M02.1017		
Drilling	Company:	Casu	ade						Start Time/Da			1/6/19	
Lead Dr	iller: 77 0 Method: Se	ser h	2 odles	vez					Completion Ti	ime/Date:	1232	1/6/19	_con
Drilling	Method: Se	nic Cori	ng						Final Depth:				
Boring/	Well ID:		-106	58		-			Logged By: 🙋	- Mont	72	Page 1	of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)			Coi	nments		
1329	10	12	2	10-									
1	12	14	2		19.2								
I	14	16	۲									ann an Anna Anna Anna Anna Anna Anna An	
1334	16	18	2	16-	T		W						
1	18 CA	20	- Z		19.7		2						
	20 18CN	21			1							では、「ないでは、」」」」  「ないでは、」」」」」  「ないでは、「ないでは、「ないでは、「ないでは、このでは、「ないでは、このでは、このでは、「ないでは、このでは、このでは、「ないでは、このでは、このでは、このでは、このでは、このでは、このでは、このでは、この	
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1400	11	n	(	21-									
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	22	14	.2		14.3								
	4.1	11			4			***************************************					
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	<u>A</u>					COL	RE TEM	PERATU	TRE LOG
	Kirtland								Project Number: 62735DM02.1017
Drilling	Company	:				-			Start Time/Date:
Lead Dr	iller:			ti.					Completion Time/Date:
Drilling	Method: S							-	Final Depth:
Boring/	Well ID: 🛭	AtB.	1065	8					Logged By: C. MontoyA Page 12 of
		(SS			T			1	
	8	Interval bottom (ft bgs)	1	3			1 2		29 14
	gq	) u	8	3	0	a e	12		ta .
	9	tto	L P	ery	e e	Ra	tion		9
1	Interval top (ft bgs)	8	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)		
	Val	\ag	E	rec	) er	E G	r.		
Time	ıter	ıter	ore	ore	lua	ene /m	ate pm		Y (2)
F	1-	1 =	10	1	F	A 5	\$ 50		Comments
10107	1			90-	1000				
1432	40	142	2	44	19.4				
	1	1	<del> </del>	1-1-1	-		-	<del> </del>	
8 .	lia	1.11							
	42	44	1						
	1	1	T	11			1	<del></del>	
	44	46	1						
	177	10	-		-				
				46-					
1442	46	48	1		26.6				
199 L	16	10		50				CHIPSIPAL PARAMENTAL ANGULA	
î			1						
-	148	50	17_		111				
-	10				1				
		_		56				***************************************	
1452	50	52	2	1	26.4			***************************************	
1110	,	,		56					
	-	11		1					
	52	54	1						
						1.00			
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11	60	62	1			20	-		
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	, ,	1.11					-		
	62	64	2		- 1		-		
	_			+-	-+				
1 1	10	1. 1.	2			- 1	·		
	64	طرفا	2	1		1,7	-	raturaran artanan araba	
1				11.		7			
1525	66	68	2	66- 14	29.2				and the profit of the contract
וייק	0 N	w 0		74			īp-	is the second	
						•			
1 1	101	20	1	î		1	Γ		
	68	10							
			1					de construit de la construit d	
	20	72	1						
	4	7							

THE RESERVE OF THE PERSON NAMED IN					·	COR	E TEM	IPERATURE LOG
	Kirtland							Project Number: 62735DM02.1017
Drilling	Company	:						Start Time/Date:
Lead Dr								Completion Time/Date:
Drilling	Method: S	Sonic Co						Final Depth:
Boring/	Well ID:		-106	58	,	-		Logged By: Page 7 of
	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	
Time	Interv	Interv	Core r	Core r	Тетре	Penetra (ft/min)	Water (gpm)	Comments
1524	12	1.4	1	46-	7			
110	170	PT	1	76	1			
1	74	76	2		T			
1555	76	78	2	86	46.8	5		
1	78	80	2	1	1			
	80	82	2					
	82	84	Z					
	84	86	1	-				
1615	86	88	Z	93	77		ï	
ų.	88	90	Z	1	$\top I$			
	00	10			-			
	90	92	L			2.0		
	Con	C		+	+			
_	92	93	0000	1	1			
(6:30	93	94	100	1	33.7			
	94	96		2			-	
	96	98		2	$\parallel$			
	98	100		2			-	
1650	00		1875 -	100-	127	-		
(b)		/	1062	lob !	23.3			

						COR	E TEM	PERATURE LOG Send Again Mond
	Kirtland							Project Number: 62735DM02.1017
Lead D	Company	<u>':</u>						Start Time/Date:
	Method: S	Sonic Co.	vina :					Completion Time/Date:
		VALT		24				Final Depth:
- Oxing	T .		7-106	7		Т :		Logged By: (M-1/6 KR-1/7 Page/14 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1656			100-	12	233			
1	104	106	<del> </del>	1	1			
	101	10	14	L	1			
1820	106	108	186	Z	339			
Ì	108	110			1			
	1/0	1/2						
	112	114						
+				-	+			
4.	114	116	7	1				
840	116	118	116/10	2	42.6			
4	118	120	4	2	1			
03	120	122	120-126	2	51.13			
1		124	1	2				
/	124	126		2	1			
721				7	210			
131	126	125	136	2	37.9			
	128	130		2				
	130	132		2				
	132	134	/	2	1		-	

1027 1	ompany: er: (ethod: Sell ID:  136  737  737  737  738	onic Cor	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Project Number: 62735DM02.1017 Start Time/Date: Completion Time/Date: Final Depth: Logged By: CC Page 1/5 of
Lead Driller Drilling Me Boring/Well  6931 13	er: [ethod: Schill D: ]	Onic Cor KAF 139	Core run (ff bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ff/min)	Water injection rate (gpm)	Start Time/Date: Completion Time/Date: Final Depth: Logged By: <a href="https://www.completion.com/">Logged By: <a href="https://www.completion.com/">CC</a> Page 1/5 of</a>
Drilling Me Boring/Well  931 13  1027 1	ethod: See 137 136 137 138 138 139 139 139 139 139 139 139 139 139 139	139	Core run (ff bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Completion Time/Date: Final Depth: Logged By:  < C  Page 1/5 of
93\ 13 1027 1	136 137 136 (11 pgs) 39 39 39	139	Core run (ff bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Final Depth:  Logged By: AC Page 1/5 of
93\ 13 1027 1	136 137 136 (11 pgs) 39 39 39	139	Core run (ff bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Logged By: KC Page 1/5 of
931 13 1027 1	St. 12 Interval top (ft bgs)	139 Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ff/min)	Water injection rate (gpm)	
6931 13 1027 1	34 136 137 138 39	136 137 139	16	2'	37,9	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0931 13 1027 1	34 136 137 138 39	136 137 139	16	2'	37,9	. B	A 33	Comments
1027 1	136 137 138 138	137	-	/		*		
(13	134 138 39	139	145	1	40,5			
13	39	139	1	7				
13	39							
		1151		-	++			
1		171		2			)*/ 	
+-+	141	143		2	2			
1- In	r43	145	2	2				
1	13	110		4	*			
1653 1	145	146	145-	1	518			
1 ) L	46	148		2			2	
14	48	150		2	/			
					<u> </u>			
1121		152	lene.		40.0			
1126 14	40	176	150156	2	1079			
1 12	52	154		2	2			
/ \5	54	156		2	/			
1		+	V		V	$\dashv$		
1207 15	56 1	58	156-	2	41.4			
15	58 1	60		2				
16		162		2				
	52			2				

			***************************************			COR	E TEM	PERATURE LOG
	Kirtland							Project Number: 62735DM02.1017
Drilling	Company	:						Start Time/Date:
Lead Dr								Completion Time/Date:
Drilling	Method: S			-				Final Depth:
Boring/	Well ID:	KAF	13-1	06 59	5			Logged By: Page 1 C of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	
F	+=	<del>  =</del> -	T	10	F	A E	1 2 3	Comments
1207	164	166	156-	2	414			
1357	166	168	148	2	29.1			
(	168	170		2				
	170	172		1				
1	172	174		r				
V	174	176		2			-	
1452	176	178	176-	2	33,2		7	
1	178	180						
	140	182						
	142	184		V	/	4		
. /	184	166	/	no (eway)			$\rightarrow$	184-186 fell out - no recovery
1330	184	186	184- 186	2	35.5			
1550	186	187	186 196	1	30.5			
	187	189		2				
	189	191		2				
/	191	193	V	2	V .			

						COR	E TEN	IPERATURE LOG
	t: Kirtlan							Project Number: 62735DM02.1017
Drillin	g Compar Driller:	ıy:						Start Time/Date:
		0 . 0						Completion Time/Date:
Drillin	g Method /Well ID:							Final Depth:
Dormh	Well ID:	-	FB-	1065	8			Logged By: Page 1 7 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1550	) 143	HG	186-	0		( <b>•</b> )		- Bottom fell out, No Recovery
1619	193	194	193	, 1	33.4			Recovered, Disturbed
1	194	196		2				Revovery Pisturbed
650	196	198	146 206	2	23.1 Fin			
	198	200		2				
	200 200 200	202 204 402						
-	204 204	204 20- 1/1						
<b>Y</b>	204	206	1	V	V :			
20	206	209	206	2	25.6			
1	208	210		v				
2	210	ur		z				
	212	214		2			-	
4	214	Ub		2	1			
850	216	218	216	2	74.0		-,-	
	218	220						
	720	212						

	40000000					COR	E TEM	PERATURE LOG
	Kirtland 1							Project Number: 62735DM02.1017
	Company:							Start Time/Date:
Lead Dri	iller:							Completion Time/Date:
Drilling	Method: S	onic Cor	ing					Final Depth:
Boring/V	Well ID:	Т -	т					Logged By: Page 18 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
	222	224	1	1				
	724	226		1				
1010	276	228	126° 230	1	27.4			
7	228	230	7	2				
1040	730		220-	2	41.1			
1	l		236	1	411.			
1	232	234						
	234	236	and to	4	_			
1115	236	238		s'	31.0			
1140	238	240	238-	21	34,8			
1	240	241	1	1	-			
1435	241	742	241-	1	26.4			
	WZ	244		2'	1			
d	યાવ	246		z'	1			
1505	246	248	254	21	315			
1	248	250		Marie .				
	250	252		Charles and Company				

	: Kirtland							Project Number: 62735DM02.1017
	g Company:					-		Start Time/Date:
Lead D								Completion Time/Date:
	g Method: S	onic Cor	ing					Final Depth:
Boring	/Well ID:	Т	T					Logged By: Page 1 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
o de	252	254		21	31,5			
1	2524	256	1	1	1			
1605	256		358-	21	41.2			•
1	258	760		1				
	260	262						
	262	264					49,50 m e 40,60 m e 40,40 m e 40,40 m e	
1	264	266	1	1	1			
1645	266	268	246	2'	58.2			
	368	270		1				
	270	272						
	272	224						
4	m	276		1	4			
0825	246	278	296	21	3i.Z		3	
1	278	280			).			
	280	282						
8/	282	284	W					

	<u>~</u>		-			COR	E TEM	PERATURE LOG
	Kirtland :							Project Number: 62735DM02.1017
	Company						-	Start Time/Date:
Lead Dr					***************************************	-		Completion Time/Date:
Drilling	Method: S	onic Cor	ing					Final Depth:
Boring/	Well ID:							Logged By: Page 10 of
		S		T	T		T	135 10 01
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1			1	1	1	10		Comments
7	284	286	-	المدا	1			
0935	258	287	243	1	66.7	r 		
	287	289		2"	1			
	289	221						
1	221	23		1	4			
1025	293	294	213	T1	65.0			
1	299	296		21	1			
1335	-							failed to bring up recoverable run
1535	304	30b	304	21	41.6			
	306	308						
	308	310						
	310	312		4				
T	312	313	٠	ľ	7			
1628	313	315	313°	21	42.3		4	
	315	317		2.	1			
7	317	319	04	2'			3 6	

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Start Time/Date: Lead Driller: Completion Time/Date: Drilling Method: Sonic Coring Final Depth: Boring/Well ID: Logged By: Page 1 Interval bottom (ft bgs) Core recovery (ft/ft) Water injection rate (gpm) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Time Comments 2. 60.1 36,5 84,5 

1-10-19

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Start Time/Date: Drilling Company: Completion Time/Date: Lead Driller: Final Depth: Drilling Method: Sonic Coring Logged By: Page 17 Boring/Well ID: Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Time Comments 21 351 355 355-356 distribed + discarded 356 35,3 1505 358 356 360 358 762 360 364 362 364 366 366 0920 364 366 376 3.70 365 370 3+2 372 376 396. 38,b 1015 2 378 386 378 350 380 382

1-15-19

		3					COR	E TEM	PERATU	RE LOG	
		irtland B	FF							Project Number: 62735DM02	2.1017
	Drilling C									Start Time/Date:	
e:	Lead Dril									Completion Time/Date:	
		Method: So	nic Cori	ng						Final Depth:	1 09
	Boring/W	ell ID:								Logged By:	Page 13 of
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ff/min)	Water injection rate (gpm)		Comme	nts
	1	384	30c	1	1	1					
	1316	386	388	3%	2'	54.0					
1	Î	388	320		1						
		390	382			A COLUMN TO LA COL		Ťo.			
		392	384								
	1	396	346	*	لد						
	1400	396	398	396	21	60H		(9)			
	Communication and the Communication of the Communic	398	400		1	)					
		400	402			adesta (conspectation)			(103100411042104411044104410441044104		automatikus artaisen taisen taisen taisen taisen ja
		402	404								
Secondary of the Control of the Cont	a	404	406	}	Q	1			Hallaftaffinttallaffaffaffaff		
1-16-19	0970	416	408	406	21	64.0				and the age of the death of the distribution of the distribution of the distribution of the distribution of the	
	L	408	410	1	1	1					
		Yio	412								
		412	1414			Vencional construction of the construction of					
	1	414	416	7	0	٨					

	<u> </u>					COR	E TEM	PERATURE LOG
Project: 1	Kirtland I	BFF	***************************************	-		-		Project Number: 62735DM02.1017
Drilling (	Company:			-			-	Start Time/Date:
Lead Dri	ller:					-		Completion Time/Date:
Drilling 1	Method: Se	onic Cor	ing		-			Final Depth:
Boring/V		************						Logged By: Page 1 of
	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	
Time	nter	nter	Core	Core	Cemp	enet ft/mi	Nate gpm)	Comments
	1		HIL.	1	1	<u> </u>	7 3	Comments
1020	416	418	400	2	413			
1	418	419	1	1	1		7	
1105	419	420	414-	il	405		endersone enderson	
1	420	422	1	21	1			
1	422	424	-	21				
1250	424	426	424-	zi	26,3	,		
1	426	428	1	1	1			
5	418	430	1	1	7		· · · · · · · · · · · · · · · · · · ·	
1358	430	432	430 -	25	37.8			
١	432	434		-	)			
+	434	436	4	J	1			
1440	436	438	436	21	28,3			
7	438	440	٩	1	d			
1520	440	442	440 /	Sl	26.6	1 1		
1	942	444		The state of the s	1		17	
e	યુવા	446	1	1	7			

Project	Kirtland I	REF				COM	1 13141	ERATURE LOG Project Number: 62735DM02.1017			
	Company:		- 1	20			-	Start Time/Date:			
Lead D				_				Completion Time/Date:			
	Method: Se	onic Cor	lna.					Final Depth:			
	Well ID:	omt Cor	ing					Logged By: Page 1 of			
Doinig/	Well ID.	T	Г	T	Τ			Logged Dy.   1 ago 1	UI .		
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments			
1620	446	448	446	21	27.	/					
1	448	450	عا	1	1						
1250	450	952	450-	SI	34.5						
1	452	454				te ja	e .				
1	454	456	1		1				**************************************		
1355	45,6	458	4560	21	36.6		er Truck	***************************************			
٩	458	460	4	1	1	planter.					
1455	460	462	960 466	2'	51.8						
	462	464			1						
1	464	466	01	1	d						
1605	466	468		21	40,6		Y				
0860	468	470	474	21	3.9						
-	470	472			1000	573					
٦	472	424	لد	1	1						
					1						
						4 14					

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Start Time/Date: Lead Driller: Completion Time/Date: Drilling Method: Sonic Coring Final Depth: Boring/Well ID: Logged By: Page 1 of Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Time Comments 494 474 476 21.8 21 1045 478 476 478 418 21 1155 478 480 488 開動製料加料集排入 482 486 484 482 484 486 486 488 1 488 1400 190 494 494 496 496 498 221 502 500 504 50 500 50b

roject:	Kirtland	BFF						RATURE LOG		
Drilling	Company	<u></u>						Project Number: 62735DM02.1017		
ead Dri	iller:							Start Time/Date:		
Prilling :	Method: S	Sonic Co	ring				-	Completion Time/Date:		
oring/V	Vell ID:		-		-			Final Depth:		
		S	T	T	T	T	T	Logged By:	Page <u>1</u>	of_
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments		
675	506	508	514	21	20,4			Comments		
1	508	510		i			2			
	SIO	512							,	Trong to proper to
	/ .	514			3					
			4	<u>C</u>					and the second second second second second second	***************************************
								10 = 514		*************
	19	*					-			***************************************
						-10				
+							-			***************************************
$\dashv$					_	-				A CONTRACTOR OF THE SECTION OF THE S
_										
										***************************************
					1				-	
/ 2			1	+						
	+		Control Control	+	+					
+				_	_		-	1		
			1						MILION STATES THE RESIDENCE OF THE PROPERTY OF	

						CORE	TEMI	PERATURE LOG
Project: Ki	rtland BE	F				CORE		Project Number: 62735DM02.1017
Drilling Co Lead Drille Drilling M	mpany: /	46661						Start Time/Date: 0920 /0/6/18
Lead Drille	r: Roger	Rodi	quet					Completion Time/Date:
Drilling M	ethod: Son	ic Coring	3					Final Depth:
Boring/We	II ID: ILA	F15-101	659					Logged By: C. Mintey? Page 1 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0831	TOCAL	1º	45 lc	1.1	763		-	
0834	10	12	W-TL		74.			
0834	12	14	1214		H			
0839	14	16	14-15.	71.7	75.	d .		
0839	16	18	16-145	11.5	75.			
CB3"	116	20	18-20 18-20	1.5	75.	0		
085	3 2	22	20/16	p 1.6	73.	5		
	22	24	22:2	36	$\prod$			
	- 24	26	24-2	5,6116	1		1	
0900	16	28	1 1	7.6	100	4		
	28	30	28-	4 1.6	, 1			
091		32	30- 32	1.7	85.	0		
	32	34	32-	1-4				
	34	3 k	, 34'z		11			
	36	38	38	12	0 68	5.4		
	38	4	0 38-	2	0 68	.4		

						CORE	TEM	PERATURE LOG
Project: Ki	rtland BF	F				- JAN	Project Number: 62735DM02.1017	
Drilling Co Lead Drille Drilling M	ompany: (	astad	le					Start Time/Date: 10/6/18
Lead Drille	er: Roges	Roda	gult.					Completion Time/Date:
Drilling M	ethod: Sor	ic Corin	g					Final Depth:
Boring/We	ell ID: LA	FB-10	459					Logged By: C. Mantaga Page Z of
			1	1				
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
[040]	40	42	40-46	2	669			
1								
	42	44		2				
	16	11		L				
1	44	46		1	1			
	17	10	+	_	ļ .	-	-	
		n.d	ef		100	1		
1046	46	48	46-48	1	69.4			
1	(/*		1	-	1 , 1		-	and the second s
1 /	110	50	1 /		16.6			
L	48	1	1	2	69.4			
7	-		-	-	+		+	
1 /	100	52	50		11.1			
1105	50	176	56	2	74.	4		the state of principal and the state of the
11	+	-	11	$\vdash$	1			
	100	511	1/	1				
	52	54	11	1				
1 /	54	51		1.5	1/			
1	171	56	1-	11.1				
			1		1.0			
1117	51	58	156	12	69.	/\		Analyzing from the set requirements of the set of the s
1113	56	10	560	-		4		
					11	1	1	
1113	58	60	56-	12				Proof and the late of the late
コワ	1		60	+-		+	-	
		101	60-		69.	3		
1129	60	62	60	12	01.	4	1	and the state of t
1101			162	+-	1	+		
,		100		-				
	62	164		12				
	1-	+ '	+	+-	++	_		
	-11	10-			11			
1 (	64	66		12	14			
	1 1	+	1	1				
1	100	68	662	12	- 68.	d		
1138	66	100	1-2	0 6	100.	8		
110	-	+	1,		1			
1	100	11	$\perp$		11			
	68	170	11	9	1			
	+	+		1	1			
	11	172	- 70-	1	60		1	
1158	170	ITT	14	12	68	6		
11010			1-14					

						CORE	TEMP	PERATURE LOG
roject: Ki	rtland BF	F						Project Number: 62735DM02.1017
rilling Co	mpany:	Casca.	le					Start Time/Date: 800 10/6/18
ead Drille	er: Pose	Rodi	16472					Completion Time/Date:
rilling M	er: Pose/ ethod: Son	ic Corin	g					Final Depth:
oring/We	II ID: CA	FR-104	55					Logged By: CM Into Page 13 of
			1					100 100000
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1258	72	74	70-76	2	68-6			
1	74	76	10-76	1	CB.6			
1336	76	18	76	a	674			
1	78	80	76	1	67.4			
	TO		80-8	1-2	69.1			
1327	80	82	1	-	1			
	82	84	1/	12	1			
1	84	86	1	1	1			
1331	86	88	863	12	69.	8		
1	88	90	86- 90	1	69.	8		
1405	90	92	90-9	8 2	69.	5		
	970	94	9	1	-			
	940		or I	1	1			
1417	46	98	96-	0 2		_		
1417		100		- 1	17	5		
1446		102	1-1	1	- 99	6		taked to briller, Driller proposed adding water
1446	102	(04	[0 <sup>0</sup> -		K 99	.6		to Cool core.

						CORF	ТЕМР	ERATURE LOG
	rtland BF	F				JOILE	LLIVAL	Project Number: 62735DM02.1017
rilling Co	mnany: /	70000	0					Start Time/Date: 600/6/18
ead Drille	er Tana	nscho	4					Completion Time/Date:
Drilling M	ompany: (er: Rose ethod: Son	ic Corin	o Juez					Final Depth:
oring/We	ell ID: 10	AFB-	1016	i				Logged By: C. MontoyA Page 14 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1446	104	106	106	2	99.6	1		Added Figal of water
1503	106	108	106- 110	2	70.3	7		Adled 72 hal of water
1	108	1095	100-	1.5	70.3	,		
1538	110	117	110	1	98-9	2		
	112	114		2				
1	114	116	1	1	1			Adled 1 Gal of Water
1557	2 116	118	116-	2	71.	2		
1	118	120	120	2	71.7	-		Addel Coa of water
1627	123	(22	120	2	72	-8		
	1722	124	1	12	1	-	-	
	124	126		1	60	1.6		
080	1 (26	128	126	) [	-			
1	- 128	130	7 130	1	+		+	
083	,2 130	13	2 3	1	+	8.3		
	132	- 131	1	1				
	134	13	1		レー			

	2.					CORI	E TEM	PERATURE LOG 10/4/18
	Cirtland B		10111	•				Project Number: 62735DM02.1017
Boring/W	ell ID: L		10659	<del></del>				Logged By: C. MantoyA Page of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0850	134	138	136/40	2	76.8			
1	138	140	1367	1	1			
0929	140	142	146-144	2	74.1			Added 2 Gal of water to covi cone
	142	144	1	2	741			Added I Gal of water to cool core
0945	144	146	144- 150	2	78.6			Mana (ga) of Dargie 10 CO-1 CORE
	140	148		2				
1	148	150	1	2				
1024	150	152	150	2	71.0	)		
	152	154		2				
1	154	156	88	1	78.8			Added 28 Gal of Valor
1043	156	158	160	1	10.0			
1	158	160	140-	2	1			Added # Gal of Water
1136	160	162	164	2	72	\ <u> </u>	2	
1	162	164		1	1		-	Added   Gal of Water
153	164	166	170	2	177.			
	166	168		2	1			
1	168	170	1	2	1			

					(	CORE	TEMP	ERATURE LOG 10/7/18
	irtland BF	and the same of th	21.5.5					Project Number: 62735DM02.1017
Boring/W	ell ID: K		0659					Logged By: C. Montoy+ Page of_
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1323	170cm	174	170-	2	66.7			
1200	172 174 m	174 1760		2				
1320	174	176		2	1			
1340	176	178	180	1	748			
1	178	180	1	2	1			Added I Gal of water
1436	( 180	182	189	2	73.7	-		
1	182	184	-	2	1			104+ Shaple, Driller of Hepated Second go to recover sumple of Ager Bit. Disturbe core was succeptly recovered
150	8 184	186	193	12	173.	d		to recover sumple of man price
	186	188	1	2	1	_		
	189	19.5	-	12	1	-	-	
[66	0 190	192	140	1	120	7		
	192	144		1	10	-		
1	- 199	196	198	1	Gu	+	_	Adled I had of water
165	5 196	198	201	1016	811	+		
	159	20		2		-		
8 09	58200	20	2 20	e 2				
	202		1	1	L 179	8.0		

10/8/18 **CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Boring/Well ID: 124 FB-13659 Logged By: C, Manta Page 1 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) interval top (ft bgs) Penetration Rate (ft/min) Femperature (°C) Core run (ft bgs) Time Comments 98.0 206 0958 204 206 Added I Gal of Water CM 200 208 80.4 206 1023 20 106-210 208 210 Added I God of liter 20 786 80 212 110 216 44 212 2 216 214 Surface. Driller will retrive Disturbed core with Ager Bit. Disturbed core successfully 216-1813 218 1225 216 w retrived 220 218 Fulface Deille recovered Distated Come 103. 222 710 226 1546 122 214 1 224 216 1 126-218 94.6 116 150 1610 946 230 218 30. 197 232 2 270 232 1709 Adled One Buy of the the briged in Drill Stem and did not make if to Depth 232-75. 0848 22 236 234 134 06 of TEWATER Ald 1 60 276. 666 238

6/9/18

10/9/18 Project: Kirtland BFF **CORE TEMPERATURE LOG** Project Number: 62735DM02.1017 Boring/Well ID: LAGB-10659 Page 1 Logged By: Comentoyx Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Comments Added I Gallon of sceletik 78.6 Added | Galler of SCE Wate12 246 20.4 24E Drill Charter @ 250 3ft Rin Clone due to restitant material da Hale Driber didnit want to Break a Drill first Dry It Can, love Beriel Stemp going in @ 244-250 725 Added & I Gal of the Water 84.2 81.1 1532 266 

10/9/18 **CORE TEMPERATURE LOG** Project Number: 62735DM02.1017 Project: Kirtland BFF Page 1 9 of Logged By: Cillontoy 2 Boring/Well ID: 14FB-10659 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Time Comments Of SIE LISTER 27 270 272 (2) cm 16.5 1443 276 272 274 274 276 Added of Gallon of water. Core Barrel & as set on ICE over night Diller will attempt 10ft fon. Cure Barrel Tempo 45 of 216-95.8 0858 276 278 286 1001 280 278 6/60 282 280 0 50 284 282 1104 286 284 186 cast 288 186 188 Adled Galler of the water Drythe ismus-Core Bernd Temp 15 FO G8.4 288 188 290 1208 26/6 67.6 192 40 194 67.6 292 296 294 Adjed 2 said water 200 76.1 1134 300 198 301 300

Appendix C

10/1./18

77 of 121

10/10/08

								<i>जिनित</i>
	3					CORI	E TEMI	PERATURE LOG
Project: In Boring/W	Kirtland B		1.00					Project Number: 62735DM02.1017  Logged By: ( M on by ) Page 10 of
Doring/ W	en in:	AFB-10	1999	Т				Logged By: CM ontay Page To of
Тіте	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1154	304	306 306	296	2	1363			
1347	306	308	306-	7	84.5			Added I God of Water
	308	310		2	75.6			
1415	313	312	310-	2.	Ste. 7 155			Core Barrel Temp = 6.8F
	312	44		1	81.78	· ·6		
	314	316	1	2	867			Los 2 m / 2 m o coll 4 E
1578	316	318	324	2	69.7			Corc samteng: 84F
	318	320		1	78.			<b>a</b> '
	323	322		2	74.7			
	322	324			109.	5		Added 1 Cadlon of Water
1609	324	326		2	103	7		Added 1 Cadlon of Weton
1653	326	328	526-	2	739			
	328	229	1	2	74.7	-		B
1736	330	332	33°2	2	77	8		1097 one Co.t of Coic
	354	334		1	81.	Ù_		
	5754	336	1	2	83			
0847	336	338	346	12	705	3		

Appendix C

CORE TEMPERATURE LOG

Project: K						COR	e Tem	Project Number: 62735DM02.1017
Boring/W	ell ID: L	AFB	10659					Logged By: C. Mintays Page (1) of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0847	338	340	376- 340	2	70.8	<u> </u>		
0418	340	342	340- 346	2	70.8	-		Case Birall Texp: 36.2 F
	342	344		2	75.7			
1	344	346		2	89.0			Sot of the sound o
1144	346	348	346- 356	2	1063	<b>-</b>		Worker. Dritter have differences pulling core barel out of hole.
	348	350		2	W8.	0		
	350	357		2	88.8			
	352	354		2	W.0			
	354	35%		2	985			
1155	356	358	363	2	74.7			
1	358	360	1	2	84-8			
1229	360	362	360.	2	70.5			(
	362	364		2	724			
	364	361	1	1	83.1			
1340	366	368	370	2	829			Con Batter Bull Temp: 4.18, Added I God of water
1	368	370	701	2	88.1	-		Con Para II Tan 2000 To A 19 1 1 1
1416	370	372	2371	2	76.9			GGE ROVELL TEMPORT, Added 1 Gal of water

**CORE TEMPERATURE LOG** Project Number: 62735DM02.1017 con Project: Kirtland BFF Page 12 of Boring/Well ID: WATE -10659 Logged By: CimontyA (nterval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) This This Core run (it bgs) Time Comments 372 374 194 77. 376 374 91.2 Core Bottet Barrel Terp: 468, Adled 378 386 1540 376 90.2 378 390 891 380 382 803 2 382 384 95.3 2 384 386 1267 All tomps 17°C 3840 386 219 2 386 27.5% 388 390 (Mc Parell Temp: 31 340 312 09/4 26.3 392 394 2 28.7 396 31.40 396 398 396 1010 406 398 3400 4954 Circ bit Tens: -13°C Added 2 Chy of water 400-400 402 406 1045 1229 424 402 2 406 424

10/16/18

10/10/18

		0					COR	FTFM	PERATURE LOG
	Project:	Kirtland	BFF				COR	E I EIVI	Project Number: 62735DM02.1017
	Boring/	Well ID:							Logged By: Page 1 3 of
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (fuft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
	1128	406	408	436	2	33.4			
	1	404	410	1	2	37.40			
	1756	410	412	40-	1	22.9			
	1	412	414		2	18.8		e e	
		114	thy.	111-	1.5	24.2			
	1400	416	418	416-	2	4020			Spoke to Dille about thing Temps during clear runs Drille will no longer Bring up core during Clean out runs to try to control temp
	1455	418	423	418-	2	28.70	-		Added   God of Water
		420	424		2	25,2			
		M	1		2	229			
		424	116		2	49,0			(4
1 Mary State of the State of th	113.	126	428		1				Core Bit Temp: -31 C
	地	426		436	2	243			
		428	430			32.71			
		430	432		1 1	4.10	-		
	un	432	4514	in	com	46.10	-		
2127		134	436	436-		35.10	_		
418	OHE	436	9380	440		225			

Pro						COR	E TEM	PERATURE LOG
Project: Boring/\	Kirtland	BFF	. 177					Project Number: 62735DM02.1017
Doring	Well ID:	LAFB-	10659				r	Logged By: C. Montayt Page 14 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs),	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0845	438	440	7	2	34,2			
0915	440	442	4340	2	8.8			COIL BITTEMP: -35 C
	442	444	446	2	31.90			
	444	446	her	2	36,00	_		
1040	446	448	446-	2	71,2			are of Temp: . 31
	448	450		2	26.8	-		
	450	451	1	1	28.6			
1125	451	453	4510	2	26.2			Ore Bit Teny: 6.1 C
	453	455	100	1	267	Ċ		
	455	456	I	1	36.9	t.		
1345	456	458	456-	2	24.3			Core Bit Temp: -+.Oc
	458	460		2	25.1			
	460	461		1	274			
note	461	463	461-	2	27.60			
r		465		1	25.40	-		
		Ybt		(	265 (	_		
			471	1	25,1			Add that of water

Г		N.					CORI	E TEMI	PERATURE LOG
1	Project: I	Cirtland E	BFF						Project Number: 62735DM02.1017
	Boring/W	/ell ID: V	AFB.	1065	1				Logged By: C. Manto Va Page 15 of
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
	lezz	467	470	44	2	21			
	1	470	471	1	(	23.7	_		
	1710	471	473	471	2	21.30			
		473	475		2	21.20			
10/18/18	L	475	471	476-		12.0			
10/10/10	1647	478	478	481	1	X22.	14		
* 1		180 c	480		1	221			
( ) Sel	1739	480	482	4840	1	34.4 40.69			
	1	484	486	1010 12m	1	25.8			
0/19/18	1	486	488	486-	1.5	25.			
	1429	488	488		2	33.6	•		
	I	490	491		0.5	29.	8		
	•								Casing any fixer, Arch riz will put casing down to
130/18	510	491	497	20.1					has faller Backints the hole during return trive to surface. Driller Will affect to
		493	435	ral					retrine core using a 20th core partel and a "flupper" Bit
		443.5	155. DO	201					Drilles attempted a 20ft Run But only recovered 12ft - 4401 (2003). (481 - 502 recovered) Dre to Having Services

	<b>A</b> .					CORE	TEMI	PERATURE LOG
roject L	irtland B	FF						Project Number: 02/33DVI02:102
oring/W	ell ID: V	100-1	2659					Logged By: C. Montout Page 116 of
3"	CH ID.	87 B-10	00.3					
	Interval top (ft bgs)	pgq:		Ξ		1	Water injection rate (gpm)	
	pa	ıı (fi	(S)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	n n	
	) (ff	tton	t bg	ery	re (	1 R	ctio	
	tol	poq	n (f	cov	atu	tion	nje	
ه	rval	rval	E C	e re	ıber	etra nin)	n)	*
E	nte	nte	Core	Cor	Lem	Pen (ft/n	Wai (gpi	Comments
	NGC-	1/57						
1510	495	711	204					
1110	Sot	499 499 583	Col					
1	491	499	20.50	10,0				
	507	533	10.5	in-				
	110 cm	Cid		20,5				
	499	501	10:4 10:41	2017				
	53	500	10. Ju	<u>t</u>				
	-				cm			
	2	507	704	-	W.			
-	202	701	1	-				
	1	25	-		CM			
	501	361	705					
1					-			
_	509	00	10.6	-	CN	<b></b>		
	701	) (	0-1					
						ļ		
1510	501	502	2.7	+				
101-	,	-						
	ŀ						1	
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						1		
		-		-				
			,					
				-				
		1						
- 1				ı	I	1	I .	

	2					COR	E TEM	PERATURE LOG
Project: F	Kirtland B							Project Number: 62735DM02.1017
Drilling C		<u> </u>	rscade	2				Start Time/Date:   2-16-18 / 0749
Lead Dril	ler:	R	ger k	odrig	vez			Completion Time/Date:
Drilling N Boring/W	Method: So	nic Cori	ng /	B-	- 101	SVI		Final Depth:
Boring/ w	en iD:		Ent	0	100	50.		Logged By: C-Landers Page 1 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Logged By: C-Landers Page 1 of 1  J. Messenjor L. Andress  Comments
756	8	10	8-16	2	24.5			
	ID	12	8'	2		0 3		
	12	14		2				
1	14	16	V	2	V.		15	
080	16	10	16-	2	249			
		10	1,		1			
+	18	20	6	2				
1	20	22	1	-2	1			
0836	22	24	22-	2	249			
¥	24	26	24	2-	*			
caus	26	20	26-	7	21			
1	20	20	1,	7				
	28	20	6	_				
1	30	52		2	1			
0855	32	34	3276	2	22.7		*	
1	34	36	1	2				
0902	36	38	36-42	2	21.6			
	38	40	al a	2				

					OLD OTHER PHILIPPINS OF THE PARTY OF THE PAR	COR	E TEM	PERATURE LOG
	Kirtland							Project Number: 62735DM02.1017
Drilling (	Company:	Cas	scal					Start Time/Date: 12-16-48
Lead Dri	ller: Method: S	Rober	- 120	8519	rez			Completion Time/Date:
Drilling l	Method: S	onic Cor	ing	1	<u> </u>			Final Depth:
Boring/W	Vell ID:	K	AFB	-10	6V			Logged By: Clares Page of
		(Sg						Logged By: Clandra Page 2 of 9
	8	l p		<b>£</b>			ite	L. Andress
	p	) ii	(SS	(F)	0	ite	2 2	
	p (f	<b>‡</b>	t b	ery	re	R	ct;	
	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	
e)	Va	Va	1	re	per	ir)	er i	
Time	nte	nte.	oro	ore	em	ene t/m	Vat	0
		<del>  =</del>	34-42	-	I	P ()	2 3	Comments
5/12	40	(1)	64-42	2	01/			**************************************
5902	10	170	1	0	21.6			
	<b> </b>	1	42-46					
×612	100	1011	10.16	7	22.7	12		
Odic	1-16	144	1, 1,	1	1			
1		1	4					
11	VV	146	1	7			-	
		110		1	1			
			U/		20			
am C	46	40	46- 52	7				
0929	70	78	56	6	a to			
1	1.1				1			
	48	50	1 ',	2				
$\vdash$	1 0		(0					
	- 3							
	50	52		7	-			
		-	33/		-			
- 19		1	52-56	7	226			
0942	52	54		_	day			
1			4					
	54	56	4	2				
	<u> </u>	00	+		レ			
			56-58					
0951	5/1	58	58	2	37.1			
0131	36	10			37:1			
	-0		1		1			
	58	60	6	2				
			•		+			
	60	62		7				
	60	02		2	L			
			62-11					
1100	15	64	62-66		14			
MOL	04	VY		7	31.1		İ	
A.			10		1			
	CON	66	7	2		1		
1	W .	WW	4	U	1			
	•		66		00			
1113	110	12	72	7	225	1		
1111	W	WU	,		- 110			
1	10	7-		7			-	
	68	401		2		1	}	
$\vdash$		-	, 1		+-			
	71	72	6	2			ŀ	
	40	11	- [	0		- 1	ŀ	
	1							

						COR	E TEM	PERATURE LOG
Project: 1	Kirtland	BFF						Project Number: 62735DM02.1017
	Company:							Start Time/Date: 17/18/18
Lead Dri								Completion Time/Date:
	Method: S	onic Cor	ing					Final Depth:
Boring/V	Vell ID:	K	LFB-	1061	1			Logged By: A Ress Page 12 of 9
æ	(ft bgs)					<b>Kate</b>	on rate	
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1138	72	74	72-76	2	24.3		: = :	
,.	100	71	4'					
	74	76	1	2	1	٥		
1148	76	78	16-82	2	24,5			
	78	80		2			15	
1	80	82	1	して		2		
1350	82	84	84-	2	23.1			
	84	86	41	2				
1405	86	88	86- 92	2	72.2			
	88	90	6	2				
×	90	92	¥	2	2			
1419	92	94	92-96	2	22.4			
1	94	96	41	2				
1430	96	98	96-	2	23.2			
	98	100	6	2				
*	100	102	*	2	1			
1445	lor	104	10100	2	30.8			

				-	***************************************		COR	E TEM	PERATURE LOG
P	oject: 1	Kirtland I	BFF						Project Number: 62735DM02.1017
		Company:							Start Time/Date: \2/16/18
	ead Dri			****					Completion Time/Date:
		Method: S	onic Cor	ing					Final Depth:
			VAF		1.1/1				
-	orme, i	T T		3-10	441	T			Logged By: Andress Page 73 of
			Interval bottom (ft bgs)		_				Corres Candrs 78 4
		Interval top (ft bgs)	=		Core recovery (ft/ft)			Water injection rate (gpm)	
		t P	B	gs)	9	5	ate	n r	
		) d	<b>₽</b>	ي ا	E.	re	R	it;	
		5	Pg	9	00	at	ior	ıje.	
	2.	Val	Val	r.	re	Temperature (°C)	in in	r ii	
	Time	ter	ter	ore	)re		ne /m	ate	
	E	1 =	=	Ü	Ŭ	- E	Penetration Rate (ft/min)	(g)	Comments
				Core run (ft bgs)	-	0			
-	UNI	104	106	Ul	17	308			
	CYT	107			-	1200			The state of the s
	22.1		107	106-					
1.	57A	101-	107	115		-	- 12		
1	530	100	100	11	1	35.5			
		107	109		1	1.			
		100	100		7				
		UX	HO		1				
_		109	111		nesen.				
		100	111	91	7				
		HO	17	1 6	-		100		
-	+		115	1	+	+	<u> </u>		
		111	113		7				
		113	144		1				
_	-	112	116		-	+			
		15.	115		17				
		444	++-		4				
_	_	ı	VI	1					
				115-			. 1	to.	
1	NU	115	116	120		1200			
la	548	WD	110			30-1			
_				1,					
		116	118	6	1	31.1			
		116	110	5	2	21.1	- 1		
-				1	<b>T</b>	$\vdash$			
		110	1		7	202	.		
- 5		118	120		1	28-7			on 12-16/18:/
	-			140			-		
	-111			126		2			
0	846	120	122	1	17	29.3		11	added ~ 2.5 gollers wall
_	,	100	,,,,,		-		+		con bunch is stick @ 115
			,	11				V	Pushe casing their pulling our - unstres
		122	124	6	17			1	12/16/18
_	+-	100	10		V	HH			
			, ,		0			ļ	
		124	126		2			1	
_	+	10		1		+			
				128-					
/	10	171	120	130	7	28.8			The state of the s
>	910	126	128		6	10.01		ľ	
	1	-		111					
		(20)	127	4	2		1	ŀ	
	1	[28]	130	V_	0			ŀ	and the distribution of the administration of the distribution of
	7	<del>'</del>	1-	13.4	-	-			
		1	100	130-4	1	اارا		ŀ	
X	70/	(30)	132	157	7	25.1	1	}	
	100					V			
_	126	V							
	120	V	121	1,		1		1	
	100	V	13Y	6	7		5	Į.	

		73				COR	E TEM	PERATURE LOG
Project: I	Kirtland I	BFF						Project Number: 62735DM02.1017
Drilling (	Company:							Start Time/Date: \2/16/18
Lead Dri								Completion Time/Date:
Drilling l	Method: So	onic Cori	ing					Final Depth:
Boring/W	Vell ID:	KAFB	-106	VI				Logged By: Low Andress Page 15 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
6926	134	136	136 6	2	25.1			
0456	136	124	136-	Z	9			
1	124	146	4.		26.5			
+	170		1	L	V			
1009	NO	142	146	Z	T			
1	142	144	1,	2	31.1			
$\vdash$	140	17/	6		-			
	144	146	L	2				
1547	146	148	T	2	1			
	148	150	1	3	27.3 L	•		
1606	150	152	1	)				
	152	154	6'	5	P.46			
	154	156	1	2				
1633	156	158	+	7	29.4			
الريد ٧٧٠	158	(60	·U	721	29.6			
,	100	1 00	1	-				
1655	160	[62		7	323			
	162	164	6	2	,			
	164	166		2	1			

	CANTON NAME OF	<u></u>					COR	E TEM	PERATURE LOG
		Kirtland E	BFF						Project Number: 62735DM02.1017
		Company:							Start Time/Date:
	Lead Dri								Completion Time/Date:
	Drilling l	Method: So	onic Cori	ing					Final Depth:
	Boring/W	Vell ID:		AFB.	-106	V			Logged By: Page 1 6 of
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	
		l H	l d		0	Ţ	Pe (ft	<u>₩</u> <u>@</u>	Comments
3	0900	166	168	2'	170	29.4			
	+	168	170	Z'	1	7			
	0950	176	178	フ	176-	36.1		***************************************	
	1	178	180	2	41	1			
	<u>+</u>				180-	75.55			
	1008	(80	182	2	186	12.			
		182	184	2	61				
		184	186	2		1			
	116	186	188	2'	186-	37.6			
-	1	188	190	1	1				
-		190	(92			1893			
-									
-		192	194						
-	1	194	194	1	7	1			
	1150	1961	98	2	196-	3.4			
		198	200	2	4	1			
-	1320		202	2	204	29.2			
-		202	204	7	1	1			

Project: 1	Kirtland I	BFF					E TEMI	Project Number: 62735DM02.1017
	Company:							Start Time/Date:
Lead Dri								Completion Time/Date:
Drilling l	Method: So	onic Cor	ing					Final Depth:
Boring/V	Vell ID:		LAC	3-10	6V1			Logged By: Page 12 of
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Joshva Mussenger
HIM	10V	70%	71	20	1 P	25	W (81	Comments
1400			21	50	1	- 1		
	206	308	2					
1	208	210	2"	2000	1			
1455	210	211		215	28.4			
	711	213	21	5				
١,	213	215	21	4	4		-	
1519	215	26	2	250	24.3	4	-	
	216	218	2	5				
	218-	220	2					
1602	220	u	2	rr	26.1		-	
1426	222	224	2	230	30.5			
,	m	226	2	1	1	5.		
	We	228	2	8			- 14-1	
	228	230	7					
0800	230	237	2	u'	34,4		-	
	832	234	2		1		_	

			***************************************		-	COR	E TEN	MPERATURE LOG
	Kirtland							Project Number: 62735DM02.1017
	g Company	r:						Start Time/Date:
Lead D							***************************************	Completion Time/Date:
Drilling	Method:	Sonic Co	ring			-		Final Depth:
Boring/	Well ID:	KAG	3106	UT				Logged By: Page 12 of
			T		T	T	T	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		Interval bottom (ft bgs)	1	10			و	
1	Interval top (ft bgs)	=		Core recovery (ft/ft)	0	0	Water injection rate (gpm)	
	=	l e	pgs	1 %	1 5	Zat .	80	
	g.	to	=	Ver	l ii	-	) Set	
1	1 7	1 =	8	200	Ta Ta	1 th	ľĚ	A .
9	2	Ž	6	e r	Temperature (°C)	Penetration Rate (ft/min)	P = 0	
Time	lute l	nte	0	j	e	ft en	Vat	Comments
V			Core run (ft bgs)		-	- C	75	Comments
3845	234	2%	676	21	25.7			
00.0		1000	240	6	W.			
	<del> </del>	+	+	1	+	-		
1 1	716	1051	1 ,	121	١.			
14	236	238		12	11			
<del></del>	+	<del> </del>	++-	+	+	-		
	172	240		71				
1	238	VIO	12	16	-			
-	-	+	+	+	-			
M.	- de	nd-	(	240/5	32.7			
1920	240	242	Z	69015	Sr.			
	0	-	_	12.				
	1.6	2111	1 .	1.				
1	242	244	2					
			1.7					
	21.1	1	1	1 1				
	244	245		1-	17			
	011	10 11						
			1		ITI			
0945	245	246	11	11/		.		
0117	01)	Dily	'	245-		- 1		
1		- 110	1					
	246	248	21.	60	30.4	1	- 1	
	0.0	0.0	0		1		1	
	S 44.0		,					
	348	350	2'				l	
4			0	L	1		[	
100/	9-			al	0			
1035	250	252	21	259	24.0		ſ	
		- / -		257				
			_(					
1 1	252	254	2	1	1	.		
	0,0	01				- 1	ľ	
	,		9 9					
4	254	255	10	1	4	1	f	
	001	WI	t				r	
7				161	10			
1(20	255	200	10	222	24.3		-  -	
	01	256	·	255	1		ŀ	
	751	200	21	,	,	1	- }	
	256	258	6				-	
					-+-+			
	760	acal	-1				-	
0	258	260	21	0	1	1	-	
1							_	
			12	1			_	
	l							

		i i			· ·	COR	E TEM	PERATURE LOG
	Kirtland							Project Number: 62735DM02.1017
	Company					-		Start Time/Date:
Lead Dr							***************************************	Completion Time/Date:
	Method: S	onic Cor	ing				-	Final Depth:
Boring/V	Well ID:	KAFI	31/36	111				
	T		7	7	T	T	T	Logged By: Page 10 of
	Interval top (ft bgs)	Interval bottom (ft bgs)	(ft bgs)	Core recovery (ft/ft)	ure (°C)	n Rate	Water injection rate (gpm)	
Time	nterval to	nterval b	Core run (ft bgs)	ore reco	Temperature (°C)	Penetration Rate (ft/min)	/ater injo (pm)	
	=	100	10	0	F	4 5	200	Comments
	260	262	191					
1196	10)	264	121	266	28/6			
1	<del> </del>			266	1			
	264	266	3,		1			
1325	266	268	21	286-	26.7		ě	
	215	27.	21	1	1			
+	268	270	2'	270-	d			
1420	270	272	Z	275	354			
1.	277	774	21					
4	774	23	1	7	1			
1445		277	21	775	28.3			
,		010	11	US.	1			
	277	29	0					
7	249	281	21	ط	4			
520	281	283	21	4	71.4			
	283	285	1					
			1					
TU	0	98	5			-		
1- 37							-	
						L		

						COR	E TEM	PERATURE LOG
Project:	Kirtland 1	BFF						Project Number: 62735DM02.1017
Drilling Load Dri	Company: iller: Ro Method: S	Caso	ale					Start Time/Date: /2/12/18
Drilling	Method: \$	onic Cor	ing ve	2				Completion Time/Date:
Boring/V	Well ID:	1 ACR	1261/2	,				Final Depth:
- John J.			1000 2	Í				Logged By: C. Montry Page 1 of 10
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0749	10	12	2	16	23.1	)		
1	12	14	1					
	14	16	1					
0855	16	18	2	16-	24.5	/		
0033	18	20	2	2(	1			
			L					
1	20	21	\	1	1			
0916	u	12		21-	24			
	12	24	2	Ì				
	24	U	1					
0923	26	28	1	16-31	24.3			
1		30	4					
	30	31	1					
0939	3\	52	1	31-	24.4			
	32	34	1	34				
	34		1					
oran		36 20	1	36	1.0	-		
الحالات	56	38	2	41	27.4			

	3		***************************************			COR	E TEM	PERATURE LOG
Project:	Kirtland	BFF	/-/	4				Project Number: 62735DM02.1017
Boring/V	Vell ID:	AF13	-106	7	T		Т	Logged By: Page 12 of 10
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0950	38	40	2	36-	120			
1	40	41	1	1	1			
1005	41	42	1	41-	24.	4		
	42	44	2			10°		
	44	46	2		1			
w17	46	48	2	46- 51	A:			
	48	50	2		1			
	50	51			1			
1040	51	52		51-	B	4		
	52	54	2		9			
1	59 .	56	1					
1049	56	58	2	56- 61	252	)		
	58	60	2					
	60	61	1					
[[[0	ć1	62	(	61-	25-			
	62	64	2				-	
	64	66	1		1			

Project:	Kirtland 1	DIFE				COR	E TEM	PERATURE LOG
Boring/V	Vell ID:	AFB-	106V	2				Project Number: 62735DM02.1017 Logged By: Page 12 of 10
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
112	66	68	Z	66- 71	250			
	68	70	2					
	70	71			1			
(do	+1	12	l	71-76	24.4	/		
	H	74	2					
	74	76	1	-		-		
153	76	78	Z	76-	28.9			
	78	80	2					
	80	81			1			
MB	81	82		81-	224			
<b>\</b>	82	84	2					
	84	28	1		1			
1430	86	88	2	91	25.4			attempt to recover distrible cere
1448	88	90	2	88-	64.9			briller successfully recovered bistubel core High teams are one to core permy refaced sidned times
1	90	91	1	1	1			
1500	91	92		96	197	-		Added one but of water
	92	94	2					

A		1			COR	E TEM	PERATURE LOG
							Project Number: 62735DM02.1017
	<i>r</i> :						Start Time/Date:
	Sonic Co	ring					Completion Time/Date:
			61/7	,			Final Depth:
T		B. 7.	70 2	Ī	1	Ι	Logged By: C. Montogs Page 14 of 10
Interval top (ft bgs)	Interval bottom (ft bg	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
94	96	2	96	24:	7		
96	98	2	96-	59.9			Core lost Down have several times, High Temps expected, Disturbed core
98	100	-	_	_			No hecovery
loo	102	2	105	49.5 57.2			
102	104	2	9	38-8	/		
104	105			48.5	_		
105	101	1	1	37.	1		
104	104	2		1			
108	110	ı					
No	112	1	115	25%	7		
112	114	2	1	(2)			
114	015	(				- 6.	
115	116	(	115-	15.	f		
116	118	2	1	1		- es	
118	120	7					
120	[22	2	120-	290		gt.6-	
	Company riller: Method: Swell ID: Well ID: Well ID: 104 106 107 109 109 109 117 119 119 119 119 119 119 119 119 11	Method: Sonic Co Well ID: KAP  Well ID: KAP  Well ID: KAP  100 100  100 10	Kirtland BFF Company: Tiller: Method: Sonic Coring Well ID: KAPB-/0  Well ID: KAPB-/0  (108)  (108)  (109)	Note   100   105   1   100   105   105   106   107   106   107	Company:   Company:	Company: righter:   Company: righter:   Company: righter:   Method: Sonic Coring   Well ID:	Company:

						COR	E TEM	IPERATURE LOG
	Kirtland							Project Number: 62735DM02.1017
Lead Dr	Company	':						Start Time/Date:
Drilling	Method: S	Sonic Cor	ring					Completion Time/Date: Final Depth:
Boring/	Well ID:	KAF	-B -	0615	2			
			T	700		T		Logged By: Cox los Manieya Page 15 of 10
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0833	122	124	2	126				
L	124	12,6	2	L				
2611	126		2	P26-	25:1	_		
0910	(00	128		130	1			
	128	130	2		1			
0931	130	132	2	130-	27.1			
	132	134	1	176				
	134	136	1			a		
0959	136	138	2	136-	30.3			
1	138	140	7.	1				
				140-	1			
10/0	140	142	1	146	19.5			
	142	144	2					
	144	146	2					
1045	146	148	2	146-	31.1			
1				150	+		n-set	
		150	2	160-			2(**)	
1100	150	152	2	150-	27.4			
	152	154	1			1		
1								

6 of 10	017	RE LOG Project Number: 62735DM02.1017 Start Time/Date:							BFF	Kirtland	Project:
6 of 10		Stort Time/Date:								Company	
6 of 10		Start Time/Date:									Lead D
6 of 6		Completion Time/Date: Final Depth:						ing	onic Cor	Method: S	Drilling
OI _/	Page 16	Logged By: Colos Marty a					6V2	B-100	KAFI	Well ID:	Boring/
,	1 480 10	The transfer of									
		Comments		Water injection rate (gpm)	Penetration Rate (ft/min)	Temperature (°C)	Core recovery (ft/ft)	Core run (ft bgs)	Interval bottom (ft bgs)	Interval top (ft bgs)	Time
						24.7		1	156	154	1100
			Andrew Leaders Hooffice Headers He			26,2	158	2	158	156	1122
					/	20.8	163	2	160	158	1140
	neisel peiser neiser heibet seelsel seltsellsellsellsellsellsellsellsellsell					23.9		2	日	160	
	Hostoskoj krijostrakoj krijostrakoj krijostrako					25.4			163	162	
			The first of the f	8)		30.9	163-170	1	169	163	1210
				-				2	166	164	
	namat taipat taijattuinin tirakutusta kaliattuin tielattuin							1	168	166	
								1	170	168	
Manager and the state of the st				91		25.9	170-	2	177		1355
Mengierantingkenjarantingkenjarin	(Halfortteatra) (Pattraneatra) (Pattraneatra)					011	[70	-	.,.		75
								2	174	172	1
						4	1.	2	176	174	1
	Homer than the first translation to specify the straight of th		erikeelte Visertt Piteelt erlinetter	ester.		18.1	76	21	178	176	1421
	oonoo loogaalisakan ka			Process		te.zt		2	80	178	
				control control		7.4	80-	7	(82'	180	1439
			teoplesjirogsvoji tegjerjjirogsvojin	21041				7	184	182	
						26.2 20.8 23.9 25.9 25.9	156-158-163-163-163-163-163-163-163-163-163-163	2 2 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	158 160 163 169 166 168 170 172 174 176 178 180	156 158 160 162 163 169 166 168 170 172 174 176	11/22

						COR	E TEM	IPERATURE LOG
	: Kirtland							Project Number: 62735DM02.1017
	g Compan	y:						Start Time/Date:
Lead I	g Method:	Sonia Ca						Completion Time/Date:
Boring	/Well ID:	Sonic Co	ring FB-1	b/M				Final Depth:
Doring	Well ID.		10-1	UGV	0	T		Logged By: Corles Mantey a Page 17 of
		Interval bottom (ft bgs)						Lane Andress
	Interval top (ft bgs)	(£		Core recovery (ft/ft)	6	8	Water injection rate (gpm)	
	E E	u o	saq	9		Sat	00	
	top	oott	₩	ver	l iii	l n	ecti	
	/37	/a [ [a/	Core run (ft bgs)	Jec	Temperature (°C)	ati (1	Ē	
Time	ter	ter	le l	re.	ď	netr mir	n)	
Ë		- H	ပိ	్రి	Te	Penetration Rate (ft/min)	W? (gp	Comments
1.1.	1	1.20		180	-			
1430	184	1180	12	141	, 27.4			
- 0	-	101	<b>A</b>					
100		10 t	7	186	24.1			
1535	186	178	to	18	7 6			
1		1	1 1	1 1				197-1906
	107	1.10	9					
	187	1189	L		-			
				150.	. 0			140 = 1011 treserted / 11
1559	189	lan	1	100	189			to tay to one to make the last
100	10	190		1199	100			
1			_		1	Ī		
	190	192	12					
	IW	100			++-			anner trette de la companya del companya del companya de la compan
	11	-11	7					
	192	194	2				ł	
		1 1		+				
	194	141.	97	11				
-	1,11	196	U		1			
		1.0		196-	0-0			
1625	196	198	2	198	30.2			
	V-	- 00						the state of the s
080	195	7111	7	198	32.8			
9200	110	w		206				
					1 +			
	200	202	2	Î	1			
	CVC	200					***	
		21						
	202	204	2					
		1					ine	
	201	261	2					
-4	204	206			1			
					1 /2			
NO NA	201	200	_	206	24.3			
0900	206	208	2	212	V .		-/	
1	208	210	2	1				
	CVV	0.0					h	
			-					
_	210	212	U		1			
*		•						
	210	011/		217-	1			
0937	212	214	7	212-	25.6		[	
1 10	- 1		0	0.19	y .			

Appendix C

					COR	E TEN	IPERATURE LOG
							Project Number: 62735DM02.1017
	ıy:						Start Time/Date:
ng Method:	Sonic Co	oring					Completion Time/Date:
g/Well ID:	KAF	B = 1/	16 V2	L			Final Depth:
		7 "	70 40	7			Logged By: Lone Andress Page 18 of 10
Interval top (ft bgs)	Interval bottom (ft bg	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
2 214	215	5 1	212-	25.6			
3 215	34		612				
216	218	2	-	23.3			
218	220	2		22.0			
220	222	2	220	345	-	-	
222	224	2	1	1			
224	226	1		1			
			126				
121	220	T			-		
de	998		9	37.5			
998	230	810	9	1			
330	33)		2			300	
23)	34	¥	2	<b>3</b> .3			
234	236	¥.	7			#1755 ##186	
236			236	42.9		19241	
238	240	2	1	1		- core	
240	248	2				270a11	
	Ing Compar Driller: Ing Method: Ing Method	214 215 216 218 217 219 219 219 210 212 210 21	19 Company: Driller: 19 Method: Sonic Coring 19 Method	ag Company: Driller: ag Method: Sonic Coring g/Well ID: VAF5 - 106 V3    (3)   (4)   (4)   (4)   (4)   (4)   (4)     (4)   (4)   (4)   (4)   (4)   (4)   (4)     (5)   (4)   (4)   (4)   (4)   (4)   (4)     (7)   (7)   (4)   (4)   (4)   (4)   (4)     (7)   (7)   (4)   (4)   (4)   (4)   (4)     (7)   (7)   (4)   (4)   (4)   (4)   (4)     (7)   (7)   (4)   (4)   (4)   (4)     (7)   (7)   (4)   (4)   (4)   (4)     (7)   (7)   (4)   (4)   (4)   (4)     (7)   (7)   (4)   (4)   (4)     (7)   (7)   (4)   (4)     (7)   (7)   (4)   (4)     (7)   (7)   (4)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (4)     (7)   (7)   (7)     (7)	Toriller:   2 215 246 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 217 215 1 212 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	

					COR	E TEN	APERATURE LOG
Project: Kirtland Drilling Compan							Project Number: 62735DM02.1017
Lead Driller:	y:						Start Time/Date:
Drilling Method:	Sonia Cori	ina					Completion Time/Date:
Boring/Well ID:	Manual Corp	ing	10010				Final Depth:
Boring Well ID.	- Total	13 100	DVA	_			Logged By: L.A. Page 1/9 of /O
Time Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
249	244	2	236	+			
1 244	246	2	1	1			
1 246	248	3	٥.	7			
1 248	250	2	2'	27.5			
250	252	*	2'	*			
1420 252	259	61		206			
		6	-	28.5			
259	256	1	7,	4			
456 256	258	260	2 2	0.0			
258	$\alpha(\alpha)$	4	2'			lene lene	
521 260	262 2	60-	2' 2	24		- 204	
262		,	21	3.1		j pro-si	
	264 (	0					
1 264	266	6-	<i>L</i> -	1			
147 266	208 2		2 2	5.5	-		
268	270 4		2 _			D. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	
13 270 7	372 2	75-0	2 23	9		74 17 4 19 19 19 19 19 19 19 19 19 19 19 19 19	
272	174 5	1 -	7 1			e de la companya de l	

		<b>A</b>		*****************			COF	RE TE	PERATURE LOG
		Kirtland						2.27	Project Number: 62735DM02.1017
		g Company	y:						Start Time/Date:
	Lead D								Completion Time/Date:
	Drilling	Method:	Sonic Co	ring				<del></del>	Final Depth:
	Boring/	Well ID:	V	A+B-	-106	V2			
			(8)	T	T		T -	T	Logged By: Lave Jad ress Page 1 O of 10
	٠	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	
	Time	Inter	Inter		Core	Tem	Penet (ft/mi	Wate (gpm)	Comments
	1613	274	275	270-	1	23.9	4)		Comments
12-15-18	6868	275	276	275-	1	28.4			
		276	278	5	2'				
	1	278	280	1	2			22	
	0839	280	28(	1/282 1/	1'	36.5			
e ·	0908	28/	283	281-237	2'	34.3			
	- 1		285		2'	37			
			287		2'	27.9			
- 1				4	-				
-				1	-		- 1		TD=287'
L				1					
		Ī					$\neg \neg$		1
							- 1	1	
			1				1	1	
						$\neg \neg$			
1			1	- 1	- 1			ŀ	
1			- 1	- 1-	- 1	- 1		t	
	T						-++	-AA	
1	1	- 1				- 1	1 H	1///	
					- 1	1	1/1/	10/1	
Γ						_	M		
							11		un pour autratorio proprio de albano de albano que producido por producido de albano d
1	1	1	1	1					
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	- 1						V	-	
						1		-	
<b> </b>					$-\vdash$				
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	1.		1	1		1		-	
-	-			-+		$\dashv$			
12					1			1	
							L_		The state of the s

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: ascade Start Time/Date: Drilling Method: Sonic Coring
Boring (Well ID) Completion Time/Date: Final Depth: KAFB-106247 Boring/Well ID: Logged By: of 18 Page 1 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Core run (ft bgs) Comments 876 0830 8 lo 2 268 10 12 2 14 16 16-18 20-228 26 900 28 2 30 10 32 36

1-30-19 1-29-19 sm

			-	-		-	COR	E TEN	PERATURE LOG
Pro	oject:	Kirtland	BFF						Project Number: 62735DM02.1017
		Company	y:						Start Time/Date:
Dr	illing	Mothod:	Carla Ca	,					Completion Time/Date:
Bo	ring/	Well ID:	Some Co	ring B-10	1-71	1-1			Final Depth:
100	inig/	Ven 1D.	CAR	P-10	600	17			Logged By: CA CRL Page 2 of 18
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0	92	36	38	36- 46	2	267			
		38	40	15			-		
		40	42						
		42	44						
I	/	44	46	Y.	/.	¥			
10	03	1.10	48	46-	7	19.9			
10	1	.1.		56	-	11			
		48	50	10'					
		50	52			.	27	=1	
		52	54						
	1	54	56	V.		V			
1/	21	11	30	По-		11	_		
10	W	56	58	66	7	4.5			
		58	60	10				-	
		60	62						
		62.	64						
\	/	(1)	bla		.//-	V.			
	-	101	UU	- We	W.	1	_		

	CORE TEMPERATURE LOG										
	Kirtland							Project Number: 62735DM02.1017			
	Company	:						Start Time/Date:			
Lead Dri	iller:			-				Completion Time/Date:			
Drilling .	Method: S	Sonic Cor	ing	<b>N a</b>	17			Final Depth:			
Boring/V	Well ID:	KAY	76-1	062	44			Logged By: Page Page of 18			
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments			
1035	66	68	66 <sup>-</sup> 76	2	22.4						
	68	70	10								
	70	72				()					
	72	74									
¥	74	76	4	1	¥						
1105	710	78	76-	2	32.7						
	78	80	10								
	80	82	Ī								
	-7	oil				-					
	86	84									
1	84	86	本	1	¥						
1125	86	88	86- 96	2	34,5						
M <sub>a</sub>	88	90	16		1:						
	90	92									
	92	94									
*	94	96	1	4	L						
	-	12									

					-	COR	E TEM	PERATURE LOG
	Kirtland :							Project Number: 62735DM02.1017
	Company							Start Time/Date:
Lead Dr	Method: S	onia Con	dua					Completion Time/Date:
Boring/	Method: S Well ID:	OMC COL	111g	1/27	1.7			Final Depth:
Doing)	T T.	- W	PIL	706	47	T		Logged By: CRU Page of 18
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1148	96	98	96-	2	38.7		:	
	98	100	8					
	100	102						
V	102	104	1	V	X			
1210	104	106	104-	2	385	-		
		108						
	108	110	1					
	110	112						
	110	110				-		
	112	114						
¥	114	116	本	业	¥			
1323	116	118	116-	2	749			
1365	118	120	118-	2	777			
	120	127	6	-	1.4			
	177	1716					-	
4	100	104	*	- <del>*</del>	*			
						$\dashv$		

	<u>S</u>					COR	E TEM	PERATURE LOG
	Kirtland 1					**********		Project Number: 62735DM02.1017
	Company:							Start Time/Date:
Lead Dri	ller:							Completion Time/Date:
Drilling 1	Method: S	onic Cor	ing					Final Depth:
Boring/V	Vell ID:		3-106	224				Logged By: CRL Page 5 of 18
Тіме	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
1412	124	126	124-	7	246			
	126	128	6'					
*	128	130	¥	水	水			
1435	130	132	130-	Z	348	?		
	132	134	6					
*	134	136	1	1	1			
1455	136	138	136- 142	Z	32.9			
	138	140	6					
X	140	142	业	Y	*	•		
1540	142	144	142-	2	28.7			
V	144	146	4	V	上			
1600	146	148	146-152	2	35.6			
	148	150	6					
1	150	152	Y	V	*			
1618	152	154	4	2	29.1			
1	154	156	Ł.	¥	1			

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Start Time/Date: Lead Driller: Completion Time/Date: Drilling Method: Sonic Coring Final Depth: KAFB-106247 Boring/Well ID: Logged By: CLL Page 6 of 18 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Time Comments 156 156 1637 158 162 158 160 160 162 1-31-19 162 166 168 176 174 176 1015 176 156 178 182 180 182 184 186

	CORE TEMPERATURE LOG											
	Kirtland I							Project Number: 62735DM02.1017				
	Company:							Start Time/Date:				
Lead Dri								Completion Time/Date:				
Drilling 1	Method: S	onic Cor	ing /	//	2	10.	11	Final Depth:				
Boring/W	Vell ID:		-	MFC	3-100	2 de	7	Logged By: Page of 18				
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments				
1035	186	188	186° 146	21	255							
	188	190										
CTANGERSTON	190	192	the second distance of	* American Constitution of the Constitution of	POT SECRETARION OF SECRETARION							
	192	194		And designation of the control of th	And the first constraints of the state of th							
7	194	196		1	1							
1110	196	198	196 - 206	21	27.7							
1	198	200	1	1	1							
	200	202										
	202	204										
2	204	206	9		1							
1345	206	208	26°-	21	23.5							
1	208	210		21								
	210	712		2"								
	712	213	]	11	1							
1600	213	214	213/	1	19.6	-						
1625	214	216	214-	で			. *					

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Start Time/Date: Lead Driller: Completion Time/Date: Drilling Method: Sonic Coring Final Depth: Boring/Well ID: Logged By: Page of 18 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Time Comments 226 26,0 216 218 1712 220 718 222 224 222 226 226 26,7 0810 226 228 23t 230 236 232 134 234 236 236 238 0900 Th 236 246 238 246 240 242 742 244 0

2-1-19

Drilling Company:    Lead Driller:   Core	roject Number: 62735DM02.1017 tart Time/Date: ompletion Time/Date: inal Depth: ogged By: Page of 18
Time Interval top (ft bgs) Core recovery (ft/ft) Core recovery (ft/ft)  Core recovery (ft/ft/ft)  Core recovery (ft/ft/ft)  Core recovery (ft/ft/ft)  Core recovery (ft/ft/ft)  Core re	ompletion Time/Date: inal Depth: ogged By: Page of 18
Core recovery (ft/ft)	inal Depth: ogged By: Page of 18_
Time  Interval top (ft bgs)  Core run (ft bgs)  Core recovery (ft/ft)  Temperature (°C)  Water injection rate (gpm)	ogged By: Page of 18_
Time Interval top (ft bgs) Interval bottom (ft bgs) Core run (ft bgs) Core recovery (ft/ft) Temperature (°C) Fenetration Rate (ft/min) Water injection rate (gpm)	
Interval top (ft bgs)  Interval bottom (ft bgs)  Core recovery (ft/ft)  Core recovery (ft/ft)  Temperature (°C)  Penetration Rate (ft/min)  Water injection rate (gpm)	Comments
206 24 246 1 21C	
0990 246 248 256 2' 34.5	
1 248 258 1 1	
250 252	
252 254	
254 256 4 1	
1075 256 258 266 2 44.6	
258 266 1 1 1	
0000	
260 262	
262 264	
2 264 266 1 1 2	
1145 266 268 246 21 35.8	
1 268 270 1 1 1	
270 271	
272 274	
274 276 2 1	

	CORE TEMPERATURE LOG												
		Kirtland I	BFF						Project Number: 62735DM02.1017				
		Company:							Start Time/Date:				
Lead									Completion Time/Date:				
		Method: So	onic Cori	ng					Final Depth:				
Born	ng/ v	Vell ID:	Т	Т	Т	T	Γ	Ι	Logged By: Page 10 of 18				
Time		Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments				
141	10	246	278	246'	21	30,4							
		278	280										
		280	282		-								
		282	284					-					
a		284	286	a		A		,					
150	00	286	288	294	d	46.4							
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	288	290	1	1								
		290	292										
d		292	294	d	1								
15	55			294- 306	21	96,9							
-1		296	298	1	1	1							
		298											
			302										
4		302	309		7	1							
		304	306		~	4							
7		<i>y</i> (	7-0										

		3	PERATURE LOG						
	Project: I	Cirtland B	FF						Project Number: 62735DM02.1017
	Drilling (								Start Time/Date:
	Lead Dril								Completion Time/Date:
	Drilling N	Method: So	nic Cori	ng //	-	-1//	11/-	-1	Final Depth:
	Boring/W	eli iD:	Ι	KA	TP	106	24		Logged By: Page 11 of 18
	Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
9	0815	306	308	30/2	2'	53,0			
	The second secon	304	310						
		310	312			And the second second		,	
	or September of the September of September o	312	314	And the first of t					
	4	314	316	4	1	1			
	0850	316	318	316°	21	53,1			
	Ì	315	320						
	AND DESCRIPTION OF THE PROPERTY.	320	322	PRINCIPAL PROPERTY OF THE PROP	PERSONAL PROPERTY OF THE PARTY OF	*** A Laboration of Participation of the Participat			
	(LL) with the second se	322	324	And the Property of the second distance of th	The section of the se	And the second development products			
		324	326		أبر				
	1010	376	328	336	21	361			
		378	330						
		330	392						
		332	334						
	0	334	336	2	1	1			
	-								
L		1							

		3					COR	E TEM	PERATURE LOG
		Kirtland I	3FF						Project Number: 62735DM02.1017
		Company:							Start Time/Date:
	d Dri	Method: Se	onia Coni						Completion Time/Date:
		Vell ID:	ome Cori	ng					Final Depth:  Logged By: Page 12 of 18
DOL	ing/ t	T ID.	Π_	T	T	T	T	T	Logged By: Page <b>12</b> of <b>18</b>
	Ime	Interval top (ft bgs)  Interval bottom (ft bgs)		Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min) Water injection rate (gpm)		Comments
jle	N)	336	338	396°	21	29.1			
		338	340		İ				
		340	342	AND THE PROPERTY OF THE PROPER					464
		342	344		The state of the s				
J	)	344	346		H	A			
13	55	346	348	346 ° 356	21	48,2			A 25 5 5
	1	348		1	)				
		350	352						
									,
5		352	354						
/		354	356	A	1	7			
150	55	356	358	356- 366	21	38.1			
ì		358	360		İ				
		360	362	N.					
		367	364		8				
			366	7		1			
		700	, 50						
				1					

	3					COR	E TEM	PERATURE LOG
	Kirtland E	BFF						Project Number: 62735DM02.1017
Lead Dr.	Company:							Start Time/Date:
	Method: So	onic Cori	ng					Completion Time/Date: Final Depth:
Boring/\								Logged By: Page 13 of 18
Time	Interval top (ft bgs)	Interval top (ft bgs) Interval bottom (ft bgs) Core run (ft bgs) Core recovery (ft/ft)		Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments	
1535	366	368	346°	21	40.1			
	368	370	r					
72	370	372					ž.	
	372	374						
d	574	376	J		4			
1640	376	318	370) 386	21	38,5			
	378	380						
	380	381						
	382	384						
1	384	386	d	A	اد			
1720	386	38L	386° 396	21	363			
	388	390		ſ	1			
	390	392						
	392	44						
1	394	396	4	d	لد			

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Start Time/Date: Lead Driller: Completion Time/Date: Drilling Method: Sonic Coring Final Depth: Boring/Well ID: Logged By: Page 14 of 18 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Comments 396 396 48,3 0830 406 400 400 402 404 402 406 0925 406 Ut. 416 408 410 410 412 414 412 416 416-418 No RECOVERY 418-426 highly disturbed 416 9.2 416 430 420 418 420 422 424 422 426

2-3-19

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Start Time/Date: Lead Driller: Completion Time/Date: Drilling Method: Sonic Coring Final Depth: Boring/Well ID: Logged By: Page 15 of 18 Interval bottom (ft bgs) Water injection rate (gpm) Core recovery (ft/ft) Interval top (ft bgs) Penetration Rate (ft/min) Temperature (°C) Core run (ft bgs) Comments 428 highly disturbed 430 430 435 431 433 431 433 435 21.2 0810 437 450 442 448 1005 1125 463 453

2-4-19

**CORE TEMPERATURE LOG** Project: Kirtland BFF Project Number: 62735DM02.1017 Drilling Company: Start Time/Date: Lead Driller: Completion Time/Date: Drilling Method: Sonic Coring Final Depth: Boring/Well ID: Logged By: Page 16 of 18 Interval bottom (ft bgs) Core recovery (ft/ft) Water injection rate (gpm) Interval top (ft bgs) Temperature (°C) Penetration Rate (ft/min) Core run (ft bgs) Time Comments 456 458 1320 466 461 458 462 460 464 462 464 166 466 468 966 470 468 486 0840 476

Appendix C

2-5-19

	<u> </u>					COR	E TEM	PERATURE LOG
	Kirtland I	BFF						Project Number: 62735DM02.1017
	Company:							Start Time/Date:
Lead Dr								Completion Time/Date:
Drilling	Method: Se	onic Cori	ing					Final Depth:
Boring/\	Well ID:	Т	T					Logged By: Page 17 of 18
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments
0935	486	488	486	21	34.7			
	488	490		1				
	490	492		-				
	492	494				12		
0	ygy	496	6	124	9			
	996	498	496-	21		(h)	1	
1	498	500	1		1			
	500	502		1			-	
The control of the co	502	504						
1	504	50b	4	1	-			
1030	496	498	496	21	34.3			
1	498	(20)	d	1	الم			
1190	500	501	25	521	34.4			
1	501	560	A	th				5 see rextpage
	504	50k	#	1		8		
	506	908			1			

	3					COR	E TEM	PERATURE LOG		
	Kirtland E	FF						Project Number: 62735DM02.1017		
	Company:							Start Time/Date:		
Lead Dril								Completion Time/Date:		
	Method: So	nic Cori	ng					Final Depth:		
Boring/W	ell ID:							Logged By: Page 18 of 18		
Time	Interval top (ft bgs)	Interval bottom (ft bgs)	Core run (ft bgs)	Core recovery (ft/ft)	Temperature (°C)	Penetration Rate (ft/min)	Water injection rate (gpm)	Comments		
1130	500	501	515	11	34.4					
	501	503		21						
	503	505		21						
	505	507		2'						
	507	509		2'						
	509	571		2'						
	511	513		2'						
	513	515	-	2'	1			D=5151 2-5-19 1130		
				5.						
							-			



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 1 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

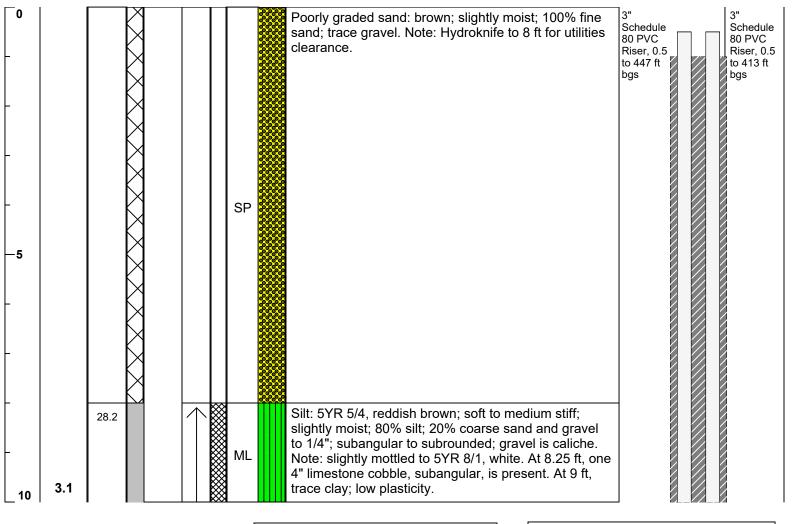
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Core Run Samples Collected Recover USCS Lithology Depth (ft) PID (ppmv) 00 Details Sample Description Field (

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

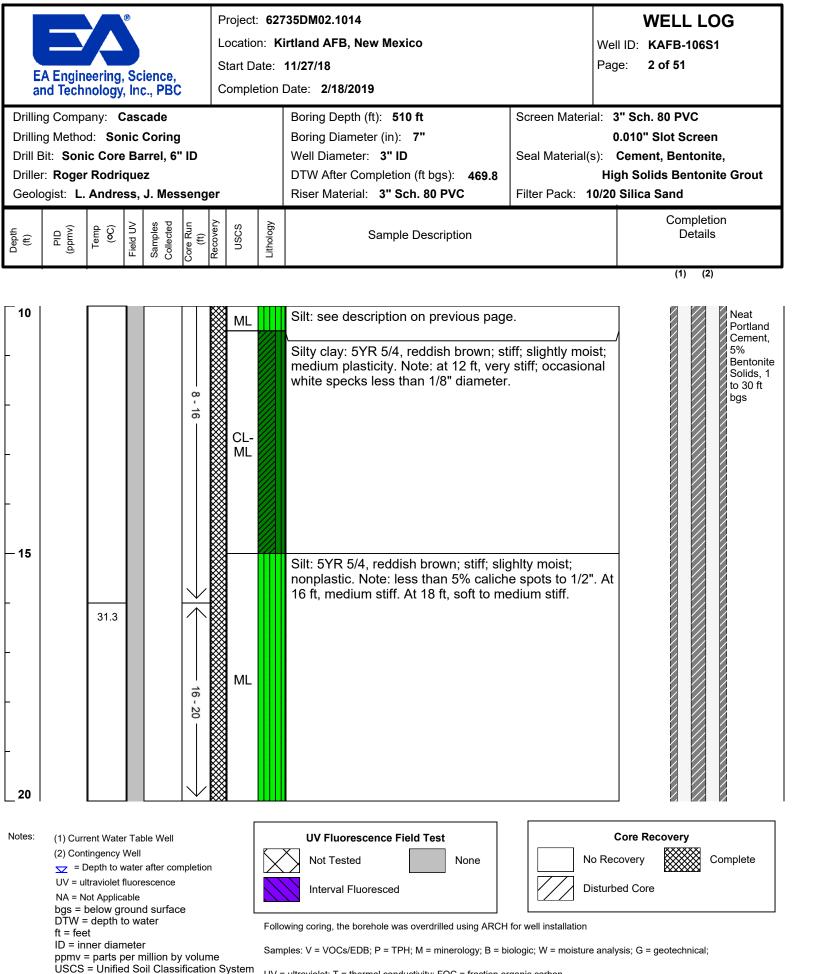
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;





Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Lithology

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 3 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

PID (ppmv)

Depth (ft)

Geologist: L. Andress, J. Messenger

Collected Core Run

Recover USCS

 $\Xi$ 

Samples

Field (

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

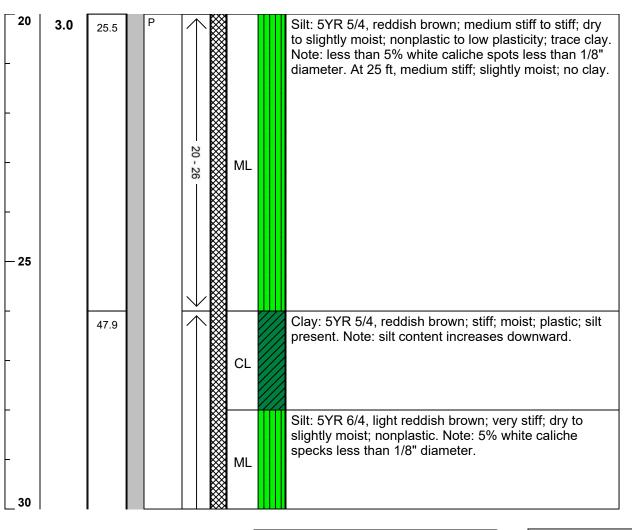
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Sample Description Details

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Lithology

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 4 of 51

Drilling Company: Cascade
Drilling Method: Sonic Coring
Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

PID (ppmv)

Depth (ft)

Geologist: L. Andress, J. Messenger

(S

Collected Core Run

Recovery USCS

Samples

Field (

Boring Depth (ft): 510 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

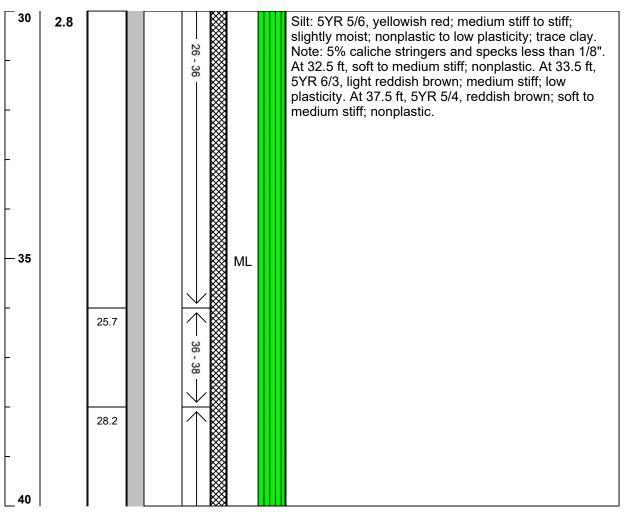
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Sample Description Completion
Details

(1) (2)



Hydrated Uncoated Bentonite Chips, 3/8", 30 to 46 ft bgs

Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Ī	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 5 of 51

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Depth (ft)

Geologist: L. Andress, J. Messenger

Boring Depth (ft): **510 ft**Boring Diameter (in): **7"** 

Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

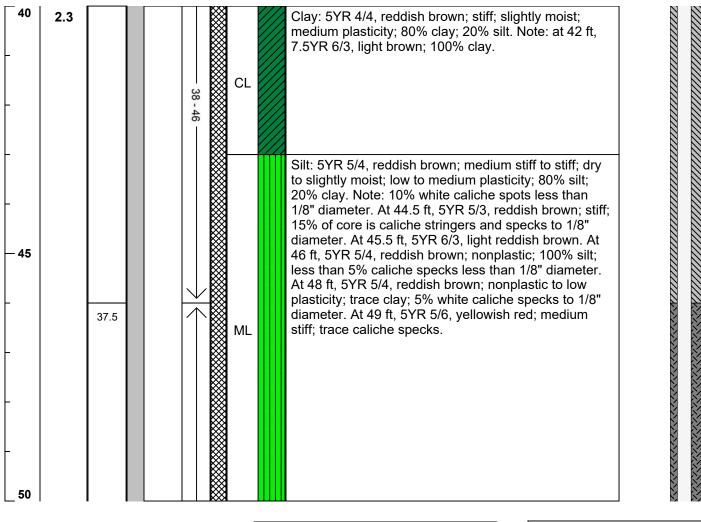
Completion Sample Description

Completion

Completion

Details

(1) (2)



High Solids Bentonite Grout, 46 to 377.5 ft bgs

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

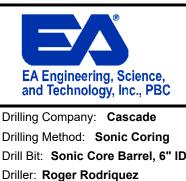
ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

	Core Red	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 6 of 51

Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

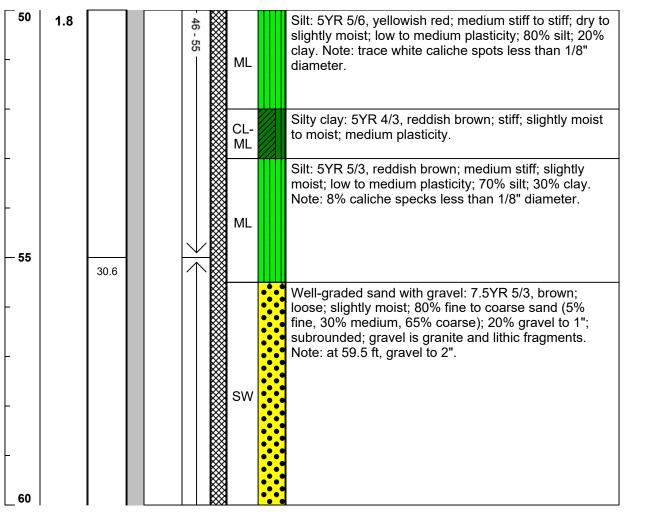
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Collected Samples Recover USCS Lithology Rur Depth (ft) PID (ppmv) Details Sample Description Field (  $\Xi$ Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: **7 of 51** 

Drilling Company: Cascade
Drilling Method: Sonic Coring
Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion
Details

Completion
Details

60 Silt: 5YR 4/3, reddish brown; medium stiff to stiff; 1.5 slightly moist; 70% silt; 30% clay, low to medium 66 plasticity. Note: at 61 ft, nonplastic to low plasticity; 90% silt; 10% clay. At 62 ft, 5YR 5/4, reddish brown; soft to medium stiff; nonplastic; 100% silt. ML Silt with sand: 5YR 5/4, reddish brown; soft; slightly moist; 75% silt; 25% fine to coarse sand (20% fine, 20% medium, 60% coarse); trace gravel to 1"; gravel 65 is quartz, caliche, sandstone conglomerate, and lithic fragments. Note: at 65 ft, silt content is decreasing with depth. Lense of well-graded sand from 66 to 67 ft, 100% fine to coarse sand (15% fine, 60% medium, 40.5 25% coarse); trace caliche and lithic gravel to 1/2". Silty clay: 5YR 5/4, reddish brown; hard; dry to slightly moist; medium plasticity. Note: silt from 68 - 70 ft, 80% silt, 20% clay. CL-ML

Notes:

70

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 8 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

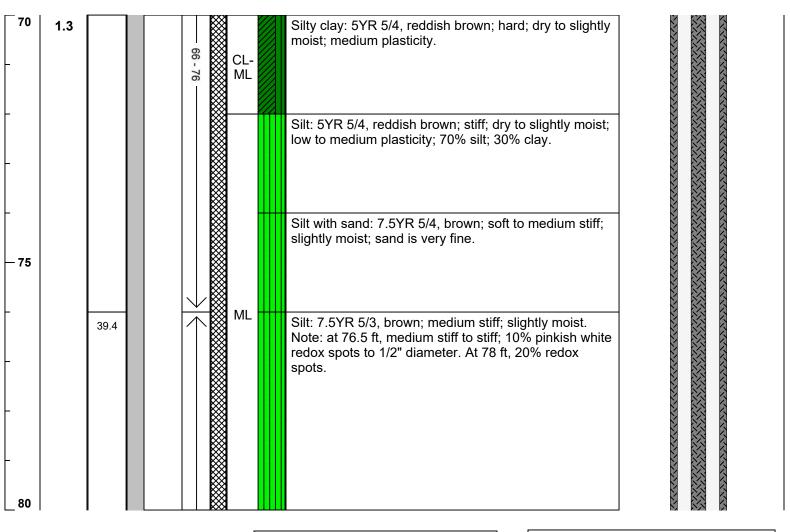
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Samples Recover USCS Lithology Rur Depth (ft) PID (ppmv) (S Sample Description Details Field ( Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 9 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

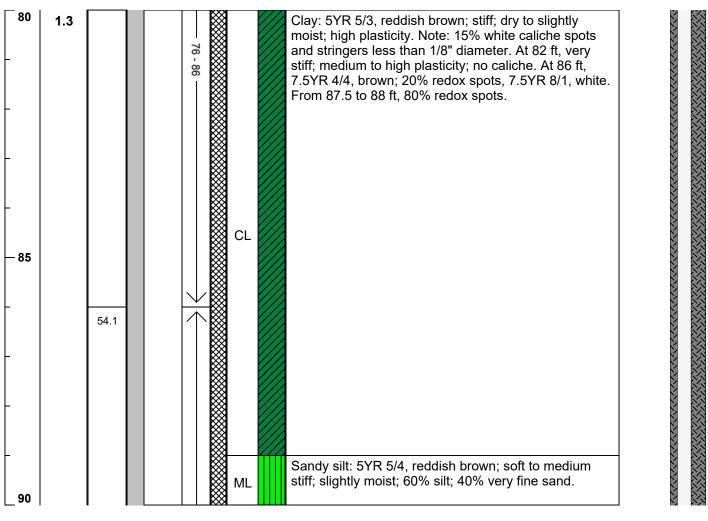
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Recover USCS Rur Depth (ft) PID (ppmv) (S Sample Description Details Field ( Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Company: Cascade

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

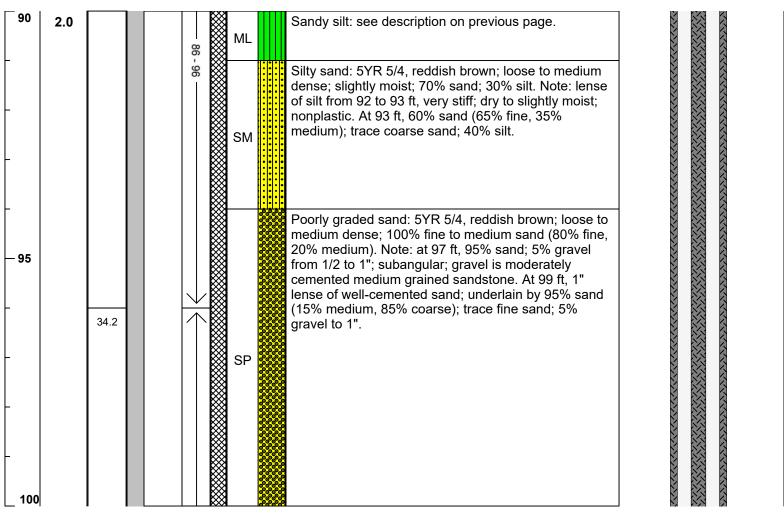
(1) (2)

Well ID: KAFB-106S1

Page: **10 of 51** 

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 469.8 **High Solids Bentonite Grout** Geologist: L. Andress, J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Samples Recover USCS Lithology Rur PID (ppmv) (S Depth (ft) Details Sample Description Field ( Core



Notes: (

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

	Core Red	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 11 of 51

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 469.8 **High Solids Bentonite Grout** Geologist: L. Andress, J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Recover USCS Samples Rur PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

100 1.3 Poorly graded sand: 5YR 5/4, reddish brown; loose to medium dense; 100% fine to medium sand (70% fine, 96 - 106 30% medium); trace coarse sand. SP Well-graded sand: 7.5YR 5/3, brown; loose; slightly moist; 95% fine to coarse sand (5% fine, 40% medium, 55% coarse); 5% gravel to 3/4"; subangular; gravel is quartz, feldspar, lithics, and sandstone. Note: lense of silt from 103.5 to 104 ft, 7.5YR 5/3, brown; stiff; nonplastic to low plasticity; 80% silt; 20% clay. At SW 104 ft, 7.5YR 6/2, pinkish gray; 100% sand (85% very fine, 10% fine, 5% medium); trace coarse sand. Well-graded sand: 7.5YR 6/2, pinkish gray; loose; 105 slightly moist; 100% very fine to medium sand (85% very fine, 10% fine, 5% medium); trace coarse sand. Note: lense of silt from 105.5 to 106 ft, 7.5YR 4/3, brown; 80% silt; 20% clay, nonplastic to low plasticity. 42.2 Silt: 7.5 YR 4/3, brown; stiff; slightly moist; nonplastic to low plasticity; 80% silt; 20% clay. Note: at 106 ft, 7.5YR 5/4, brown; medium stiff; 100% silt; trace very fine sand; trace clay, nonplastic. At 107 ft, soft to medium stiff. At 108 ft, medium stiff to stiff; low to ML medium plasticity; 70% silt; 30% clay. 110

(1) (2)

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: **12 of 51** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

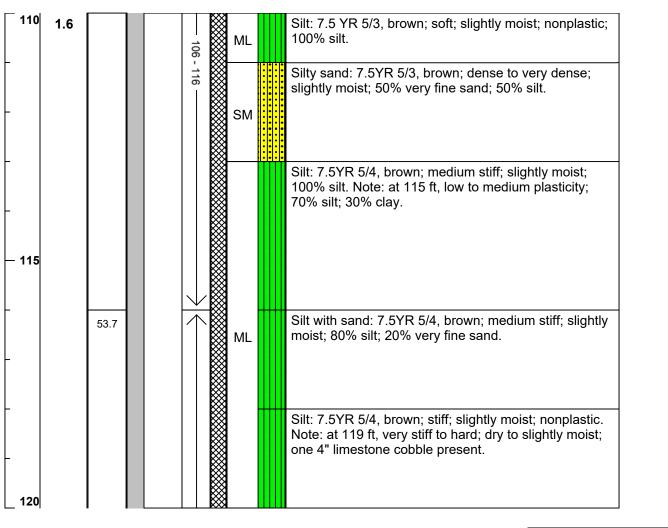
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery								
	No Recovery		Complete					
	Disturbed Core							

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 13 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Recovery Samples USCS Rur Depth (ft) PID (ppmv) . (S Sample Description Details Field ( Core (1) (2) 120 Silt: 7.5YR 5/4, brown; medium stiff to stiff; slightly 2.7 moist; trace clay, nonplastic to low plasticity. Note: 116 lense of silty sand from 122 to 122.5 ft, 7.5YR 5/3, brown; loose; sand is 65% very fine, 10% fine, 25% 126 ML medium, trace coarse.

Silty clay: 7.5YR 5/4, brown; very stiff; dry to slightly moist; medium plasticity. CL-MLSilt: 7.5YR 5/4, brown; stiff; slightly moist; trace clay, nonplastic. ML 125 Clay: 7.5YR 5/3, brown; stiff; dry to slightly moist; medium plasticity. Note: at 126 ft, very stiff. At 126.25 ft, calcium carbonate staining present in clay fractures. 53.8 CL

Notes:

130

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 14 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Seal Material(s): Cement, Bentonite,

Screen Material: 3" Sch. 80 PVC

**High Solids Bentonite Grout** 

(1) (2)

0.010" Slot Screen

Filter Pack: 10/20 Silica Sand

Completion Collected Samples Recover USCS Lithology Rur Depth (ft) PID (ppmv) Details Sample Description Field ( Core

130 Clay: 7.5YR 5/3, brown; stiff; dry to slightly moist; 2.2 medium plasticity. Note: at 130 ft, 2" lense of calcium 26 - 136 carbonate staining. At 131.75 ft, 1" lense of calcium CL carbonate staining. Silt with sand: 7.5YR 5/3, brown; soft to medium stiff; 50% silt; 30% clay, medium to high plasticity; 20% very fine sand. Note: clay is present in nodules to 3". ML Silty sand from 133 to 134 ft, loose; slightly moist; sand is very fine. Poorly graded sand: 7.5YR 6/3, light brown; loose; slightly moist; 100% very fine sand. Note: at 135 ft, trace silt. 135 SP Clay: 5YR 5/4, reddish brown; very stiff; slightly moist; 53.8 high plasticity; 80% clay; 20% silt. Note: at 139 ft, stiff. CL 136 -142 140

Notes: (1) Current Water Table Well (2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: **15 of 51** 

Boring Depth (ft): **510 ft**Boring Diameter (in): **7"**Well Diameter: **3" ID** 

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

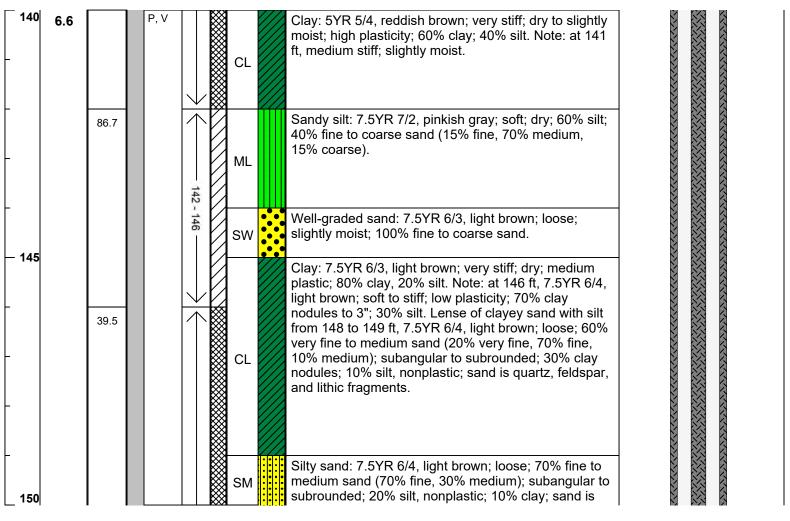
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	(\nudd)	(OC)	Field UV	Samples Collected	Core Run (ft)	Recovery	sosn	Lithology	Sample Description	Comp Det	oletion tails
		•								(1)	(2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 



Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

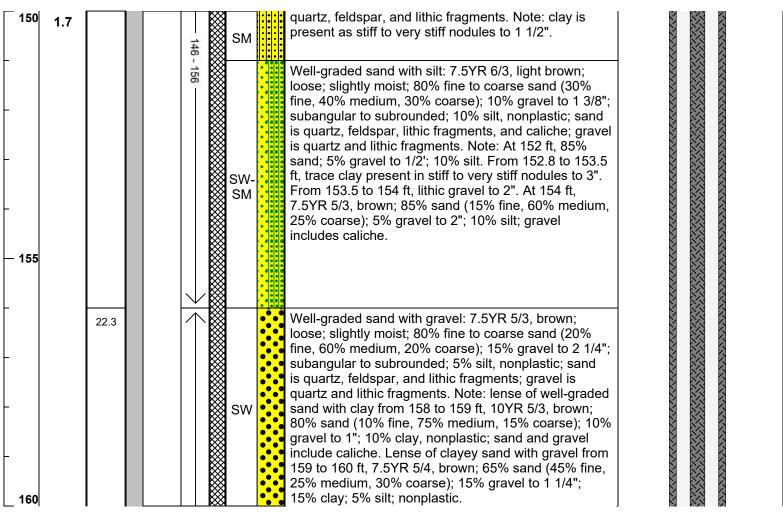
**WELL LOG** 

(1) (2)

Well ID: KAFB-106S1

Page: 16 of 51

Drilling Company: Cascade	Boring Depth (ft): 510 ft	Screen Material: 3" Sch. 80 PVC		
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen		
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s): Cement, Bentonite,		
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 469.8	High Solids Bentonite Grout		
Coologists I Andress I Massanger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand		
Geologist: L. Andress, J. Messenger	Riser Material. 3 Sch. 60 PVC	Filler Pack. 10/20 Silica Sano		



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

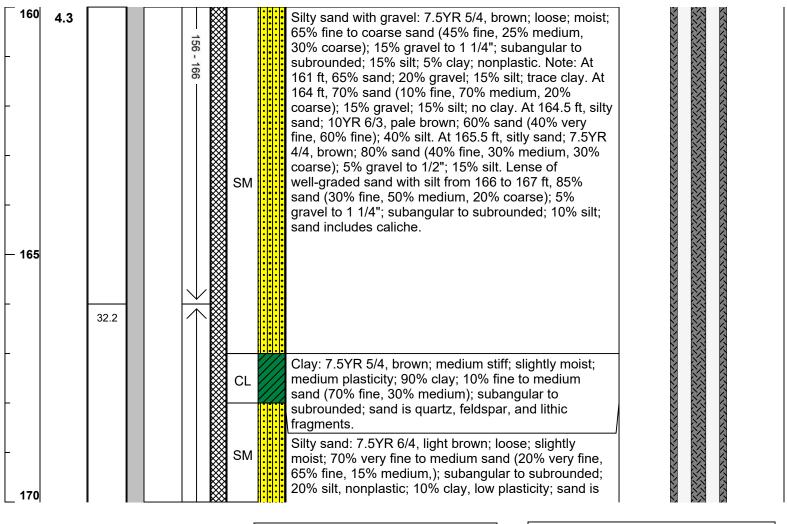
Well ID: KAFB-106S1

Page: 17 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Screen Material: 3" Sch. 80 PVC Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 469.8 Geologist: L. Andress, J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand

**High Solids Bentonite Grout** 

Depth (ft)	PID (ppmv)	I ⊢ I	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description	Comp Det	eletion ails
										(1)	(2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

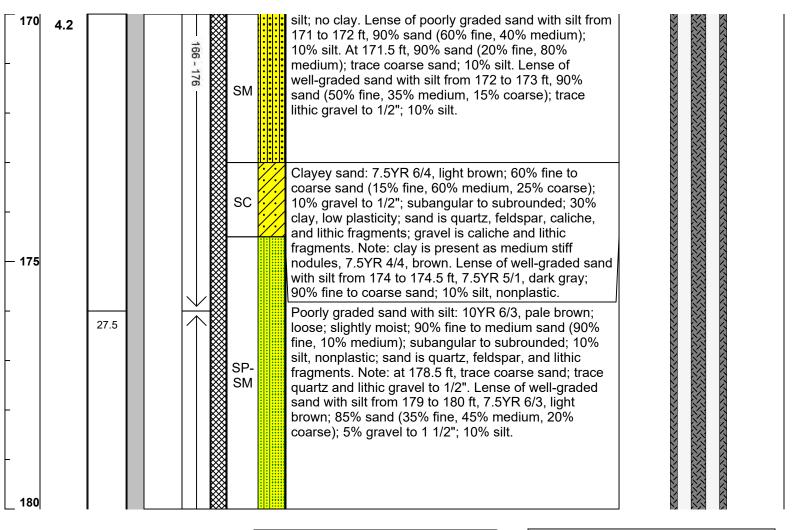
Well ID: KAFB-106S1

Page: 18 of 51

Drilling Company: Cascade	Boring Depth (ft): 510 ft	Screen Material: 3" Sch. 80 PVC
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s): Cement, Bentonite,
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 469.8	High Solids Bentonite Grout
Geologist: L. Andress, J. Messenger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand

Completion PID (bpmv) Sample Description **Details** 

> (1) (2)



Notes: (1) Current Water Table Well (2) Contingency Well

UV = ultraviolet fluorescence NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: **19 of 51** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

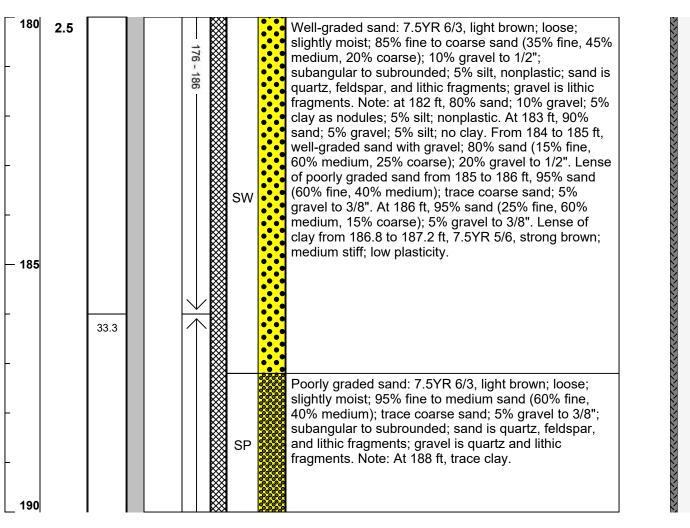
Completion

Completion

Completion

Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

ſ	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 20 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

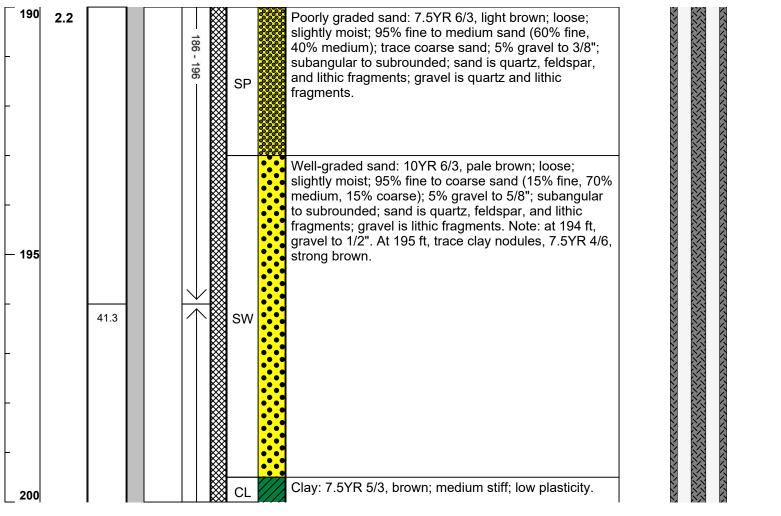
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Recovery Samples USCS Lithology Rur PID (ppmv) (S Depth (ft) Details Sample Description Field ( Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

ſ	Core Re	covery	
ı	Ooie ite	COVERY	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 21 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

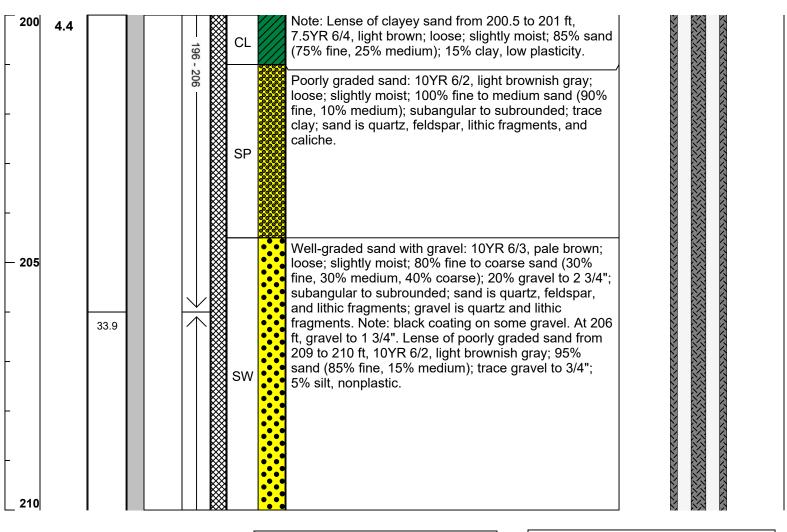
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Samples Recover USCS Lithology Rur PID (ppmv) Depth (ft) Details Sample Description Field ( Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 22 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

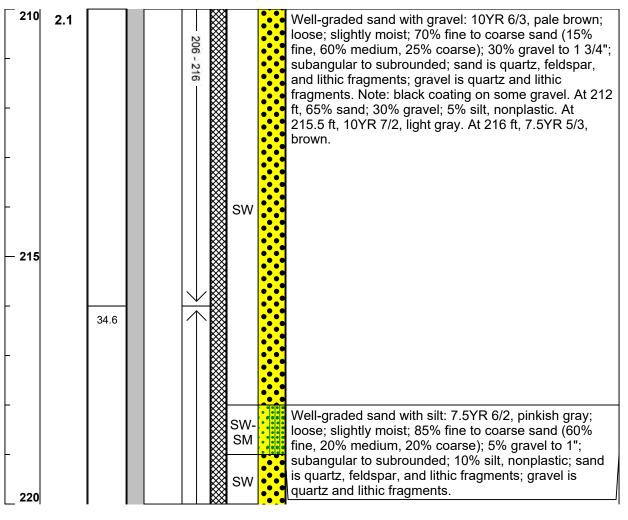
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Collected Recover USCS Rur PID (ppmv) (S Depth (ft) Details Sample Description Field ( Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery			
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: **23 of 51** 

Drilling Company: Cascade
Drilling Method: Sonic Coring
Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Depth (ft)

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

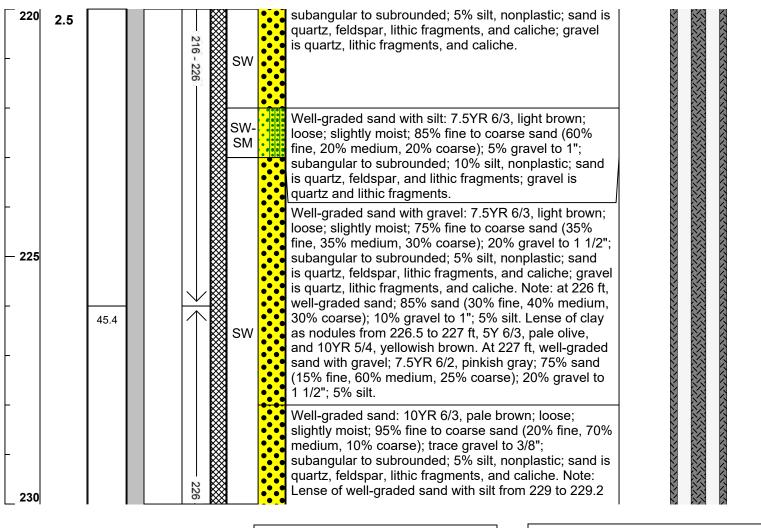
Completion

Completion

Completion

Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test

Not Tested None

Interval Fluoresced

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 24 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

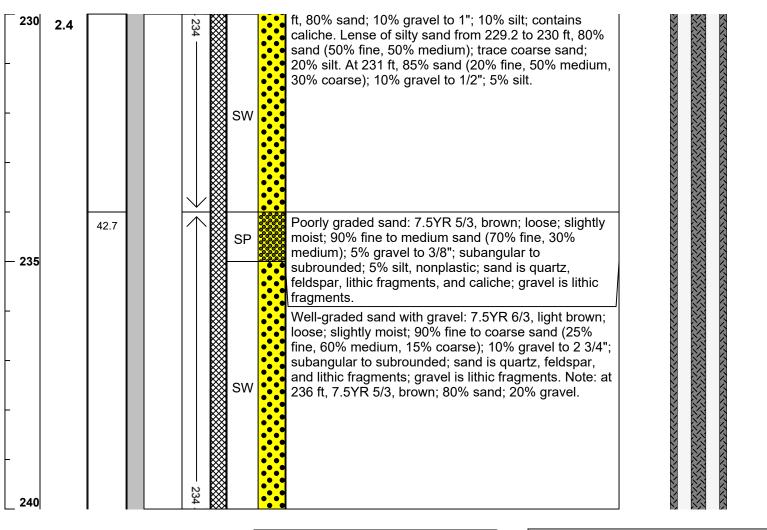
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Collected Recover USCS Rur PID (ppmv) (S Depth (ft) Details Sample Description Field (  $\Xi$ Core (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: **25 of 51** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

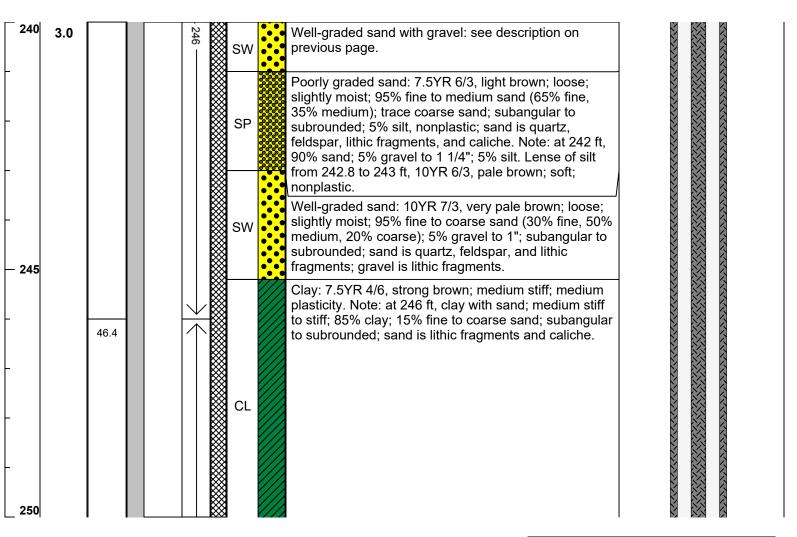
**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop | Cop

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Continuous (Continuous Continuous Co$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 26 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

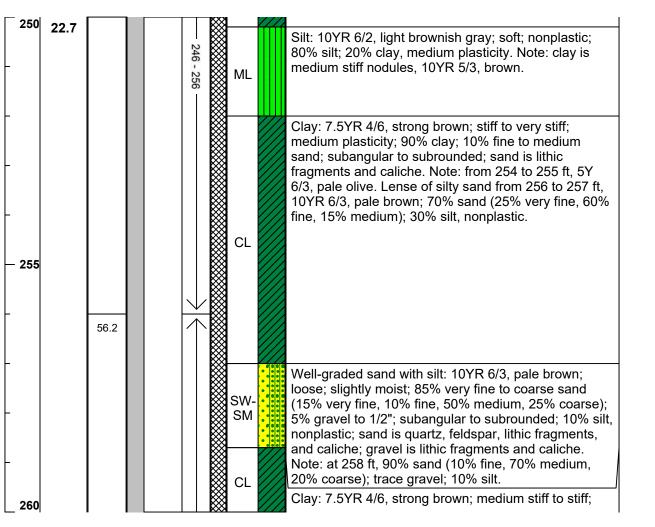
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Samples Recover USCS Lithology Rur PID (ppmv) Depth (ft) Details Sample Description Field ( Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

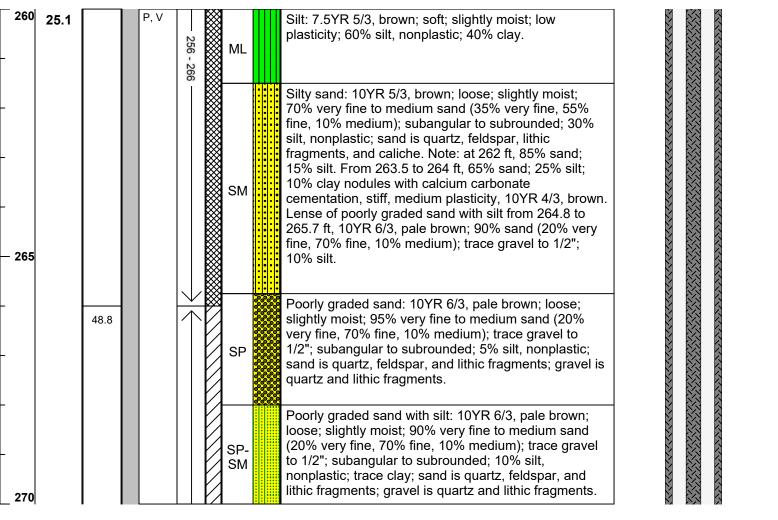
**WELL LOG** 

(2)

Well ID: KAFB-106S1

Page: 27 of 51

Drilling Company: Cascade	Boring Depth (ft): 510 ft	Screen Material: 3" Sch. 80 PVC
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s): Cement, Bentonite,
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 469.8	High Solids Bentonite Grout
Geologist: L. Andress, J. Messenger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand
PPID (ft) PPID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) Recovery USCS	Sample Description	Completion Details



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

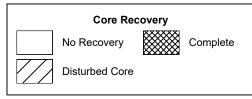
DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 28 of 51

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

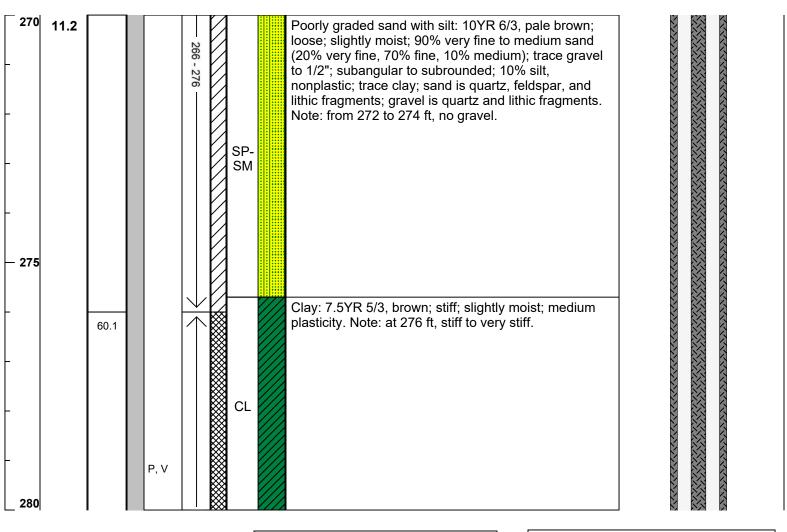
Filter Pack: 10/20 Silica Sand

Completion Details

Capture Consider An American Sample Description

Completion Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Continuous (Continuous Continuous Co$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 29 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

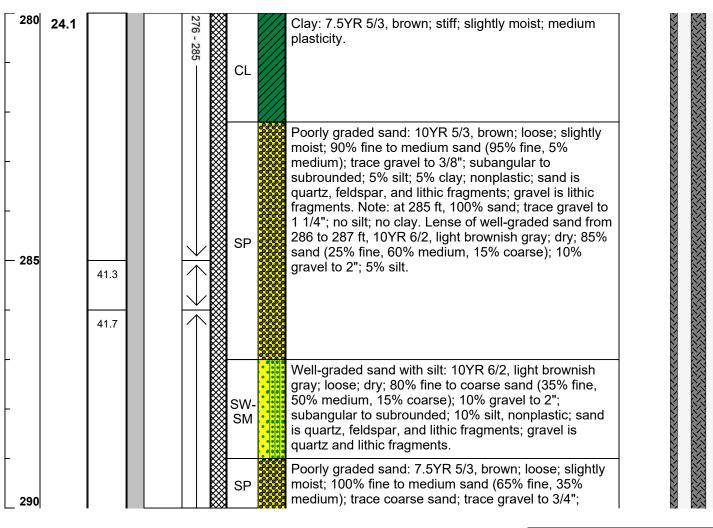
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Samples Recover USCS Lithology PID (ppmv) Rui Depth (ft) Details Sample Description Field I Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 30 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (vmdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description	Completion Details
				•			•		·	(1) (2)

subangular to subrounded; sand is quartz, feldspar, 290 2.7 and lithic fragments; gravel is quartz and lithic 286 - 296 fragments. Note: lense of well-graded sand with gravel from 291 to 292 ft, 85% sand (50% fine, 35% medium, 15% coarse); 15% gravel to 3". SP Well-graded sand with gravel: 7.5YR 5/3, brown; loose; slightly moist; 85% fine to coarse sand (50% fine, 35% medium, 15% coarse); 15% gravel to 3"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 296 ft, well-graded sand; 90% 295 sand; 10% gravel to 1". At 298.3 ft, 80% sand (35% fine, 40% medium, 25% coarse); 20% gravel to 3". 37.2 SW 300

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: **31 of 51** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

Completion

Completion

Completion

Details

300 0.8 Well-graded sand with gravel: 7.5YR 5/3, brown; loose; slightly moist; 80% fine to coarse sand (35% 296 fine, 40% medium, 25% coarse); 20% gravel to 3"; subangular to subrounded; sand is quartz, feldspar, SW and lithic fragments; gravel is quartz and lithic fragments. Poorly graded sand with silt: 7.5YR 6/3, light brown; loose; slightly moist; 90% fine to medium sand (50% SPfine, 50% medium); subangular to subrounded; 10% SM silt, nonplastic; sand is quartz, feldspar, and lithic fragments. Note: lense of well-graded sand with gravel from 303.5 to 304 ft, 80% sand (35% fine, 40% medium, 25% coarse); 20% gravel to 3"; trace lithic cobbles to 4 1/4". 305 Poorly graded sand: 7.5YR 6/3, light brown; loose; slightly moist; 90% fine to medium sand (95% fine, 5% medium); 5% gravel to 1 5/8"; subangular to subrounded; 5% silt, nonplastic; sand is quartz, 39.2 feldspar, and lithic fragments; gravel is lithic fragments. Note: lense of well-graded sand from 305 SP to 306 ft, 90% sand (50% fine, 35% medium, 15% coarse); 10% gravel to 1 1/2". At 306 ft, 95% sand 306 -(90% fine, 10% medium); trace gravel to 3/8"; 5% silt. Lense of well-graded sand from 307 to 307.5 ft, 95% fine to coarse sand (25% fine, 60% medium, 15% coarse); 5% gravel to 1". At 307.5 ft, 90% fine to medium sand; 5% gravel to 1/2"; 5% silt. Well-graded sand: 10YR 5/4, yellowish brown; loose; 310

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

(1) (2)

Well ID: KAFB-106S1

Page: **32 of 51** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Boring Depth (ft): 510 ft

Screen Material: 3" Sch. 80 PVC

Filter Pack: 10/20 Silica Sand

Completion
Details

Copting

Completion
Details

slightly moist; 85% fine to coarse sand (65% fine, 25%) 310 1.9 44.6 medium, 10% coarse); 10% gravel to 2 3/4"; subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz SW and lithic fragments. Note: lense of well-graded sand with clay from 309.5 to 310 ft, 85% sand (45% fine, 35% medium, 20% coarse); 5% gravel to 5/8"; 10% clay. 310 - 316 Silty sand: 10YR 6/3, pale brown; loose; slightly moist; 70% very fine to fine sand (30% very fine, 70% fine); SM 10% gravel to 2"; subangular to subrounded; 20% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: lense of clayey sand with gravel from 313.7 to 314.2 ft, 10YR 5/2, grayish brown; 70% sand (50% fine, 20% medium, 30% coarse); 15% gravel to 1 1/2"; 15% 315 SWclay nodules, medium stiff, low plasticity, 7.5YR 5/4, SC @ 314.2 ft - Well-graded sand with clay and gravel: 10YR 6/3, pale brown; loose; slightly moist; 70% fine 50.4 to coarse sand (65% fine, 20% medium, 15% coarse); 20% gravel to 3"; trace cobbles to 4 3/8"; subangular to subrounded; 10% clay, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments; cobbles are lithic fragments. SW @ 316 ft - Well-graded sand: 10YR 5/3, brown; loose; moist; 85% fine to coarse sand (60% fine, 30% medium, 10% coarse); 10% gravel to 1 1/2"; subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 318 ft, 5% clay; no silt. 320

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 33 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Samples Lithology Core Run Recover nscs PID (bpmv) Temp (oC) Depth (ft) Details Sample Description Field (

> (1) (2)

320	2.9		316 - 326		SW	Well-graded sand: 10YR 5/3, brown; loose; moist; 75% fine to coarse sand (20% fine, 60% medium, 20% coarse); 20% gravel to 2 1/2"; subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: lense of clay from 321.8 to 322 ft; 7.5YR 5/6, strong brown; very stiff; medium plasticity. At 322 ft, gravel to 2 1/2". Lense of poorly graded sand from 324 to 325 ft, 90% sand (50% fine, 50% medium); trace coarse sand; 5% gravel to 1"; 5% silt.
<b>— 325</b>				/ <b>※</b>	CL	Clay: 7.5YR 5/4, brown; stiff to very stiff; medium plasticity.
-		28.3			SW	Well-graded sand: 10YR 6/3, pale brown; loose; slightly moist; 90% fine to coarse sand (40% fine, 40% medium, 20% coarse); 10% gravel to 5/8"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 327 ft, well-graded sand with gravel; 80% sand (20% fine, 40% medium, 40% coarse); 20% gravel to 1". At 328 ft, 75% sand; 20% gravel; trace cobbles to 4"; 5% silt.
330					sc	Clayey sand: 10YR 5/3, brown; loose; slightly moist; 80% fine to coarse sand (40% fine, 50% medium, 10% coarse); 5% gravel to 5/8"; subangular to

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: **34 of 51** 

Drilling Company: Cascade	Boring Depth (ft): 510 ft	Screen Material: 3" Sch. 80 PVC		
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen Seal Material(s): Cement, Bentonite, High Solids Bentonite Grout		
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID			
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 469.8			
Geologist: L. Andress, J. Messenger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand		
(ft) PID (ppmv) Temp (oC) (it) Samples collected ore Run (ft) (tt) (tecovery USCS	Sample Description	Completion Details		

(2) 330 @ 330 ft - Well-graded sand: 10YR 5/3, brown; loose; 3.6 slightly moist; 95% fine to coarse sand (60% fine, 30% 326 - 336 medium, 10% coarse); 5% gravel to 3/8"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 334 ft, well-graded sand with gravel; 85% sand (50% fine, 30% medium, 20% coarse); 15% gravel to SW 335 Clayey sand with gravel: 7.5YR 5/3, brown; loose; 38.4 slightly moist; 40% fine to coarse sand (10% fine, 60% medium, 30% coarse); 35% gravel to 1 1/4"; SC subangular to subrounded; 25% clay, low plasticity; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Well-graded sand with clay and gravel: 10YR 6/3, pale brown; loose; slightly moist; 75% fine to coarse sand (10% fine, 80% medium, 10% coarse); 15% gravel to SW-1 5/8"; subangular to subrounded; 10% clay, SC nonplastic; sand is quartz, feldspar, and lithic

Notes:

340

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

fragments; gravel is quartz and lithic fragments.

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 35 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Recover USCS Samples Rur PID (ppmv) Depth (ft) Details Sample Description Field I Core (1) (2)

340 2.5 Silty sand: 7.5YR 6/3, light brown; loose; slightly 36 moist; 85% fine to medium sand (80% fine, 20% - 345 medium); trace coarse sand; trace gravel to 3/8"; SM subangular to subrounded; 15% silt, nonplastic; trace clay; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Well-graded sand with silt: 10YR 5/4, yellowish brown; SW loose; slightly moist; 80% fine to coarse sand (70% SM fine, 20% medium, 10% coarse); 10% gravel to 5/8"; subangular to subrounded; 10% silt, nonplastic; sand is guartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: lense of well-graded sand from 343 to 343.5 ft, 85% sand (40% fine, 40% medium, 20% coarse); 10% gravel to 5/8"; 5% silt, SC nonplastic. 345 @ 343.5 ft - Clayey sand with gravel: 7.5YR 5/4, 65 6 brown; loose; slightly moist; 50% fine to coarse sand (20% fine, 40% medium, 40% coarse); 35% gravel to 1 1/2"; subangular to subrounded; 15% clay, 32.0 nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: SPlense of silty sand from 345 to 346 ft. 10YR 5/3. SM brown; 65% sand (80% fine, 20% medium); trace coarse sand; 5% gravel to 1/2"; 20% silt, nonplastic; 10% clay nodules, 7.5YR 4/6, strong brown. @ 346 ft - Poorly graded sand with silt: 10YR 5/3, brown; loose; slightly moist; 85% fine to medium sand SW-(80% fine, 20% medium); trace coarse sand; trace SC gravel to 1"; subangular to subrounded; 10% silt, nonplastic; 5% clay; sand is quartz, feldspar, and lithic 350 fragments; gravel is lithic fragments.

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 36 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Boring Diameter (in): 7" Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Collected Recover USCS Rur PID (ppmv) 0 Depth (ft) Details Sample Description Field I Core

350 3.8 @ 350 ft - Poorly graded sand with silt: 10YR 6/3, pale brown: loose; slightly moist; 85% fine to medium sand 346 - 356 (70% fine, 30% medium); trace coarse sand; 5% SPgravel to 1/2"; subangular to subrounded; 10% silt, SM nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 351 ft, well-graded sand with silt and gravel; 50% 0 sand (10% fine, 60% medium, 30% coarse); 40% gravel to 3"; trace cobbles to 3 1/4"; 10% silt. 0 GW @ 352 ft - Well-graded gravel with sand: 10YR 6/3. pale brown; loose; slightly moist; 60% gravel to 3"; 35% fine to coarse sand (25% fine, 50% medium, 25% coarse); trace cobbles to 4"; subangular to subrounded; 5% silt, nonplastic; gravel and cobbles are lithic fragments; sand is quartz, feldspar, and lithic SW-355 fragments. SM @ 354 ft - Well-graded sand with silt and gravel: 10YR 6/3, pale brown; loose; slightly moist; 55% fine to coarse sand (10% fine, 60% medium, 30% coarse); 29.1 35% gravel to 2 1/2"; subangular to subrounded; 10% silt: sand is quartz, feldspar, and lithic fragments: 6 gravel is quartz and lithic fragments. Note: lense of well-graded sand with clay from 355.5 to 356 ft, 85% GW fine to coarse sand; 5% gravel; 10% clay. @ 356 ft - Well-graded gravel with sand: 10YR 6/3, pale brown; loose; slightly moist; 60% gravel to 3"; 35% fine to coarse sand (25% fine, 50% medium, 25% coarse); subangular to subrounded; 5% silt, nonplastic; gravel is lithic fragments; sand is quartz, SW feldspar, and lithic fragments. Note: lense of poorly SM 360 graded sand with silt and gravel from 358 to 359 ft,

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

**WELL LOG** 

Well ID: KAFB-106S1

Page: 37 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

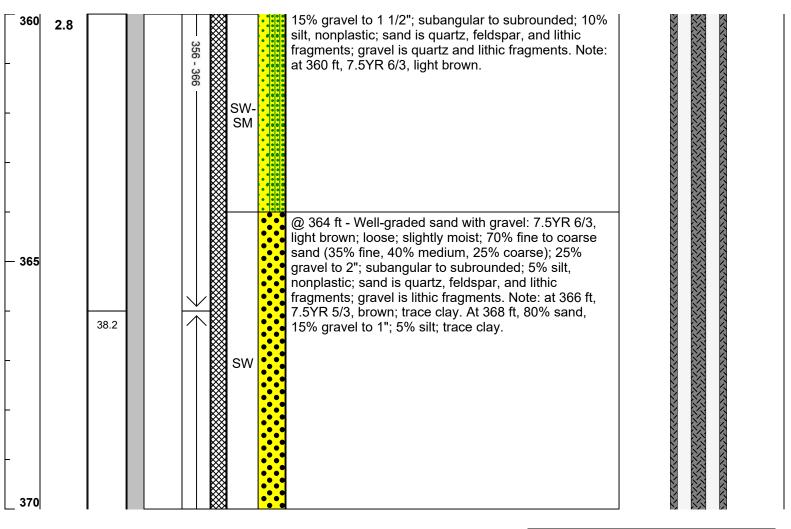
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Collected Samples Recover USCS Lithology Rur Depth (ft) PID (ppmv) 0 Sample Description Details Field ( Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None

Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

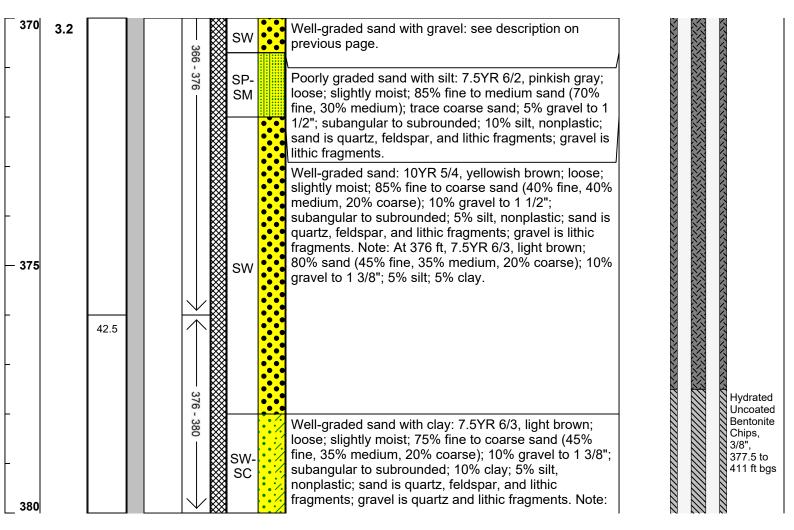
Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: **38 of 51** 

Drilling Company: Cascade	Boring Depth (ft): 510 ft	Screen Material: 3" Sch. 80 PVC	
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen	
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s): Cement, Bentonite,	
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 469.8	<b>High Solids Bentonite Grout</b>	
Geologist: L. Andress, J. Messenger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand	
Depth (ft) (PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) Recovery USCS	Sample Description	Completion Details	
		(1) (2)	



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 39 of 51

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

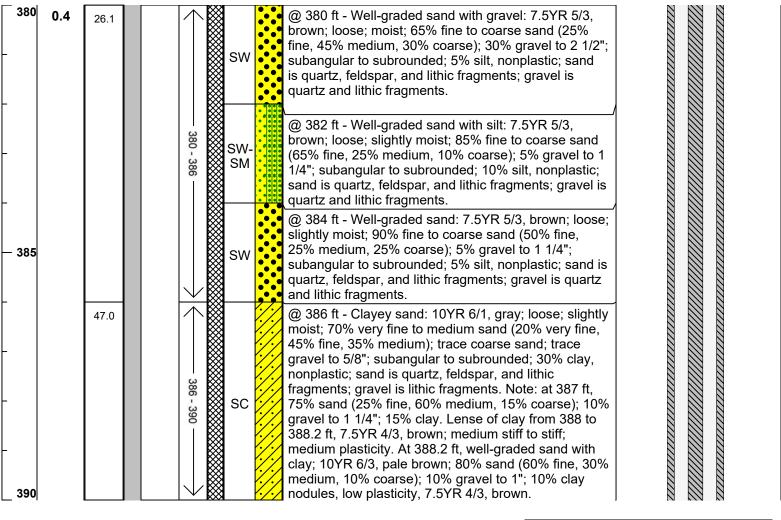
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

							_			
Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description	Completion Details
									_	(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

(1) (2)

Well ID: KAFB-106S1

Page: 40 of 51

Drilling Company: Cascade	Boring Depth (ft): 510 ft	Screen Material: 3" Sch. 80 PVC	
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen	
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s): Cement, Bentonite,	
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 469.8	High Solids Bentonite Grout	
Geologist: L. Andress, J. Messenger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand	
(ft) (PID (ppmv) Temp (oC) Teld UV Samples collected (ft) (ft) USCS Lithology	Sample Description	Completion Details	

390 @ 390 ft - Sandy clay: 7.5YR 4/3, brown; very stiff; 0.5 37.5 medium plasticity; 60% clay; 30% fine to coarse sand (50% fine, 35% medium, 15% coarse); 10% gravel to 1"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: lense of silty sand from 393.8 to 394.5 ft, 10YR 5/3, brown; 85% sand (30% very fine, CL 40% fine, 30% medium); trace gravel to 3/8"; 15% silt, nonplastic. 390 - 396 Well-graded sand with silt: 10YR 5/3, brown; loose; 395 slightly moist; 80% fine to coarse sand (30% fine, 50% SWmedium, 20% coarse); 10% gravel to 1 1/4"; SM subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: lense of silty sand 46.1 SC from 395.5 to 395.8, 10YR 5/4, yellowish brown; 70% very fine to medium sand; 30% silt, nonplastic. @ 394.8 ft - Clayey sand: 10YR 7/2, light gray; loose; dry; 65% fine to coarse sand (50% fine, 40% medium, 396 10% coarse); 5% gravel to 3/8"; subangular to subrounded; 30% clay, nonplastic; sand is quartz, 400 feldspar, and lithic fragments; gravel is lithic SM fragments. Note: at 396 ft, 7.5YR 5/3, brown; slightly moist; 50% sand (70% very fine, 30% fine); 40% clay; 10% silt; nonplastic. @ 397 ft - Silty sand: 10YR 5/3, brown; loose; slightly 400

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

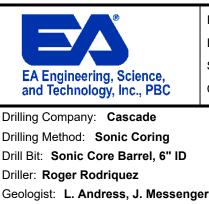
ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

**Core Recovery** No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 41 of 51

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

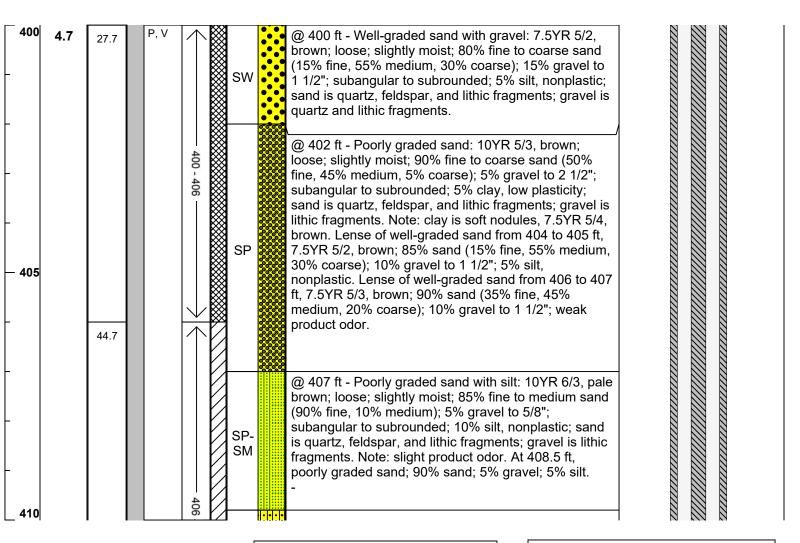
Filter Pack: 10/20 Silica Sand

DTW After Completion (ft bgs): 469.8 Riser Material: 3" Sch. 80 PVC

Collected Lithology Samples Recover USCS Rur PID (ppmv) 0 Depth (ft) Sample Description Field I Core

Completion Details

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None

Interval Fluoresced

No Recovery Disturbed Core

Core Recovery Complete

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 42 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Samples Recover USCS Lithology Rur PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core

@ 409.8 ft - Silty sand with gravel: 7.5YR 6/2, pinkish 12.2 gray; loose; slightly moist; 65% fine to coarse sand (55% fine, 35% medium, 10% coarse); 20% gravel to SM 1 1/2"; subangular to subrounded; 15% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: product odor. At 410 ft, 65% sand; 10% gravel to 2 1/2"; trace cobbles to 3 3/4"; 15% silt; 10% clay nodules, 7.5YR 5/4, brown. @ 412 ft - Poorly graded sand: 10YR 6/3, pale brown; loose; slightly moist; 95% fine to medium sand (90% SP fine, 10% medium); trace gravel to 3/8"; subangular to subrounded; 5% silt, nonplastic; sand is quartz, P. V 18.5 feldspar, and lithic fragments. gravel is lithic fragments. Note: product odor. At 413 ft, well-graded sand; 7.5YR 5/3, brown; 90% sand (35% fine, 45% 415 medium, 20% coarse); 10% gravel to 1 1/2". Lense of SW clayey sand from 413.8 to 414.8 ft, 10YR 7/2, light SM gray; 65% sand (50% fine, 40% medium, 10% coarse); 5% gravel to 3/8"; 30% clay, nonplastic. 414 - 419 Lense of clay from 414.8 to 415 ft, 7.5YR 4/4, brown; stiff; medium plasticity. @ 415 ft - Well-graded sand with silt: 10YR 5/3, brown; loose; slightly moist; 80% fine to coarse sand (50% fine, 40% medium, 10% coarse); 10% gravel to SP 1 1/4"; subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragements; gravel is quartz and lithic fragments. Note: product odor. 54 2 @ 416 ft - Poorly graded sand: 10YR 6/3, pale brown; 420

Schedule 80 PVC Screen, 0.010" slot, 413 to 438 ft bgs 10/20 Silica Sand. 411 to 440 ft bgs

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: **43 of 51** 

Drilling Company: Cascade
Drilling Method: Sonic Coring
Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

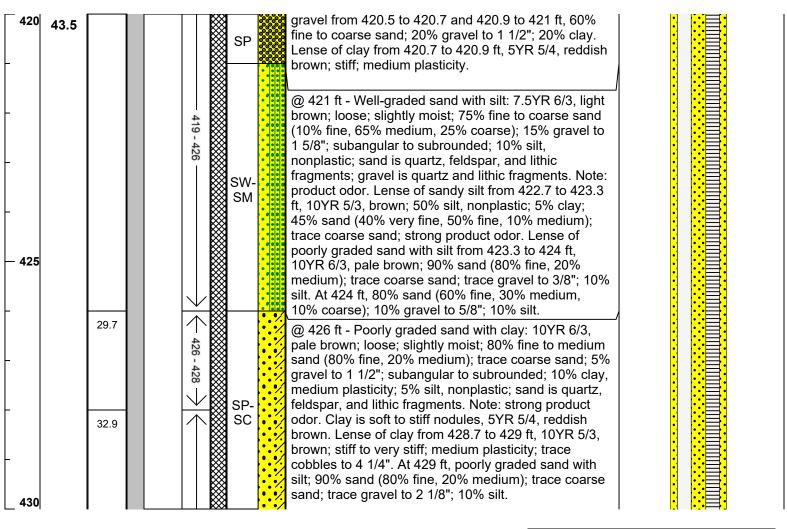
Filter Pack: 10/20 Silica Sand

Completion
Details

Capture

Completion
Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

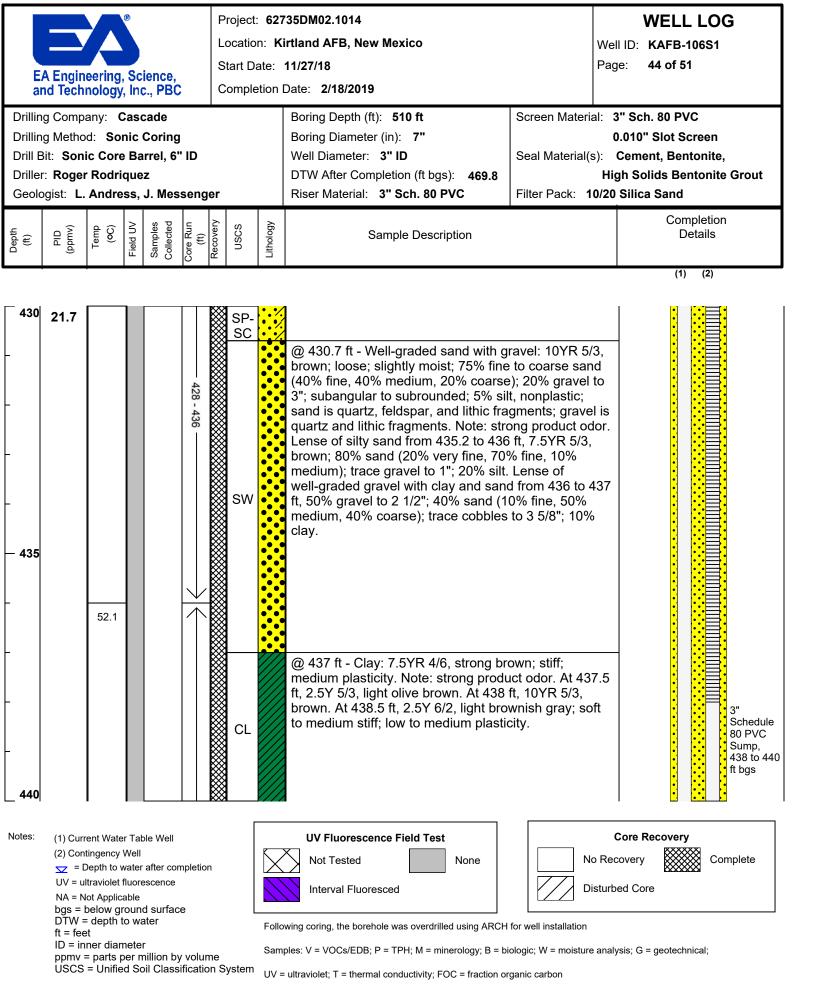
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Continuous (Continuous Continuous Co$ 





Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 45 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Recovery USCS Lithology Samples PID (ppmv) (S Rui Depth (ft) Details Sample Description Field I Core

150.0 CL 436 - 446 Hydrated Sandy silt: 10YR 6/3, pale brown; loose; slightly moist; Uncoated nonplastic; 50% silt; 5% clay; 45% very fine to Bentonite medium sand (50% very fine, 45% fine, 5% medium); Chips, 3/8", 440 subangular to subrounded; sand is quartz, feldspar, to 445 ft and lithic fragments. Note: strong product odor. Lense bgs of clay from 444.2 to 445 ft, 5YR 4/4, reddish brown; medium stiff; medium plasticity. Lense of clay from 446.9 to 447.1 ft, 5YR 4/6, yellowish red; very stiff; medium plasticity. ML 445 10/20 Silica Sand. 445 to 495 ft bgs 53.7 446 Silty sand: 10YR 5/3, brown; loose; slightly moist; Schedule 70% very fine to medium sand (40% very fine, 40% 80 PVC 449 Screen, fine, 20% medium); 5% gravel to 3/8"; subangular to 0.010" subrounded; 20% silt, nonplastic; 5% clay; sand is slot, 447 quartz, feldspar, and lithic fragments; gravel is quartz SM to 487 ft and lithic fragments. Note: strong product odor. At 448 bgs ft, 65% sand; 5% gravel; 20% silt; 10% clay. Lense of 70.4 clayey sand with gravel from 448.5 to 449 ft, 70% sand (20% very fine, 40% fine, 20% medium, 20% 450

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None

Interval Fluoresced

Core Recovery No Recovery Disturbed Core

Complete

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

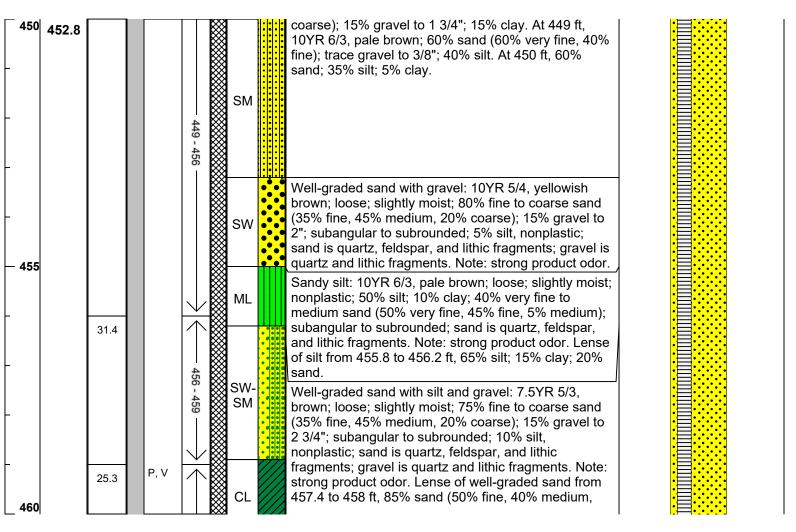
WELL LOG

(2)

Well ID: KAFB-106S1

Page: 46 of 51

Drilling Company: Cascade Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 469.8 **High Solids Bentonite Grout** Geologist: L. Andress, J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Recover USCS Lithology Samples PID (ppmv) (S Rui Depth (ft) Details Sample Description Field I Core



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Geologist: L. Andress, J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: **47 of 51** 

Boring Depth (ft): 510 ft Screen Material: 3" Sch. 80 PVC
Boring Diameter (in): 7" 0.010" Slot Screen

Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

High Solids Bentonite Grout

Filter Pack: 10/20 Silica Sand

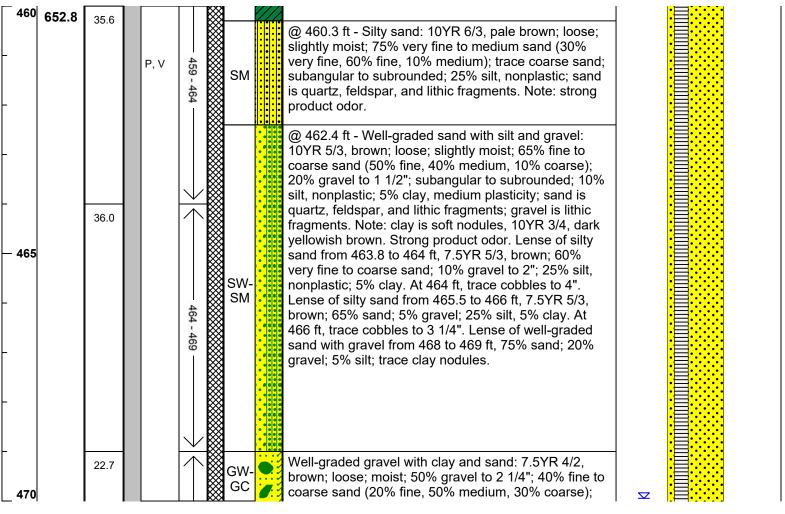
Completion Details

Completion Details

Completion Details

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Lithology

Recover USCS

Rui

Core

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: 48 of 51

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

PID (ppmv)

Depth (ft)

Geologist: L. Andress, J. Messenger

(S

Samples

Field I

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Details Sample Description

subangular to subrounded; 10% clay, nonplastic; 2398 gravel is quartz and lithic fragments; sand is quartz, feldspar, and lithic fragments. Note: strong product GWodor. At 470 ft, trace cobbles to 5". GC 479 - 476 Well-graded sand with gravel: 7.5YR 4/2, brown; loose; moist; 80% fine to coarse sand (45% fine, 30% medium, 25% coarse); 15% gravel to 2"; subangular to subrounded; 5% clay, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: strong product odor. Lense of well-graded sand from 474 to 474.5, 90% sand (20% SW very fine, 50% fine, 20% medium, 10% coarse); 5% gravel to 1/2"; 5% silt, nonplastic. At 474.5 ft, 80% sand (20% fine, 50% medium, 30% coarse); 15% 475 P, V gravel to 1"; 5% silt. Lense of well-graded sand from 475.5 to 476 ft, 90% sand (50% fine, 40% medium, 10% coarse); 10% gravel to 1". UV Core bag not opened; 476 to 480 ft sent to lab for UV 27.3 analysis. UV 480

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

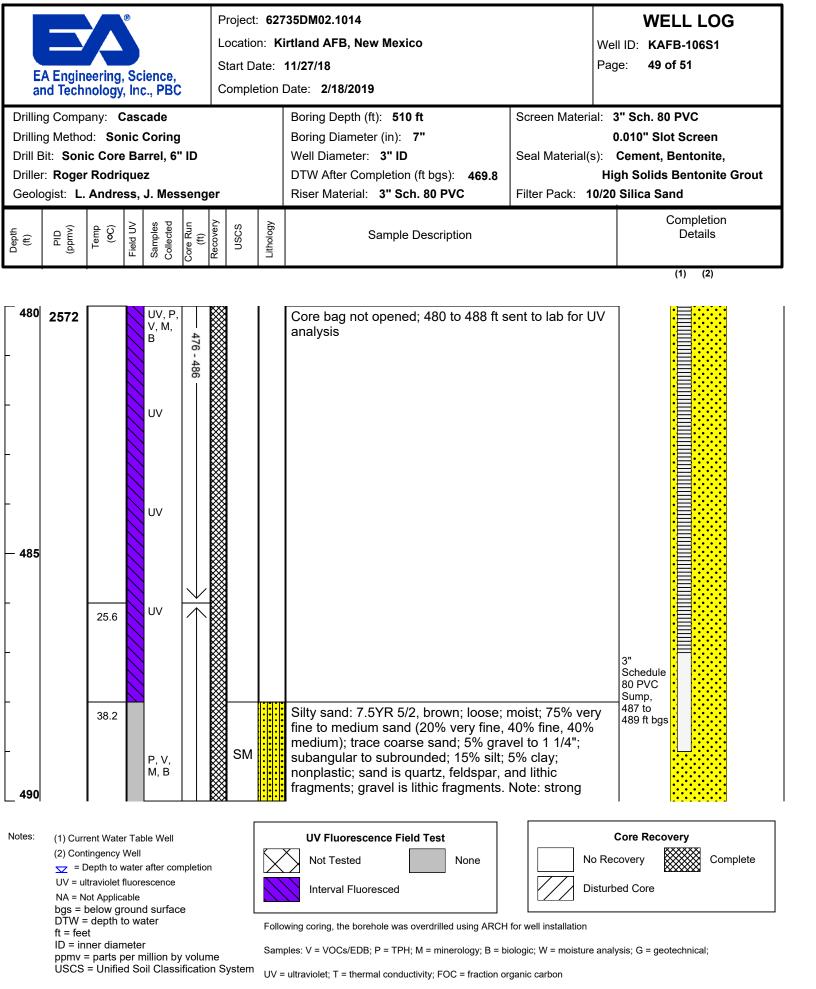
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Appendix D



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

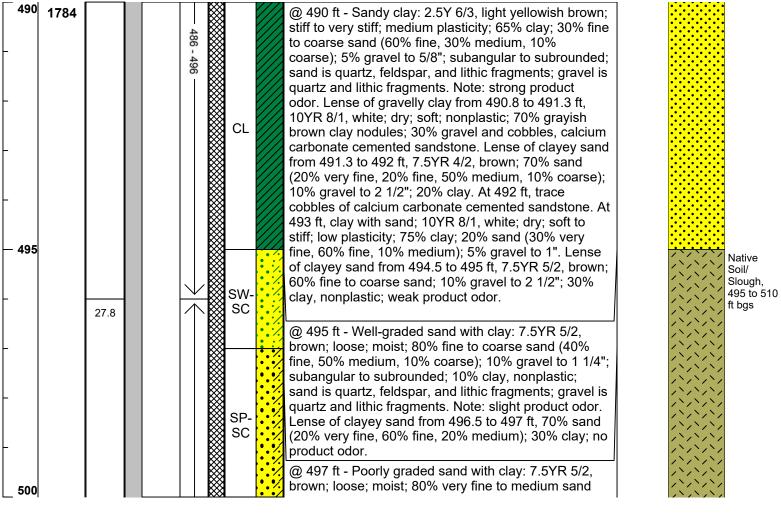
**WELL LOG** 

Well ID: KAFB-106S1

Page: **50 of 51** 

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 510 ft Boring Diameter (in): 7" Drilling Method: Sonic Coring 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 469.8 **High Solids Bentonite Grout** Geologist: L. Andress, J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion

The state of the s



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery							
	No Recovery		Complete				
	Disturbed Core						

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 11/27/18

Completion Date: 2/18/2019

WELL LOG

Well ID: KAFB-106S1

Page: **51 of 51** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, J. Messenger

Boring Depth (ft): **510 ft**Boring Diameter (in): **7"** 

Well Diameter: 3" ID

DTW After Completion (ft bgs): 469.8

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(2)

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

Completion

Completion

Completion

Details

14.3 @ 500 ft - Well-graded sand with clay: 7.5YR 5/2, brown; loose; moist; 80% fine to coarse sand (40% fine, 50% medium, 10% coarse); 10% gravel to 1 1/2"; subangular to subrounded; 10% clay, nonplastic; SWsand is quartz, feldspar, and lithic fragments; gravel is SC quartz and lithic fragments. 496 @ 502.5 ft - Silty sand: 10YR 5/3, brown; loose; moist; 85% very fine to fine sand (50% very fine, 50% fine); - 510 subangular to subrounded; 15% silt, nonplastic; sand SM is quartz, feldspar, and lithic fragments. Note: lense of poorly graded sand with clay from 503.6 to 504.5 ft, 85% very fine to medium sand; 5% gravel to 2"; 10% @ 504.5 ft - Poorly graded sand: 7.5YR 5/2, brown; 505 28.6 loose; moist; 90% fine to medium sand (40% fine, 60% medium); trace coarse sand; 5% gravel to 2"; subangular to subrounded; 5% clay, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. TD = 510 ftSP 215.8 510

Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test

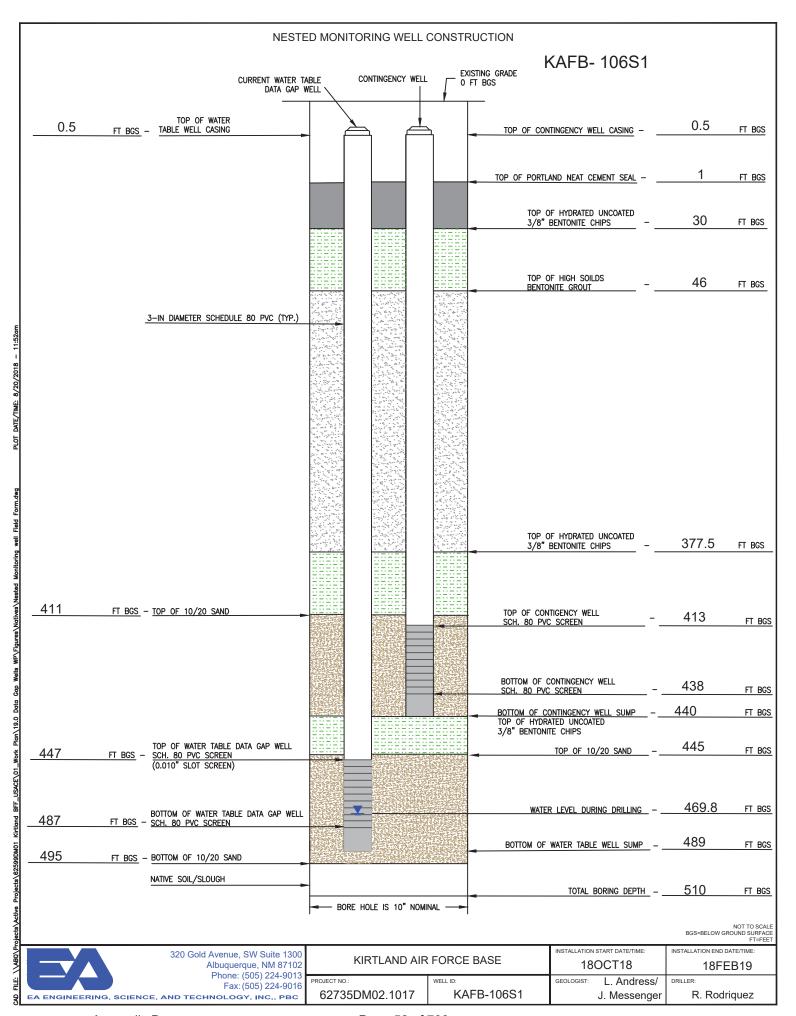
Not Tested None

Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 





Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 1 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, B. Bockisch, C. Landers

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 475.77

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

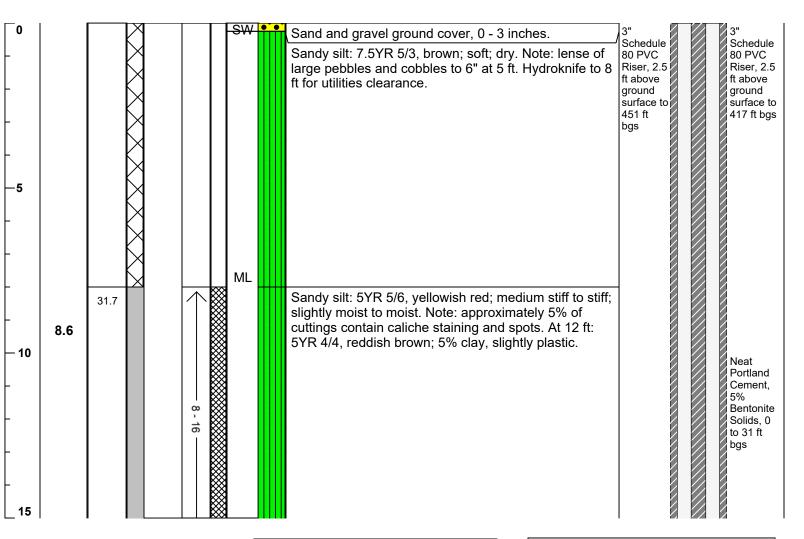
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Collected Samples Run Recover USCS Lithology PID (ppmv) 00 Depth (ft) Details Sample Description Field (  $\Xi$ Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

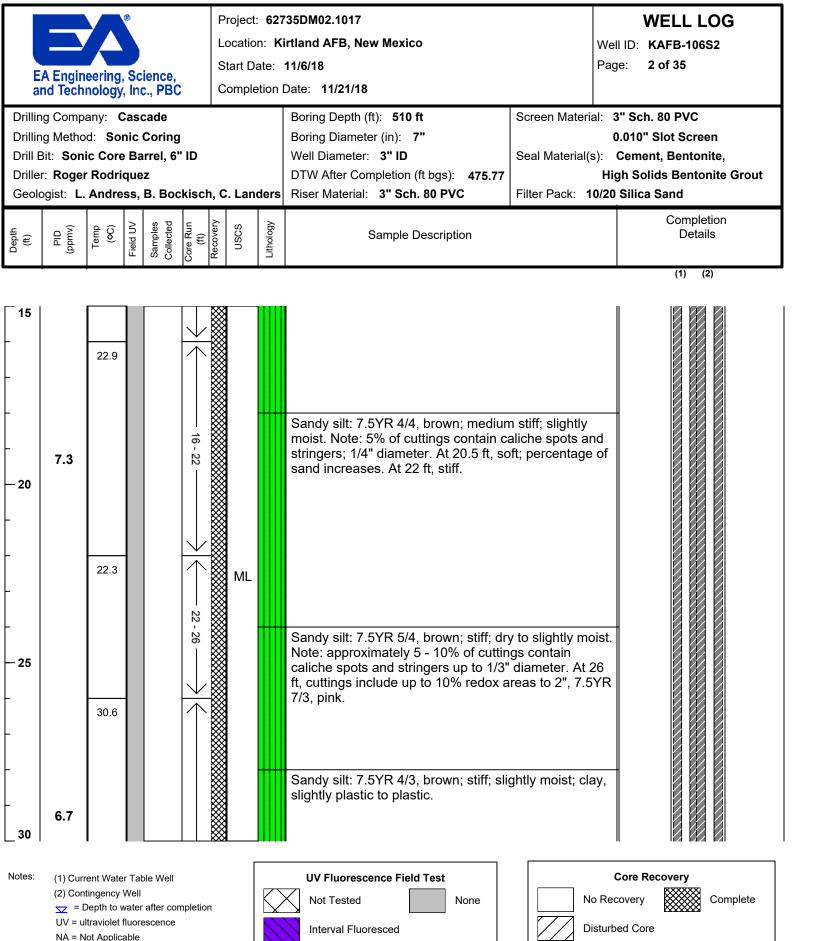
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

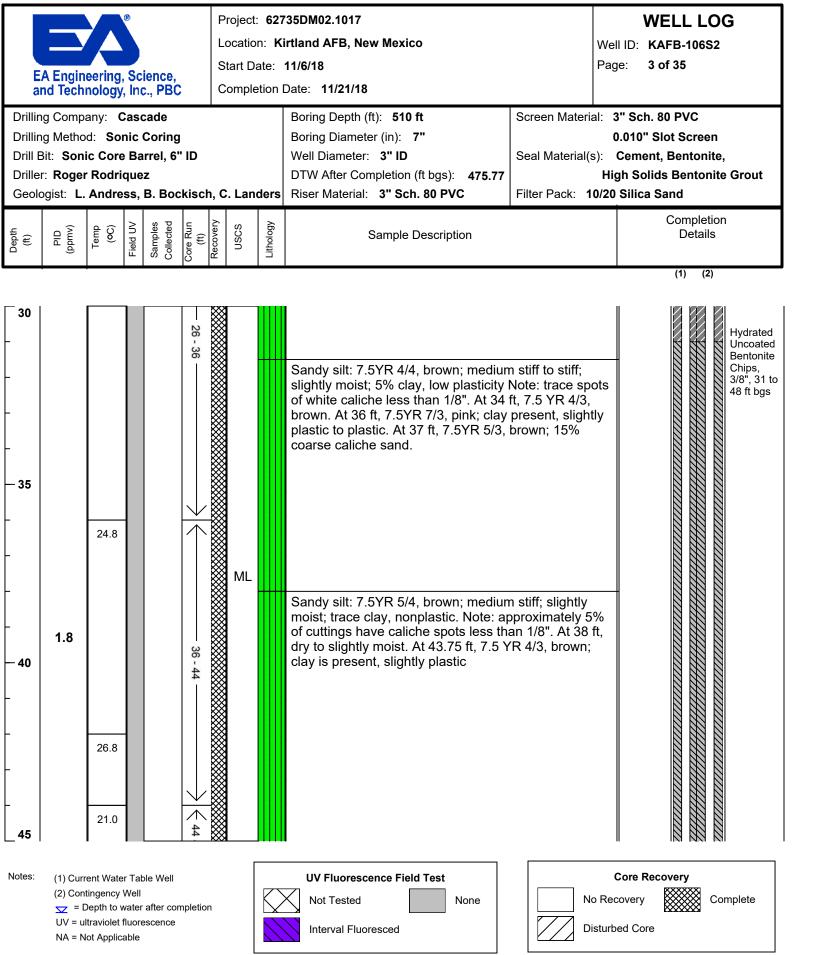
Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



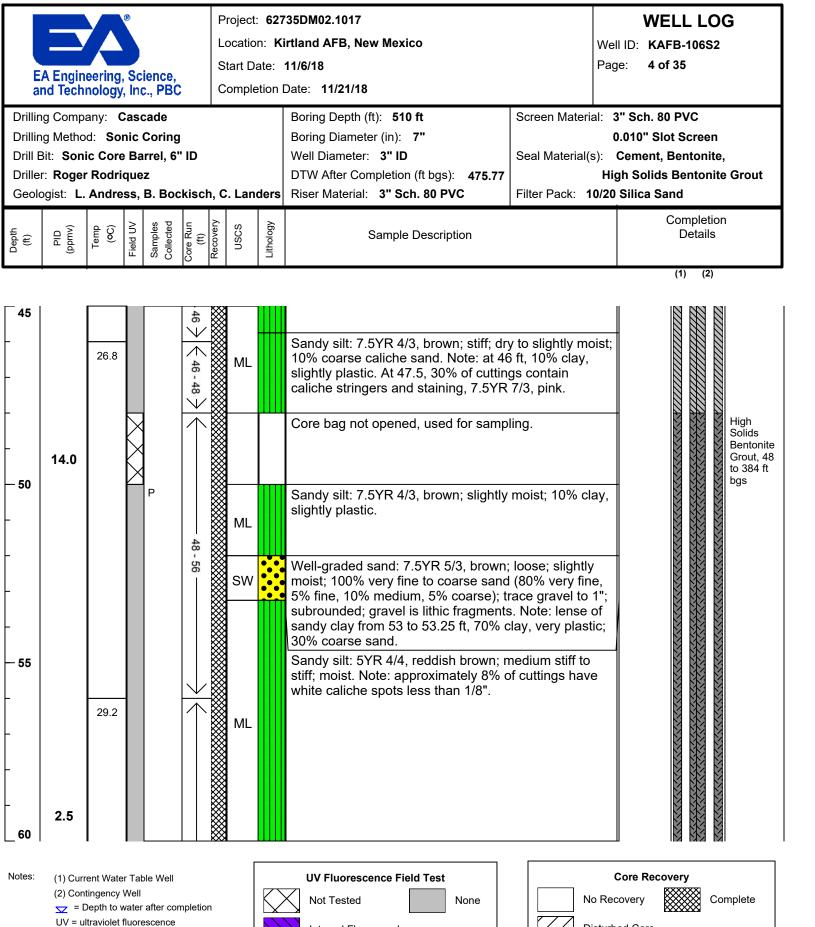
Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



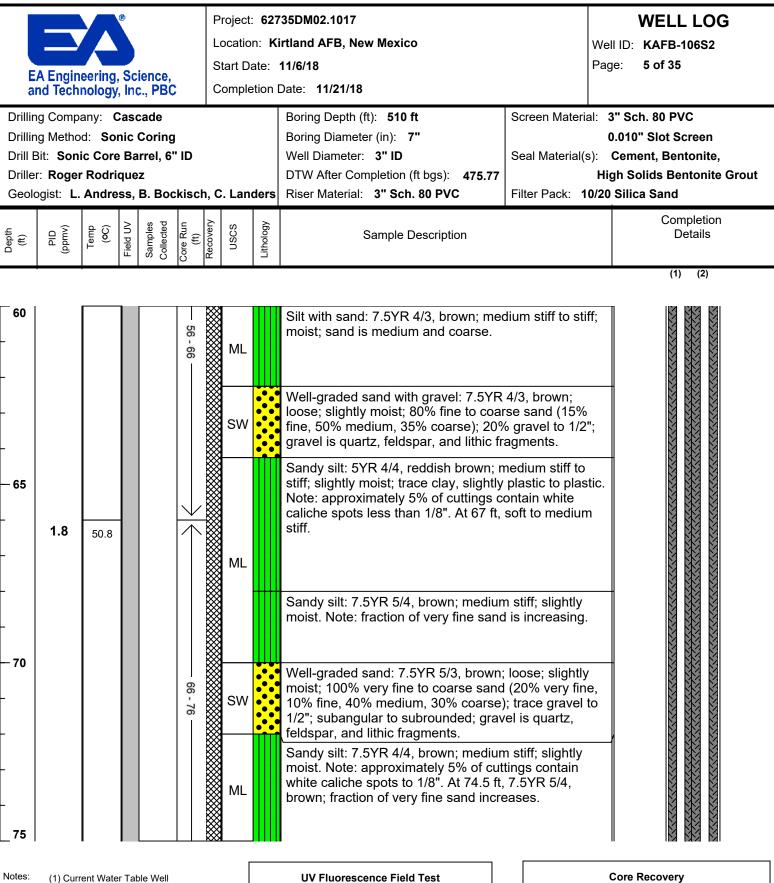
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

NA = Not Applicable

Disturbed Core

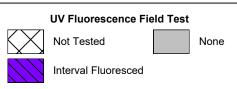
Interval Fluoresced



(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

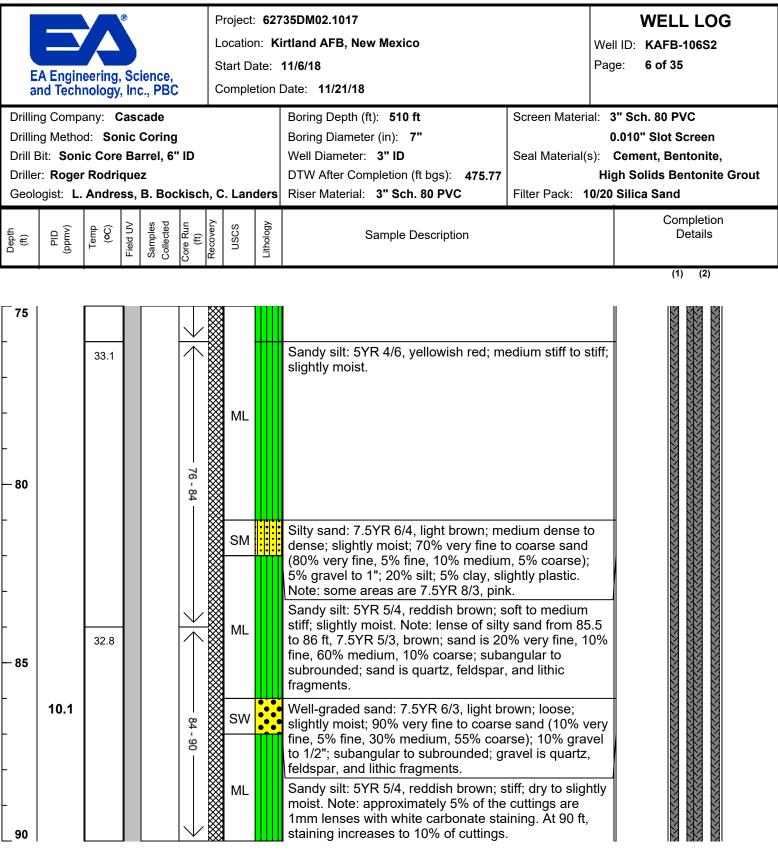
No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



(2) Contingency Well

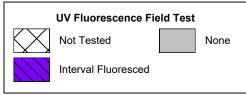
Notes:

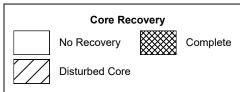
= Depth to water after completion

UV = ultraviolet fluorescence

(1) Current Water Table Well

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



Drilling Company: Cascade

Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Geologist: L. Andress, B. Bockisch, C. Landers

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: **7 of 35** 

Boring Depth (ft): 510 ft Screen Material: 3" Sch. 80 PVC

Boring Diameter (in): 7" 0.010" Slot Screen
Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

DTW After Completion (ft bgs): 475.77 High Solids Bentonite Grout

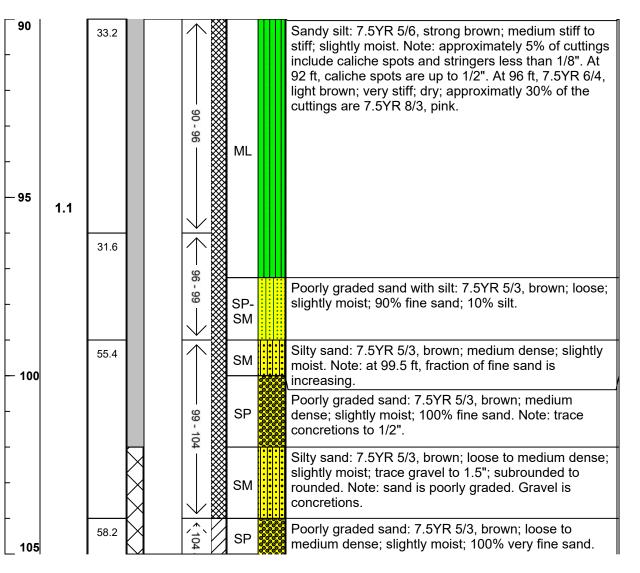
Filter Pack: 10/20 Silica Sand

Completion
Details

Completion
Details

Riser Material: 3" Sch. 80 PVC

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

Not Tested None

Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Geologist: L. Andress, B. Bockisch, C. Landers

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Well Diameter: 3" ID

Start Date: 11/6/18

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: 8 of 35

Boring Depth (ft): 510 ft Screen Material: 3" Sch. 80 PVC
Boring Diameter (in): 7" 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

High Solids Bentonite Grout

Filter Pack: 10/20 Silica Sand

Completion Details

Completion Details

Completion Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 475.77

15.7 SP Well-graded sand: 7.5YR 5/3, brown; loose; slightly 34.2 moist; 100% very fine to coarse sand (30% very fine, SW 10% fine, 50% medium, 10% coarse). Poorly graded sand: 7.5YR 5/2, brown; loose; slightly moist; 100% fine sand. SP Sandy silt: 7.5YR 5/4, brown; medium stiff to stiff; dry 110 to slightly moist. Note: trace carbonate staining. At 110 106 ft, 7.5YR 5/3, brown. 116 ML 115 2.7 Sandy silt: 7.5YR 5/4, brown; medium stiff; slightly 31.4 moist. Note: at 116.25 ft, a 4" band of caliche/carbonate cemented gravel from 1" to 4" is present; subangular to subrounded. At 117 ft, no 116 caliche present. At 119.5 ft, moist; 20% clay, plastic, 120 present in medium stiff nodules from 1" to 2". 120

Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

Not Tested None

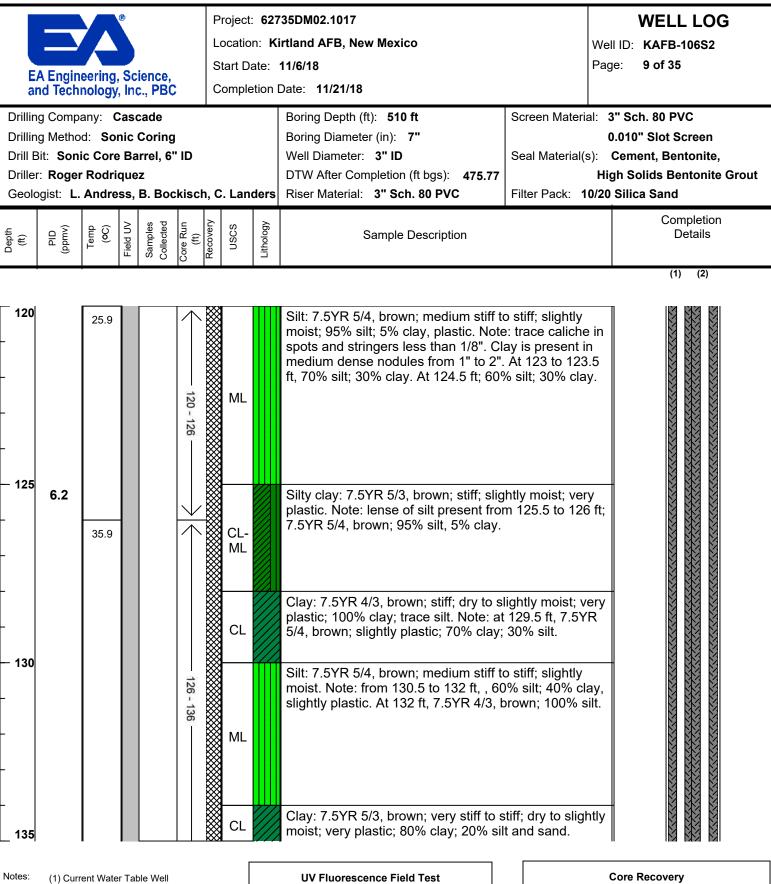
Interval Fluoresced

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



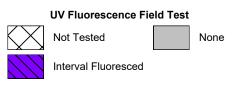
(2) Contingency Mell

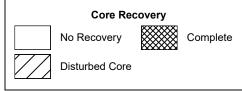
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 10 of 35

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

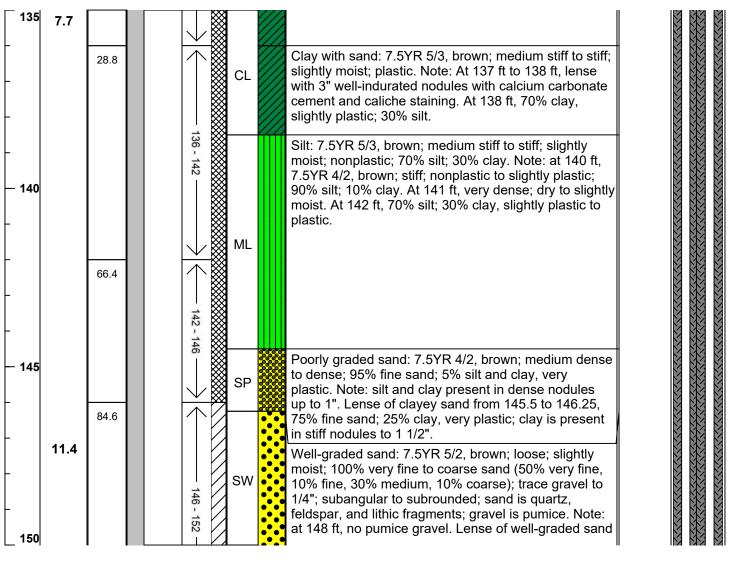
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Geologist: L. Andress, B. Bockisch, C. Landers Riser Material: 3" Sch. 80 PVC Completion Run Recover USCS Lithology PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core (1) (2)

DTW After Completion (ft bgs): 475.77



Notes:

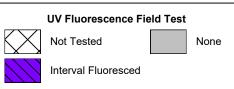
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

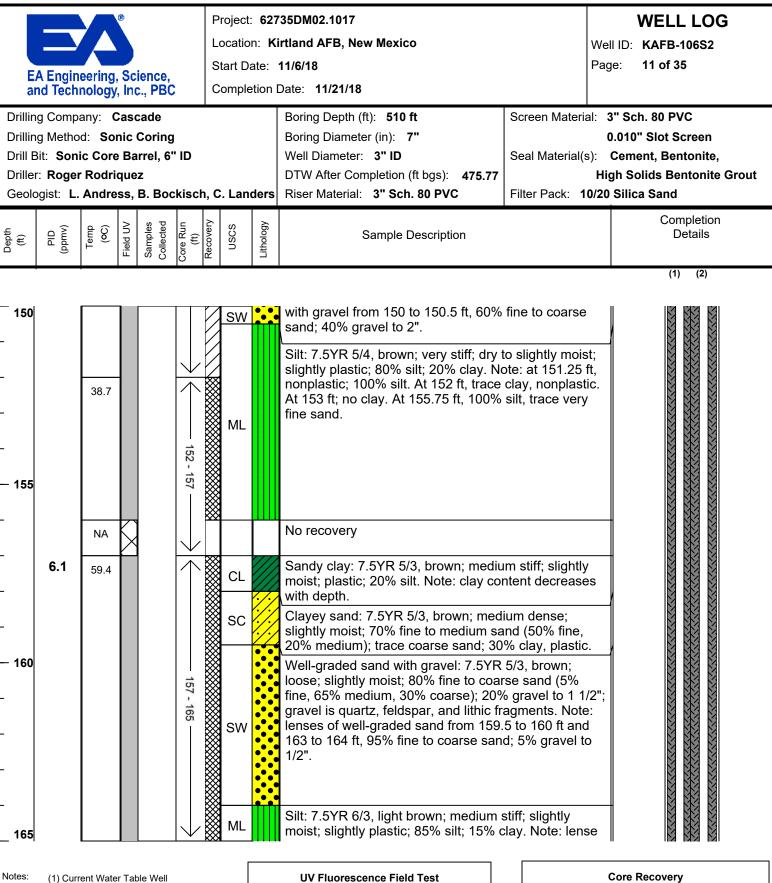
UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

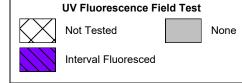
Following coring, the borehole was overdrilled using ARCH for well installation

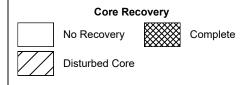


= Depth to water after completion UV = ultraviolet fluorescence

NA = Not Applicable

(2) Contingency Well





Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 12 of 35

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez DTW After Completion (ft bgs): 475.77 Geologist: L. Andress, B. Bockisch, C. Landers Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Run Recover USCS PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core

of clay from 165 to 165.5 ft, plastic, silt content 165 37.3 increases downward to 80% clay, 20% silt, slightly plastic. SM Silty sand: 7.5YR 5/3, brown; medium dense to 165 5.3 dense; slightly moist; sand is fine. 170 Well-graded sand with gravel: 7.5YR 5/3, brown; loose; slightly moist; 80% fine to coarse sand (40% fine, 20% medium, 40% coarse); 20% gravel to 1/2"; subangular to subrounded; gravel is quartz, feldspar, lithic fragments; and pumice. Note: lense of silt from 170 167.75 to 168 ft, 60% silt; 40% clay; slightly plastic to 58.7 Well-graded sand: 7.5YR 6/4, light brown; loose to medium dense; slightly moist; 100% fine to coarse sand (80% fine, 20% medium, 20% coarse). Note: lense of well-graded sand with gravel from 168.5 to SW 170 -169 ft; 85% sand; 15% gravel to 1/2"; subrounded; gravel includes pumice. From 169.5 to 170 ft, lense of silty sand with 20% clay. At 170 ft, 100% sand (70% fine, 20% medium, 10% coarse). At 172 ft, 100% sand (10% fine, 60% medium, 30% coarse). At 174 ft, sand is fining downwards to 60% fine, 30% medium, 10% 175 coarse.at 175.5 ft. At 177.5 ft, trace gravel to 1"; gravel is pumice and lithic fragments. 74.3 Poorly graded sand: 7.5YR 6/3, light brown; loose; 3.4 176 - 182 slightly moist; 100% fine to medium sand (90% fine, SP 10% medium). 180

Notes:

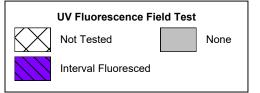
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Geologist: L. Andress, B. Bockisch, C. Landers

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: **13 of 35** 

Boring Depth (ft): 510 ft Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

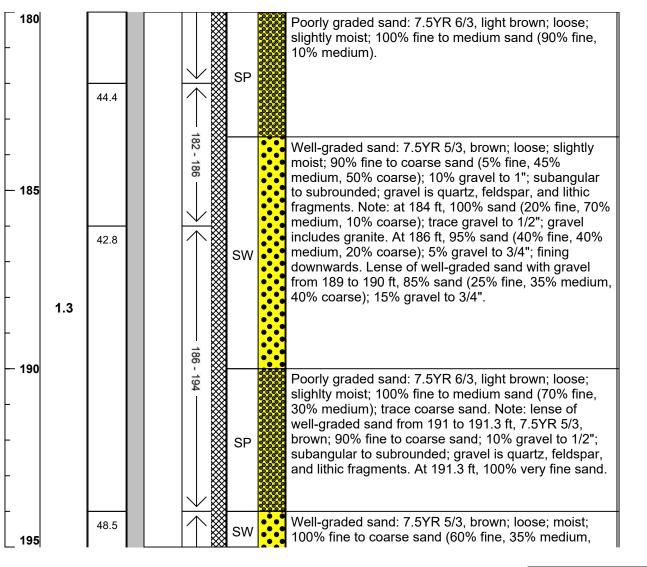
Completion Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 475.77

Boring Diameter (in): 7"

Well Diameter: 3" ID



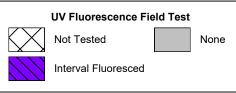
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Geologist: L. Andress, B. Bockisch, C. Landers

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 14 of 35

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 475.77

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

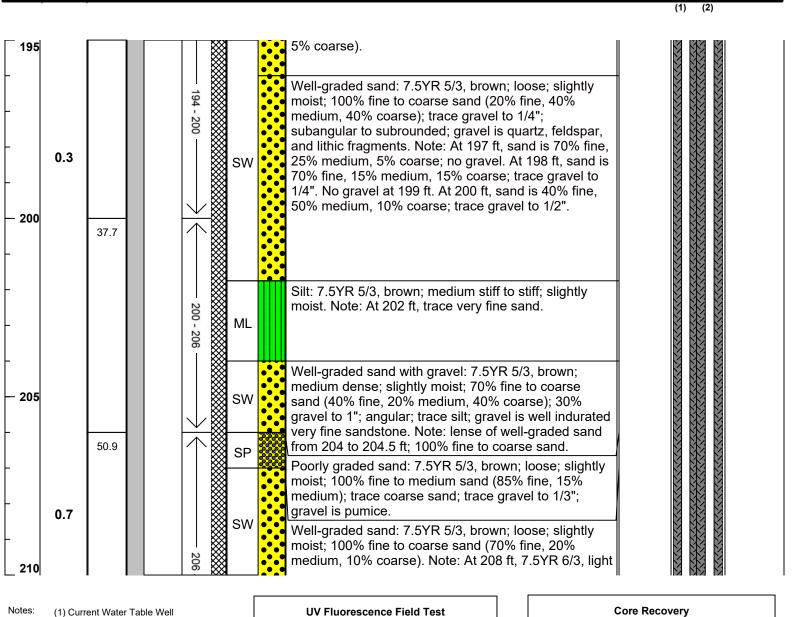
Filter Pack: 10/20 Silica Sand

No Recovery

Disturbed Core

Complete

Completion Lithology Samples Collected Run Recover USCS PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

Not Tested

Interval Fluoresced

= Depth to water after completion UV = ultraviolet fluorescence

(2) Contingency Well

NA = Not Applicable

None



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Well Diameter: 3" ID

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 15 of 35

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 510 ft Boring Diameter (in): 7" 0.010" Slot Screen

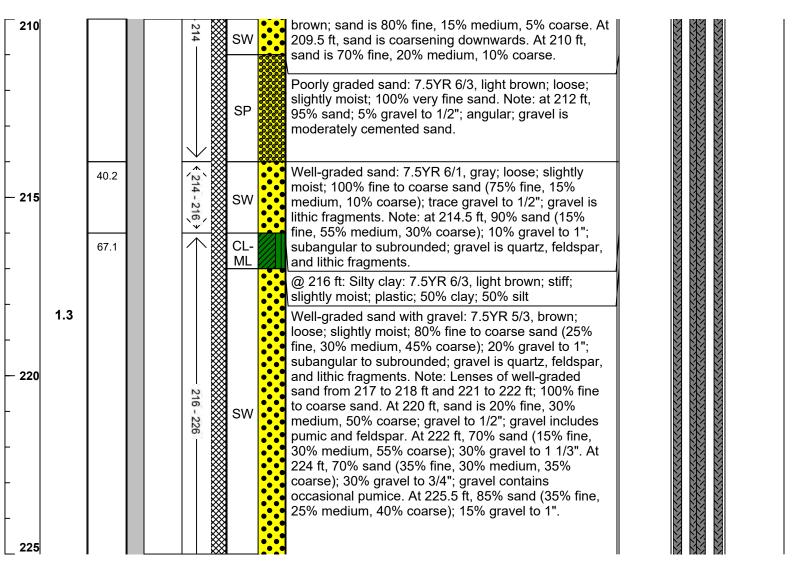
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Geologist: L. Andress, B. Bockisch, C. Landers Riser Material: 3" Sch. 80 PVC Completion Lithology Samples Collected Run Recovery USCS PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core (1) (2)

DTW After Completion (ft bgs): 475.77



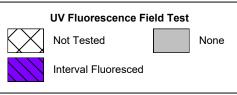
Notes: (1) Current Water Table Well

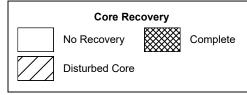
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation



Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 16 of 35

Screen Material: 3" Sch. 80 PVC

Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 475.77 **High Solids Bentonite Grout** Geologist: L. Andress, B. Bockisch, C. Landers Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Samples Run Recover USCS PID (ppmv) 8 Depth (ft) Details Sample Description Field I

Core (1) (2) 225 Well-graded sand: 7.5YR 5/3, brown; loose; slightly 62.1 moist; 100% fine to coarse sand (70% fine, 20% medium, 10% coarse). SW Well-graded sand with gravel: 7.5YR 5/3, brown; loose; well graded; 80% fine to coarse sand (25% 1.3 fine, 25% medium, 50% coarse); 20% gravel to 3/4"; subangular to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: At 229 ft, 60% sand (10%) 226 fine, 30% medium, 60% coarse); 40% gravel to 1". 230 234 SW-Well-graded sand with clay and gravel: 7.5YR 5/3, SC brown; loose; slightly moist; 65% fine to coarse sand (10% fine, 45% medium, 45% coarse); 25% gravel to 1"; subangular to subrounded; 10% clay, plastic; gravel is quartz, feldspar, and lithic fragments. Note: Clay is present as nodules to 1"; 7.5YR 6/3, light brown. @ 231 ft: Well-graded sand: 7.5YR 5/3, brown; loose; SW slightly moist; 95% fine to coarse sand (10% fine, 75% medium, 15% coarse); 5% gravel to 3/4"; subangular 43.1

to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: Lense of poorly graded sand from 231 to 231.3 ft; 100% fine sand. At 232 ft, gravel to 1/2"; gravel is only lithic fragments. At 223.75 ft, gravel to 1"; gravel is mostly pumice with quartz and lithic fragments. 234 -

@ 234 ft: Well-graded sand with gravel: 7.5YR 5/2, brown; loose; slightly moist; 70% fine to coarse sand (10% fine, 35% medium, 55% coarse); 30% gravel to 1 1/2"; subangular to subrounded; trace clay; gravel is guartz, feldspar, and lithic fragments. Note: lense of well-graded sand from 235.5 to 236.5 ft, 100% fine to

Notes:

240

2.1

235

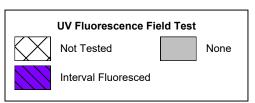
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

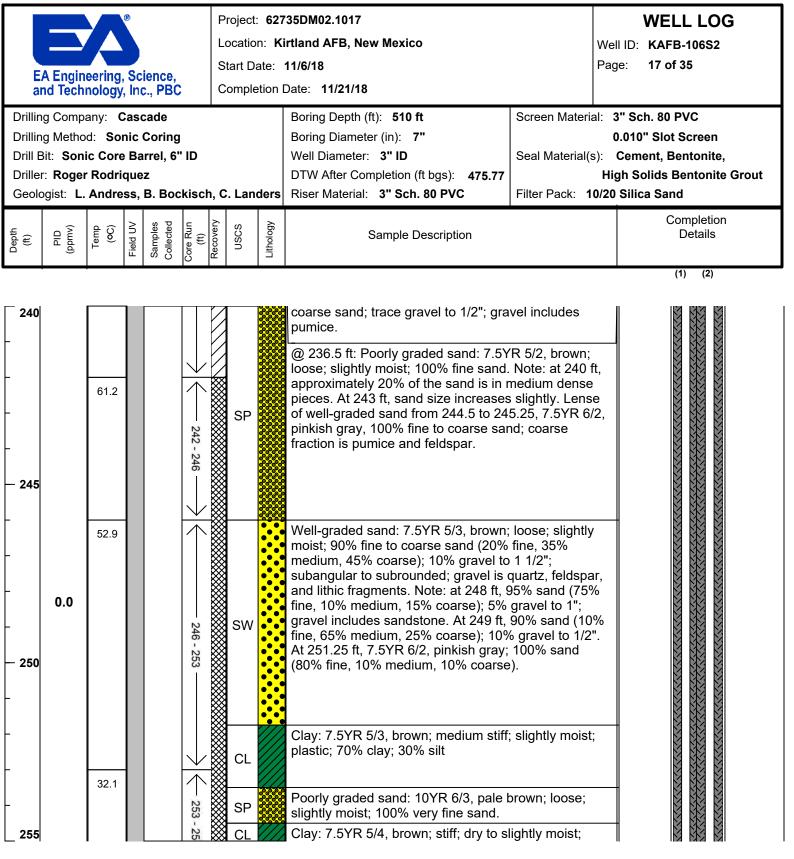


Core Recovery No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

SP



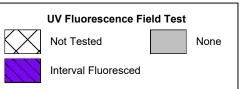
Notes: (1) Current Water Table Well

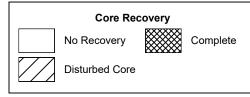
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 18 of 35

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez DTW After Completion (ft bgs): 475.77 Geologist: L. Andress, B. Bockisch, C. Landers Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

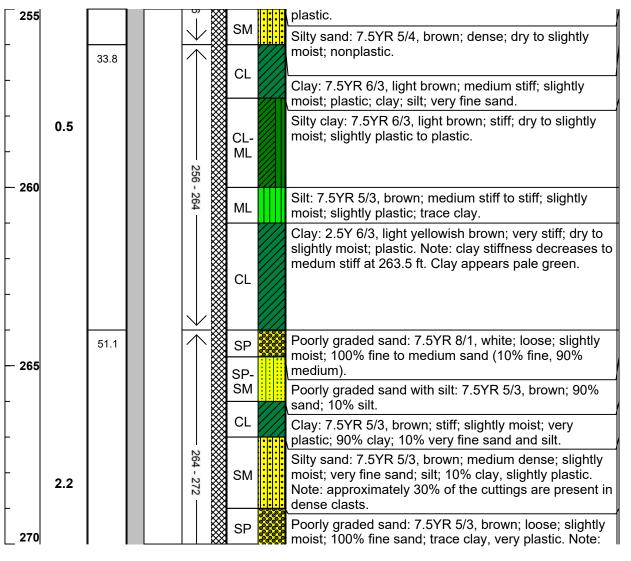
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Samples Run Recovery USCS Lithology PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

> (1) (2)



Notes:

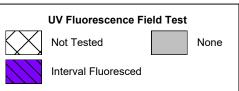
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



**Core Recovery** No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 19 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, B. Bockisch, C. Landers

Boring Depth (ft): 510 ft Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 475.77

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Collected Samples Run Recover USCS Lithology PID (ppmv) (S Depth (ft) Sample Description Details Field I Core

approximately 10% of the cuttings are pieces of sandy 270 clay up to 1". At 270 ft, no clay. At 272 ft, sand is 80% fine, 20% medium; trace gravel. At 274 ft, 100% fine sand; approximately 5% of the cuttings are dense nodules, 1" to 3" diameter. At 275 ft, no dense nodules. 77.7 SP 275 272 -280 Well-graded sand: 7.5YR 6/4, light brown; loose to medium dense; slightly moist; 100% fine to coarse sand (80% fine, 10% medium, 10% coarse); trace • gravel to 1/3"; subrounded; gravel is quartz and lithic SW fragments. Ρ 2.9 Poorly graded sand: 7.5YR 6/1, gray; loose; slightly SP moist; 100% very fine sand. 280 Well-graded sand: 7.5YR 5/3, brown; loose; slightly 69.9 SW moist; 100% fine to coarse sand (80% fine, 15% medium, 5% coarse). Note: sand is fining downwards. Poorly graded sand: 7.5YR 5/3, brown; loose; slightly moist; 95% fine sand; 5% medium to coarse sand. 280 Note: at 282 ft, 100% fine sand; trace medium and coarse sand. 285

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Geologist: L. Andress, B. Bockisch, C. Landers

Driller: Roger Rodriquez

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: 20 of 35

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 475.77

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

285 Poorly graded sand: 7.5YR 5/3, brown; loose; slightly moist; 100% fine sand; trace medium to coarse sand. 56.2 SP 286 290 0.0 290 44.9 Well-graded sand: 7.5YR 5/3, brown; loose; slightly 290 moist; 100% fine to coarse sand (10% fine, 85% medium, 5% coarse); trace gravel to 1"; subangular. Note: at 294 ft, sand is 30% fine, 50% medium, 20% coarse; no gravel. 0.3 295 SW Well-graded sand with gravel: 5YR 4/3, reddish 35.9 brown; loose; slighlty moist to moist; 80% fine to coarse sand (15% fine, 80% medium, 5% coarse); 296 20% gravel to 1"; rounded. 300 Well-graded sand: 5YR 4/3, reddish brown; loose; 0.0 slightly moist; 100% fine to coarse sand (10% fine, 80% medium, 10% coarse). 300

Notes:

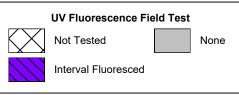
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Geologist: L. Andress, B. Bockisch, C. Landers

Driller: Roger Rodriquez

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: **21 of 35** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 475.77

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

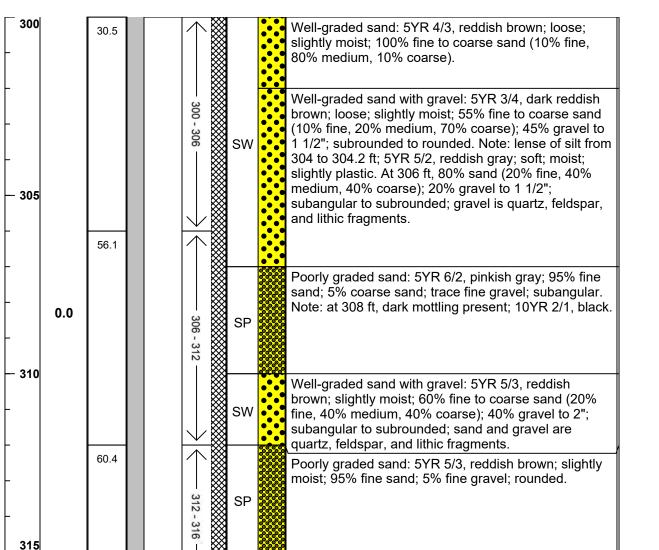
**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion
Details

Completion
Details



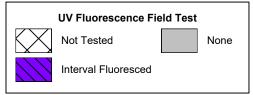
Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable



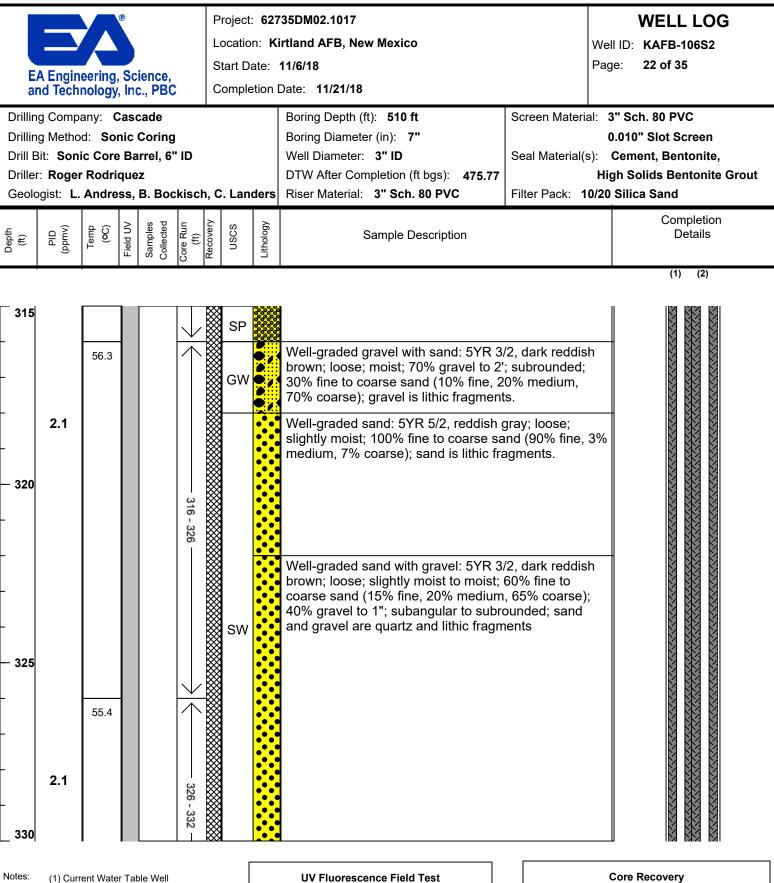
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



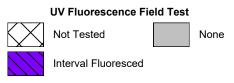
(1) Current Water Table Well

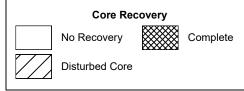
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: 23 of 35

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, B. Bockisch, C. Landers

Boring Depth (ft): **510 ft**Boring Diameter (in): **7"** 

Well Diameter: 3" ID

DTW After Completion (ft bgs): 475.77

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

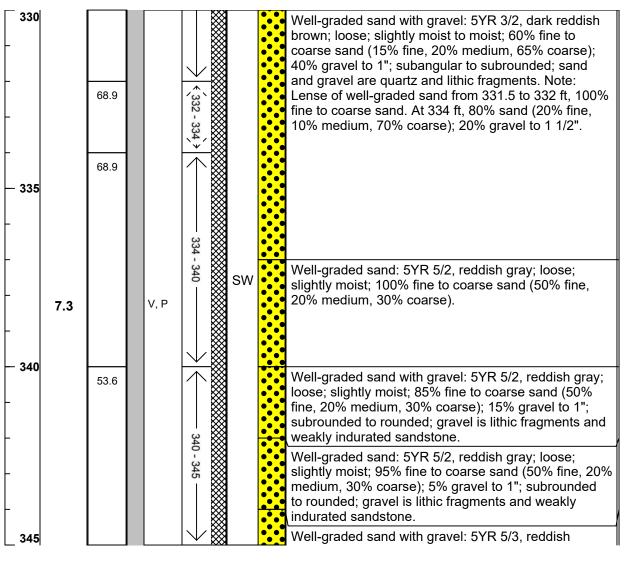
**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion
Details

Completion
Details

(1) (2)



Notes:

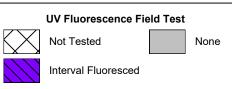
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



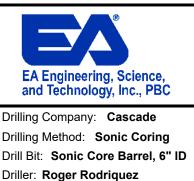
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  



Geologist: L. Andress, B. Bockisch, C. Landers

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 11/6/18

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: **24 of 35** 

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Completion Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 475.77

brown; loose; moist; 75% fine to coarse sand (30%) 345 67.8 fine, 20% medium, 50% coarse); 25% gravel to 1"; subangular to subrounded; sand is quartz, feldspar, 345 - 348 and lithic fragments; gravel is quartz and lithic fragments. Well-graded sand: 5YR 5/3, reddish brown; loose; moist; 90 - 95% fine to coarse sand (30% fine, 20% medium, 50% coarse); 5 - 10% gravel to 1"; 4.7 54.7 subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. 350 348 SW 34.1 356 355 Well-graded sand with gravel: 5YR 5/3, reddish 45.3 brown; loose; moist; 60% fine to coarse sand (30% fine, 20% medium, 50% coarse); 40% gravel to 1"; trace cobbles; subangular to subrounded; sand is quartz, felspar, and lithic fragments; gravel is quartz 3.3 and lithic fragments. 356 360

Notes: (1) C

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

Not Tested None

Interval Fluoresced

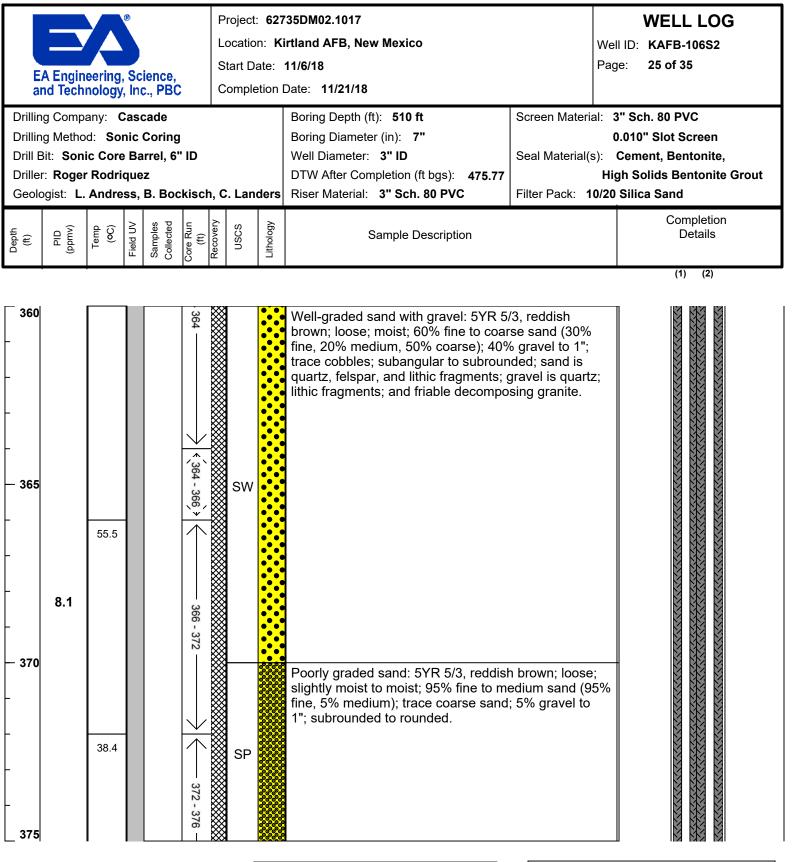
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

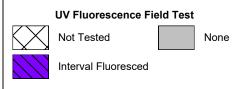


Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Driller: Roger Rodriquez

PID (ppmv)

Depth (ft)

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

8

Geologist: L. Andress, B. Bockisch, C. Landers

Samples Collected Run

Field I

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Lithology

Recovery USCS

Core

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

0.010" Slot Screen

Page: 26 of 35

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

DTW After Completion (ft bgs): 475.77

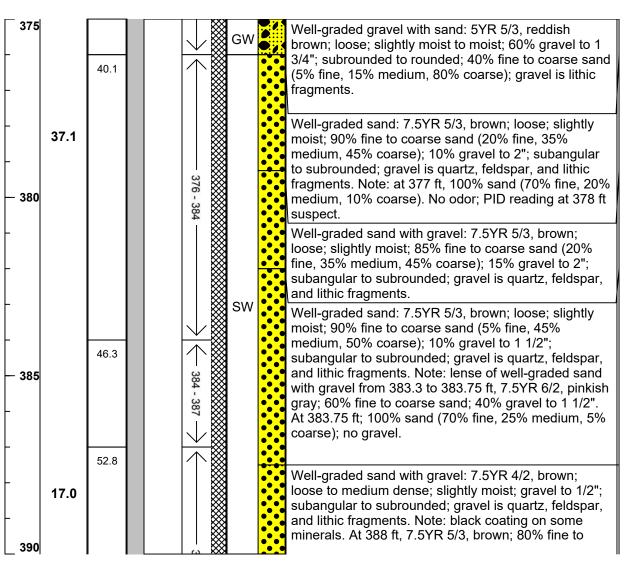
Sample Description

**High Solids Bentonite Grout** Riser Material: 3" Sch. 80 PVC

Filter Pack: 10/20 Silica Sand

Completion Details

> (1) (2)



Hvdrated Uncoated Bentonite Chips, 3/8", 384 to 415.1 ft bgs

Notes:

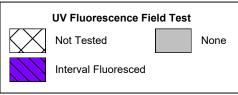
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 27 of 35

Screen Material: 3" Sch. 80 PVC

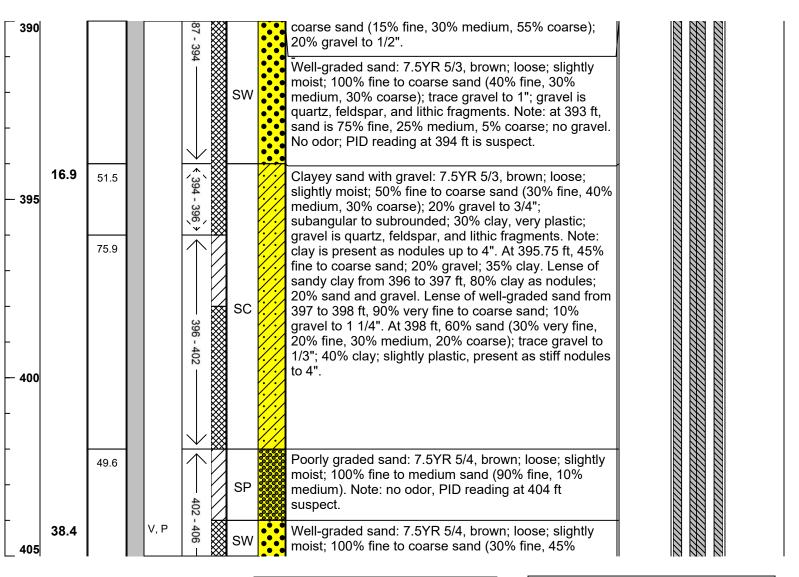
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

0.010" Slot Screen

Geologist: L. Andress, B. Bockisch, C. Landers Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Samples Run Recover USCS PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core (1) (2)

DTW After Completion (ft bgs): 475.77



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

Well ID: KAFB-106S2

Page: 28 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: L. Andress, B. Bockisch, C. Landers

Boring Depth (ft): 510 ft Boring Diameter (in): 7"

Well Diameter: 3" ID DTW After Completion (ft bgs): 475.77

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Lithology Run Recovery USCS PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core

medium, 25% coarse); trace gravel to 5/8"; 405 subangular to subrounded; gravel is guartz, feldspar, and lithic fragments. Note: at 405.5 ft, sand is 35% 73.3 fine, 25% medium, 40% coarse; no gravel; trace clay, slightly plastic, in stiff nodules to 3", 5YR 4/4, reddish brown. At 406 ft, sand is 55% fine, 30% medium, 15% coarse; no gravel; no clay. Well-graded sand with gravel: 7.5YR 7/1, light gray; loose; dry to slightly moist; 85% fine to coarse sand (70% fine, 20% medium, 10% coarse); 15% gravel to 1"; subangular to subrounded; gravel is granite and 410 19.5 lithic fragments. Note: at 412 ft, 7.5YR 6/2, pinkish 406 gray; 80% sand (60% fine, 25% medium, 15% coarse); 20% gravel and cobbles to 4". At 413 ft; 7.5YR 5/2, brown; 85% sand (70% fine, 25% medium, 5% coarse); 15% gravel to 1 1/2"; gravel is lithic •• fragments. Note: no odor, PID reading at 410 ft SW suspect. Well-graded sand: 7.5YR 5/2, brown; loose; slightly moist; 100% fine to coarse sand (80% fine, 15% 415 medium, 5% coarse). Note: at 415 ft, 7.5YR 6/2, pinkish gray, sand is 20% fine, 80% medium, 20% coarse; trace gravel to 1/2"; subangular to 51.7 subrounded; gravel is quartz, feldspar, and lithic fragments. At 416 ft, 95% sand (65% fine, 25% medium, 10% coarse); 5% gravel to 1/2". At 417.5 ft; Schedule 95% sand (5% fine, 30% medium, 65% coarse); 5% 80 PVC gravel to 3/4". At 418 ft, 100% sand (85% fine, 10% Screen, medium, 5% coarse); trace gravel to 3/4". Lense of 0.010" slot, 417 clay as red nodules to 3" from 418.75 to 419.25 ft, V, P 442 ft bgs 0.3 very plastic. 23.3 420

Notes:

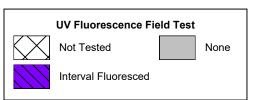
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

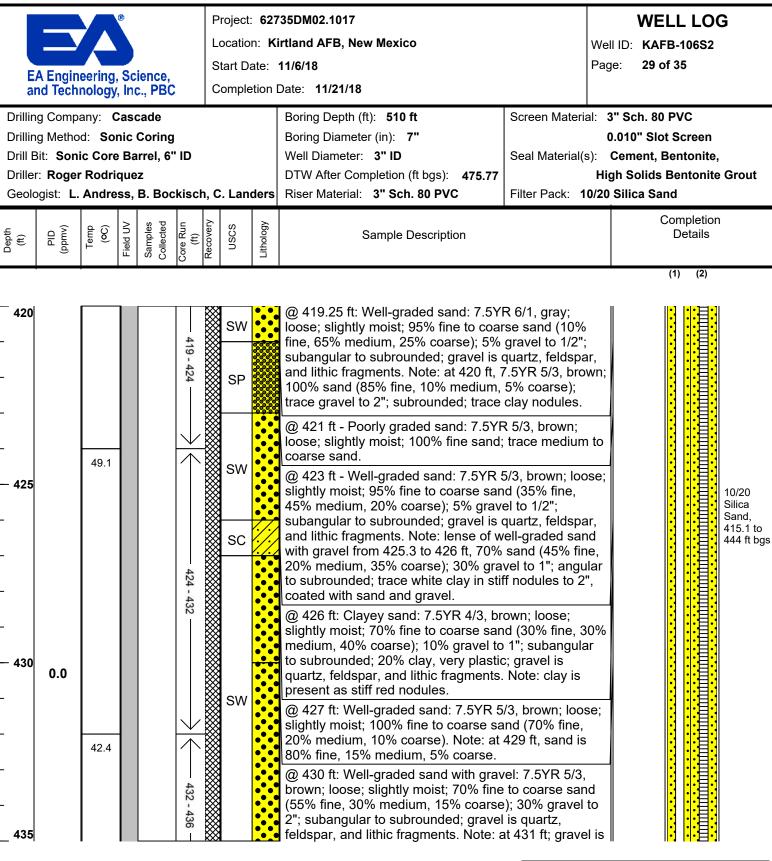
UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

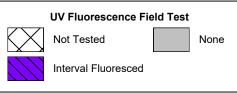


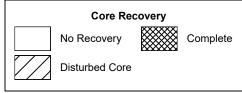
Notes: (1) Current Water Table Well

(2) Contingency Well

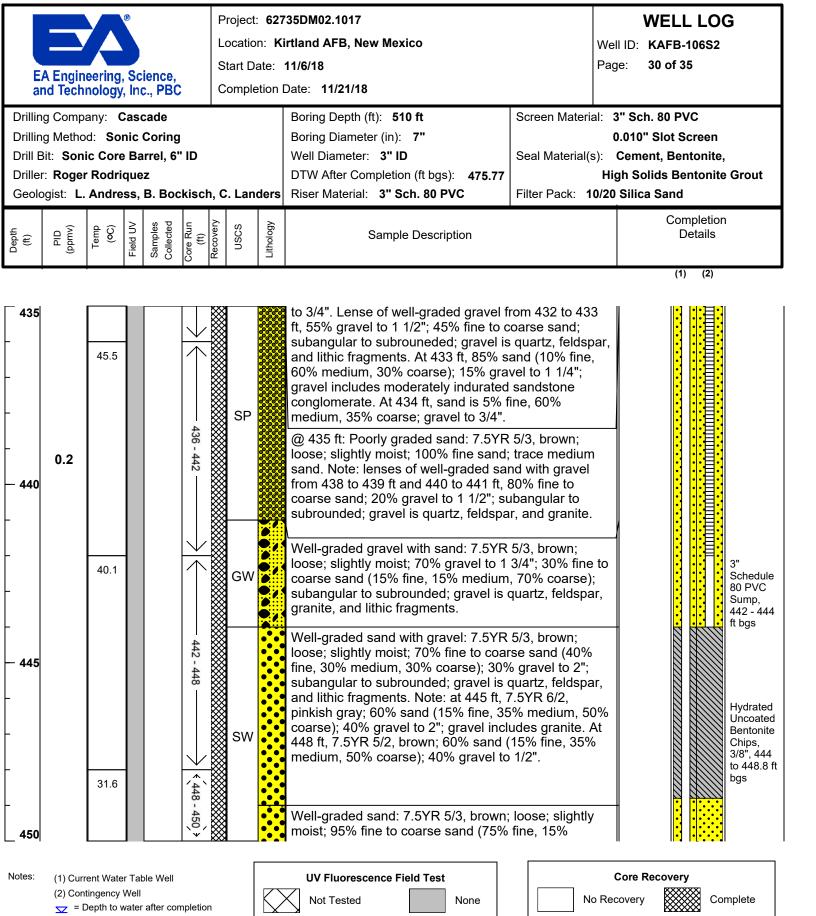
UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  



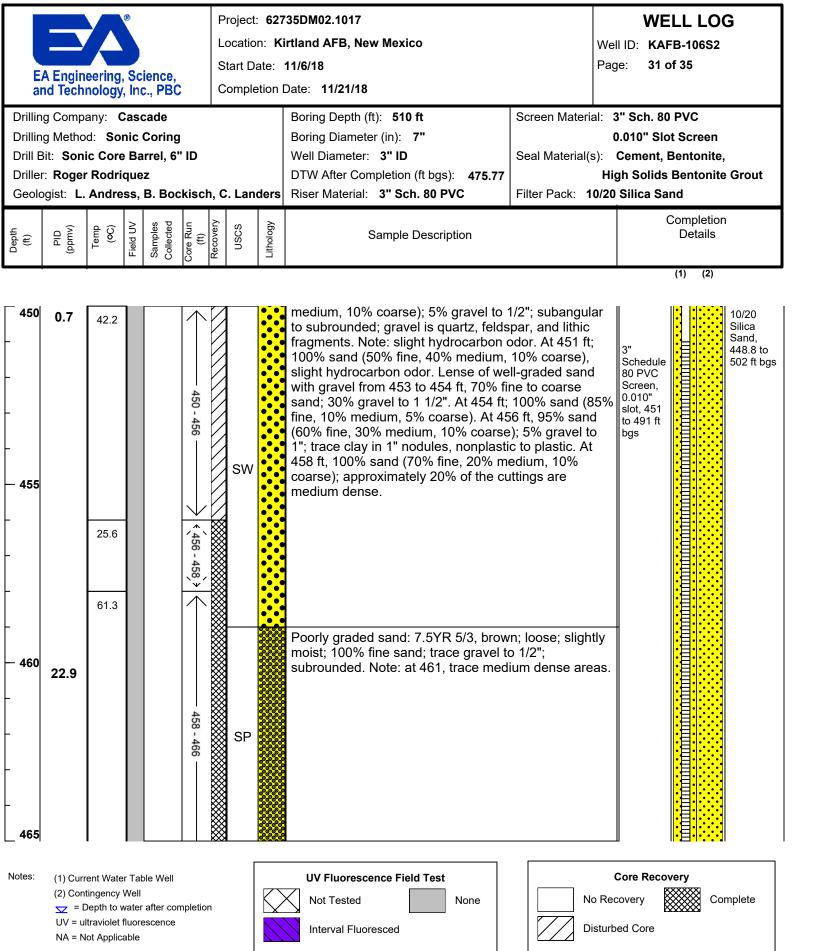
UV = ultraviolet fluorescence
NA = Not Applicable

Interval Fluoresced

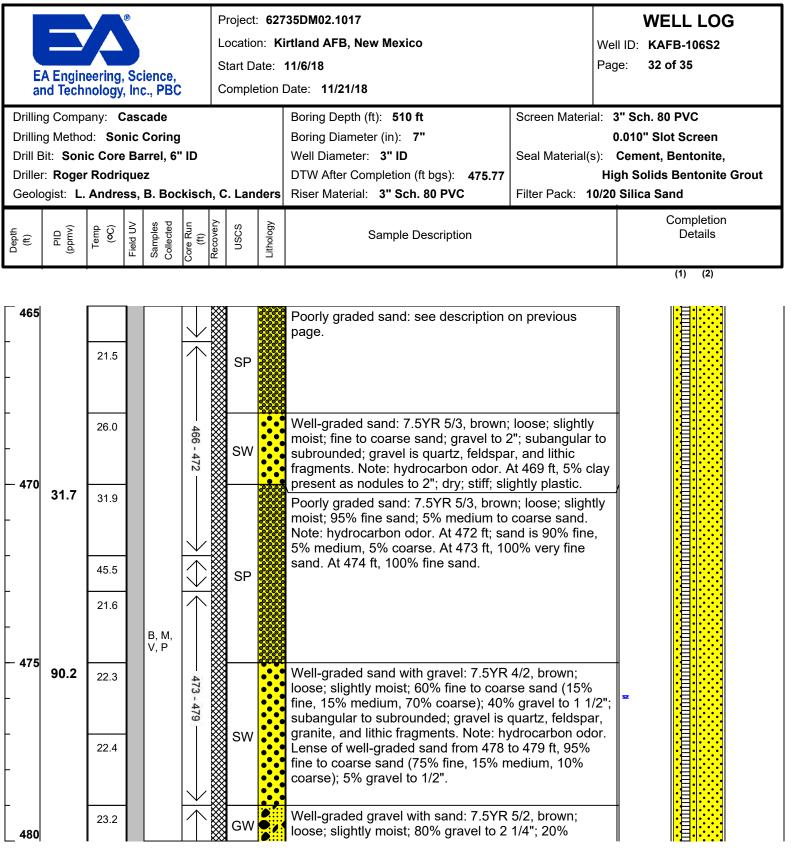
Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

**Disturbed Core** 



Following coring, the borehole was overdrilled using ARCH for well installation

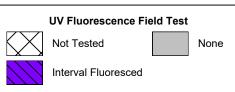


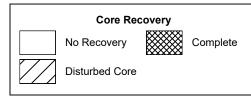
Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Completion Date: 11/21/18

WELL LOG

(2)

Well ID: KAFB-106S2

Page: 33 of 35

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 475.77 **High Solids Bentonite Grout** Geologist: L. Andress, B. Bockisch, C. Landers Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Samples Collected Run Recover USCS PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

medium to coarse sand (50% medium, 50% coarse); 480 362 GW trace fine sand; gravel is quartz, feldspar, and lithic fragments. Note: At 480 ft, 70% gravel; 30% sand 23.6 (trace fine, 30% medium, 70% coarse). Well-graded sand: 7.5YR 5/2, brown; loose; slightly moist; 100% fine to coarse sand (80% fine, 15% medium, 5% coarse); trace gravel to 1"; subangular to 24.2 479 SW subrounded; trace clay, nonplastic; gravel is quartz, feldspar, and lithic fragments. Note: clay is present as 1802 489 nodules to 1". At 482 ft, sand is 10% fine, 75% medium, 15% coarse, hydrocarbon odor. At 483 ft, 485 7.5YR 4/1, dark gray; wet; 90% sand (10% fine, 35% 25.0 medium, 55% coarse); 10% gravel to 1". At 484 ft, 90% sand (80% fine, 10% medium, 10% coarse); 10% gravel to 1"; trace gravel to 2 1/2". At 485 ft, 7.5YR GW ø. 5/3, brown, wet, 100% fine to coarse sand. 25.4 @ 486 ft: Well-graded gravel with sand: 7.5YR 5/3, brown; loose; wet; 60% gravel to 1"; 40% fine to coarse sand (15% fine, 35% medium, 20% coarse); subangular to subrounded; gravel is quartz, feldspar, UV and lithic fragments. 26.9 @ 487 ft: Well-graded sand with gravel: 7.5YR 4/2, 490 brown: loose: wet: 70% fine to coarse sand (5% fine. 1476 35% medium, 60% coarse); 30% gravel to 1 1/2"; • subangular to subrounded; trace clay; gravel is quartz, SW UV 25.0 feldspar, and lithic fragments. Schedule 80 PVC @ 489 ft: Core bag not opened, sent to lab for UV Sump, analysis. 491 to 493 ft Well-graded sand with gravel: 7.5YR 4/3, brown; bgs 25.1 489 loose; wet; 80% fine to coarse sand (15% fine, 30%) medium, 55% coarse); 20% gravel to 2"; subangular - 499 3826 to subrounded; gravel is quartz, feldspar, and lithic 495

Notes:

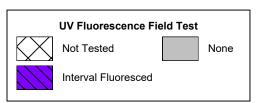
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

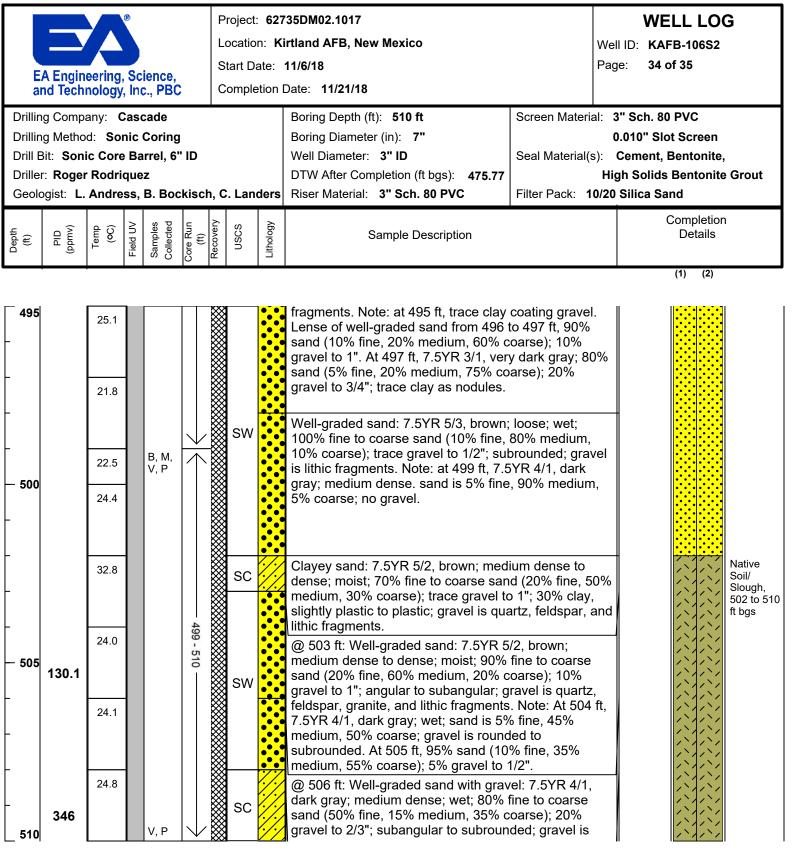
UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



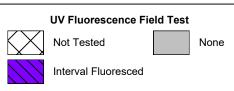
Notes: (1) Current Water Table Well

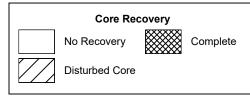
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Location: Kirtland AFB, New Mexico

Start Date: 11/6/18

Lithology

Completion Date: 11/21/18

**WELL LOG** 

Well ID: KAFB-106S2

Page: **35 of 35** 

Drilling Company: Cascade
Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

PID (ppmv)

Geologist: L. Andress, B. Bockisch, C. Landers

Field I

Recovery

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 475.77

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Sample Description Completion
Details

(1) (2)

510

Depth (ft)

quartz, feldspar and lithic fragments.

@ 508 ft: Clayey sand: 7.5YR 4/1, dark gray; medium dense; wet; 75% fine to coarse sand (10% fine, 55% medium, 35% coarse); 5% gravel; subangular to subrounded; 20% clay, nonplastic; gravel is quartz, feldspar, and lithic fragments. Note: trace nodules of silty sand to 1" present. At 509 ft, one 3" cobble present; subrounded; lithic fragment.

Total depth = 510 ft bgs

Notes: (1) Current Water Table Well (2) Contingency Well

NA = Not Applicable

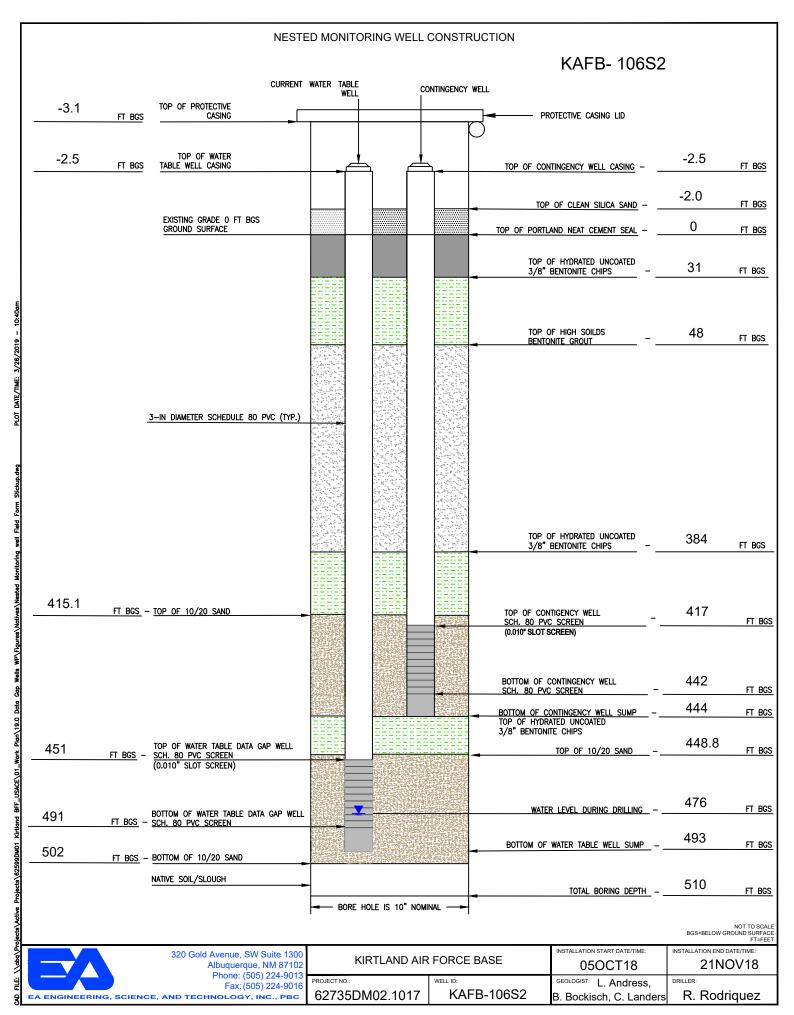
Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 





8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Drill Bit: 10 1/2" Ken Claw

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: 1 of 24

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Depth (ft) PID (ppmv) -itholog Sample Description **JSCS** Details

Riser Material: 3" Sch. 80 PVC

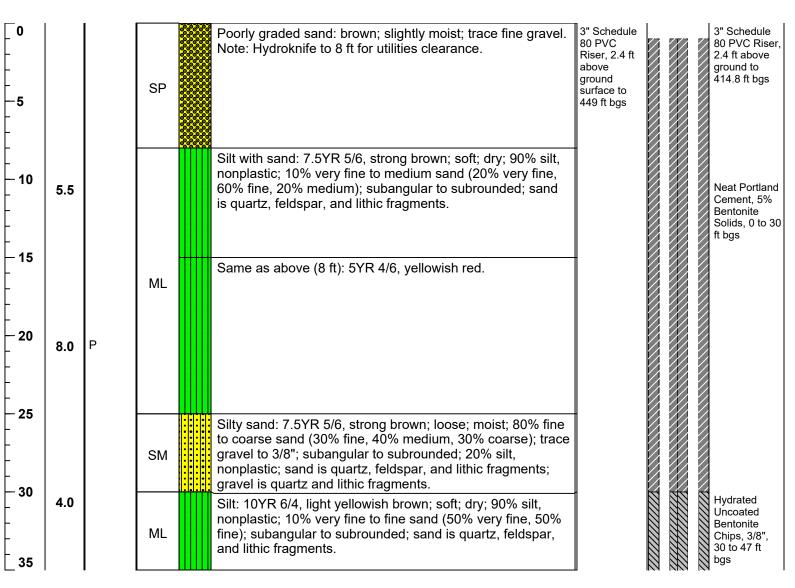
Boring Depth (ft): 512

Well Diameter: 3" ID

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 474.94

(1)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Drill Bit: 10 1/2" Ken Claw

PID (ppmv)

Depth (ft)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

Boring Depth (ft): 512

Well Diameter: 3" ID

Screen Material: 3" Sch. 80 PVC

Well ID: KAFB-106S3

2 of 24

0.010" slot screen

Seal Material(s): Cement; Bentonite;

Page:

**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Driller: Mark Green, Forest Chattin Geologist: J. Messenger

\_ithology

8 1/2" Milltooth Tricone

Drilling Method: Air Rotary Casing Hammer

DTW After Completion (ft bgs): 474.94

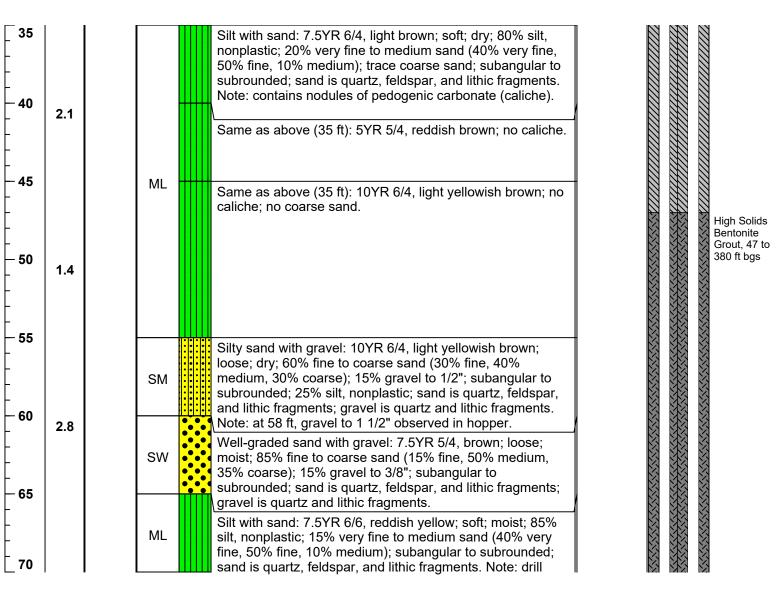
Sample Description

Boring Diameter (in): 9 5/8", 11 3/4"

Riser Material: 3" Sch. 80 PVC

Completion Details

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion



Drilling Method: Air Rotary Casing Hammer

8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Geologist: J. Messenger

PID (ppmv)

Depth (ft) Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Sample Description

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S3

3 of 24

Seal Material(s): Cement; Bentonite;

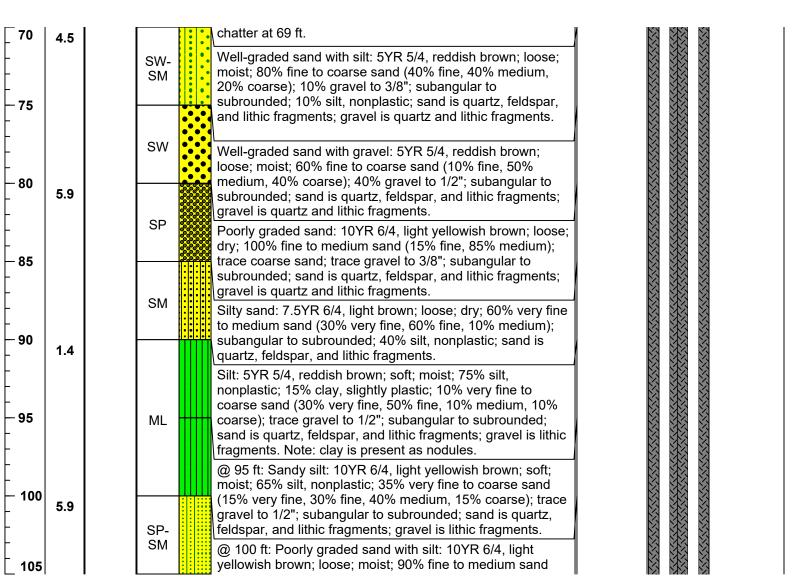
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: 4 of 24

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Geologist: J. Messenger

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

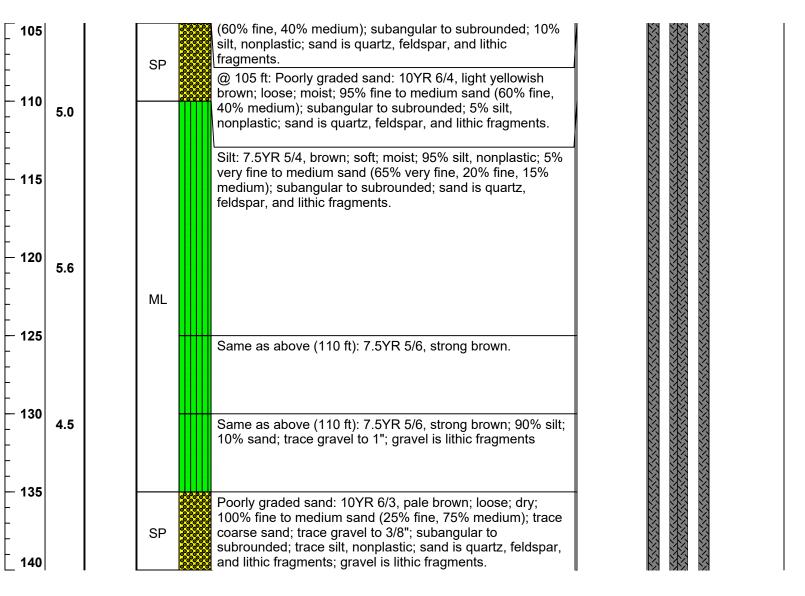
Filter Pack: 10/20 Silica Sand

10.20 0.000 00.00

Sample Description

Completion
Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: **5 of 24** 

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Geologist: J. Messenger

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

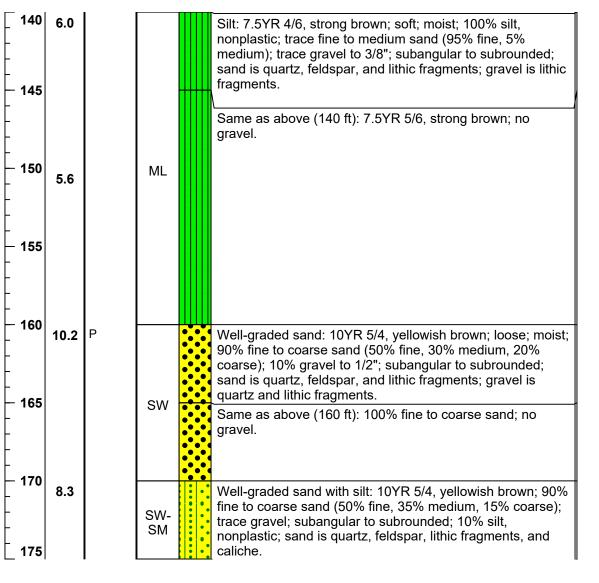
**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Sample Description

Completion
Details

(1) (2)



Notes: (1

(1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: 6 of 24

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Geologist: J. Messenger

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology PID (ppmv) Depth (ft) nscs Sample Description Details

(1) (2)

Well-graded sand: 10YR 6/4, light yellowish by moist; 100% fine to coarse sand (15% fine, 6)  SW  Well-graded sand: 10YR 6/4, light yellowish by moist; 100% fine to coarse sand (15% fine, 6)  25% coarse); subangular to subrounded; sand feldspar, lithic fragments, and caliche.	60% medium, nd is quartz, wish brown;
Poorly graded sand with silt: 10YR 5/4, yellow loose; moist; 90% fine to medium sand (70% medium); subangular to subrounded; 10% silts sand is quartz, feldspar, caliche, and lithic fra	ilt, nonplastic;
Poorly graded sand: 10YR 5/4, yellowish brown moist; 100% fine to medium sand (70% fine, subangular to subrounded; sand is quartz, fe caliche, and lithic fragments.	30% medium);
Poorly graded sand: 7.5YR 5/4, brown; loose very fine to medium sand (15% very fine, 70% medium); subangular to subrounded; 5% silt, sand is quartz, feldspar, and lithic fragments.	% fine, 15% , nonplastic;
Poorly graded sand with silt: 7.5YR 5/4, brown moist; 90% very fine to medium sand (15% v fine, 15% medium); subangular to subrounded nonplastic; sand is quartz, feldspar, and lithic	very fine, 70% ed; 10% silt,
Poorly graded sand: 10YR 5/4, yellowish bromoist; 100% fine to medium sand (70% fine, subangular to subrounded; sand is quartz, felithic fragments.	30% medium);

Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: **7 of 24** 

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Geologist: J. Messenger

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Sample Description

Completion
Details

(1) (2)

_ <b>210</b> - -	6.0		SP	Poorly graded sand: 10YR 5/4, yellowish brown; loose; moist; 100% fine to medium sand (80% fine, 20% medium); subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments.
- 215 - - -				Well-graded sand: 10YR 5/4, yellowish brown; loose; moist; 100% fine to coarse sand (20% fine, 70% medium, 10% coarse); subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments.
- - <b>220</b> - - -	7.9		SW	Same as above (215 ft): 10YR 4/4, dark yellowish brown.
- 225 - - - - - 230			SW- SM	Well-graded sand with silt and gravel: 10YR 3/4, dark yellowish brown; loose; moist; 60% fine to coarse sand (25% fine, 60% medium, 15% coarse); 30% gravel to 1 1/4"; subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and
- - - - - 235	8.3		SW	lithic fragments.  Well-graded sand: 10YR 4/4 dark yellowish brown; loose; moist; 100% fine to coarse sand (15% fine, 70% medium, 15% coarse); trace gravel to 3/8"; subangular to subrounded; trace silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments.
- - - - 240	8.4	P	SW- SM	Well-graded sand with silt: 10YR 3/4, dark yellowish brown; loose; moist; 90% fine to coarse sand (20% fine, 60% medium, 20% coarse); subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragments.
- - - _ 245	0.4		SM	Note: drill chatter at 237 ft, gravel up to 1 1/4" observed.  Silty sand: 10YR 5/4, yellowish brown; loose; moist; 85% fine to coarse sand (30% fine, 45% medium, 25% coarse); subangular to subrounded; 15% silt, nonplastic; sand is

Notes:

(1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: 8 of 24

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Geologist: J. Messenger

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Sample Description

Completion
Details

(1) (2)

245			quartz, feldspar, caliche, and lithic fragments.	
			No cuttings returned.	
- 250 - 255	4.8	SM	Silty sand: 10YR 5/4, yellowish brown; loose; moist; 80% very fine to coarse sand (10% very fine, 50% fine, 25% medium, 15% coarse); trace gravel to 3/4"; subangular to subrounded; 20% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments.	
- 260		SP	Poorly graded sand: 10YR 5/4, yellowish brown; loose; moist; 100% very fine to medium sand (10% very fine, 10% fine, 80% medium); trace coarse sand; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments.	
- 265	3.8	sc ://	Clayey sand: 7.5YR 4/3, brown; loose; moist; 65% very fine to coarse sand (30% very fine, 30% fine, 30% medium, 10% coarse); trace gravel to 1"; subangular to subrounded; 35% clay, soft, slightly plastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments.	
- 270	4.0	SW- SC	Well-graded sand with clay: 10YR 5/4, yellowish brown; loose; moist; 90% fine to coarse sand (15% fine, 60% medium, 25% coarse); trace gravel to 1/2"; subangular to subrounded; 10% clay, nonplastic; sand is quartz, feldspar, and caliche; gravel is lithic fragments.	
- 275 - - - - 280		CL	Clay: 7.5YR 5/4, brown; medium stiff; slightly plastic; 100% clay; trace very fine to fine sand (80% very fine, 20% fine); sand is quartz and feldspar.	

Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 512

Well Diameter: 3" ID

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: 9 of 24

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

\_\_\_\_

Completion Sample Description

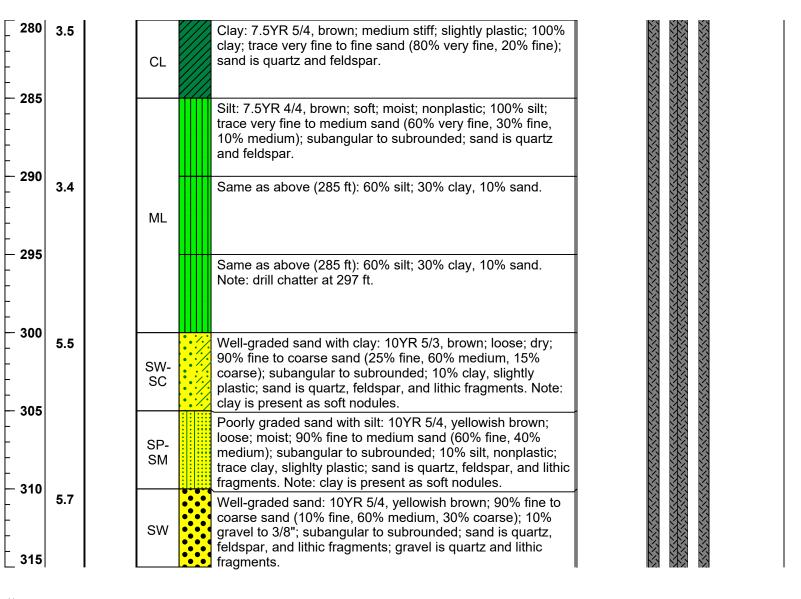
Completion Details

Riser Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 474.94

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

Drilling Company: Cascade

8 1/2" Milltooth Tricone Driller: Mark Green, Forest Chattin

Geologist: J. Messenger

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S3

10 of 24

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Lithology PID (ppmv) Depth (ft) uscs Sample Description Details

> (1) (2)

315 - - - - - 320	5.0	SW	Well-graded sand: 10YR 5/4, yellowish brown; 90% fine to coarse sand (25% fine, 60% medium, 15% coarse); 10% gravel to 1/2"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments.
- 325			Well-graded sand: 10YR 5/4, yellowish brown; loose; moist; 90% fine to coarse sand (30% fine, 40% medium, 30% coarse); 10% gravel to 1/2"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: drill chatter at 323 ft.
- - 330		GW	Well-graded gravel with sand: 10YR 5/4, yellowish brown; loose; moist; 65% gravel to 1"; 35% fine to coarse sand (15% fine, 60% medium, 25% coarse); subangular to subrounded; gravel is quartz and lithic fragments; sand is
- 335	4.7	sw	quartz, feldspar, and lithic fragments. Note: drill chatter at 328 ft.  Well-graded sand with gravel: 10YR 6/3, pale brown; loose; dry; 75% fine to coarse sand (30% fine, 40% medium, 30% coarse); 25% gravel to 1/2"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: drill chatter at 333 ft.
- 340 - - - - 345	3.6	GW	Well-graded gravel with sand: 10YR 4/3, brown; loose; moist; 70% gravel to 1"; 30% fine to coarse sand (10% fine, 60% medium, 30% coarse); subangular to subrounded; gravel is quartz and lithic fragments; sand is quartz, feldspar, and lithic fragments.
350		SW	Well-graded sand: 10YR 5/4, yellowish brown; loose; moist; 90% fine to coarse sand (15% fine, 70% medium, 15% coarse); 10% gravel to 1/2"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments.

Notes:

(1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S3

11 of 24

Seal Material(s): Cement; Bentonite;

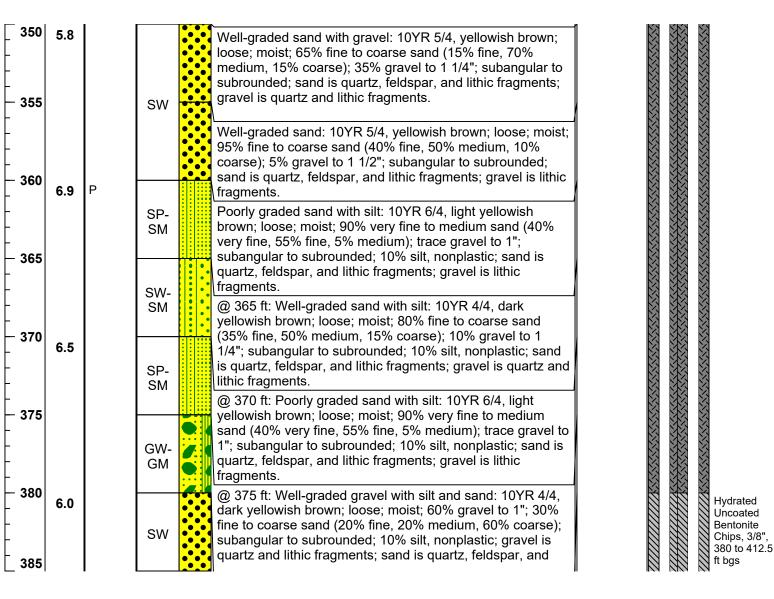
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

The second secon

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

 $Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; UV = ultraviolet; Construction of the contraction of the c$ 



8 1/2" Milltooth Tricone

Driller: Mark Green, Forest Chattin

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

Boring Depth (ft): 512

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S3

12 of 24

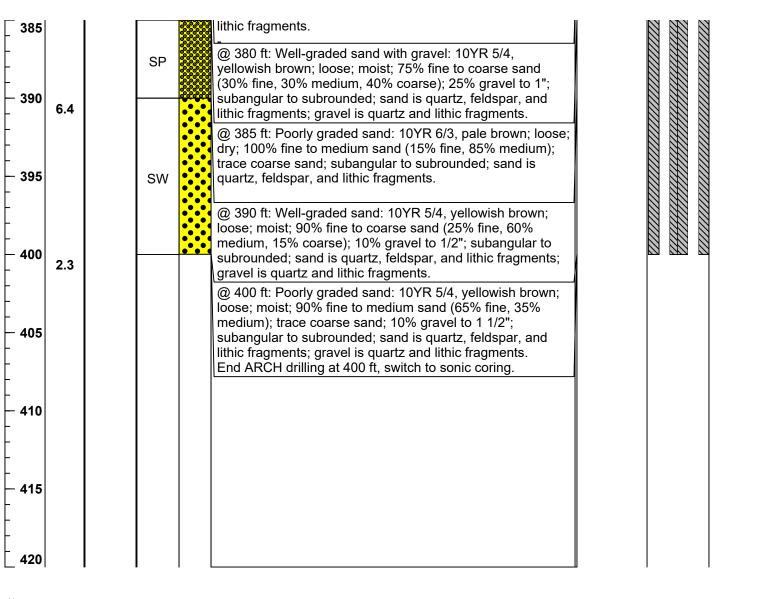
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

**WELL LOG** 

Filter Pack: 10/20 Silica Sand

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

 $Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; UV = ultraviolet; Construction of the contraction of the c$ 



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: 13 of 24

Drilling Company: Cascade Boring Depth (ft): 512 Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Collected Recover USCS Core Rur PID (ppmv) 8 Depth (ft) Details Sample Description Field I

400 1.7 Well-graded sand: 7.5YR 5/3, brown; loose; slightly 68.2 moist; 95% fine to coarse sand (80% fine, 15% medium, 5% coarse); 5% gravel to 1 1/2"; subangular SW to subrounded; gravel is quartz, feldspar, limestone, and lithic fragments. Note: At 401.5 ft, 100% sand (65% fine, 15% medium, 20% coarse); no gravel. Poorly graded sand: 7.5YR 6/3, light brown; loose; SP slightly moist; 100% fine to medium sand (90% fine, 10% medium); trace coarse sand; sand is quartz and feldspar. Well-graded sand: 7.5YR 6/3, light brown; loose; slightly moist; 100% fine to coarse sand (55% fine, 25% medium, 20% coarse); trace gravel to 1/2"; 400 subangular to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: At 404 ft, 100% sand (60% 409 very fine, 20% fine, 10% medium, 10% coarse); gravel 405 is subrounded quartz. At 406 ft, 100% sand (70%) fine, 20% medium, 10% coarse); no gravel. Lense of sandy clay from 407.75 to 408 ft, 60% clay, low to medium plasticity; 30% fine to coarse sand; 10% gravel to 1/2". At 408 ft; 7.5YR 6/3, light brown; dry; 100% sand (80% fine, 10% medium, 10% coarse); SW weakly indurated with carbonate cement. At 408.5 ft, no cementation. At 409 ft, medium dense; dry to slightly moist; 100% sand (60% fine, 30% medium, 10% coarse); weak cementation. 60.7

Notes: (1) Current Water Table Well

410

(2) Contingency Well

= Depth to water after completion

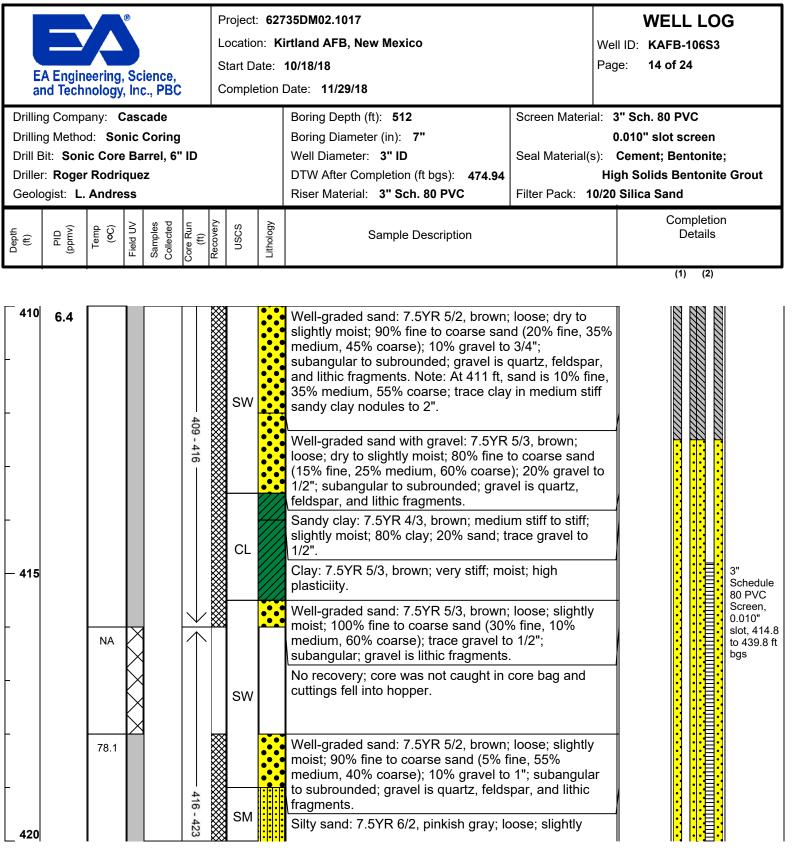
UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



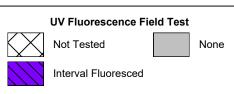
Notes: (1) Current Water Table Well

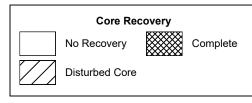
(2) Contingency Well

= Depth to water after completion

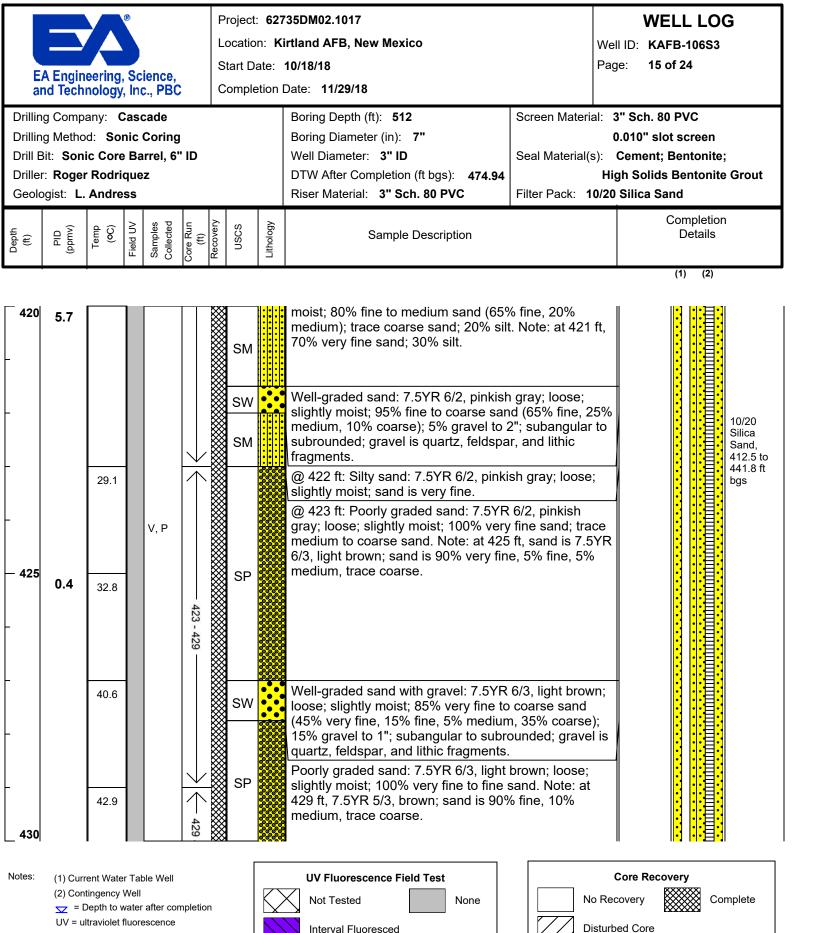
UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation

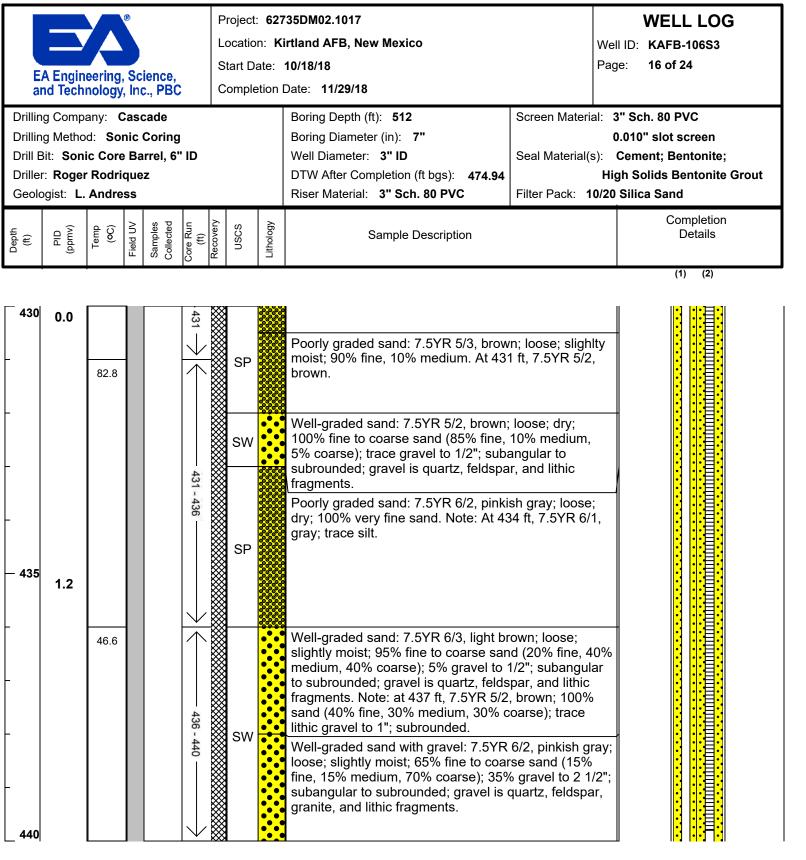


Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

NA = Not Applicable

Interval Fluoresced

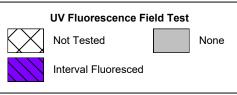


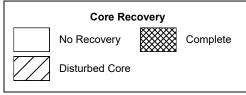
Notes: (1) Current Water Table Well

(2) Contingency Well

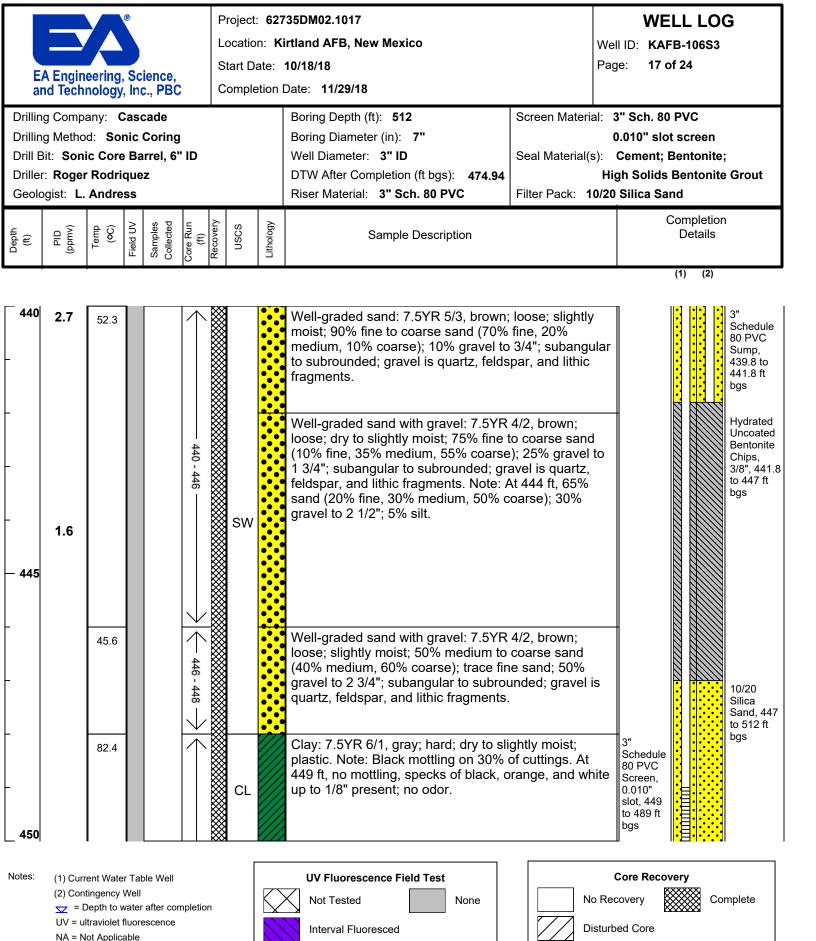
UV = ultraviolet fluorescence

NA = Not Applicable

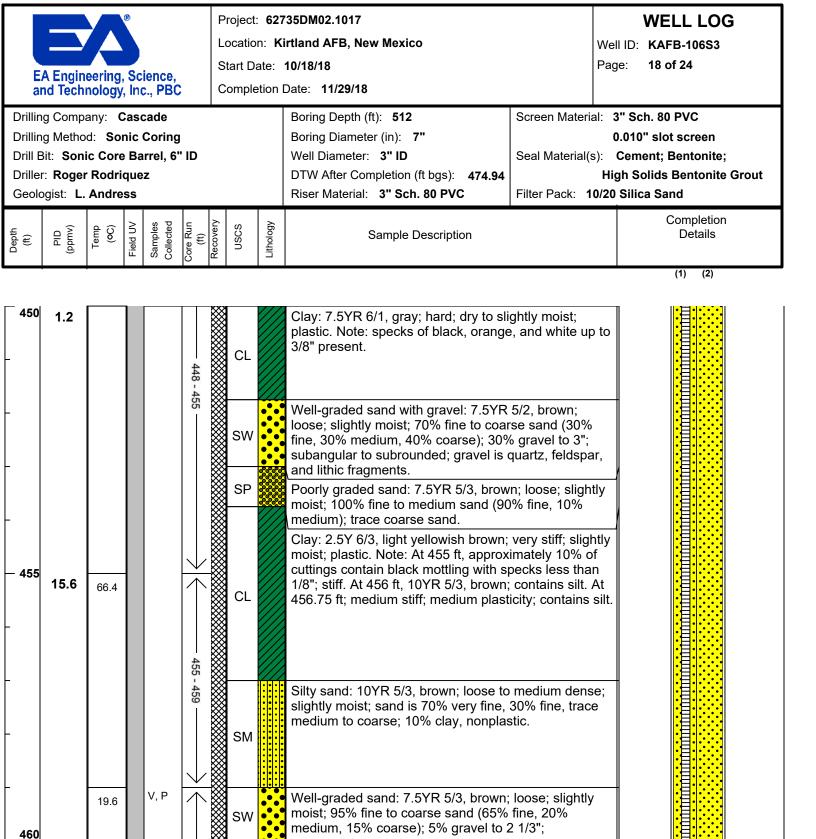




Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Following coring, the borehole was overdrilled using ARCH for well installation



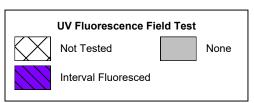
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



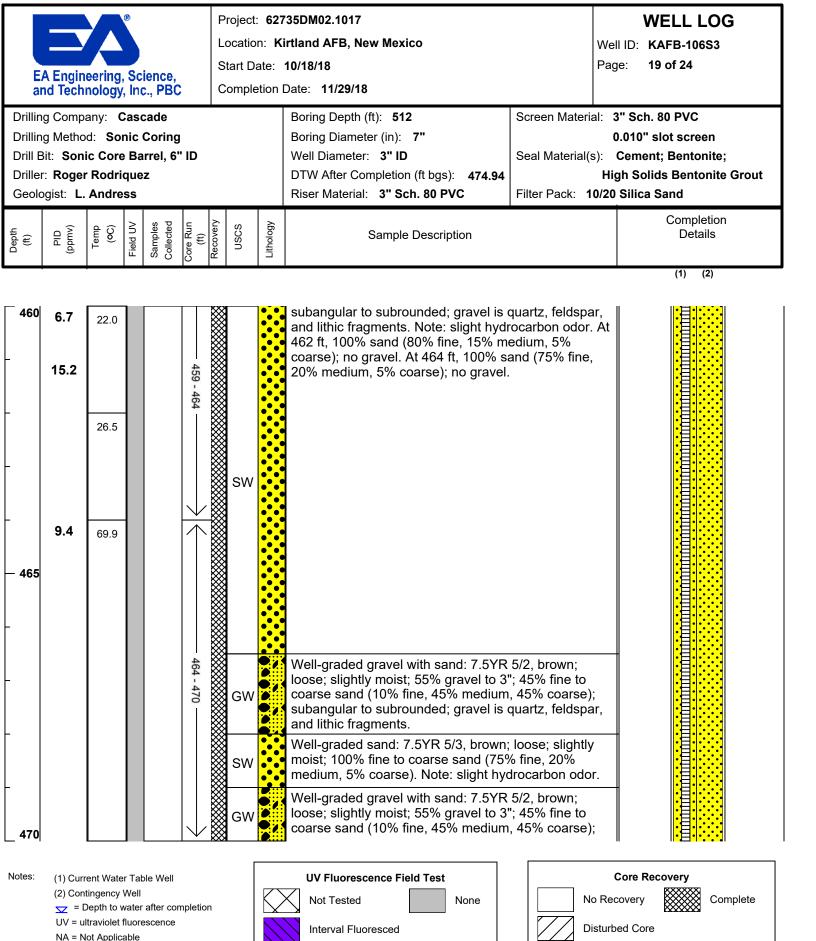
Core Recovery

No Recovery

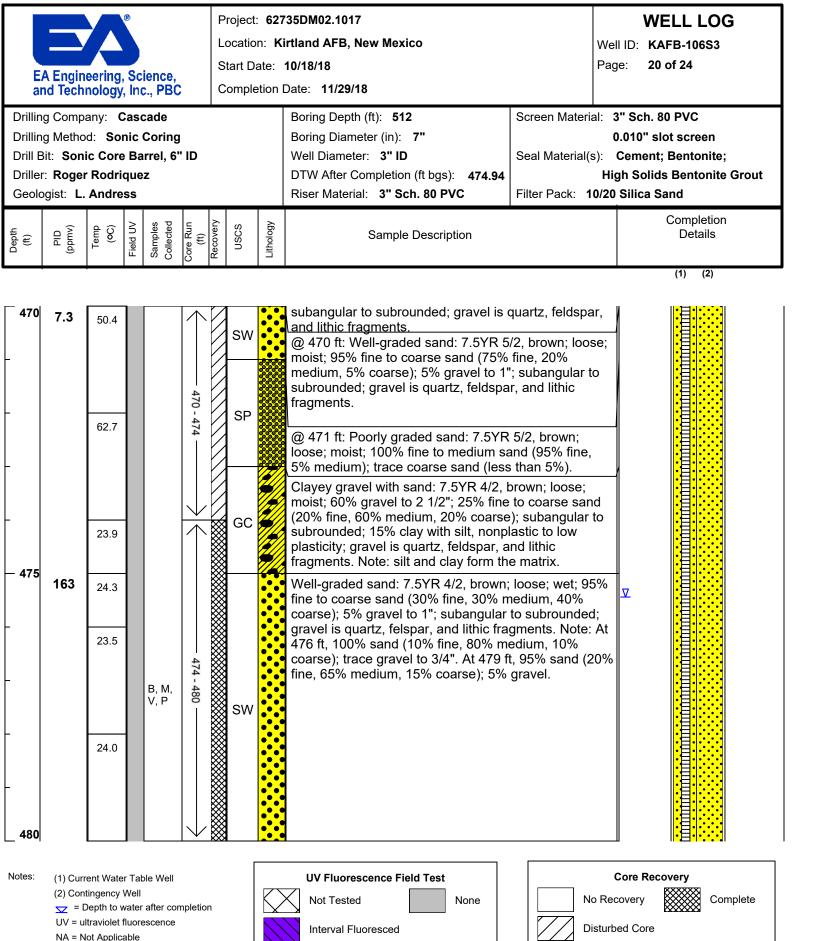
Disturbed Core

Complete

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Following coring, the borehole was overdrilled using ARCH for well installation



Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Location: Kirtland AFB, New Mexico

Boring Depth (ft): 512

Start Date: 10/18/18

Completion Date: 11/29/18

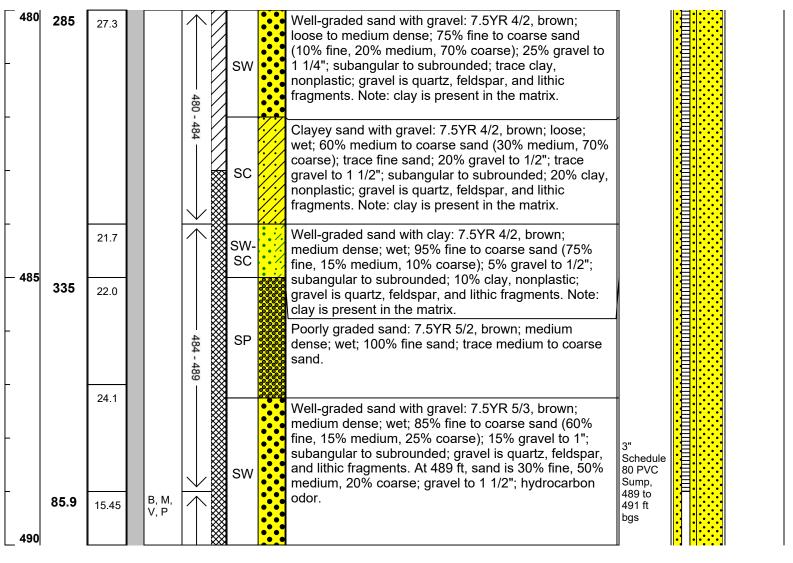
**WELL LOG** 

Well ID: KAFB-106S3

Page: 21 of 24

Screen Material: 3" Sch. 80 PVC

Drilling Method: Sonic Coring									Boring Diameter (in): 7"	(	0.010" slot screen
Drill Bit: Sonic Core Barrel, 6" ID									Well Diameter: 3" ID	Seal Material(s): Cement; Bentonite;	
Driller: Roger Rodriquez									DTW After Completion (ft bgs): 474.94	High Solids Bentonite Grout	
Geologist: L. Andress									Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand	
Depth (ft) (PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) (ft) Recovery USCS								Lithology	Sample Description		Completion Details
											(1) (2)



Notes:

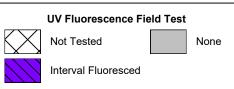
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

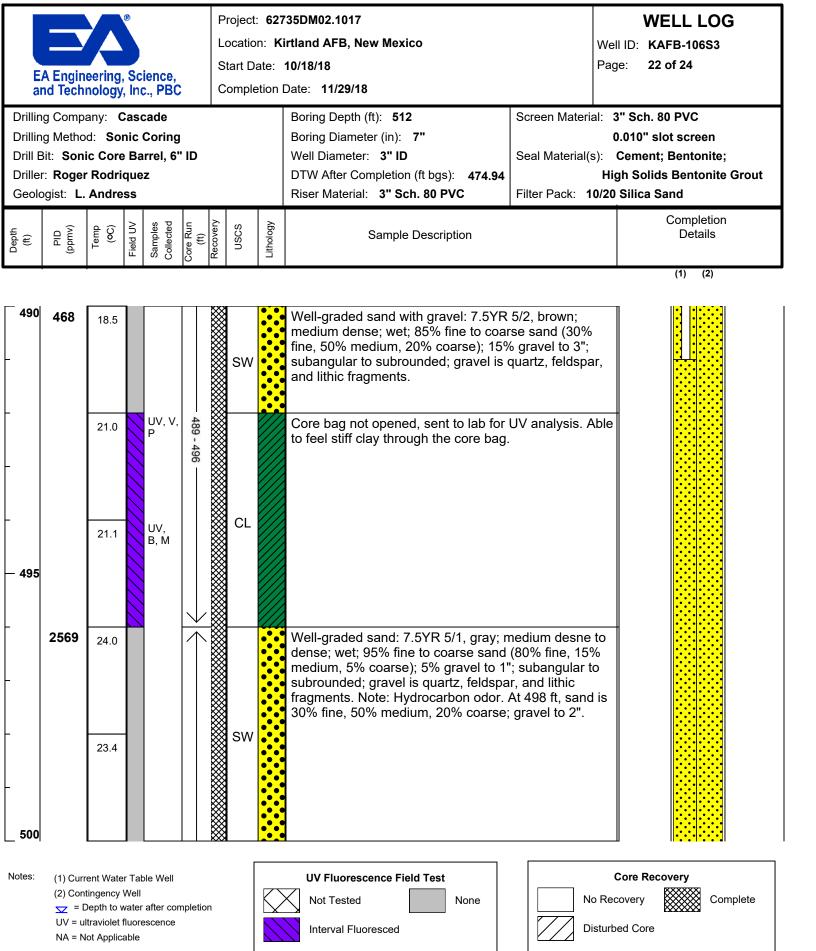
UV = ultraviolet fluorescence

NA = Not Applicable



**Core Recovery** No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  



Driller: Roger Rodriquez

Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 512 Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 10/18/18

Completion Date: 11/29/18

WELL LOG

Well ID: KAFB-106S3

Page: 23 of 24

Screen Material: 3" Sch. 80 PVC

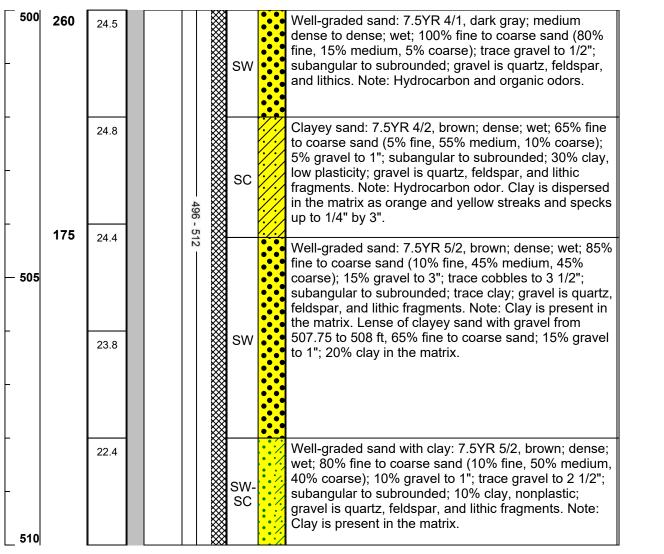
0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Geold	ogist: <b>L.</b>	Andre	ss						Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20	Silica Sand
Depth (ft)	OIA (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description		Completion Details
	•	•									(1) (2)

DTW After Completion (ft bgs): 474.94



Notes:

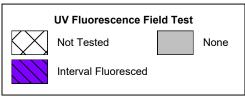
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Geologist: L. Andress

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 512

Well Diameter: 3" ID

Boring Diameter (in): 7"

Start Date: 10/18/18

Completion Date: 11/29/18

**WELL LOG** 

Well ID: KAFB-106S3

Page: **24 of 24** 

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion
Details

Completion
Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 474.94

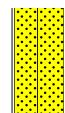
(1) (2)

510 35.1 23.2 SP

Poorly graded sand: 7.5YR 4/2, brown; dense; wet; 100% fine to medium sand (70% fine, 30% medium).

Poorly graded sand with gravel: 7.5YR 4/2, brown; dense; wet; 85% medium to coarse sand (40% medium, 60% coarse); trace fine sand; 15% gravel to 1"; subangular to subrounded; gravel is quartz, feldspar, and lithic fragments.

Total depth = 512 ft bgs.



Notes: (1) Current Water Table Well (2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

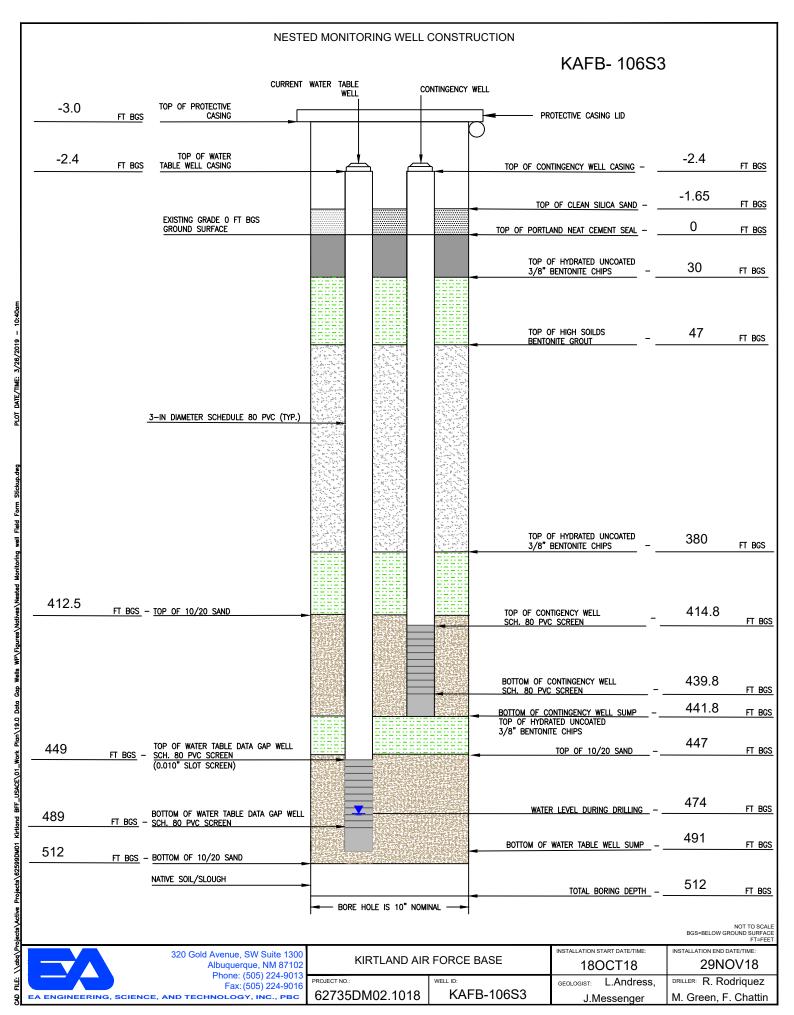
Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation





Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 1 of 27

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: Ken Claw 10 1/2"

Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Geologist: J. Messenger

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

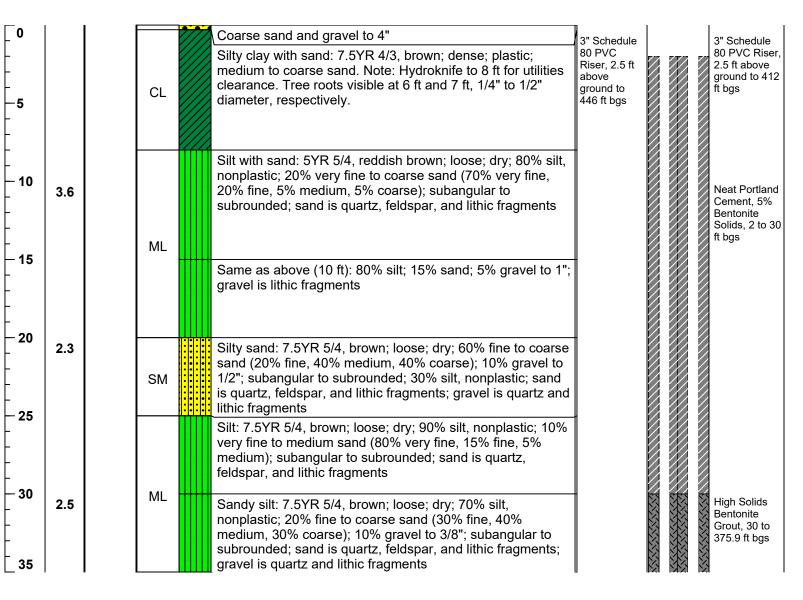
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion \_ithology Depth (ft) PID (ppmv) Sample Description Details

(1)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

Well ID: KAFB-106S4

WELL LOG

Page: 2 of 27

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: Ken Claw 10 1/2"

Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Geologist: J. Messenger

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

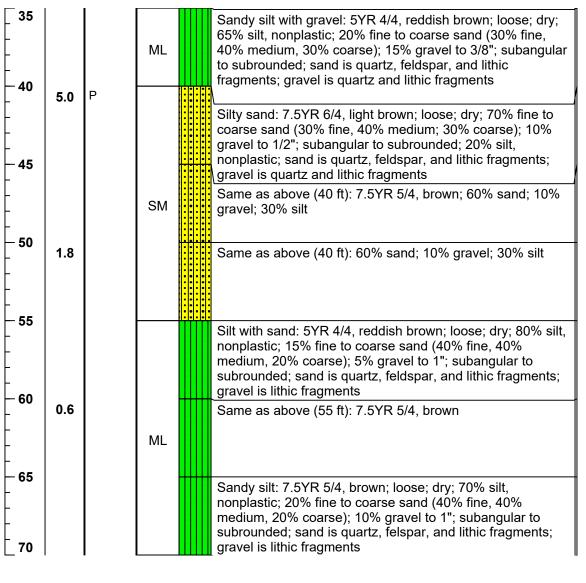
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Depth (ft) PID (ppmv) Sample Description Details

> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 3 of 27

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: Ken Claw 10 1/2"

Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Geologist: J. Messenger

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

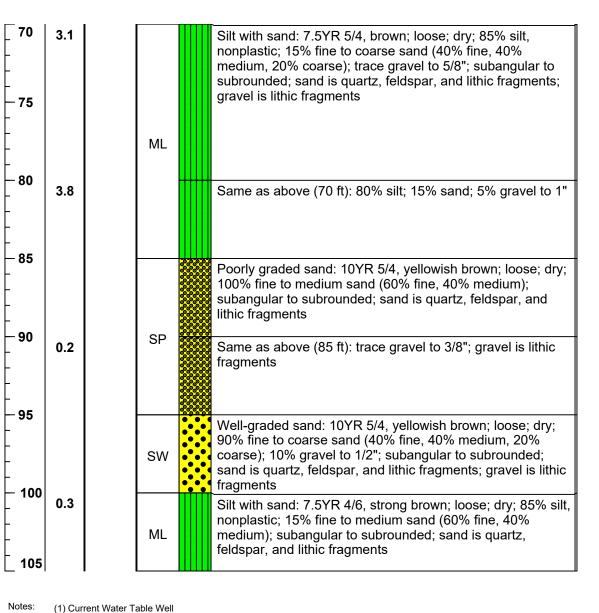
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion itholog. Depth (ft) PID (ppmv) Sample Description Details

> (1) (2)



(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



itholog.

Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Drilling Company: Cascade

Drill Bit: Ken Claw 10 1/2"

Geologist: J. Messenger

PID (ppmv)

Depth (ft) Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

Data: 44/46/49

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S4

4 of 27

Seal Material(s): Cement; Bentonite;

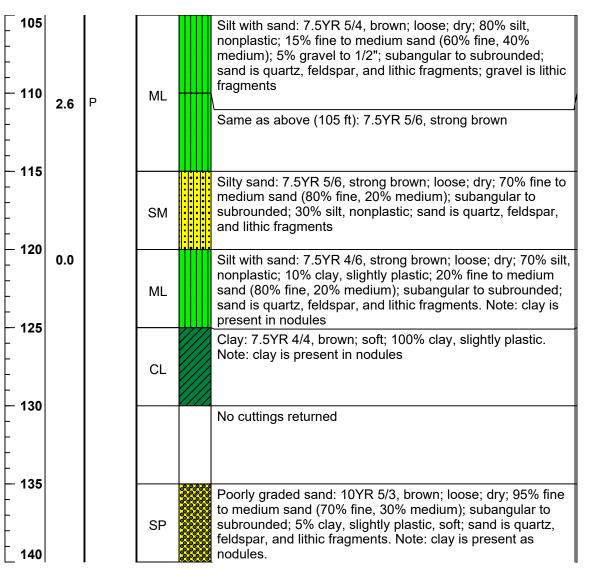
**High Solids Bentonite Grout** 

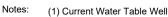
WELL LOG

Filter Pack: 10/20 Silica Sand

Sample Description Completion
Details

(1) (2)





(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Drilling Company: Cascade

Drill Bit: Ken Claw 10 1/2"

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S4

5 of 27

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)

140	0.0	S	SW	Well-graded sand: 10YR 5/3, brown; loose; dry; 100% fine to coarse sand (20% fine, 60% medium, 20% coarse); subangular to subrounded; sand is quartz, feldspar, and lithic fragments	
150			SW- SM	Well-graded sand with silt: 10YR 6/4, light yellowish brown; loose; dry; 90% fine to coarse sand (30% fine, 55% medium, 15% coarse); subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragments	
	0.1	5	SP	Poorly graded sand: 10YR 5/4, yellowish brown; loose; dry; 100% fine to medium sand (50% fine, 50% medium); subangular to subrounded; sand is quartz, feldspar, and lithic fragments	
160	0.0	S	SW	Well-graded sand: 10YR 6/4, light yellowish brown; loose; dry; 90% fine to coarse sand (20% fine, 60% medium, 20% coarse); 10% gravel to 3/8"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments  Same as above (155 ft): gravel to 5/8"	
165				Same as above (155 ft): gravel to 1 1/4"; sand is quartz, felspar, lithic fragments, and caliche	
170	0.0		SW- SM	Well-graded sand with silt: 10YR 6/4, light yellowish brown; loose; dry; 85% fine to coarse sand (25% fine, 50% medium, 25% coarse); 5% gravel to 1/2"; subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, caliche, and lithic fragments; gravel is quartz and lithic	

Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Drilling Company: Cascade

Drill Bit: Ken Claw 10 1/2"

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S4

6 of 27

Seal Material(s): Cement; Bentonite;

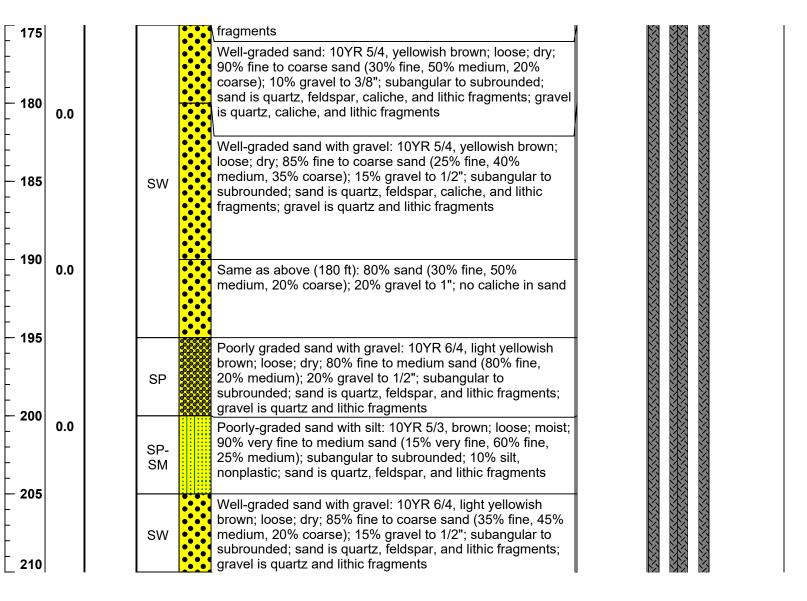
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

The part of the pa

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: **7 of 27** 

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: Ken Claw 10 1/2"

Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Geologist: J. Messenger

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

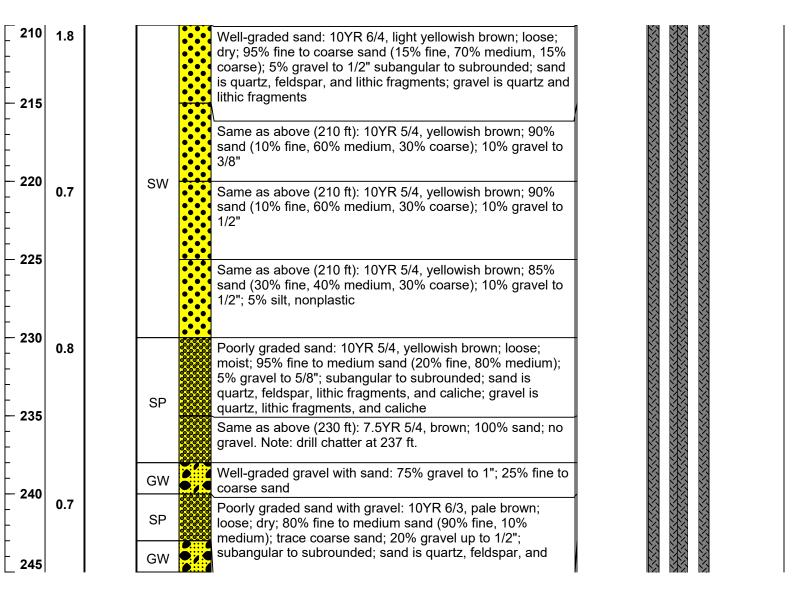
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

The document of the document o

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

Page: 8 of 27

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: Ken Claw 10 1/2"

Milltooth Tricone 8 1/2" Driller: Mark Green / Forrest Chattin

Geologist: J. Messenger

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Well ID: KAFB-106S4

Seal Material(s): Cement; Bentonite;

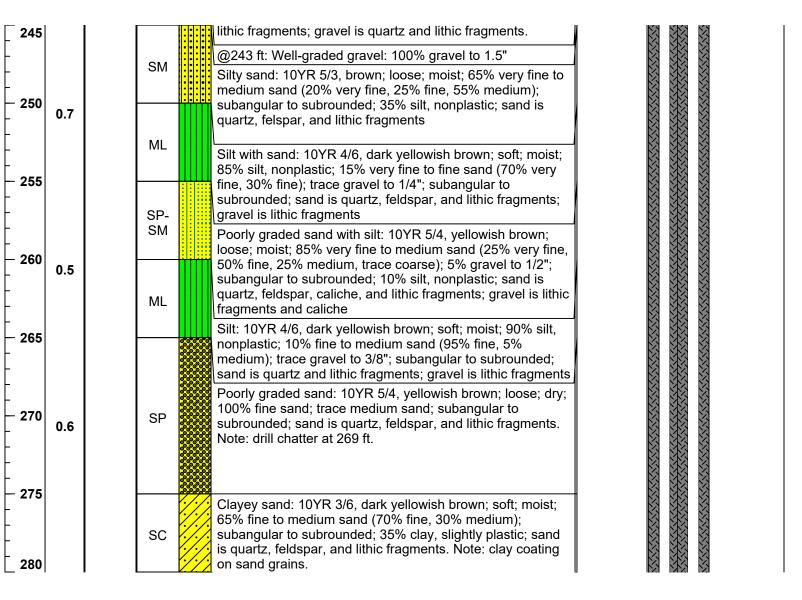
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion PID (ppmv) Depth (ft) Sample Description Details

> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 9 of 27

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: Ken Claw 10 1/2"

Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Geologist: J. Messenger

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

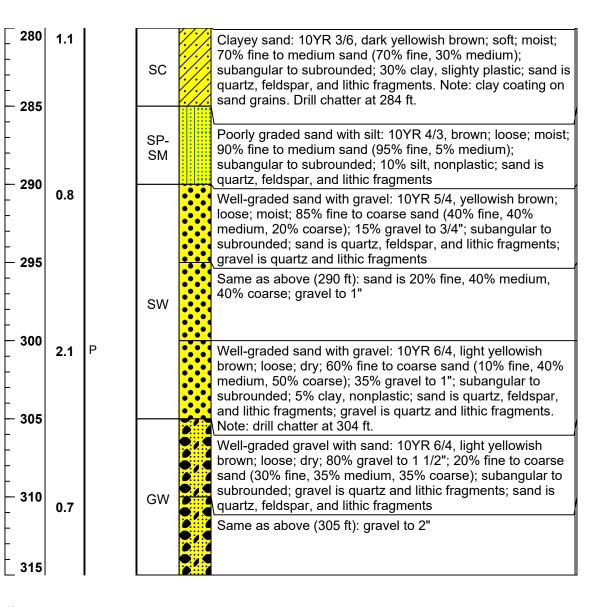
**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Sample Description

Completion
Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Milltooth Tricone 8 1/2"

Driller: Mark Green / Forrest Chattin

Drilling Company: Cascade

Drill Bit: Ken Claw 10 1/2"

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S4

10 of 27

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

**WELL LOG** 

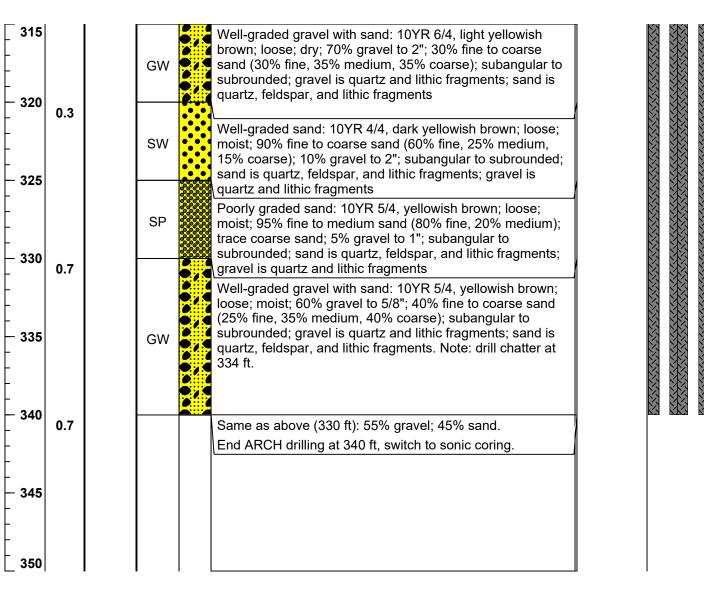
Filter Pack: 10/20 Silica Sand

Sample Description

Completion

Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 11 of 27

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 504

0.010" slot screen

Seal Material(s): Cement; Bentonite;

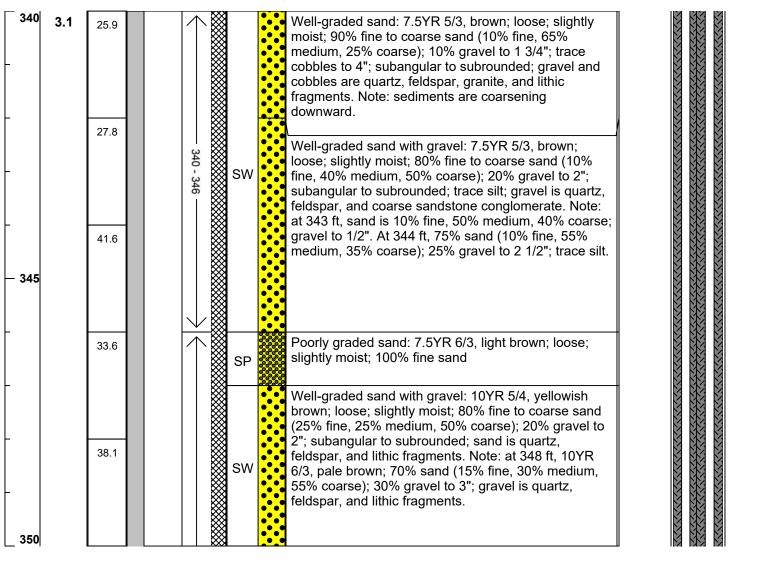
**High Solids Bentonite Grout** 

Geold	ogist: <b>L.</b>	Andre	SS						Riser Material: 3" Sch. 80 PVC Filter Pack: 1	0/20 Sand
Depth (ft)	(vmdd)	(Oc)	Field UV	Samples Collected	Core Run	. 10	nscs	Lithology	Sample Description	Completion Details
										(1) (2)

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 472.98

Well Diameter: 3" ID



Notes:

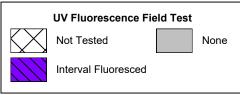
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Geologist: L. Andress

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

(1) (2)

Well ID: KAFB-106S4

Page: **12 of 27** 

Boring Depth (ft): 504 Screen Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

Seal Material(s): Cement; Bentonite;

High Solids Bentonite Grout

Filter Pack: 10/20 Sand

One B Sample Search (it in the last of the	e <del>L</del>	P G		<u>.e</u> .	am olle	Sore (f	Recovery	_	Ę	Sample Description	Completion Details
--	----------------	-----	--	-------------	------------	---------	----------	---	---	--------------------	-----------------------

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 472.98

350 3.8 Well-graded sand with gravel: see description on 34.4 previous pages SW 346 356 Well-graded gravel with sand: 7.5YR 6/3, light brown; loose; slightly moist; 60% gravel to 3"; 20% fine to coarse sand (35% fine, 15% medium, 50% coarse); O 10% cobbles to 4"; subangular to subrounded; 10% 34.8 GW silt; gravel and cobbles are quartz, feldspar, and lithic fragments. Note: lense of silt with sand from 351.5 to 352 ft, 7.5YR 4/3, brown; dense; 70% silt, 5% clay; 25% fine sand. At 352 ft, 60% gravel; 40% sand (15% fine, 50% medium, 35% coarse); no cobbles; no silt. Well-graded sand with gravel: 7.5YR 6/3, light brown; loose: slightly moist: 85% fine to coarse sand (20%) 39.7 fine, 30% medium, 50% coarse); 15% gravel to 1"; subangular to subrounded; gravel is quartz, feldspar, SW and lithic fragments. Note: lense of poorly graded 355 sand from 363 to 363.5 ft, 70% medium to coarse sand (30% medium, 70% coarse); trace fine sand; 30% gravel to 2"; trace red clay nodules. Core bag not opened; saved for sampling 20.1 Well-graded gravel with sand: 10YR 5/3, brown; 22.4 loose; slightly moist; 60% gravel to 2"; 40% fine to Ø. coarse sand (15% fine, 25% medium, 60% coarse); GW 0 subangular to subrounded; gravel is quartz, feldspar, 2.1 and lithic fragments 360

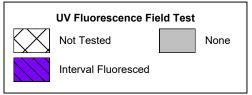
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: **13 of 27** 

Boring Depth (ft): 504 Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

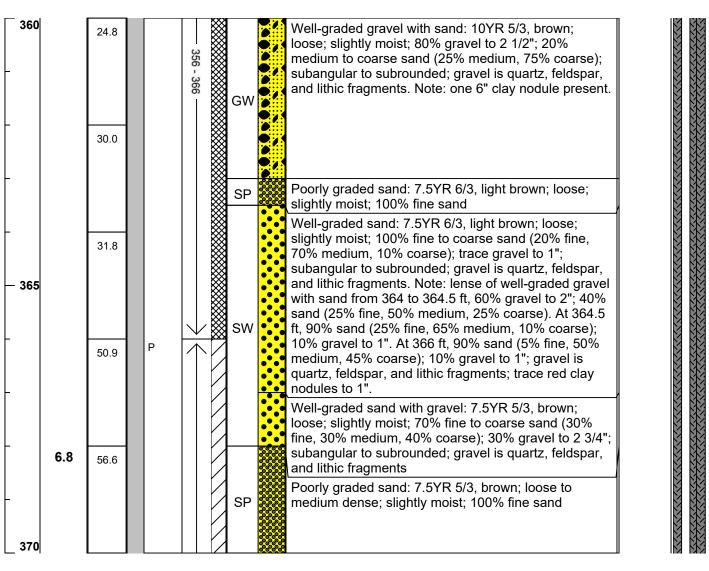
**High Solids Bentonite Grout** 

Geolo	ogist: <b>L.</b>	Andre	ss						Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20	Sand
Depth (ft)	OIA (vmdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	sosn	Lithology	Sample Description		Completion Details
		•									(1) (2)

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 472.98

Well Diameter: 3" ID



Notes: (1

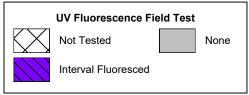
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: **14 of 27** 

Boring Depth (ft): 504 Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

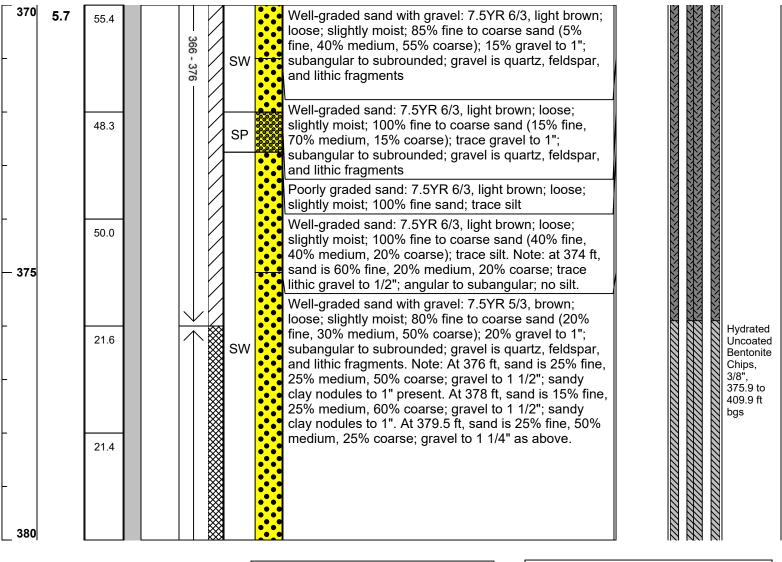
**High Solids Bentonite Grout** 

Geolo	ogist: <b>L.</b>	Andre	ss						Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20	Sand
Depth (ft)	Old (hudd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description		Completion Details
	•										(1) (2)

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 472.98

Well Diameter: 3" ID



Notes: (

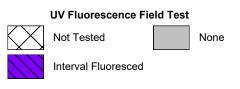
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation



Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 504

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

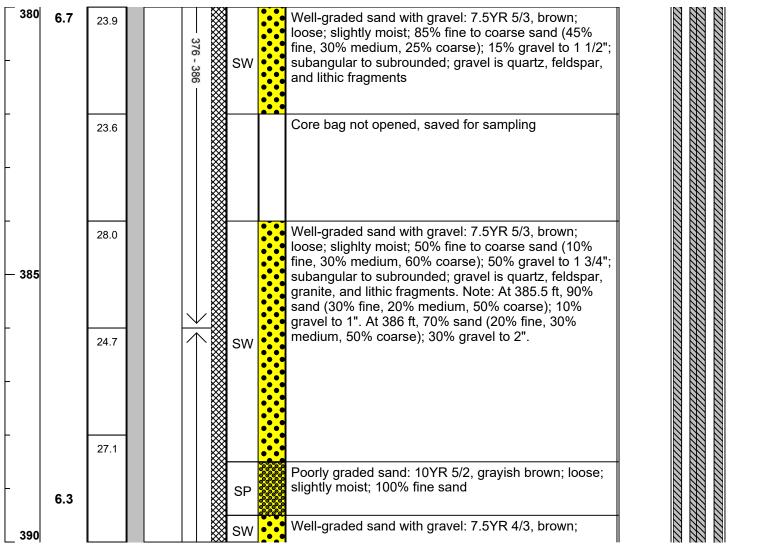
(1) (2)

Well ID: KAFB-106S4

Page: 15 of 27

Screen Material: 3" Sch. 80 PVC

Drilling Method: Sonic Coring Boring Diameter (in): 9 5/8", 11 3/4" 0.010" slot screen Drill Bit: Sonic core bit (nominal 7" hole) Well Diameter: 3" ID Seal Material(s): Cement; Bentonite; Driller: Roger Rodriquez DTW After Completion (ft bgs): 472.98 **High Solids Bentonite Grout** Geologist: L. Andress Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Sand Completion Core Run Samples Collected Recover USCS Lithology PID (ppmv) Depth (ft) 0 Details Sample Description Field I



Notes:

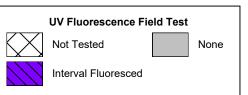
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 16 of 27

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 504

0.010" slot screen

Seal Material(s): Cement; Bentonite;

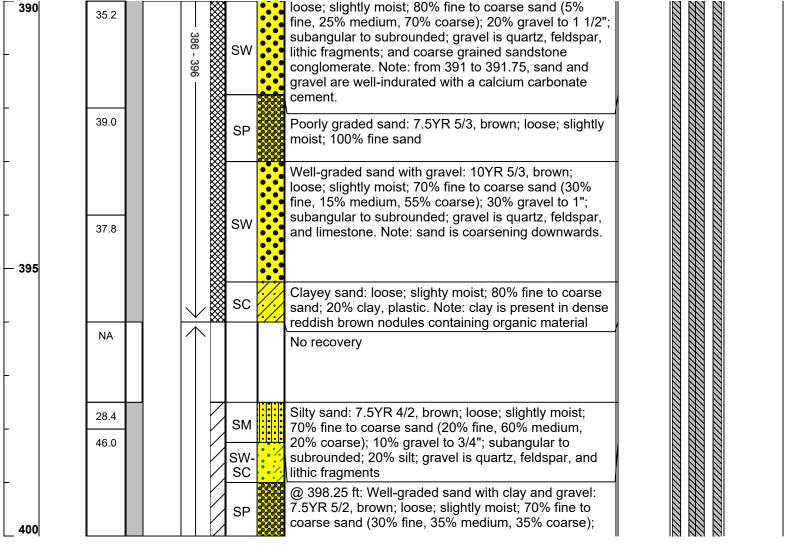
**High Solids Bentonite Grout** 

Geolo	ogist: <b>L.</b>	Andre	SS						Riser Material: 3" Sch. 80 PVC Filter	er Pack: 10/20	Sand
Depth (ft)	OIA (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description		Completion Details
		•									(1) (2)

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 472.98

Well Diameter: 3" ID



Notes:

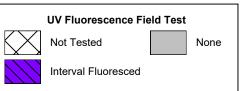
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 17 of 27

Drilling Company: Cascade Boring Depth (ft): 504 Drilling Method: Sonic Coring Boring Diameter (in): 9 5/8", 11 3/4" 0.010" slot screen Drill Bit: Sonic core bit (nominal 7" hole) Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Sand

Completion Core Run Samples Collected Recover uscs Lithology PID (ppmv) 8 Depth (ft) Details Sample Description Field I

20% gravel to 1"; subangular to subrounded; 10% silt; 400 gravel is quartz, feldspar, and lithic fragments 396 @399 ft: Poorly graded sand: 7.5YR 5/2, brown; - 406 loose; slightly moist; 100% medium sand; trace 59.9 coarse sand; trace silt @400 ft: No recovery SW @401 ft: Well-graded sand: 7.5YR 5/3, brown; loose; slightly moist; 90% fine to coarse sand (10% fine, 45%) medium, 45% coarse); 10% gravel to 1 1/2"; NA subangular to subrounded; gravel is guartz, feldspar, granite, gneiss, and lithic fragments No recovery 8.7 45.3 Poorly graded sand: 7.5YR 5/3, brown; loose; slighlty moist; 100% fine to medium sand (95% fine, 5% medium); trace coarse sand. Note: at 465.25 ft, clay is 405 SP present as nodules with organics. Well-graded sand: 7.5YR 5/3, brown; loose; slightly 50.0 moist; 100% fine to coarse sand (55% fine, 30% medium, 15% coarse); trace gravel to 1/3"; SW subangular to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: nodules of reddish sandy clay pieces are present; dense; nonplastic. 406 410 Well-graded gravel with sand: 7.5YR 5/3, brown; 56.7 loose; slightly moist; 60% gravel to 1"; 40% medium to 0 coarse sand (25% medium, 75% coarse); trace fine GW 0 sand; subangular to subrounded. Note: lense of sandy clay from 409.75 to 410 ft; 5YR 5/4, reddish brown; dense; slightly plastic; medium sand. 6.8

Notes:

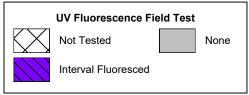
(1) Current Water Table Well

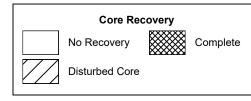
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 504

Well Diameter: 3" ID

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 18 of 27

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

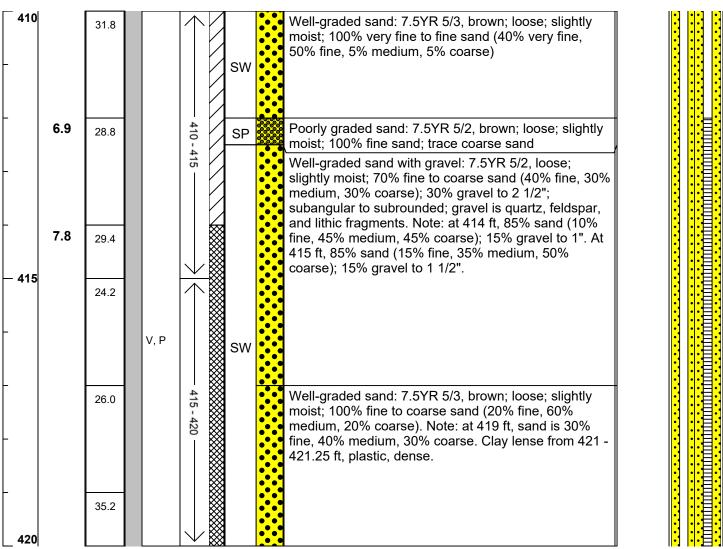
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Geologist: L. Andress Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Sand Completion Core Run Samples Collected Recover uscs Lithology Depth (ft) PID (ppmv) 8 Details Sample Description Field I (2)

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 472.98



10/20 Silica Sand, 409 9 to 438.9 ft bgs 3" Schedule 80 PVC Screen, 0.010" slot. 412 to 437 ft bgs

Notes:

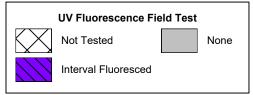
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



**Core Recovery** No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Drilling Company: Cascade

Driller: Roger Rodriquez

Geologist: L. Andress

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Well Diameter: 3" ID

Start Date: 10/16/18

Completion Date: 11/16/18

**WELL LOG** 

Well ID: KAFB-106S4

Page: **19 of 27** 

Boring Depth (ft): 504 Screen Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4" 0.010" slot screen

Seal Material(s): Cement; Bentonite;

High Solids Bentonite Grout

Filter Pack: 10/20 Sand

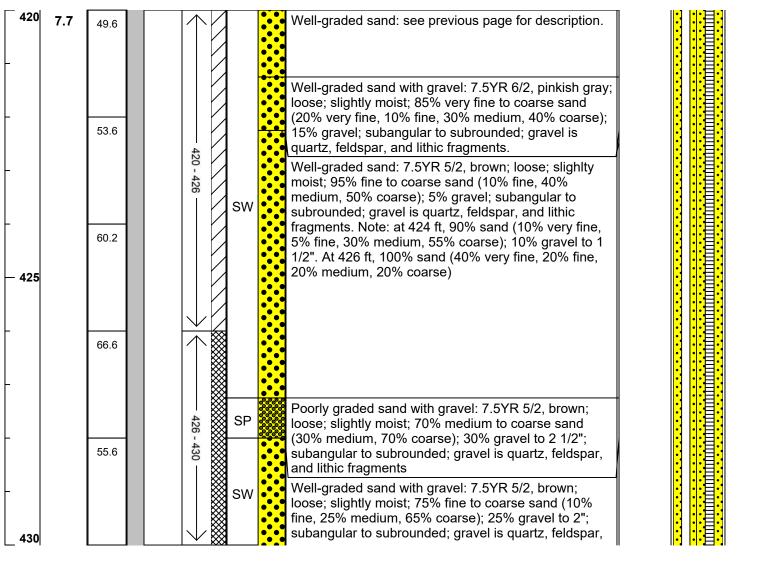
Completion Details

Completion Details

Completion Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 472.98



Notes:

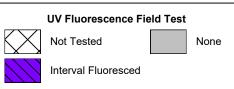
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



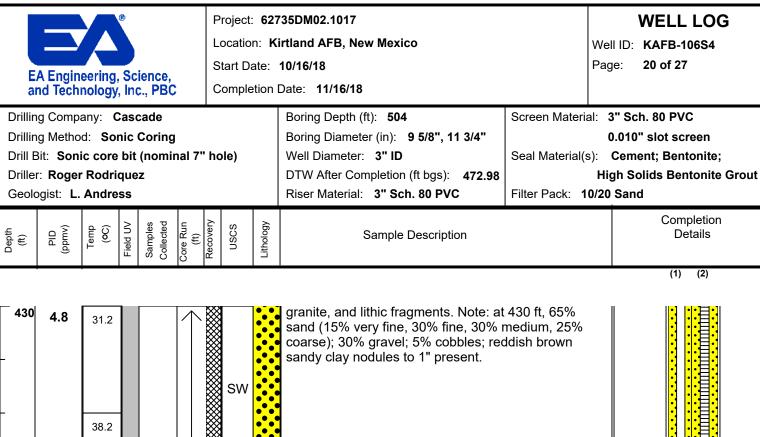
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



20 of 27

Completion

Details

(1) (2)

Core Recovery

Complete

No Recovery

Disturbed Core

430 436 Well-graded gravel with sand: 7.5YR 5/3, brown; loose; slightly moist; 60% gravel to 1 1/2"; 40% fine to coarse sand (15% fine, 25% medium, 60% coarse); 0 subangular to subrounded; gravel is quartz, feldspar, 46.7 lithic fragments; and weakly cemented conglomerate. GW Note: clay present in nodules to 4"; plastic. At 433.5 ft, Ø. color is 7.5YR 6/1, pinkish gray; gravel is to 2"; no 435 0 clay. 0.7 Clay: 10YR 6/2, light brownish gray; very dense; 65.2 Schedule slightly moist; very plastic. Note: Occasional spots of 80 PVC red clay. Lenses of coarse sand with clay from 436 to Sump, 436.25 ft. At 439.5 ft, trace very fine sand. 437 to 439 ft bgs CL Hydrated 46.5 Uncoated Bentonite Chips, 3/8" 438.9 to 443.3 ft bgs 440

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

(1) Current Water Table Well

= Depth to water after completion UV = ultraviolet fluorescence

(2) Contingency Well

NA = Not Applicable

Notes:

None

**UV Fluorescence Field Test** 

Not Tested

Interval Fluoresced



Driller: Roger Rodriquez

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 504

Well Diameter: 3" ID

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

0.010" slot screen

Page: **21 of 27** 

Screen Material: 3" Sch. 80 PVC

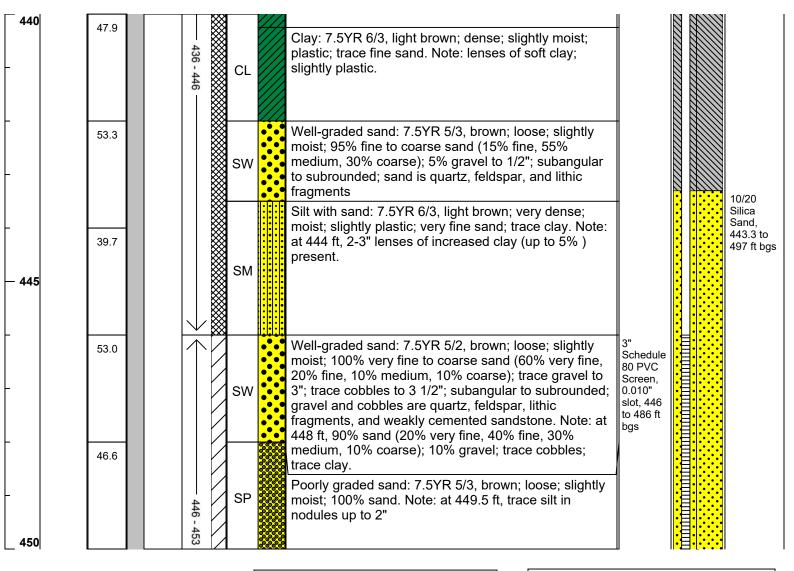
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Geologist: L. Andress								Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20	Sand
Depth (ft)	OIA (vmdd)		Field UV	Samples Collected	Core Run (ft) Recovery	nscs	Lithology	Sample Description		Completion Details
										(1) (2)

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 472.98



Notes:

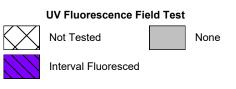
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



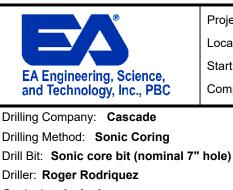
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



8

Depth (ft)

PID (ppmv)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 22 of 27

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Sand

Well Diameter: 3" ID Driller: Roger Rodriquez DTW After Completion (ft bgs): 472.98 Geologist: L. Andress

> Samples Collected

Field I

Core Run

Recover uscs

Lithology

Riser Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4"

Boring Depth (ft): 504

Sample Description

(1) (2)

Completion

Details

450 Poorly graded sand: 7.5YR 5/3, brown; loose; slightly 63.2 moist; 100% sand; trace gravel to 1"; subrounded; trace silt; gravel is lithic fragments; increasing density with depth. Note: silt is in medium dense to dense nodules to 4". SP 71.3 Well-graded sand: 10YR 4/2, dark grayish brown; 26.7 dense; wet, water seen here; 100% very fine to coarse sand (40% very fine, 30% fine, 20% medium, 10% coarse) 23.6 SW 455 Clayey sand: 10YR 6/3, pale brown; very dense; slightly plastic; 60% sand; 40% clay and silt. Note: 453 -24.4 SC clay and silt present in nodules up to 4" and 1" stringers. At 456, nodules include organic material to 460 1/4". Sandy clay: 10YR 5/3, brown; dense; moist; nonplastic. Note: lense of dense clay from 458 to 458.5, 7.5YR 5/3, brown; plastic. 22.4 CL 460

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

**Core Recovery** No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

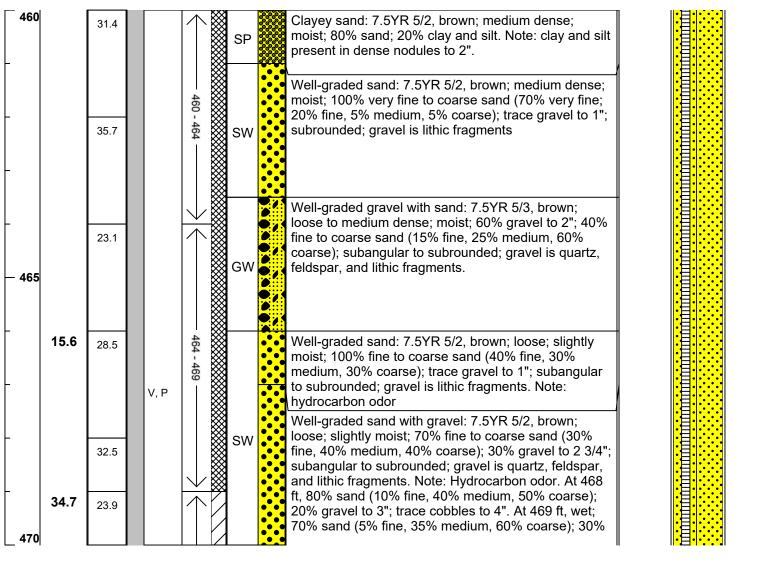
Well ID: KAFB-106S4

Page: 23 of 27

Drilling Company: Cascade Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 504 Drilling Method: Sonic Coring Boring Diameter (in): 9 5/8", 11 3/4" 0.010" slot screen Drill Bit: Sonic core bit (nominal 7" hole) Well Diameter: 3" ID Seal Material(s): Cement; Bentonite; Driller: Roger Rodriquez DTW After Completion (ft bgs): 472.98 **High Solids Bentonite Grout** Geologist: L. Andress Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Sand

Completion Core Run Lithology Collected Recover uscs Samples PID (ppmv) 8 Depth (ft) Details Sample Description Field I

(2)



Notes:

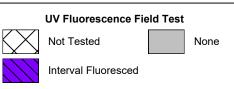
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Drill Bit: Sonic core bit (nominal 7" hole)

Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 24 of 27

Drilling Company: Cascade Boring Depth (ft): 504 Drilling Method: Sonic Coring Boring Diameter (in): 9 5/8", 11 3/4" 0.010" slot screen

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

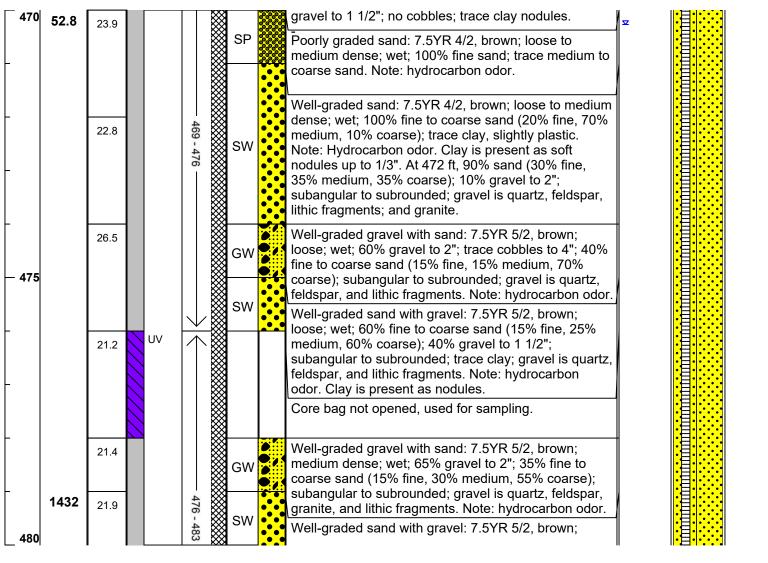
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Sand

Completion Core Run Collected Recover uscs Lithology Samples PID (ppmv) 8 Depth (ft) Details Sample Description Field I



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 25 of 27

Drilling Company: Cascade
Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Driller: Roger Rodriquez
Geologist: L. Andress

Boring Depth (ft): 504

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.98

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Sand

Completion Details

medium dense; wet; 60% fine to coarse sand (10% B, M 74.4 fine, 50% medium, 40% coarse); 40% gravel to 2 1/2"; subangular to subrounded; gravel is guartz, feldspar, and lithic fragments. Note: hydrocarbon odor. At 480.5 SW ft, 70% sand (15% fine, 55% medium, 30% coarse); 22.7 30% gravel to 1". At 481 ft, 80% sand (40% fine, 20% medium, 40% coarse); 20% gravel to 1"; subrounded to rounded. SW Well-graded sand with clay and gravel: 7.5YR 4/2, SC brown; medium dense; wet; 60% fine to coarse sand (20% fine, 15% medium, 65% coarse); 30% gravel to 22.0 2"; 10% clay, slightly plastic. Note: one cobble of sandstone conglomerate with calcium carbonate cement present, 4". 3271 22.4 @483 ft: Well-graded sand: 7.5YR 4/1, dark gray; SW medium dense; wet; 100% fine to coarse sand (20% fine, 70% medium, 10% coarse); trace gravel to 1"; 485 subangular to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: strong hydrocarbon odor. @484 ft: Well-graded sand with gravel: 7.5YR 5/2, brown; dense; wet; 70% fine to coarse sand (40% 3028 22.5 Schedule fine, 30% medium, 30% coarse); 30% gravel to 1"; 80 PVC subangular to subrounded; gravel is quartz, feldspar, Sump, and lithic fragments 486 to G, UV 488 ft Core bag not opened, used for sampling. bgs 483 493 Well-graded sand with gravel: 7.5YR 5/2, brown; 24.0 dense; wet; 70% fine to coarse sand (10% fine, 20% medium, 70% coarse); 30% gravel to 1"; subangular SW to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: hydrocarbon odor. At 489.5 ft, 80% sand (15% fine, 55% medium, 30% coarse); 20% 490 gravel to 1".

Notes:

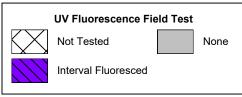
(1) Current Water Table Well

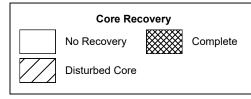
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

WELL LOG

Well ID: KAFB-106S4

Page: 26 of 27

Boring Depth (ft): 504 Screen Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

Seal Material(s): Cement; Bentonite;

High Solids Bentonite Grout

Filter Pack: 10/20 Sand

Filter Pack: 10/20 Sand

Completion Details

Completion

Completion

Completion

Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 472.98

1608 Well-graded sand with gravel: 7.5YR 5/2, brown; 24.7 dense; wet; 80% fine to coarse sand (20% fine, 40%) medium, 40% coarse); 20% gravel to 1/2"; subangular SW to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: strong hydrocarbon odor. At 491 ft, fraction of fine sand increases. UV 2141 25.4 Core bag not opened, used for sampling. 1322 G Well-graded sand: 7.5YR 4/1, dark gray; dense; wet; 21 1 100% fine to coarse sand (60% fine, 30% medium, 30% coarse). Note: hydrocarbon and an organic odor. At 498 ft, no organic odor. At 499 ft, sand is 80% fine, 493 -B, M, 23.4 15% medium, 5% coarse. V. P 496 495 23.1 SW 23.4 496 500

Native Soil/ Slough, 497 to 504 ft bgs

(2)

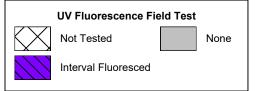
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Drilling Company: Cascade

Driller: Roger Rodriquez

Geologist: L. Andress

Drilling Method: Sonic Coring

Drill Bit: Sonic core bit (nominal 7" hole)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/16/18

Completion Date: 11/16/18

**WELL LOG** 

Well ID: KAFB-106S4

Page: **27 of 27** 

Boring Depth (ft): 504 Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Sand

Completion Details

Completion Details

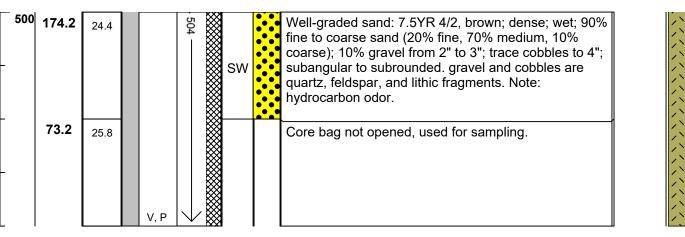
Riser Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 472.98

Well Diameter: 3" ID

(1) (2)





Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

Not Tested None
Interval Fluoresced

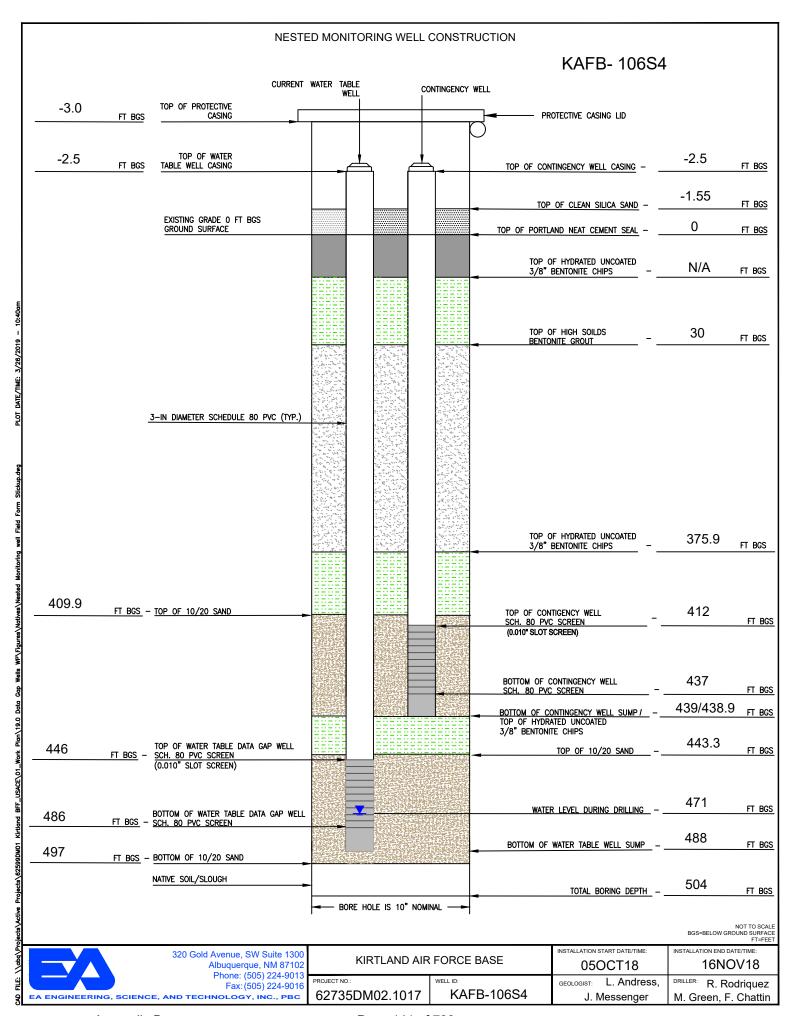
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 





8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

1 of 23

Seal Material(s): Cement; Bentonite;

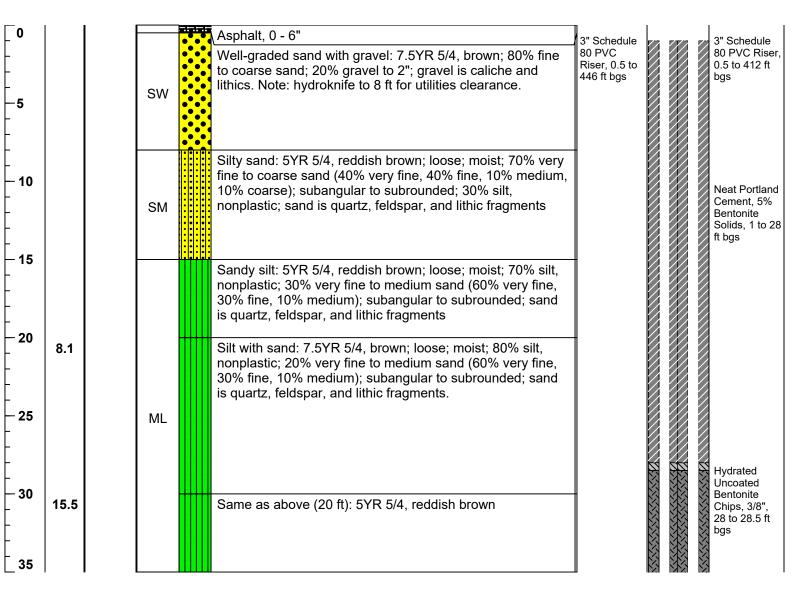
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv) amples ollected	JSCS	Sample Description	Completion Details
				l

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Bato. 11100/10

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

2 of 23

Seal Material(s): Cement; Bentonite;

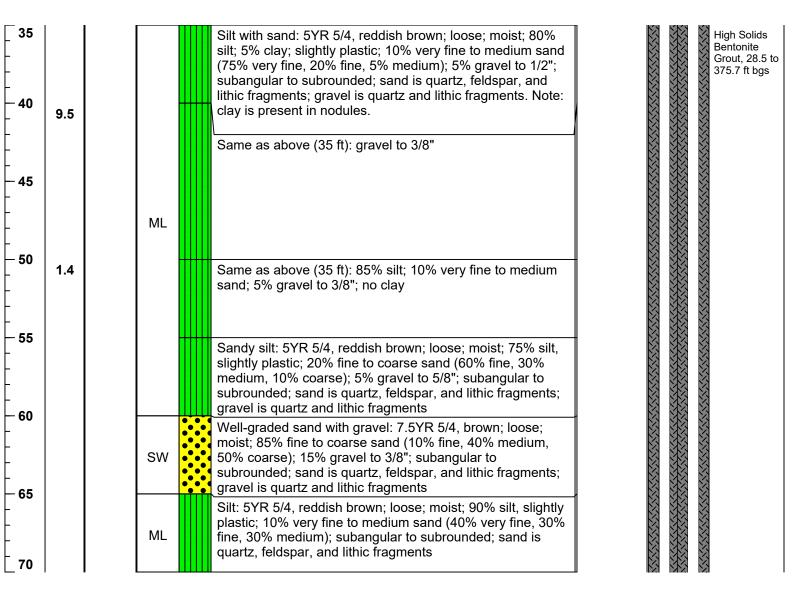
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

The part of the pa

(1) (2



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Drilling Company: Cascade

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Boring Depth (ft): 506

Drilling Method: Air Rotary Casing Hammer Boring Diameter (in): 9 5/8", 11 3/4"

Drill Bit: 10 5/8" Ken Claw Well Diameter: 3" ID 8 1/2" Milltooth Tricone

DTW After Completion (ft bgs): 470.39 Driller: Mark Green

Riser Material: 3" Sch. 80 PVC Geologist: J. Messenger

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

3 of 23

Seal Material(s): Cement; Bentonite;

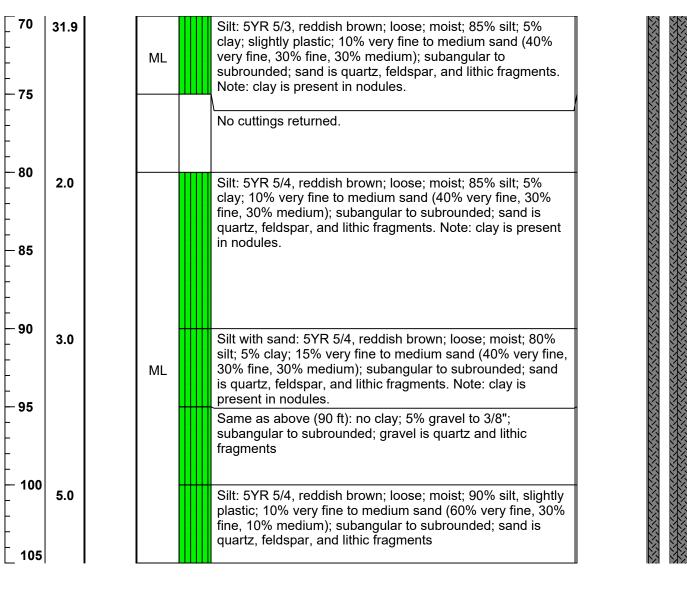
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Depth (ft) PID (ppmv) Sample Description Details

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Page: 4 of 23

Well ID: KAFB-106S5

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 5/8" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green

Geologist: J. Messenger

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

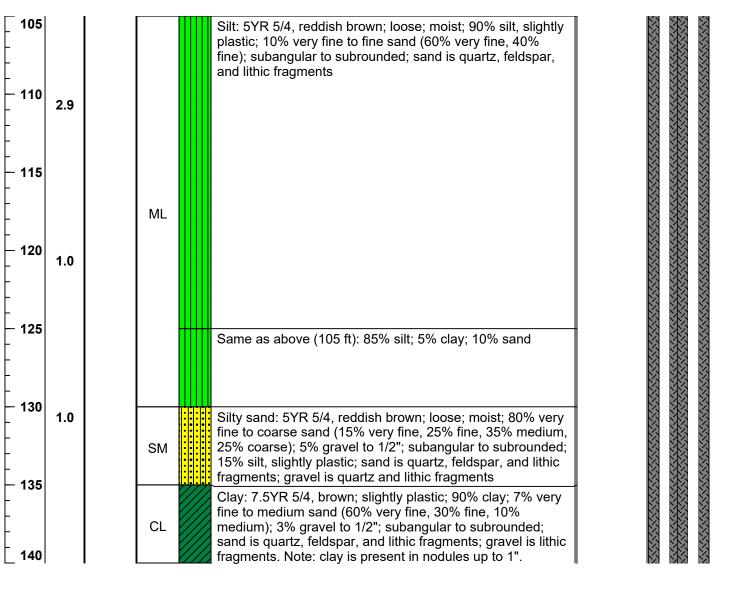
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion itholog. PID (ppmv) Depth (ft) Sample Description **USCS** Details

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Mexico

Well ID: KAFB-106S5

Page: **5 of 23** 

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 5/8" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green

Geologist: J. Messenger

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

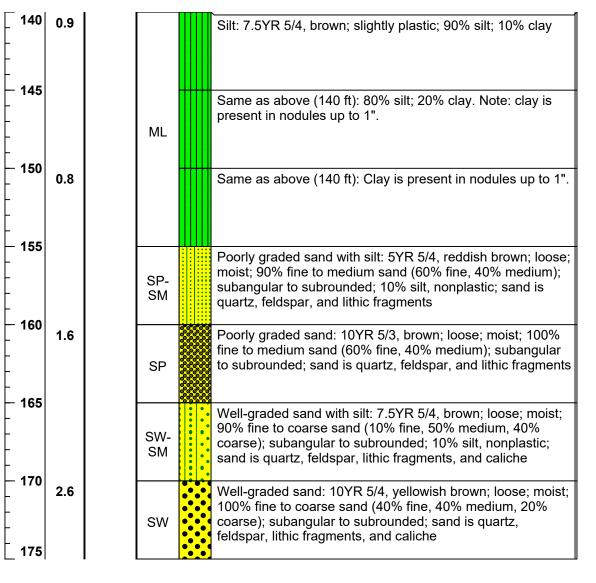
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Notes: (1

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 470.39

Screen Material: 3" Sch. 80 PVC

Page:

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

WELL LOG

Well ID: KAFB-106S5

6 of 23

0.010" slot screen

Filter Pack: 10/20 Silica Sand

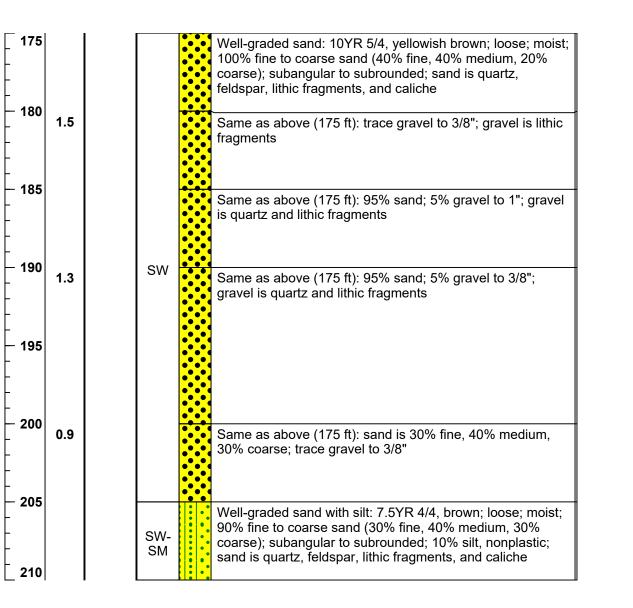
Completion itholog. Depth (ft) PID (ppmv) **USCS** Sample Description Details

Riser Material: 3" Sch. 80 PVC

Boring Depth (ft): 506

Well Diameter: 3" ID

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

7 of 23

Seal Material(s): Cement; Bentonite;

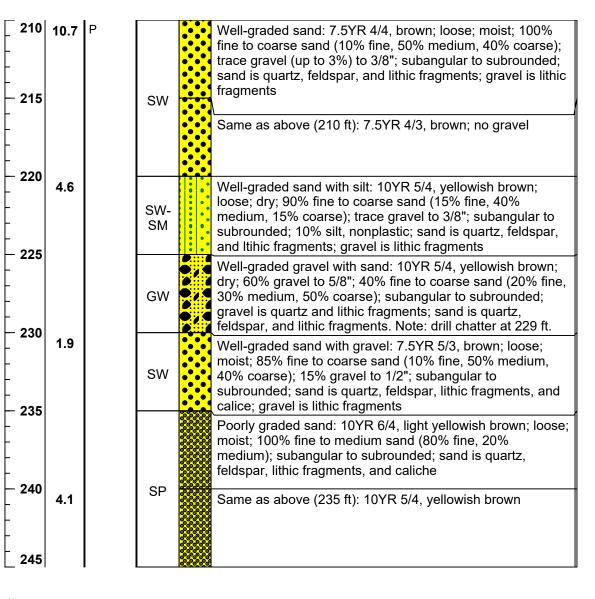
**High Solids Bentonite Grout** 

**WELL LOG** 

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

8 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

**WELL LOG** 

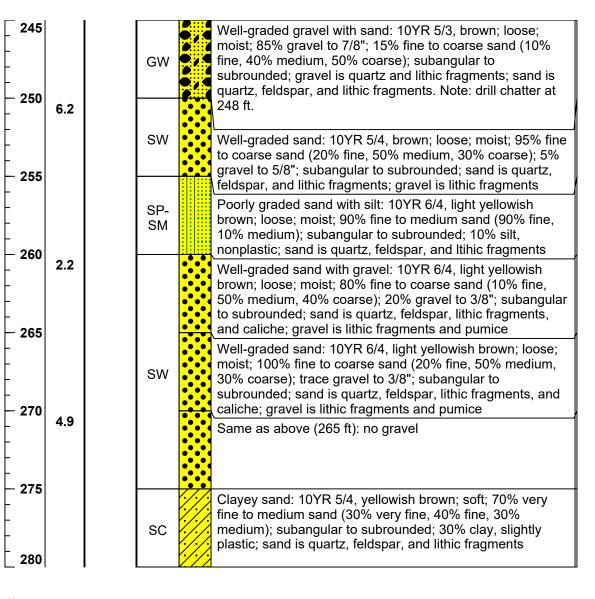
Filter Pack: 10/20 Silica Sand

Sample Description

Completion

Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Boring Depth (ft): 506 Screen Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

9 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv) Samples Collected	USCS	Sample Description	Completion Details
				(1) (2)

(1)

280 7.0	Clayey sand: 10YR 5/4, yellowish brown; soft; 80% very fine to medium sand (30% very fine, 40% fine, 30% medium); subangular to subrounded; 20% clay, slightly plastic; sand is quartz, feldspar, and lithic fragments
290	Poorly graded sand with silt; 10YR 5/4, yellowish brown; loose; moist; 90% very fine to medium sand (20% very fine, 50% fine, 30% medium); subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragments
295	No cuttings returned
300	Well-graded gravel with sand: 10YR 4/3, brown; loose; moist; 70% gravel to 3/4"; 30% fine to coarse sand (20% fine, 50% medium, 30% coarse); subangular to subrounded; gravel is quartz and lithic fragments; sand is quartz, feldspar, and lithic fragments
2.2	Poorly graded sand: 10YR 5/4, yellowish brown; loose; moist; 95% fine to medium sand (85% fine, 15% medium); 5% gravel to 1/2"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments.
310	Poorly graded sand with silt: 10YR 5/4, yellowish brown; loose; moist; 90% fine to medium sand (70% fine, 30% medium); trace gravel to 3/8"; subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments
315	SW Well-graded sand: 10YR 5/4, yellowish brown; loose; moist; 95% fine to coarse sand (40% fine, 40% medium, 20% coarse); 5% gravel to 1/2"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is lithic

Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

10 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

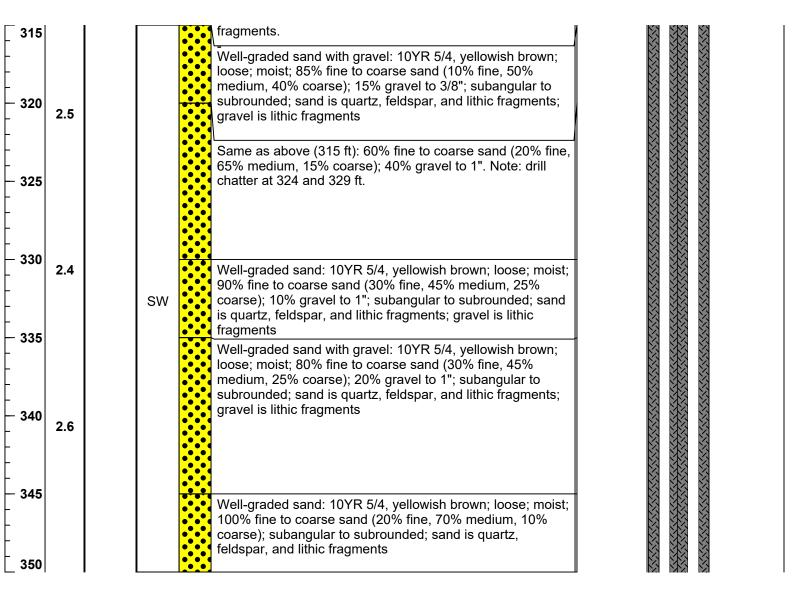
WELL LOG

Filter Pack: 10/20 Silica Sand

Sample Description

Completion
Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 5/8" Ken Claw

Geologist: J. Messenger

Driller: Mark Green

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Date. 11/05/10

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S5

11 of 23

Seal Material(s): Cement; Bentonite;

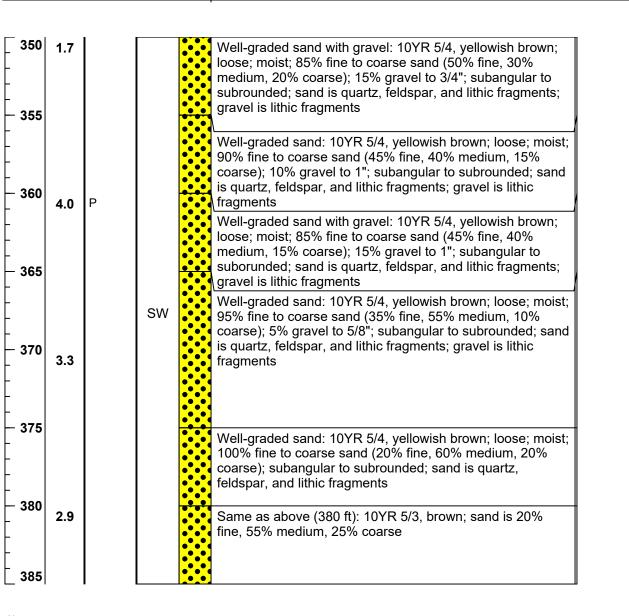
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Hydrated Uncoated Bentonite Chips, 3/8", 375.7 to 409.5 ft bgs

Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

Page: 12 of 23

Well ID: KAFB-106S5

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 5/8" Ken Claw

8 1/2" Milltooth Tricone

Driller: Mark Green

Geologist: J. Messenger

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

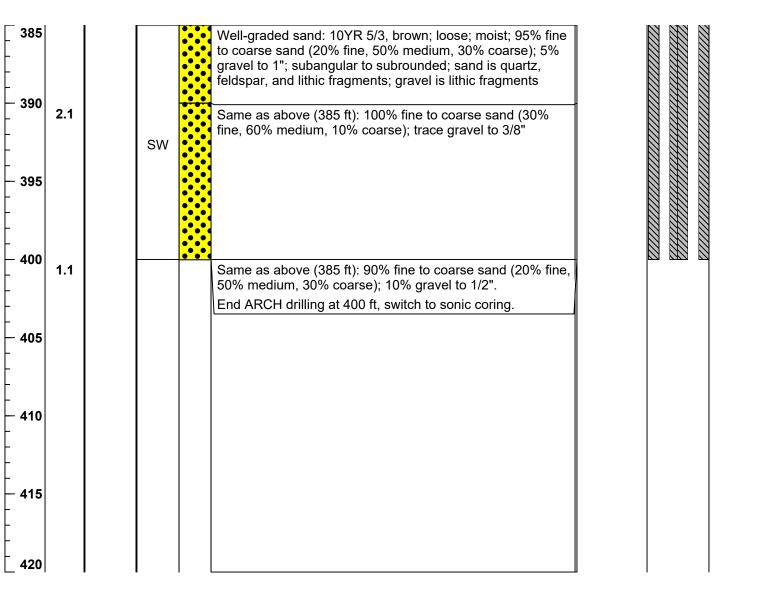
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Depth (ft) PID (ppmv) Sample Description **USCS** Details

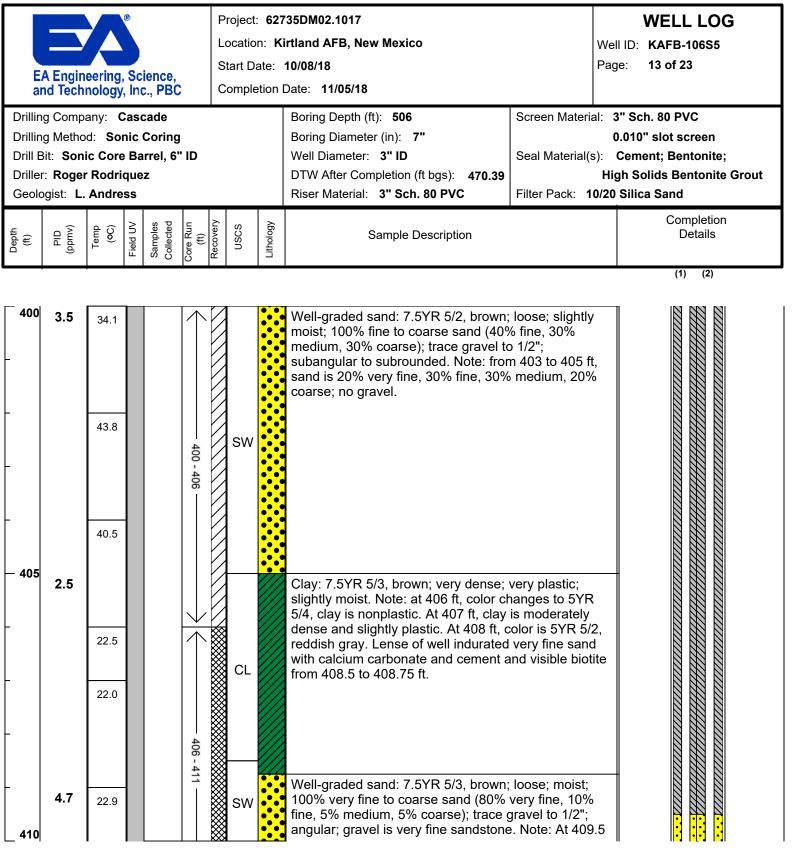
> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



(2) Contingency Well

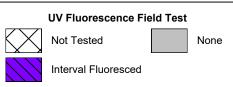
Notes:

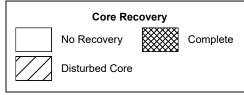
= Depth to water after completion

UV = ultraviolet fluorescence

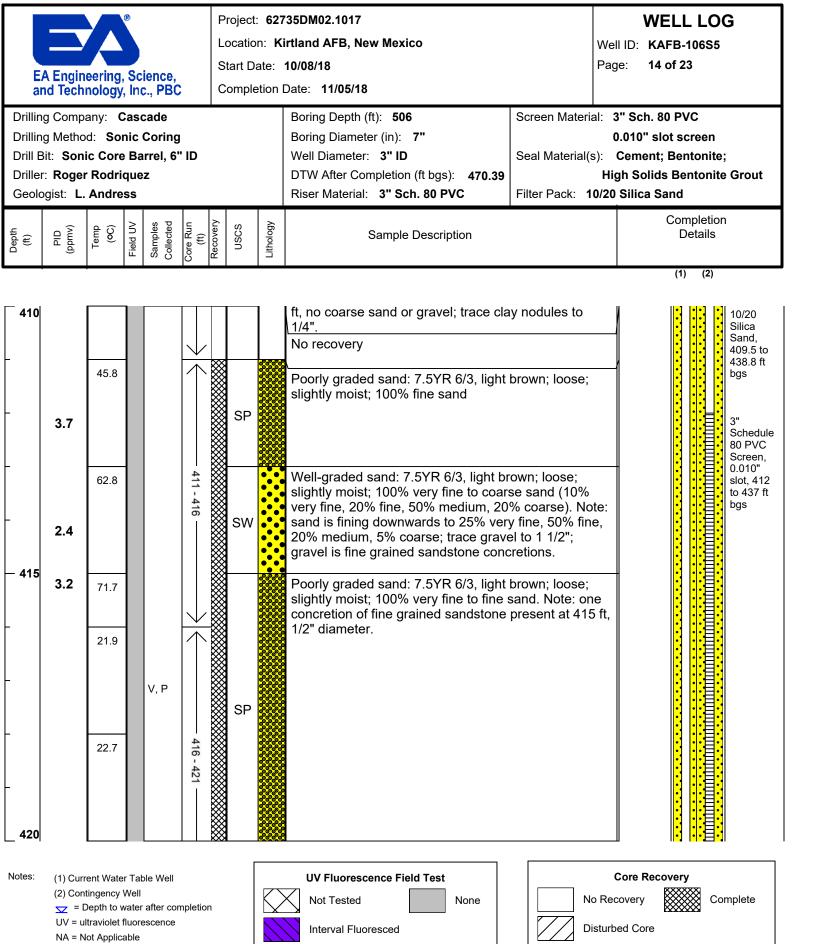
(1) Current Water Table Well

NA = Not Applicable

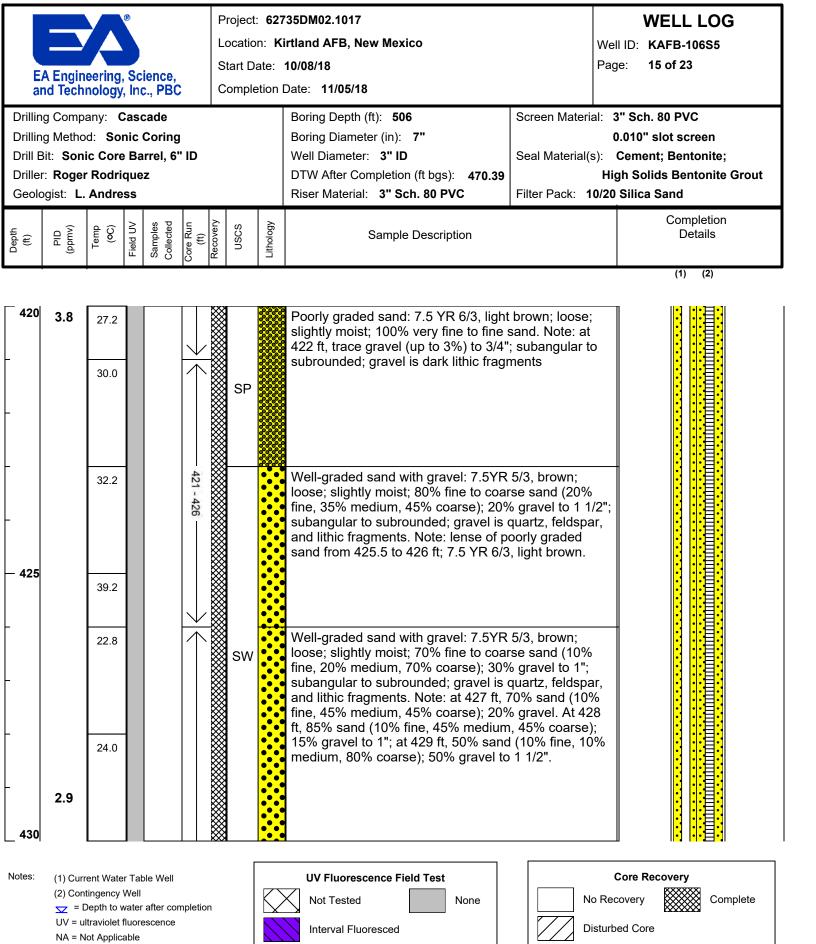




Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Following coring, the borehole was overdrilled using ARCH for well installation



Following coring, the borehole was overdrilled using ARCH for well installation



Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

WELL LOG

Well ID: KAFB-106S5

Page: 16 of 23

Drilling Company: Cascade Boring Depth (ft): 506 Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

(2)

Filter Pack: 10/20 Silica Sand

Completion Core Run Lithology Samples Collected Recovery USCS PID (ppmv) 8 Depth (ft) Details Sample Description Field I

430 Well-graded sand with gravel: see description on 28.9 previous page. SW 426 Clayey sand with gravel: 5YR 4/4, reddish brown; loose; slightly moist; 50% fine to coarse sand (5% fine, 25% medium, 70% coarse); 20% gravel to 1"; SC subangular to subrounded; 30% clay, plastic; gravel is 32.6 quartz, feldspar, and lithic fragments. Note: clay is present as nodules up to 3"; 7.5 YR 5/3, brown. Well-graded sand: 7.5YR 6/3. light brown: loose: slightly moist; 90% fine to coarse sand (20% fine, 35% medium, 45% coarse); 10% gravel to 1"; subangular to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: sediments are fining downwards to 48.6 70% fine, 20% medium, 10% coarse; no gravel; at 433.25. At 434 ft, color is 10YR 5/3, brown; sand is 20% very fine, 60% fine, 15% medium, 5% coarse; no 435 gravel. SW Well-graded sand with gravel: 10YR 5/3, brown; loose; slightly moist; 80% fine to coarse sand (60% 49.5 fine, 20% medium, 20% coarse); 20% gravel to 1"; subangular to subrounded; gravel is quartz, feldspar, and lithic fragments. Note: at 436 ft, color is 7.5YR 5/3, brown; gravel is up to 1 1/2"; subangular to rounded. Schedule 80 PVC Well-graded sand: 7.5YR 5/2, brown; loose; slightly Sump, moist: 100% fine to coarse sand. Note: 1 cobble 437 to 439 40.7 present; 2"; subangular to subrounded; lithic fragment. ft bgs SP Poorly graded sand: 7.5YR 5/2, brown; loose; slightly moist; 100% fine sand; trace medium sand 3.5 Well-graded sand with gravel: 7.5YR 5/3, brown; SW loose; slightly moist; 85% fine to coarse sand (5% 440 fine, 35% medium, 60% coarse); 15% gravel to 1/2";

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

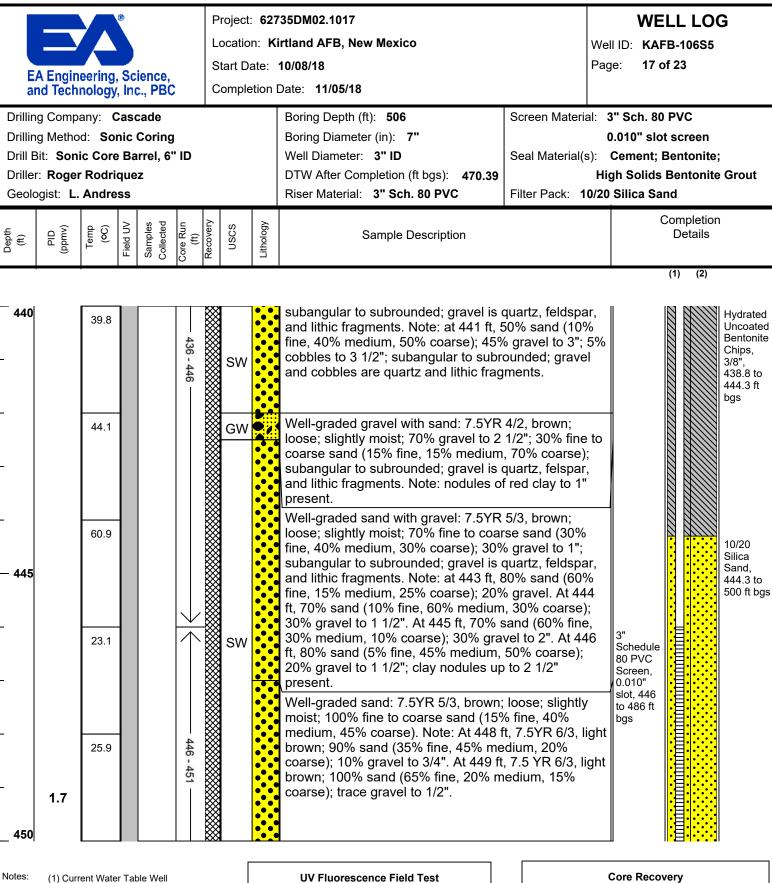
UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

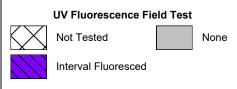


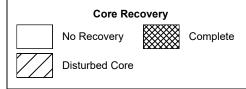
UV = ultraviolet fluorescence

= Depth to water after completion

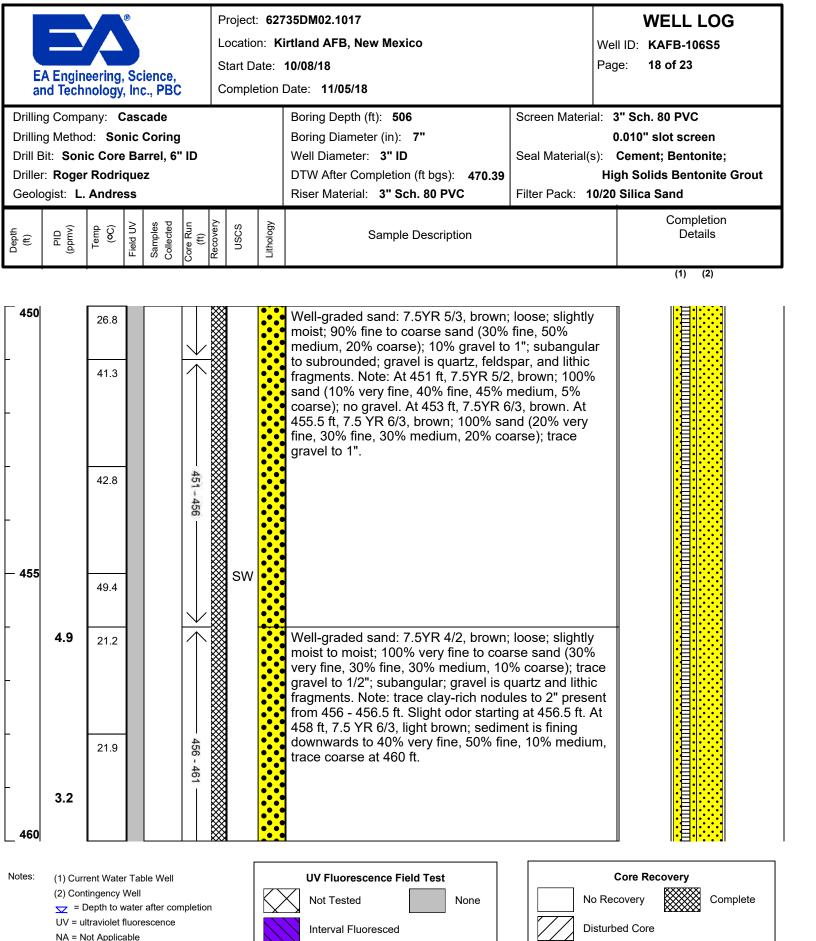
NA = Not Applicable

(2) Contingency Well





Following coring, the borehole was overdrilled using ARCH for well installation



Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: L. Andress

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

WELL LOG

Well ID: KAFB-106S5

Page: **19 of 23** 

Boring Depth (ft): 506 Screen Material: 3" Sch. 80 PVC

0.010" slot screen
Seal Material(s): Cement; Bentonite;

High Solids Bentonite Grout

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

Completion

Completion

Completion

Details

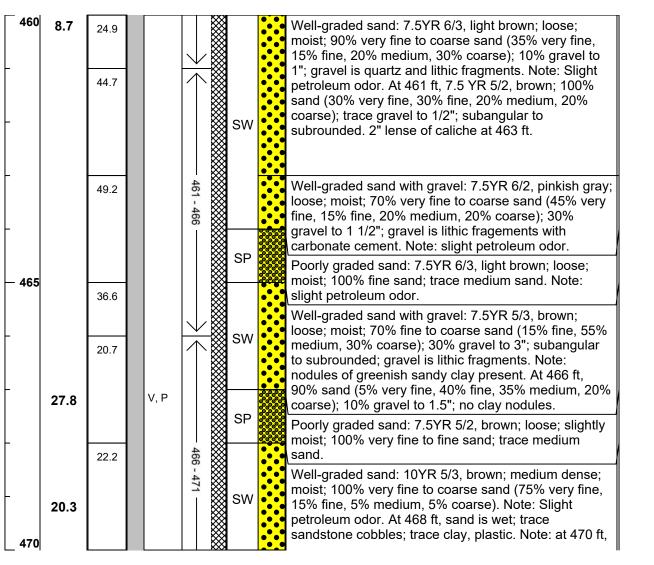
Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 470.39

Boring Diameter (in): 7"

Well Diameter: 3" ID

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

Not Tested None

Interval Fluoresced

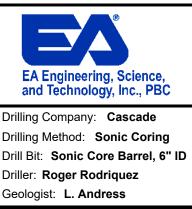
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

WELL LOG

Well ID: KAFB-106S5

Page: 20 of 23

Boring Depth (ft): 506 Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

(2)

Filter Pack: 10/20 Silica Sand

Completion Core Run Lithology Collected Recover uscs Samples PID (ppmv) 8 Depth (ft) Details Sample Description Field I

color is 10YR 4/2, dark grayish brown; wet; 100% 44.2 23.0 sand (40% very fine, 45% fine, 10% medium, 5% SC coarse); trace gravel to 1/2". @ 470 ft: Clayey sand: 10YR 4/2, dark grayish brown; 19.9 medium dense; wet; very fine to coarse sand; clay; silt, non-plastic to slightly plastic. Note: slight petroleum odor. 91.0 Well-graded sand: 10YR 4/3, brown; medium dense; wet; 100% very fine to coarse sand (60% very fine, SW 471 20.7 20% fine, 15% medium, 5% coarse); trace gravel to 1/3"; subangular; gravel is granite and lithic fragments. - 476 Note: slight odor. No gravel at 472 ft, 10YR 4/2, dark grayish brown. At 473 ft, 95% sand (75% very fine to fine, 25% medium to coarse). 475 77.3 Clayey sand: 10YR 4/2, dark grayish brown; medium 195 dense; wet; 50% very fine to coarse sand; 20% SC cobbles to 4 1/2"; 30% clay; nonplastic to slightly plastic; cobbles are medium to coarse sandstone. 20.5 Note: clay is present as red nodules up to 3". Slight Well-graded sand with gravel: 10YR 4/3, brown; loose to medium dense; wet; 80% fine to coarse sand (15% fine, 70% medium, 15% coarse); 20% gravel to 1"; subangular to subrounded; gravel is quartz, SW feldspar, and lithic fragments. Note: slight odor. At 477 20.7 ft. 90% sand (20% fine, 35% medium, 45% coarse); 10% gravel to 1 1/2". At 478 ft, 70% sand (5% fine, 30% medium, 65% coarse); 30% gravel to 2". Lense 27.7 of trace clay nodules to 1 1/4" at 480 ft. 480

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

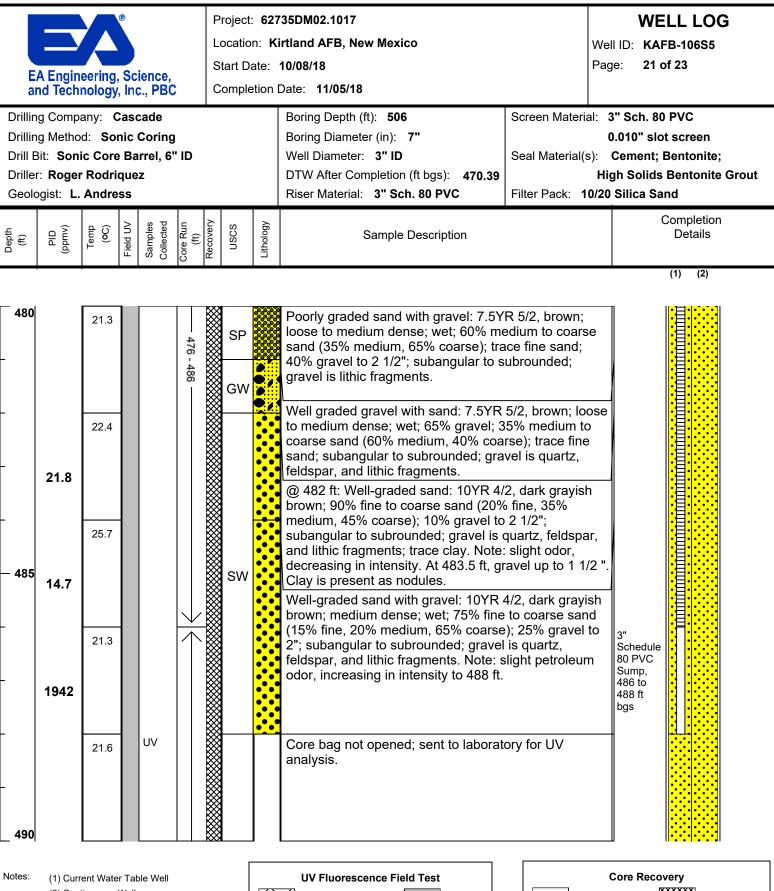
UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

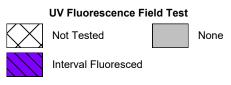


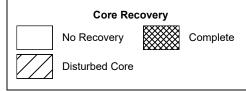
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/08/18

Completion Date: 11/05/18

**WELL LOG** 

Well ID: KAFB-106S5

Page: 22 of 23

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 506

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 470.39

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

(2)

Filter Pack: 10/20 Silica Sand

Completion Details

490 W, T, Well-graded sand with gravel: 10YR 4/2, dark grayish 22.0 G brown; medium dense; wet; 70% fine to coarse sand 486 (15% fine, 30% medium, 55% coarse); 30% gravel to 2"; gravel is quartz, feldspar, and lithic fragments SW - 496 V, P, 1957 B, M Poorly graded sand: 10YR 4/1, dark gray; dense; wet; 25.0 90% fine sand; 10% silt, nonplastic. Note: from 494 to 495 ft, sand is very fine. 557 SP 26.3 495 62.7 Well-graded sand: 10YR 4/1, dark gray; medium 20.8 dense; wet; 95% fine to coarse sand (10% fine, 70% medium, 20% coarse); 5% gravel to 1"; gravel is quartz and sandstone fragments 21.0 SW Well-graded sand: 7.5YR 4/1, dark gray; medium 20.8 dense; wet; 90% fine to coarse sand (10% fine, 35% medium, 55% coarse); 10% gravel to 1 1/2"; subangular to subrounded; trace clay, slightly plastic; gravel is quartz, feldspar, and lithic fragments. Note: clay is present as 1/2" to 2" nodules of green dense 500 sandy clay.

Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

Not Tested None

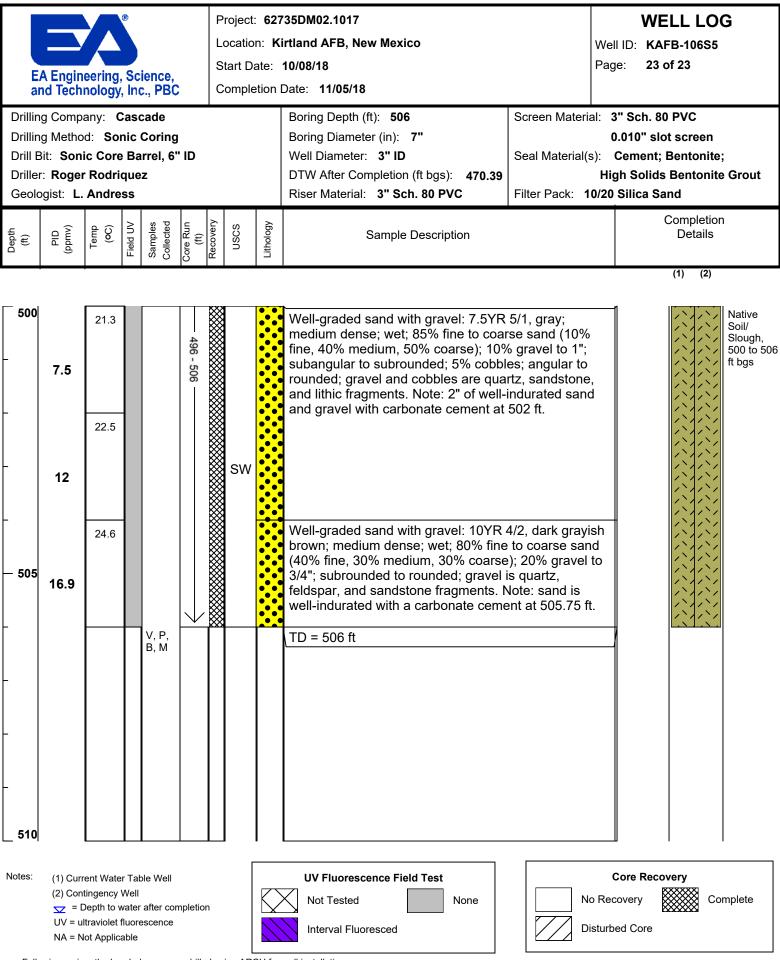
Interval Fluoresced

Core Recovery

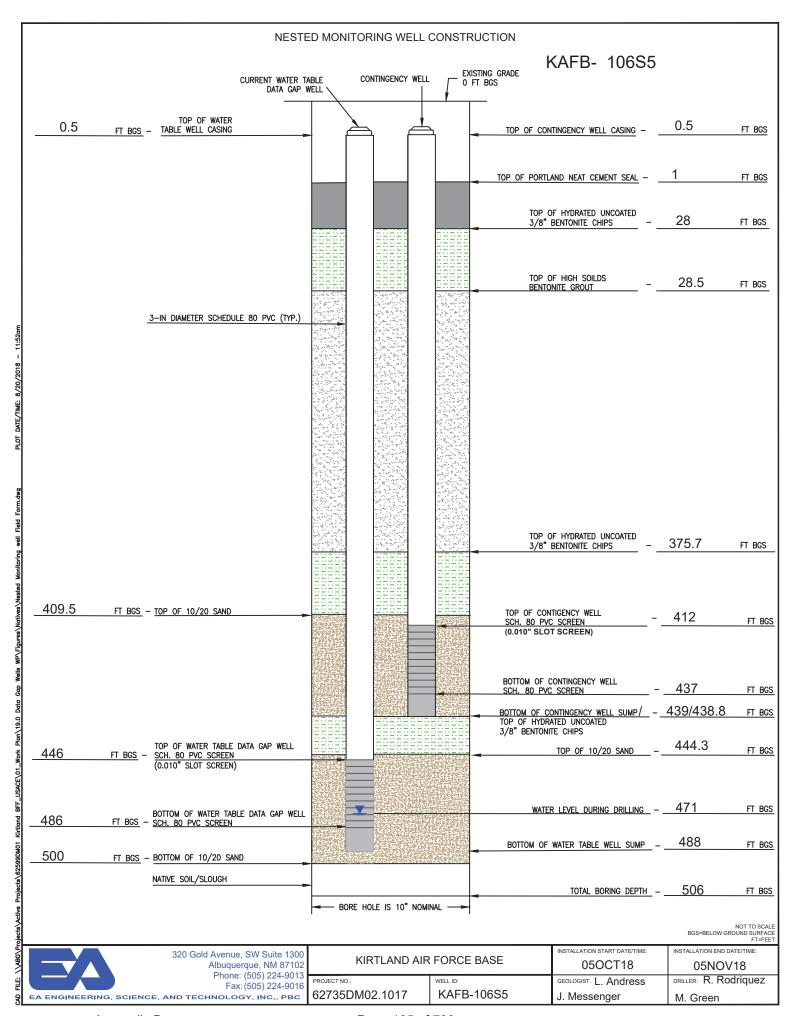
No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 





Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Well ID: KAFB-106S7

WELL LOG

Page: 1 of 23

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Forrest Chattin Geologist: C. Montoya Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

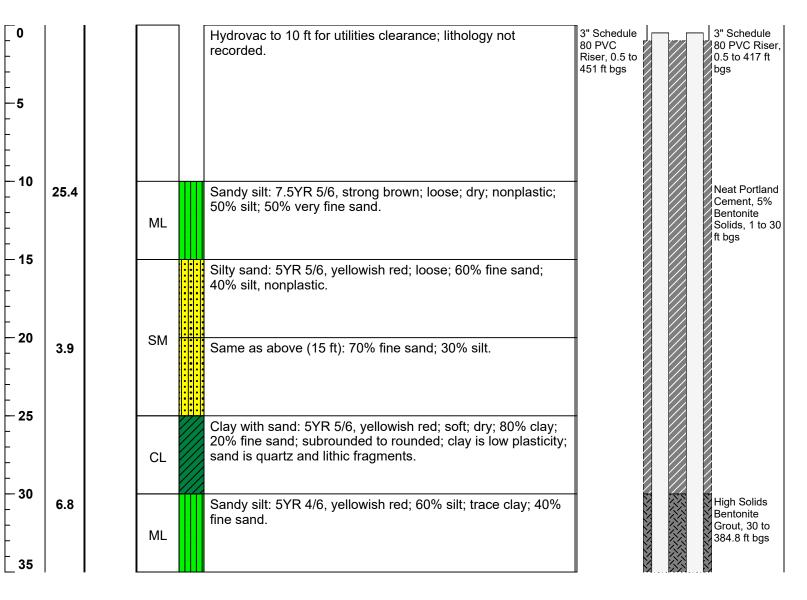
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion \_ithology Depth (ft) PID (ppmv) Sample Description **JSCS** Details

(1)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

PID (ppmv)

Depth (ft)

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Page:

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Well ID: KAFB-106S7

2 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Driller: Forrest Chattin Geologist: C. Montoya

uscs

Lithology

Drilling Method: Air Rotary Casing Hammer

8 1/2" Milltooth Tricone

DTW After Completion (ft bgs): 474.44

Boring Diameter (in): 9 5/8", 11 3/4"

Riser Material: 3" Sch. 80 PVC

Boring Depth (ft): 506

Well Diameter: 3" ID

Completion Sample Description Details

> (1) (2)

- - - - - 40		ML	Sandy silt: 5YR 4/6, yellowish red; trace clay; 50% silt; 50% fine sand.
- 40 - - - - 45	4.9	CL	Sandy clay: 5YR 6/4, light reddish brown; soft; dry; slightly plastic; 60% clay; 40% fine to medium sand (75% fine, 25% medium); subrounded; sand is quartz, feldspar, and lithic fragments.
- - - - - 50		SC	Clayey sand: 5YR 5/6, yellowish brown; very loose; dry; 80% fine sand; subrounded; 20% clay and silt, nonplastic; sand is quartz, feldspar, and lithic fragments.
-	4.0	CL	Clay: 5YR 5/6, yellowish red; very soft; dry; nonplastic; 90% clay; 10% fine sand; subrounded; sand is quartz, feldspar, and lithic fragments.
55 - - - - 60			Clayey sand: 5YR 5/6, yellowish red; very loose; 70% fine to coarse sand (55% fine, 15% medium, 30% coarse); 30% clay.
- 60 - - - - 65	3.5	sc	Same as above (60 ft): sand is 60% fine, 15% medium, 25% coarse; trace gravel, subrounded; gravel is quartz, feldspar, and lithic fragments.
- 65 - - - - 70			Same as above (60 ft): 60% clay; 40% fine to medium sand (80% fine, 10% medium); trace gravel, subrounded; gravel is quartz, feldspar, and lithic fragments.
		-	

Notes: (1) Current Water Table Well

> (2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Well ID: KAFB-106S7

WELL LOG

Page: 3 of 23

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

\_ithology

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Forrest Chattin

Geologist: C. Montoya

PID (ppmv)

Depth (ft)

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

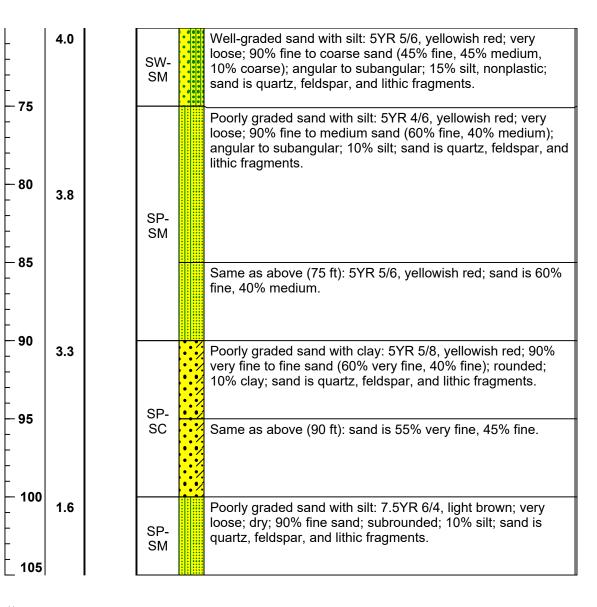
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Sample Description Details

> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

Page: **4 of 23** 

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Forrest Chattin

Geologist: C. Montoya

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

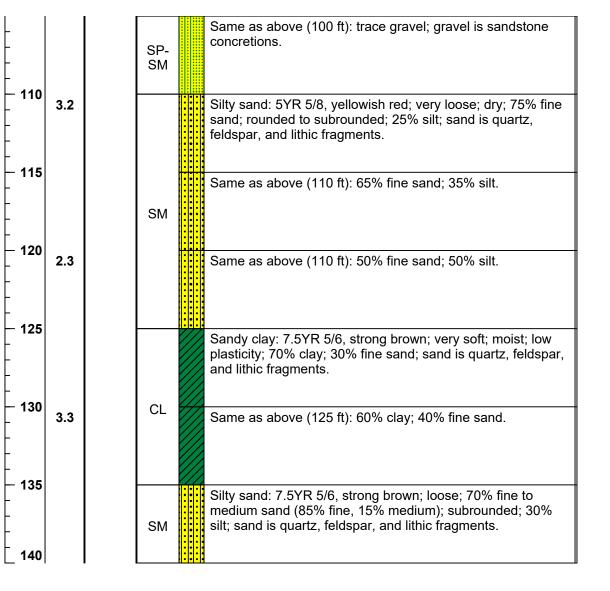
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

The part of the pa

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

Page: 5 of 23

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Forrest Chattin

Geologist: C. Montoya

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

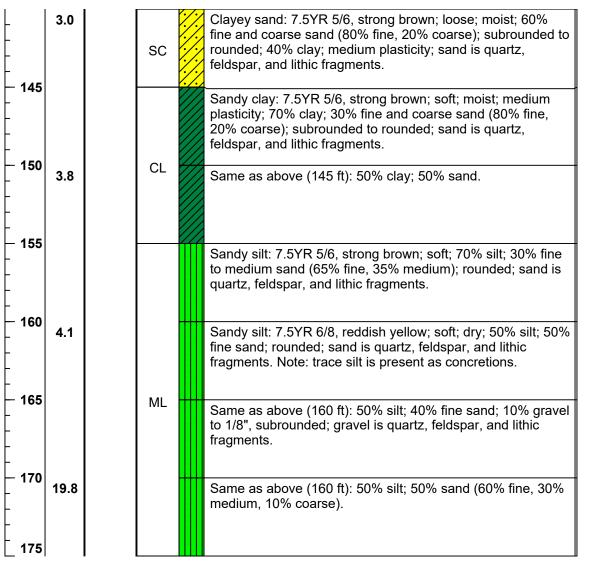
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Depth (ft) PID (ppmv) Sample Description Details

> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Well ID: KAFB-106S7

Page: 6 of 23

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Forrest Chattin Geologist: C. Montoya

DTW After Completion (ft bgs): 474.44 Riser Material: 3" Sch. 80 PVC

Boring Diameter (in): 9 5/8", 11 3/4"

Boring Depth (ft): 506

Well Diameter: 3" ID

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

Seal Material(s): Cement; Bentonite;

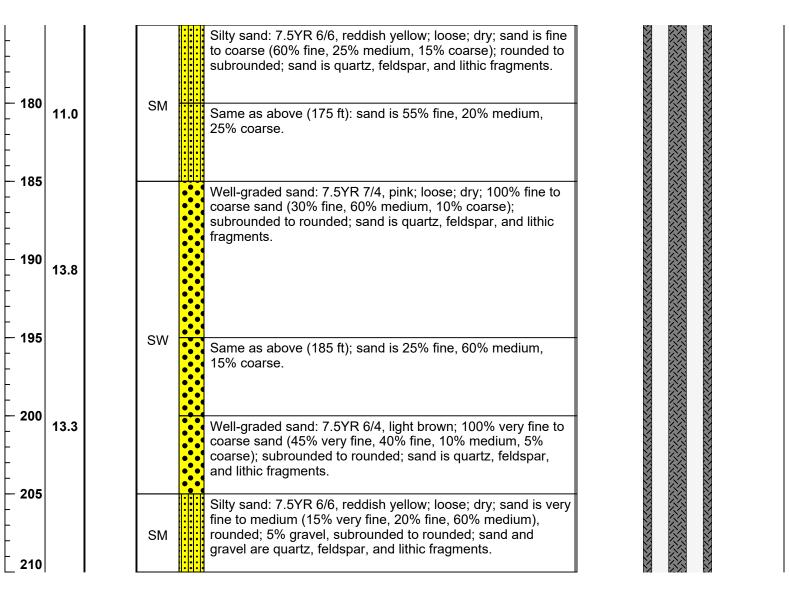
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Depth (ft) PID (ppmv) Sample Description Details

> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Driller: Forrest Chattin

Geologist: C. Montoya

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S7

7 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Samples Collected	nscs	Lithology	Sample Description	Completion Details
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(1) (2)

- - - - 215	1.7	SW- SM	Well-graded sand with silt and gravel: 7.5YR 6/6, reddish yellow; loose; dry; 75% fine to coarse sand (15% fine, 65% medium, 20% coarse); rounded; 15% gravel; subrounded to rounded; 10% silt; sand and gravel are quartz, feldspar, and lithic fragments.	
- 220			Same as above (210 ft): sand is 10% fine, 65% medium, 25% coarse.	
- 225	2.1		Well-graded sand: 7.5YR 6/4, light brown; loose; dry; 95% fine to coarse sand (20% fine, 45% medium, 35% coarse); subrounded to rounded; 5% silt; sand is quartz, feldspar, and lithic fragments.	
		SW	Well-graded sand with gravel: 7.5YR 6/6, reddish yellow; loose; dry; 80% fine to coarse sand (20% fine, 45% medium, 35% coarse); 15% gravel to 1 1/2"; 5% silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz, feldspar, limestone, and lithic fragments.	
2.4	2.4	SW- SM	Well-graded sand with silt and gravel: 7.5YR 6/6, reddish yellow; loose; dry; 50% fine to coarse sand (20% fine, 40% medium, 40% coarse); 40% gravel to 1 1/2"; 10% silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz, feldspar, limestone, and lithic fragments.	
235		sw	Well-graded sand: 7.5YR 6/6, reddish yellow; loose; dry; 90% fine to coarse sand (15% fine, 60% medium, 25% coarse); 5% gravel to 1 1/2"; 5% silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz, feldspar, limestone, and lithic fragments.	
245	2.4	SW- SM	Well-graded sand with silt: 7.5YR 6/6, reddish yellow; loose; dry; 90% fine to coarse sand (10% fine, 80% medium, 10% coarse); 10% silt; sand is quartz, feldspar, and lithic fragments.	

Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Driller: Forrest Chattin

Geologist: C. Montoya

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S7

8 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

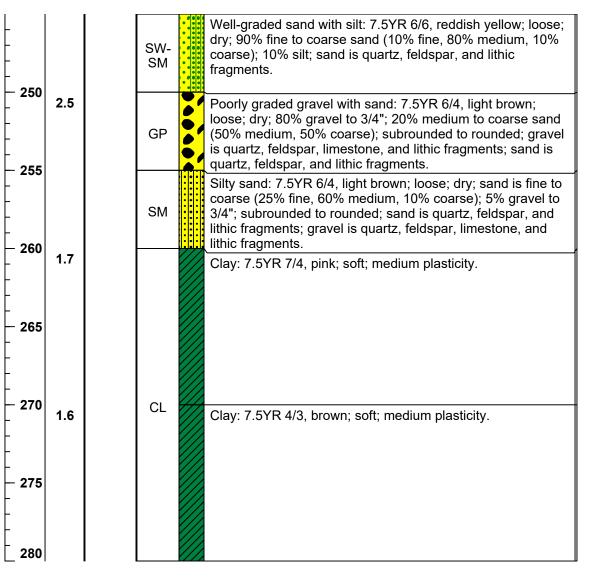
WELL LOG

Filter Pack: 10/20 Silica Sand

Sample Description

Completion
Details

(1) (2)



Notes: (1) Current Water Table Well (2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

Page: 9 of 23

Drilling Company: Cascade

Drilling Method: Air Rotary Casing Hammer

Drill Bit: 10 1/2" Ken Claw

8 1/2" Milltooth Tricone

Driller: Forrest Chattin

Geologist: C. Montoya

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" slot screen

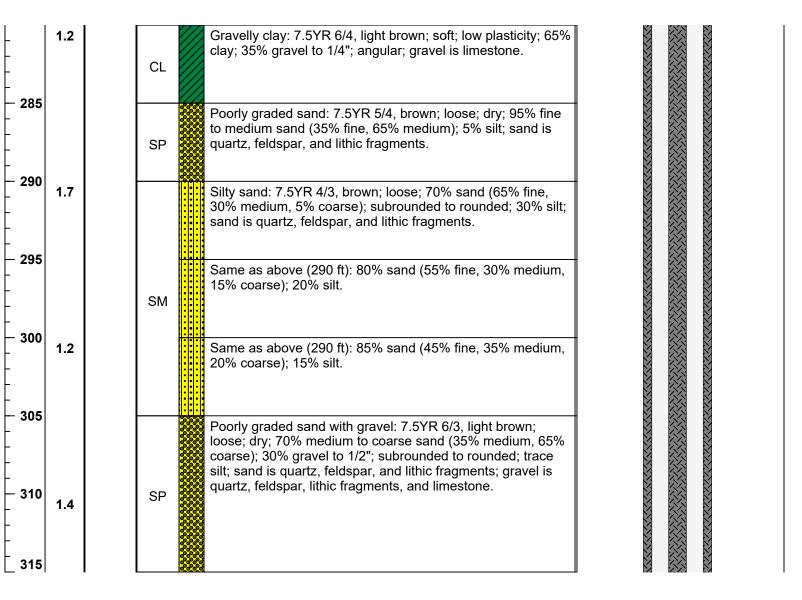
Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Depth (ft) PID (ppmv) Sample Description Details

> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Driller: Forrest Chattin

Geologist: C. Montoya

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

\_\_\_\_\_\_

Boring Depth (ft): **506**Boring Diameter (in): **9** 5/8", **11** 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S7

10 of 23

Seal Material(s): Cement; Bentonite;

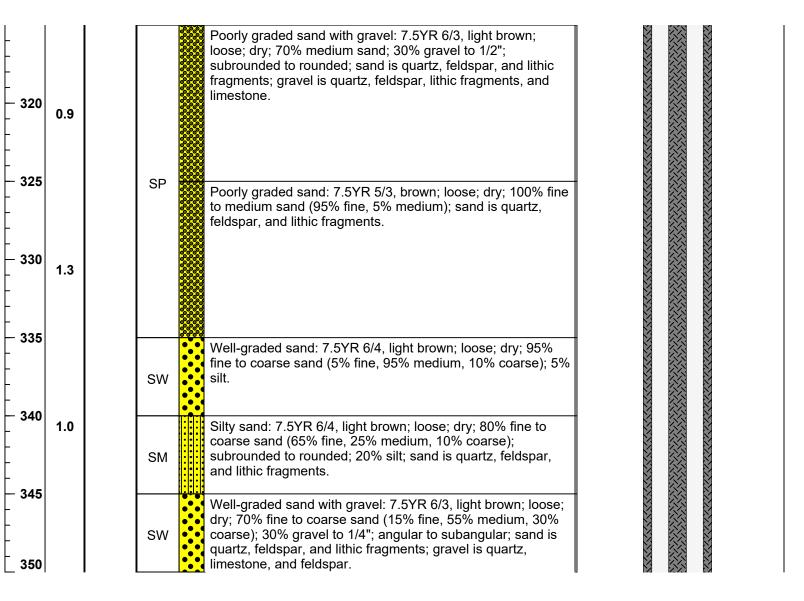
**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv) amples ollected	JSCS	Sample Description	Completion Details
) ep	Police (ppr	ISC	Sample Description	Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Driller: Forrest Chattin

Geologist: C. Montoya

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Boring Depth (ft): 506

Boring Diameter (in): 9 5/8", 11 3/4"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S7

11 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

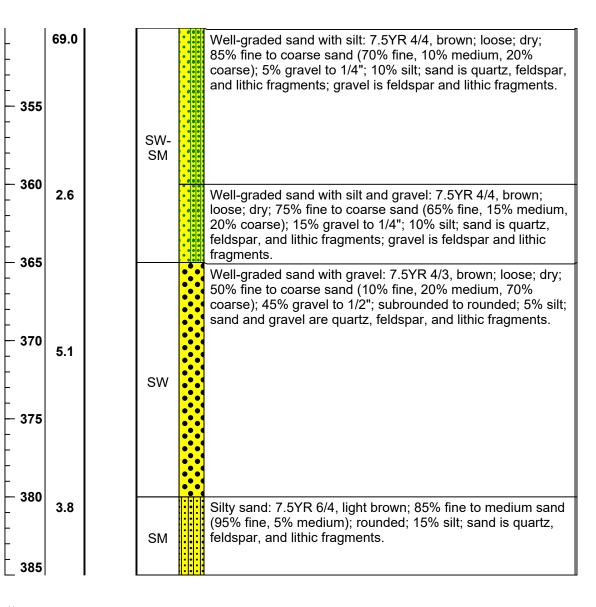
WELL LOG

Filter Pack: 10/20 Silica Sand

Completion Sample Description

Completion Details

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



8 1/2" Milltooth Tricone

Drilling Company: Cascade

Drill Bit: 10 1/2" Ken Claw

Driller: Forrest Chattin

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/16/19

Completion Date: 2/4/19

Boring Diameter (in): 9 5/8", 11 3/4"

DTW After Completion (ft bgs): 474.44

Screen Material: 3" Sch. 80 PVC

Page:

0.010" slot screen

Well ID: KAFB-106S7

12 of 23

Seal Material(s): Cement; Bentonite;

**High Solids Bentonite Grout** 

WELL LOG

Filter Pack: 10/20 Silica Sand

Geologist: C. Montoya Riser Material: 3" Sch. 80 PVC Filter Pack: 1

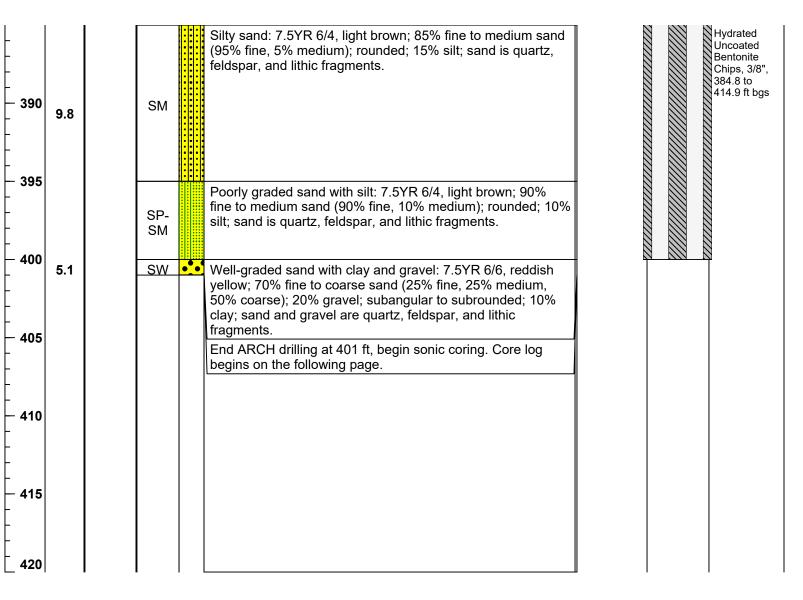
Completion Sample Description

Completion Details

Boring Depth (ft): 506

Well Diameter: 3" ID

(1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

Samples: V = VOCs/EDB, P = TPH, M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1018

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 506 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 1/10/19

Completion Date: 2/4/19

WELL LOG

13 of 23

0.010" Slot Screen

Well ID: KAFB-106S7

Page:

Screen Material: 3" Sch. 80 PVC

Seal Material(s): Cement, Bentonite,

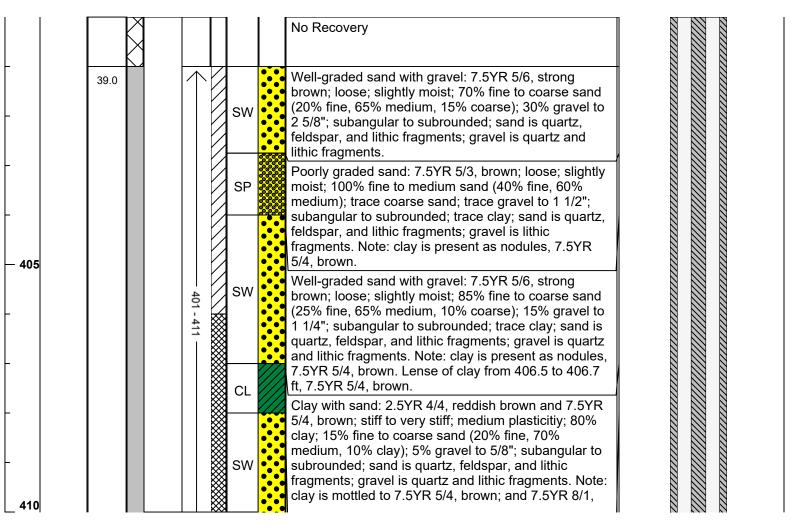
**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	OIA (vmdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	sosn	Lithology	Sample Description	Completion Details	
				•					_	(1) (2)	

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

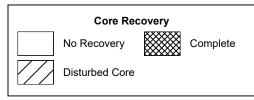
bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1018

Location: Kirtland AFB, New Mexico

Start Date: 1/10/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

Page: 14 of 23

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 506 ft Boring Diameter (in): 7" 0.010" Slot Screen

Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

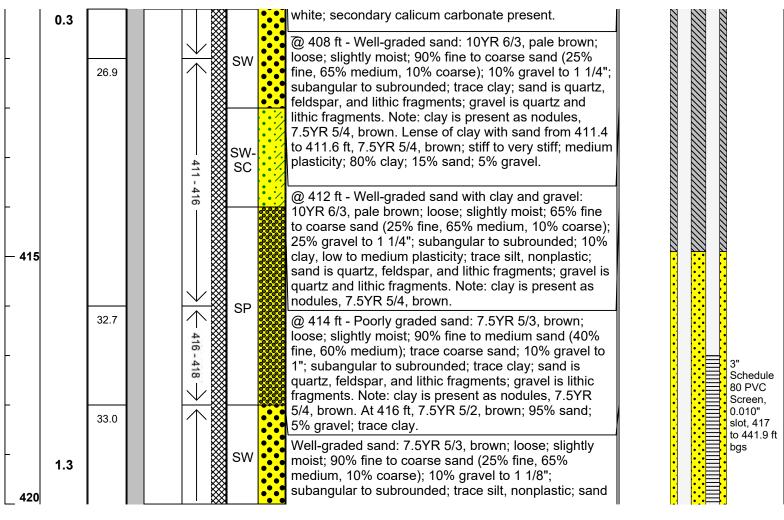
**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Recover USCS Samples Core Rur PID (ppmv) 8 Depth (ft) Details Sample Description Field I (1) (2)

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

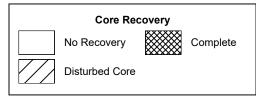
DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1018

Location: Kirtland AFB, New Mexico

Start Date: 1/10/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

Page: 15 of 23

Boring Depth (ft): 506 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

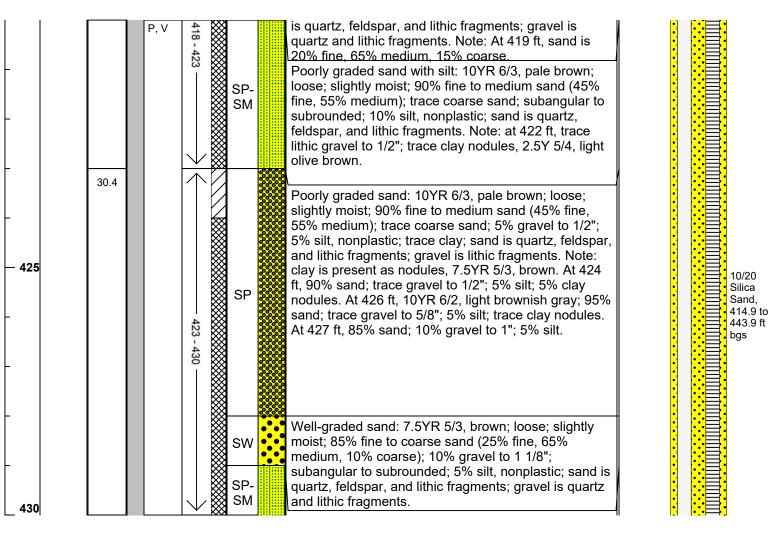
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Collected Run Recover USCS PID (ppmv) (S Depth (ft) Details Sample Description Field I  $\Xi$ Core (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez Geologist: J. Messenger Project: 62735DM02.1018

Location: Kirtland AFB, New Mexico

Start Date: 1/10/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

Page: 16 of 23

Drilling Company: Cascade Boring Depth (ft): 506 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

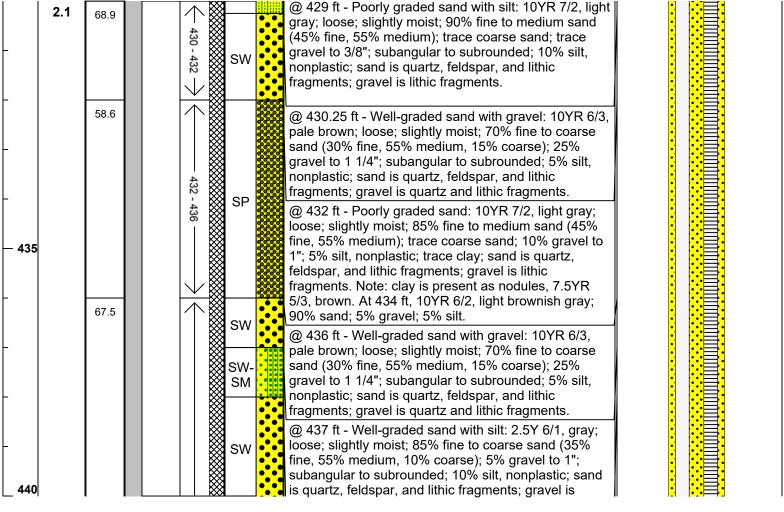
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	Old (hudd)	Temp (oC)	Samples	e Ru (ft)	Recovery	Lithology	Sample Description	Completion Details	
								(1) (2)	_
	2.1	68.9		$\wedge$			@ 429 ft - Poorly graded sand with silt: 10YR 7/2, light	<mark>: ∷≣:</mark>	



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/10/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

Page: 17 of 23

Drilling Company: Cascade Boring Depth (ft): 506 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez DTW After Completion (ft bgs): 474.44 Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC

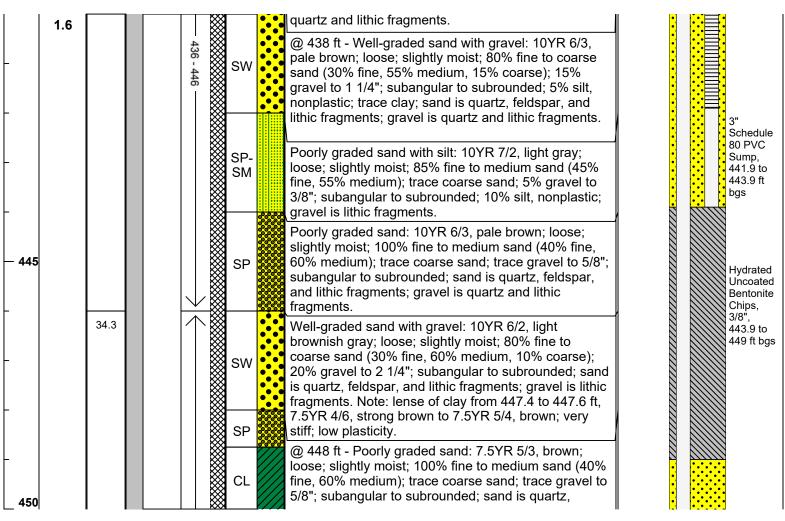
Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	Old (hmdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description	Comp Det	
	•	•								(1)	(2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

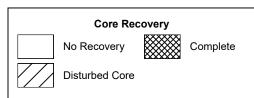
bgs = below ground surface

DTW = depth to water

ft = feet

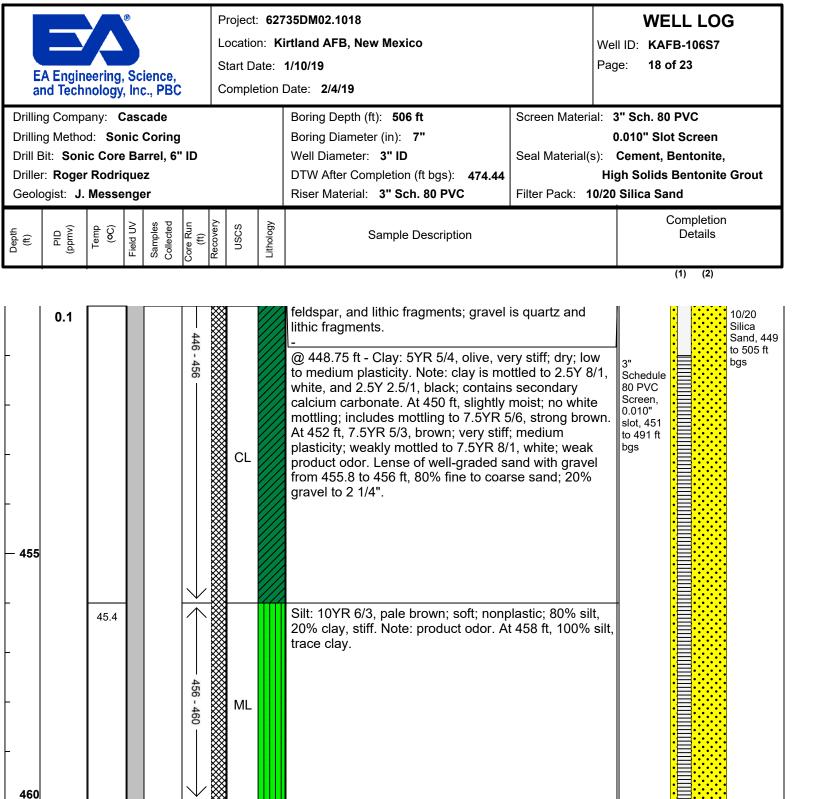
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

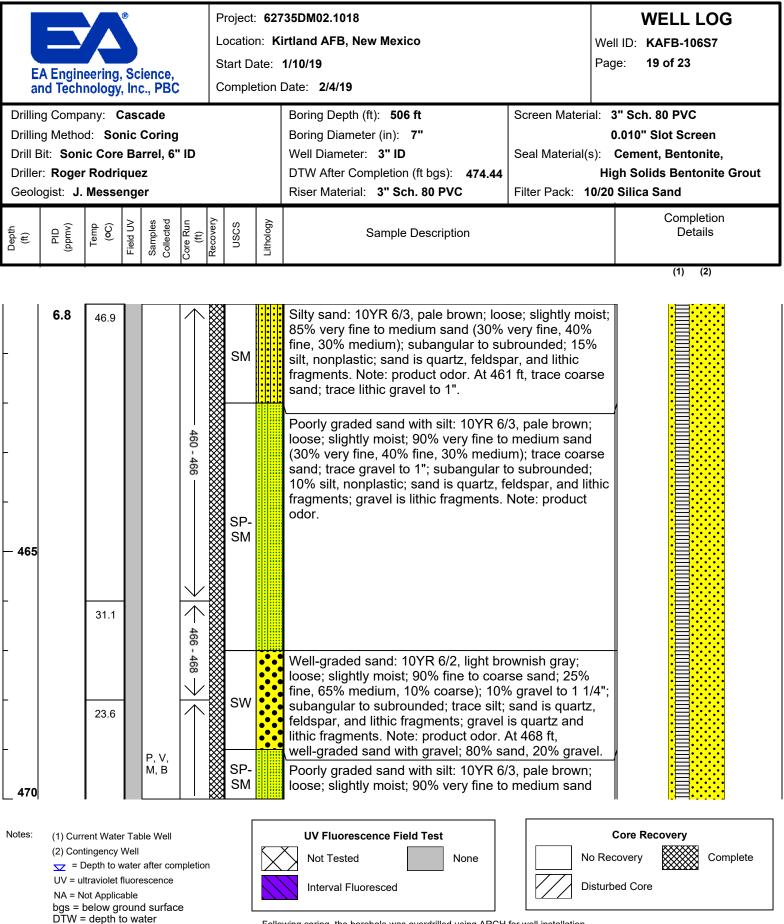
ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery												
	No Recovery		Complete									
	Disturbed Core											

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 

UV = ultraviolet; T = thermal conductivity; FOC = fraction organic carbon

ppmv = parts per million by volume USCS = Unified Soil Classification System

ft = feet

ID = inner diameter



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1018

Location: Kirtland AFB, New Mexico

Start Date: 1/10/19

Completion Date: 2/4/19

**WELL LOG** 

Well ID: KAFB-106S7

Page: 20 of 23

Boring Depth (ft): 506 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

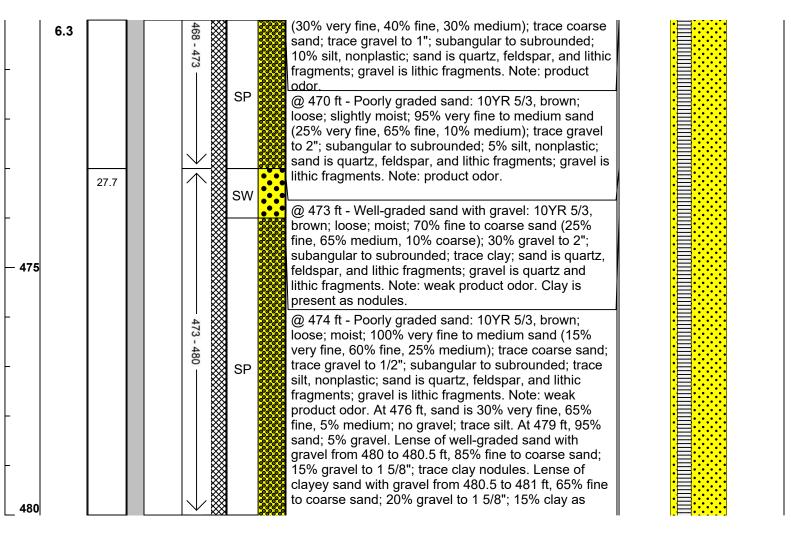
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Run Recover uscs Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery											
No Recovery		Complete									
Disturbed Core											

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1018

Location: Kirtland AFB, New Mexico

Start Date: 1/10/19

Completion Date: 2/4/19

WELL LOG

Well ID: KAFB-106S7

0.010" Slot Screen

**High Solids Bentonite Grout** 

(1) (2)

Page: 21 of 23

Drilling Company: Cascade Boring Depth (ft): 506 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 474.44

Riser Material: 3" Sch. 80 PVC

Filter Pack: 10/20 Silica Sand

Screen Material: 3" Sch. 80 PVC

Seal Material(s): Cement, Bentonite,

Completion Lithology Collected Run Recover uscs Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I  $\Xi$ Core

nodules, low plasticity, 7.5YR 5/3, brown, and 5Y 6/3, 46.3 30.6 pale olive. 48 Poorly graded sand with gravel: 7.5YR 4/2, brown; 39.9 loose; moist; 85% fine to medium sand (40% fine, SP 60% medium); trace coarse sand; 15% gravel to 1 3/4"; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: product odor. 481 Well-graded gravel with sand: 7.5YR 4/2, brown; loose; moist; 65% gravel to 3"; 35% fine to coarse 486 sand (15% fine, 60% medium, 25% coarse); 0 subangular to subrounded; trace silt, nonplastic; gravel is quartz and lithic fragments; sand is quartz, GW 🔪 feldspar, and lithic fragments. Note: product odor. **O**: 485 Ø. P, V, M, B Well-graded sand with gravel: 7.5YR 4/2, brown; 31.1 loose; moist; 65% fine to coarse sand (20% fine, 70% medium, 10% coarse); 35% gravel to 3"; trace cobbles SW to 3 1/2"; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments; gravel and cobbles are lithic fragments. Note: product odor. At 487 ft, well-graded sand, 90% sand; 10% gravel to 1 1/2"; trace silt. Poorly graded sand: 7.5YR 4/2, brown; loose; moist; SP 95% fine to medium sand (40% fine, 60% medium); trace coarse sand; 5% gravel to 1 1/4"; subangular to subrounded; trace silt; sand is quartz, feldspar, and 490

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

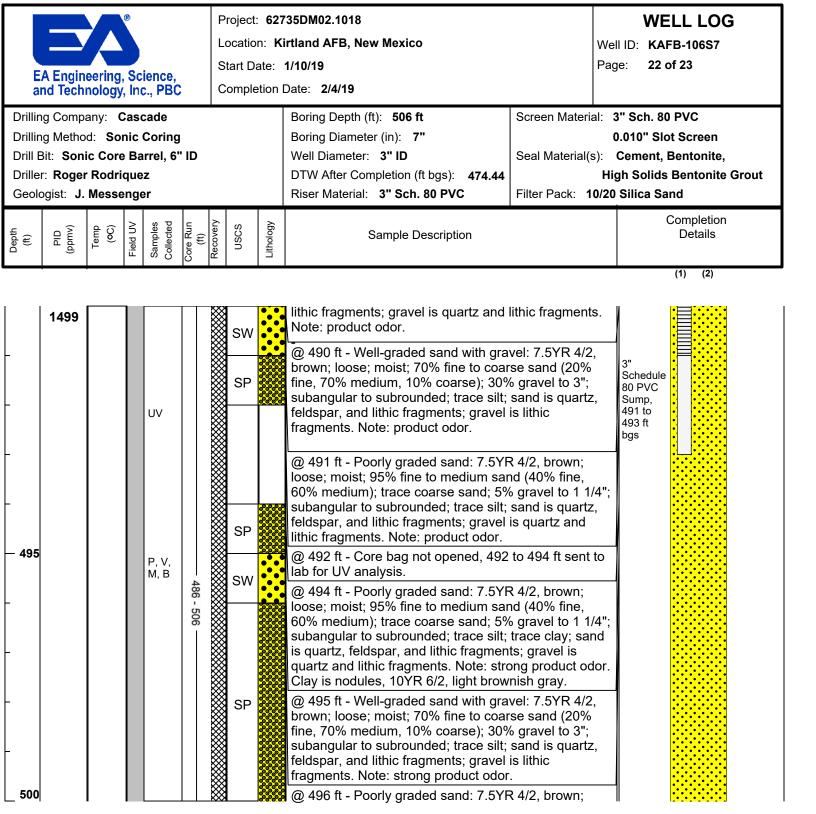
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Company: Cascade

Driller: Roger Rodriquez

Geologist: J. Messenger

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1018

Location: Kirtland AFB, New Mexico

Start Date: 1/10/19

Completion Date: 2/4/19

**WELL LOG** 

(1) (2)

Well ID: KAFB-106S7

Page: 23 of 23

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 506 ft

0.010" Slot Screen Boring Diameter (in): 7"

**High Solids Bentonite Grout** 

Seal Material(s): Cement, Bentonite,

Filter Pack: 10/20 Silica Sand

Completion Collected Run Recover USCS Lithology Samples Depth (ft) PID (ppmv) 0 Details Sample Description Field I Core

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 474.44

Well Diameter: 3" ID

418.3 SP 505 SW 8.6 TD = 506 ft

loose; moist; 95% fine to medium sand (40% fine, 60% medium); trace coarse sand; 5% gravel to 1 1/4"; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: product odor. At 500 ft, 100% sand; trace gravel to 1 1/4"; trace silt. At 502 ft, 95% sand; 5% gravel; trace silt.

Well-graded sand with gravel: 7.5YR 4/2, brown; loose; moist; 85% fine to coarse sand (20% fine, 70% medium, 10% coarse); 15% gravel to 3"; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: weak product odor.

Native Soil/ Slough, 505 to 506 ft bgs

Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

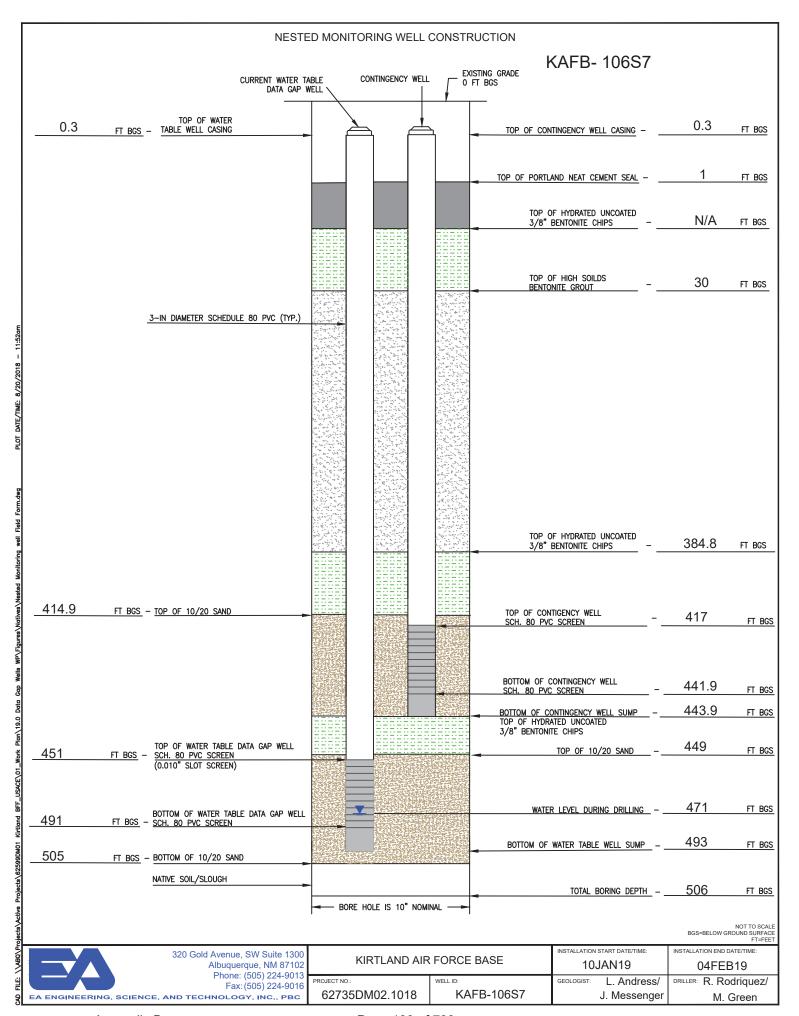
ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None

Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;





Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: 1 of 35

Drilling Company: Cascade Boring Depth (ft): 514 ft 0.010" Slot Screen Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

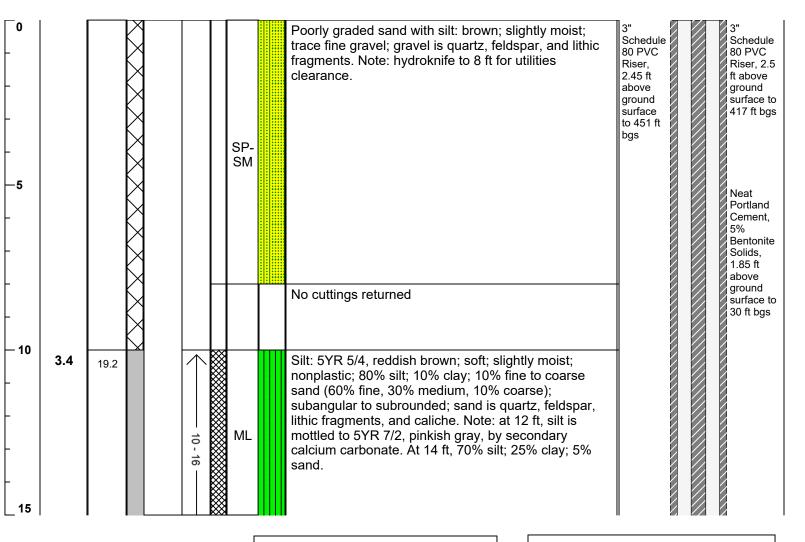
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run	16	nscs	Lithology	Sample Description	Completion Details
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(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

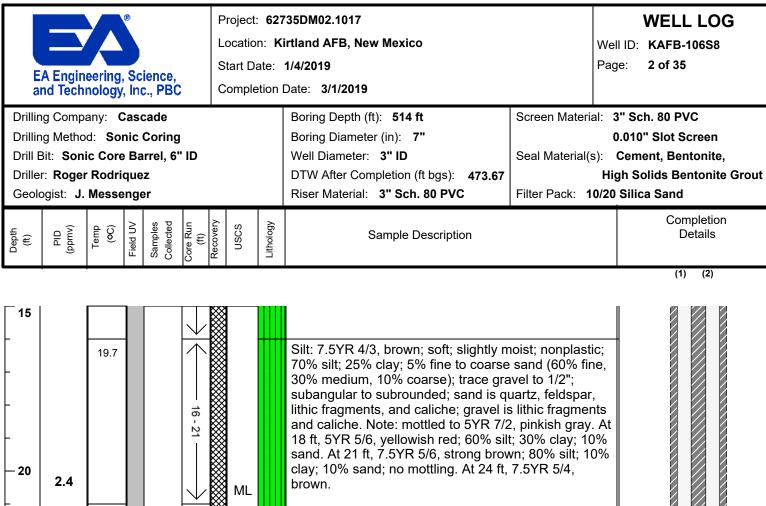
ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None

Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



19.3 2 26 25 Clay: 5YR 5/3, reddish brown; medium stiff; medium 33.0 plasticity. CL Silt: 7.5YR 5/6, strong brown; soft; slightly moist; ML nonplastic; 80% silt; 10% clay; 10% fine to coarse 30

Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

(2)

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

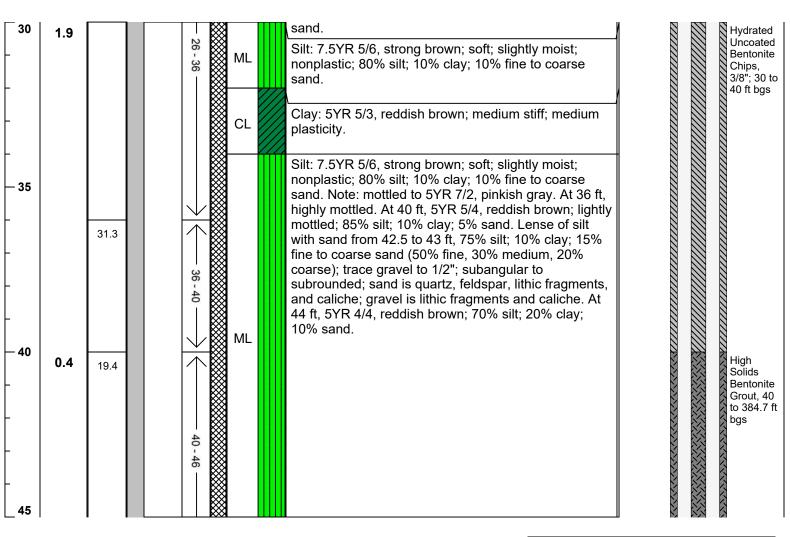
**WELL LOG** 

(1) (2)

Well ID: KAFB-106S8

Page: 3 of 35

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 514 ft Drilling Method: Sonic Coring 0.010" Slot Screen Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.67 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Core Run Samples Collected Recover USCS Lithology Depth (ft) PID (ppmv) (S Details Sample Description Field I



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test

Not Tested None

Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

(1) (2)

Well ID: KAFB-106S8

Page: 4 of 35

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 514 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.67 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Core Run Lithology Collected Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I

45 Silt: 5YR 4/4, reddish brown; soft; slightly moist; nonplastic; 70% silt; 20% clay; 10% fine to coarse sand. Note: at 47 ft, highly mottled to 5YR 8/2, pinkish 26.6 white, with secondary calicum carbonate alteration throughout. Amount of alteration decreases from 49 to 50 ft. At 50 ft, 7.5YR 5/4, brown. 46 50 ML 50 1.6 26.4 50 56 Clay: 7.5YR 5/3, brown; medium stiff; medium plasticity. Note: clay is lightly mottled to 7.5YR 7/2, CL pinkish gray. 43.2 Silt: 5YR 4/4, reddish brown; soft; slightly moist; 55 nonplastic; 70% silt; 20% clay; 10% fine to coarse sand. Note: lightly mottled to 5YR 8/2, pinkish white, with some secondary calicum carbonate alteration. ML 28.6 Silt with sand: 5YR 5/4, reddish brown; soft; slightly moist; nonplastic; 80% silt; 5% clay; 15% fine to medium sand (40% fine, 60% medium); trace coarse sand; subangular to subrounded; sand is quartz, SM feldspar, lithic fragments, and caliche. @ 58 ft - Silty sand: 7.5YR 5/4, brown; loose; slightly 60

Notes: (

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery											
No Recovery		Complete									
Disturbed Core											

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 5 of 35

Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

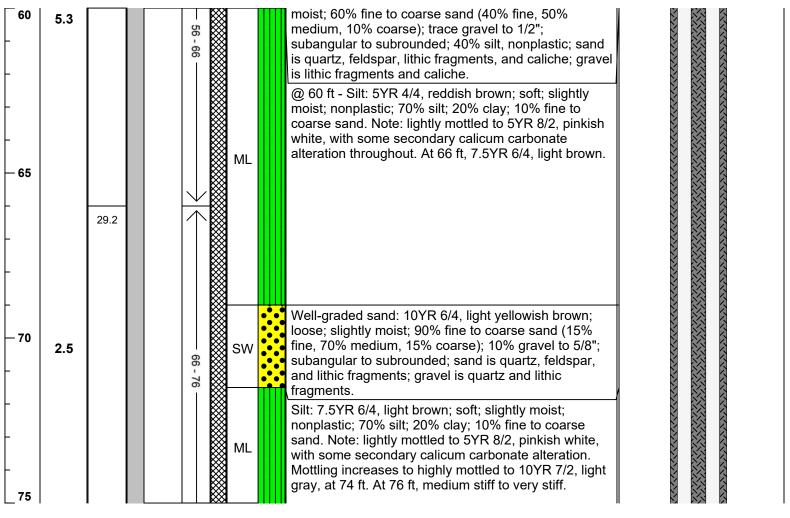
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	(Oc)	Field UV	Samples Collected	Core Run (ft)	Recovery	sosn	Lithology	Sample Description		oletion tails
										(1)	(2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery						
	No Recovery		Complete			
	Disturbed Core					

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Lithology

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: 6 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

(S

Collected Core Run

Recover USCS

Samples

Field I

Driller: Roger Rodriquez Geologist: J. Messenger

PID (ppmv)

Depth (ft)

Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

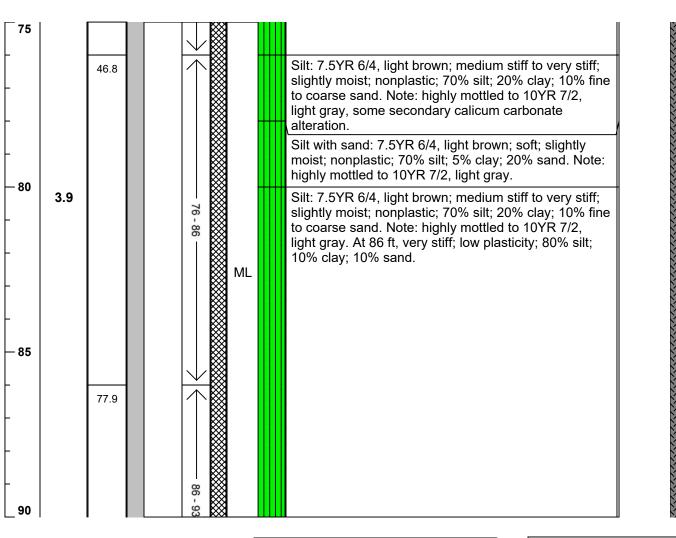
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Sample Description Details

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

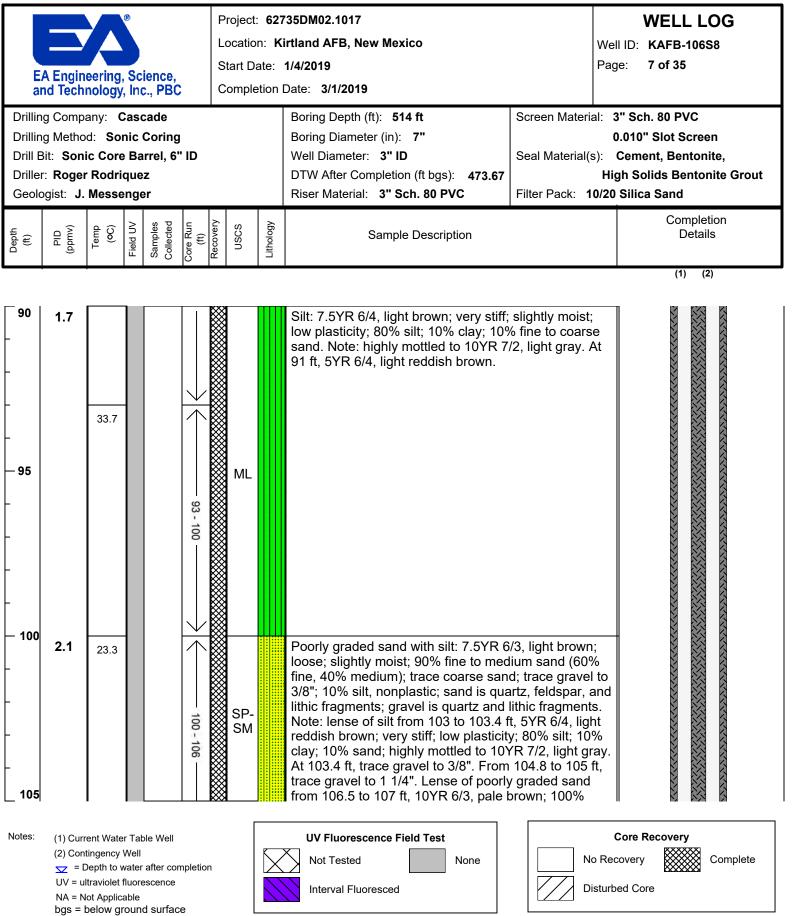
ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None

Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 

UV = ultraviolet; T = thermal conductivity; FOC = fraction organic carbon

ppmv = parts per million by volume USCS = Unified Soil Classification System

DTW = depth to water

ID = inner diameter

ft = feet



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Lithology

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 8 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

(S

Collected Run

Core

Samples

Field I

Recover USCS

Driller: Roger Rodriquez Geologist: J. Messenger

PID (ppmv)

Depth (ft)

Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

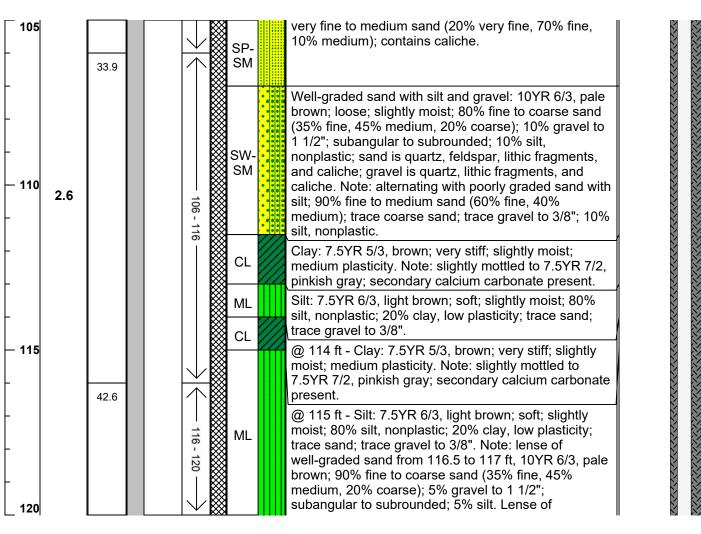
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details Sample Description

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery						
	No Recovery		Complete			
	Disturbed Core					

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 9 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez Geologist: J. Messenger Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

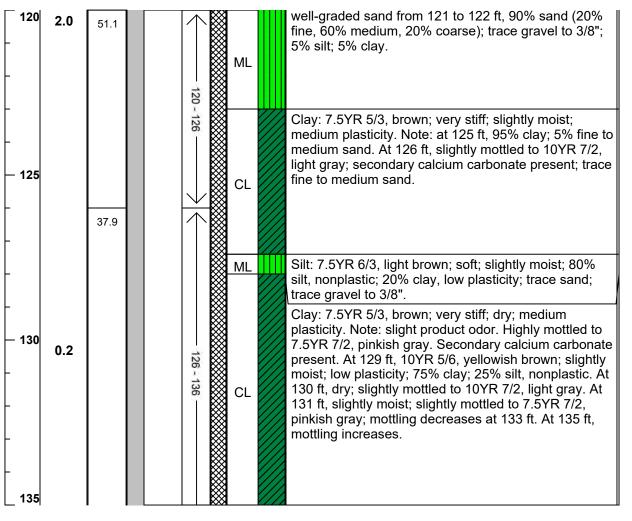
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Collected Run Recover USCS Lithology Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery						
	No Recovery		Complete			
	Disturbed Core					

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 10 of 35

Boring Depth (ft): 514 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

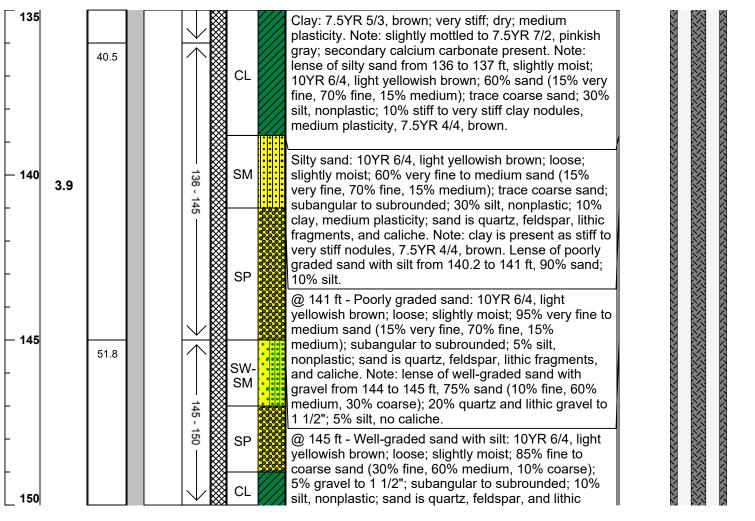
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Completion Details



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

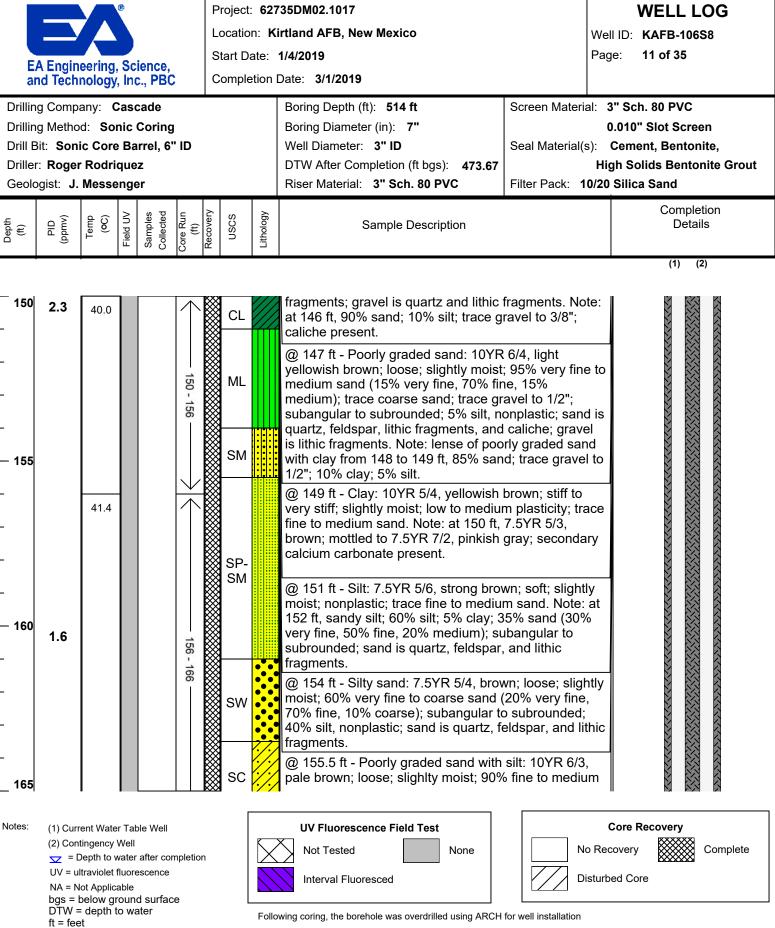
ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery						
	No Recovery		Complete			
	Disturbed Core					

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;

UV = ultraviolet; T = thermal conductivity; FOC = fraction organic carbon

ppmv = parts per million by volume USCS = Unified Soil Classification System

ID = inner diameter



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 12 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez Geologist: J. Messenger Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Core Run Lithology Collected Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I

sand (60% fine, 40% medium); trace coarse sand; 165 subangular to subrounded; 10% silt, nonplastic; sand is quartz, feldspar, and lithic fragments. Note: lens of SW 29.1 sandy silt from 156 to 157 ft, 10YR 5/4, yellowish brown; soft; slightly moist; 75% silt, nonplastic; 5% clay nodules, low plasticity; 20% very fine to medium sand (20% very fine, 70% fine, 10% medium). At 157 ft, trace lithic gravel to 1/2". Lense of well-graded sand SP from 158 to 159 ft, 90% fine to coarse sand; 5% gravel to 1 1/2"; 5% silt, nonplastic; sand and gravel include caliche. At 159 ft, 10YR 5/2, grayish brown. 170 @ 161 ft - Well-graded sand: 10YR 6/4, light yellowish 0.9 166 brown; loose; slightly moist; 90% fine to coarse sand (30% fine, 60% medium, 10% coarse); 5% gravel to 1 SP-1/2"; subangular to subrounded; 5% silt; sand is SM quartz, feldspar, caliche, and lithic fragments; gravel is caliche and lithic fragments. Note: at 162 ft, well-graded sand with gravel; 80% sand; 15% gravel; 5% silt. @ 163.5 ft - Clayey sand with gravel: 7.5YR 5/4, brown; slightly moist; 50% very fine to medium sand (20% very fine, 70% fine, 10% medium); 20% gravel 175 to 1"; subangular to subrounded; 30% clay, low plasticity; sand is quartz, feldspar, lithic fragments, and caliche; gravel is lithic fragments and caliche. 33.2 Note: well-graded sand with clay and gravel from 164.2 to 165 ft, 60% sand (30% fine, 50% medium, SW 20% coarse); 30% gravel to 1 1/2"; 10% clay as coating on gravel, low plasticity. Lense of clay from 165 to 165.5 ft, 7.5YR 5/3, brown; medium stiff; medium plasticity. 180

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: **13 of 35** 

Boring Depth (ft): 514 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

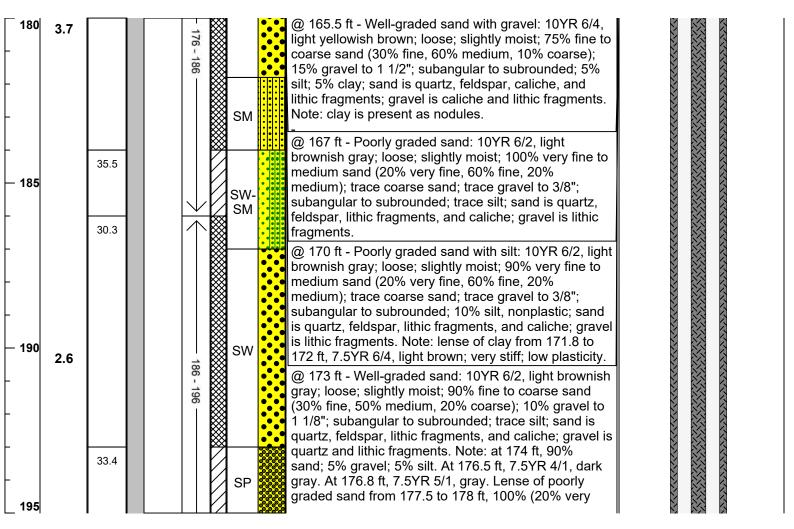
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Run Recover uscs Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

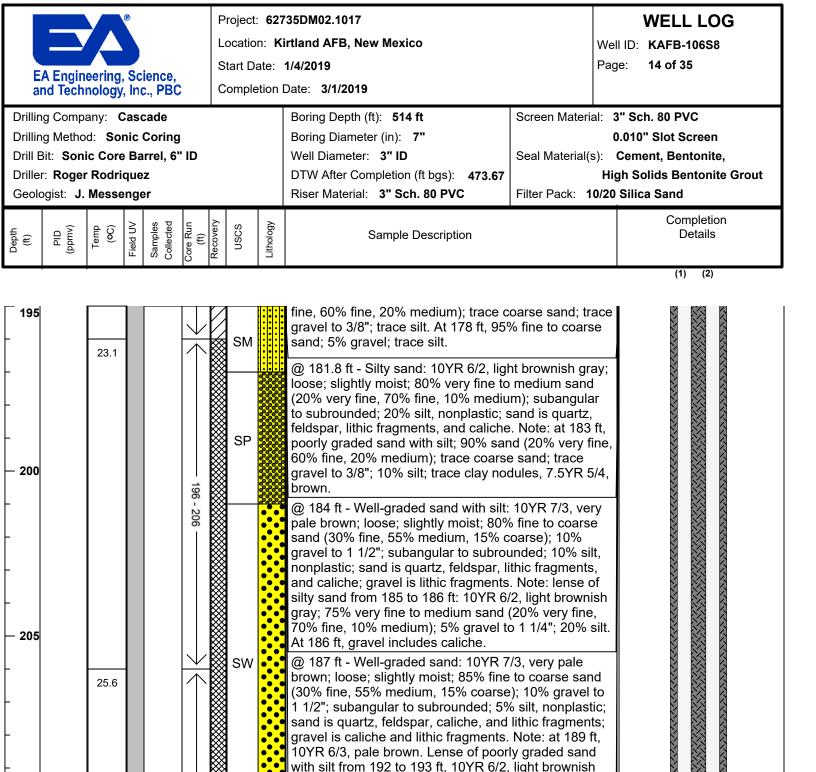
ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery						
	No Recovery		Complete			
	Disturbed Core					

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

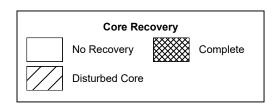
ft = feet

210

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced



Following coring, the borehole was overdrilled using ARCH for well installation

gray; 90% sand (20% very fine, 60% fine, 20%

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: 15 of 35

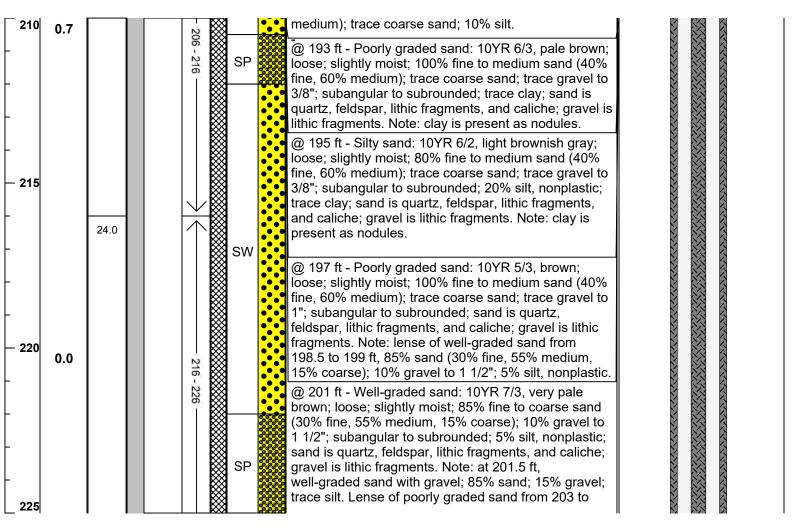
Boring Depth (ft): 514 ft Screen Material: 3" Sch. 80 PVC Boring Diameter (in): 7" 0.010" Slot Screen

Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Geologist: J. Messenger								Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20	Silica Sand
Depth (ft)	OIA (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft) Recovery	SSC	Lithology	Sample Description		Completion Details
	•	•								(1) (2)

DTW After Completion (ft bgs): 473.67



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Company: Cascade

Driller: Roger Rodriquez

Geologist: J. Messenger

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: **16 of 35** 

Boring Depth (ft): 514 ft Screen Material: 3" Sch. 80 PVC
Boring Diameter (in): 7" 0.010" Slot Screen

Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

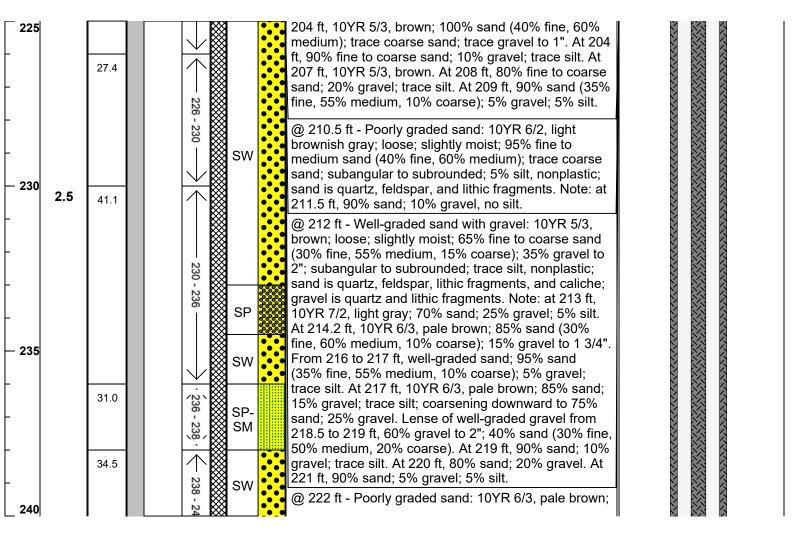
High Solids Bentonite Grout

Filter Pack: 10/20 Silica Sand

										•
Depth (ft)	Old (\nudd)	Temp (oC)	Field UV	Samples Collected	Core Run	. 10	sosn	Lithology	Sample Description	Completion Details
										(1) (2)

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: **17 of 35** 

Boring Depth (ft): 514 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

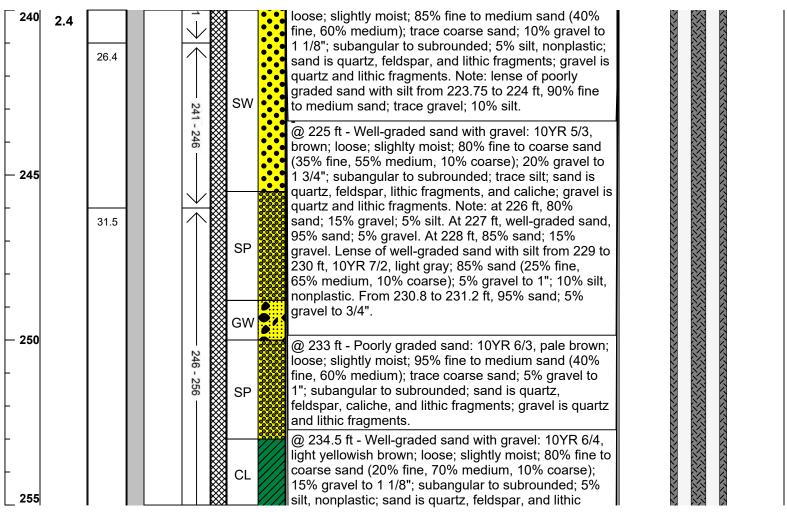
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run	(#	Recovery	SOSO	Lithology	Sample Description	Completion Details
											(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 18 of 35

Drilling Company: Cascade Boring Depth (ft): 514 ft
Drilling Method: Sonic Coring Boring Diameter (in): 7"
Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

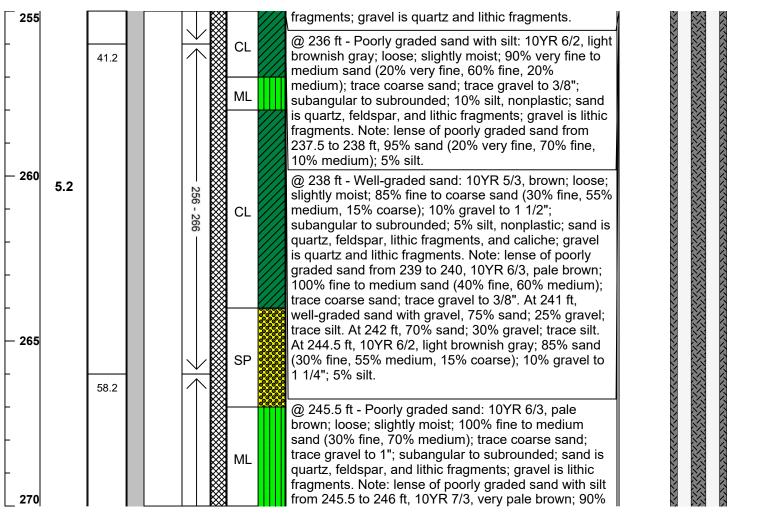
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Run Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

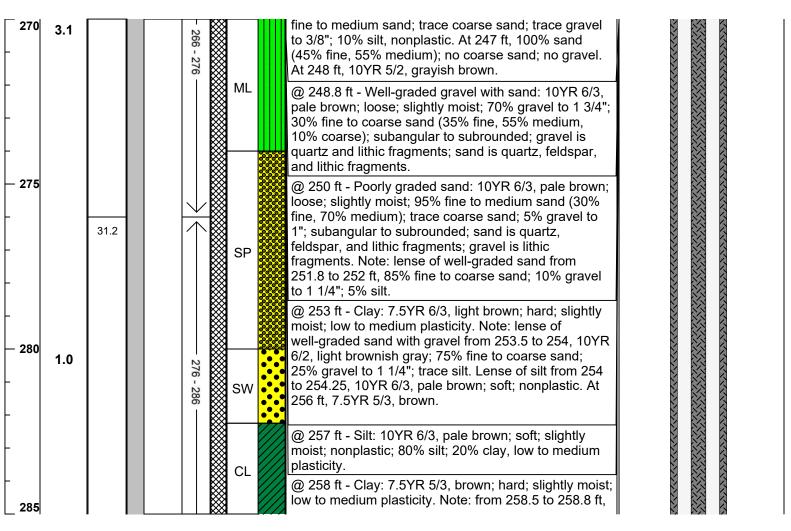
**WELL LOG** 

(1) (2)

Well ID: KAFB-106S8

Page: **19 of 35** 

Drilling Company: Cascade	Boring Depth (ft): 514 ft	Screen Material: 3" Sch. 80 PVC
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s): Cement, Bentonite,
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 473.67	High Solids Bentonite Grout
Geologist: J. Messenger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand
Depth (ft) PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) Recovery USCS	Sample Description	Completion Details



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 20 of 35

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 514 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

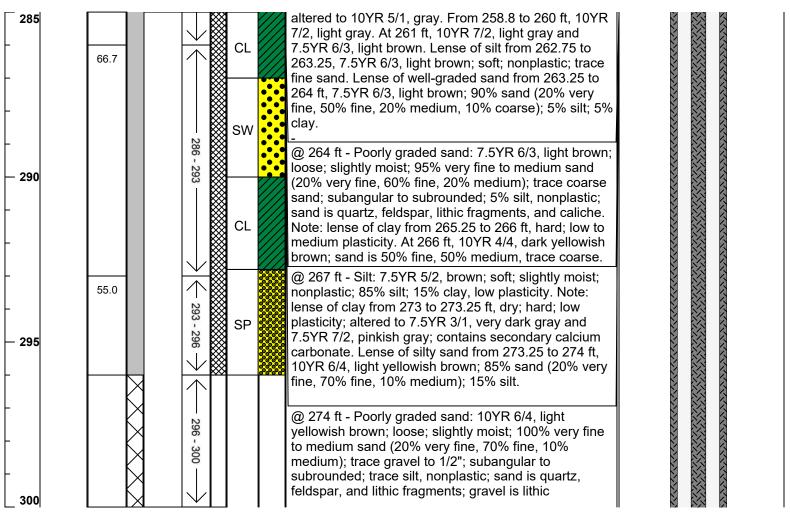
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description	Completion Details
					-	_				(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: 21 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez Geologist: J. Messenger Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

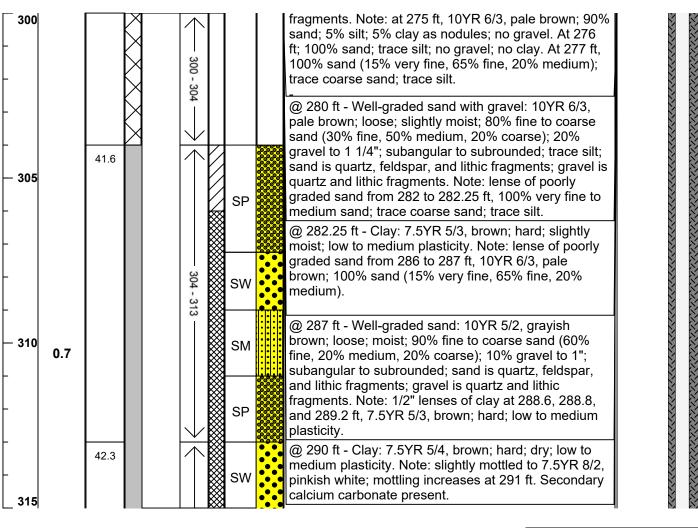
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Run Recover uscs Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

(1) (2)

Well ID: KAFB-106S8

Page: 22 of 35

Drilling Company: Cascade	Boring Depth (ft): 514 ft	Screen Material: 3" Sch. 80 PVC		
Drilling Method: Sonic Coring	Boring Diameter (in): 7"	0.010" Slot Screen		
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s): Cement, Bentonite,		
Driller: Roger Rodriquez	DTW After Completion (ft bgs): 473.67	High Solids Bentonite Grout		
Geologist: J. Messenger	Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand		
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		Completion		

Completion Details

@ 292.8 ft - Poorly graded sand: 10YR 6/3, pale 315 313 brown; loose; moist; 100% very fine to medium sand (15% very fine, 65% fine, 20% medium); trace gravel to 3/4"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Noe: at 293 ft, 95% sand; trace gravel to 3/4"; 5% silt, nonplastic. @ 296 ft - No cuttings returned. 34.7 @ 304 ft - Poorly graded sand: 10YR 6/3, pale brown; 320 loose; wet; 95% very fine to medium sand (15% very 0.4 fine, 65% fine, 20% medium); trace gravel to 3/4"; SW subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: lense of silty sand with gravel from 319 -305 to 306 ft, 10YR 7/1, light gray; loose; dry; 45% sand (20% very fine, 70% fine, 10% medium); trace 326 coarse sand; 40% gravel to 2 1/4"; 15% silt. At 306 ft, 90% sand; 5% gravel to 1/2"; 5% silt. @ 307.25 ft - Well-graded sand with gravel: 10YR 5/4, yellowish brown; loose; slightly moist; 75% fine to 325 coarse sand (30% fine, 50% medium, 20% coarse); 25% gravel to 1 1/4"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is 58.1 quartz and lithic fragments. @ 309 ft - Silty sand: 10YR 6/3, pale brown; loose; slightly moist; 85% very fine to medium sand (20% SP very fine, 70% fine, 10% medium); trace coarse sand; trace gravel to 3/8"; subangular to subrounded; 15% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: at 310 ft, 330 poorly graded sand with silt, 90% sand; trace gravel to

Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: **23 of 35** 

Boring Depth (ft): **514 ft**Boring Diameter (in): **7"**Well Diameter: **3" ID** 

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

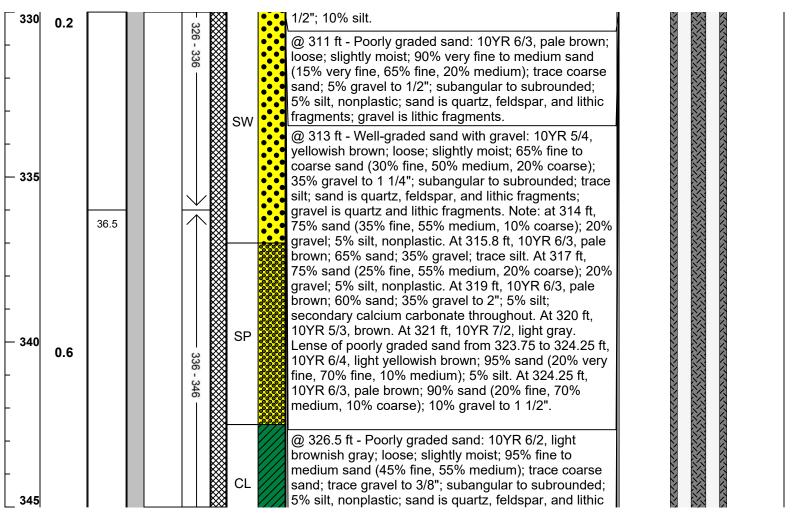
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand





Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Lithology

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: 24 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

(S

Collected Run

Core

Samples

Field I

Recover USCS

Driller: Roger Rodriquez Geologist: J. Messenger

PID (ppmv)

Depth (ft)

Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

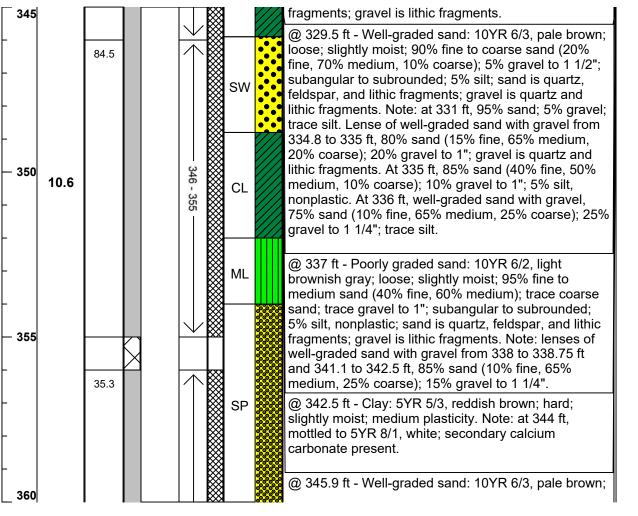
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details Sample Description

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

(1) (2)

Well ID: KAFB-106S8

Page: **25 of 35** 

Drilling Company: Cascade Boring Depth (ft): 514 ft Screen Material: 3" Sch. 80 PVC Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.67 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion

Completion

Completion

Completion

Details

Completion

loose; slightly moist; 95% fine to coarse sand (10% 360 0.4 356 fine, 65% medium, 25% coarse); 5% gravel to 1 1/4"; subangular to subrounded; trace silt; sand is quartz, SP feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 346 ft, 10YR 5/3, brown. At 346.5 ft, 10YR 6/2, light brownish gray. At 347 ft, 90% sand; 5% gravel; 5% clay as nodules, 7.5YR 4/4, GW 0 brown. @ 348.8 ft - Clay: 7.5YR 5/3, brown; very stiff; low to medium plasticity. Note: weak product odor. At 349 ft, 365 highly mottled to 7.5YR 8/1, white; secondary calcium carbonate present. At 350 ft, 7.5YR 5/4, brown; slightly moist; medium stiff to stiff; low plasticity; 60% clay; 40% silt; no mottling. 36.4 SW @ 352 ft - Silt: 7.5YR 6/4, light brown; soft; slightly moist; low plasticity; 80% silt; 20% clay. Note: no product odor. At 353 ft, 90% silt; 10% clay. @ 354 ft - Poorly graded sand: 10YR 6/3, pale brown; loose; slightly moist; 95% fine to medium sand (50% fine, 50% medium); trace coarse sand; trace gravel to 3/4"; subangular to subrounded; 5% silt, nonplastic; 370 SP sand is quartz, feldspar, and lithic fragments; gravel is 0.1 366 - 376 lithic fragments. Note: from 355 to 356 ft, cuttings highly disturbed, accurate description not possible, but generally observed to be sand. Lense of well-graded sand with gravel from 356 to 357 ft, 80% sand (30% fine, 55% medium, 15% coarse); 20% gravel to 1 3/4". At 357 ft, 95% sand (60% fine, 40% medium); no SW gravel; 5% silt. At 358 ft, trace lithic gravel to 1/2". From 358.6 to 358.8 ft, 85% sand; 10% lithic gravel to 1 1/2"; 5% silt. At 359 ft, trace coarse sand. 375

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: 26 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez Geologist: J. Messenger Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Seal Material(s): Cement, Bentonite,

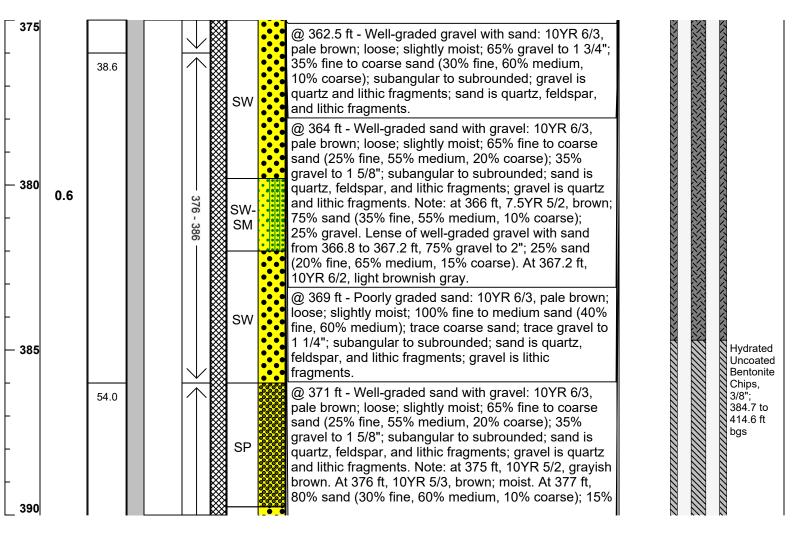
0.010" Slot Screen

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Screen Material: 3" Sch. 80 PVC

Completion Lithology Collected Run Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: 27 of 35

Boring Depth (ft): 514 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

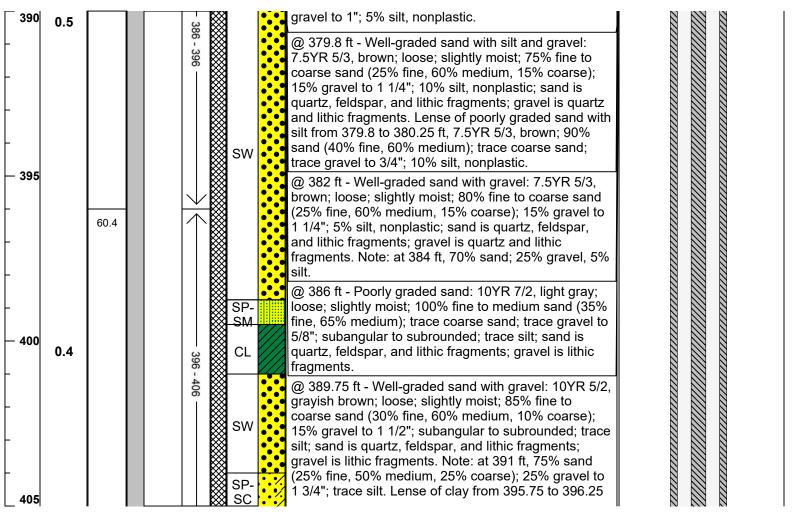
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Recover USCS Samples Core Rur PID (ppmv) 8 Depth (ft) Details Sample Description Field I (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 28 of 35

Boring Depth (ft): 514 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

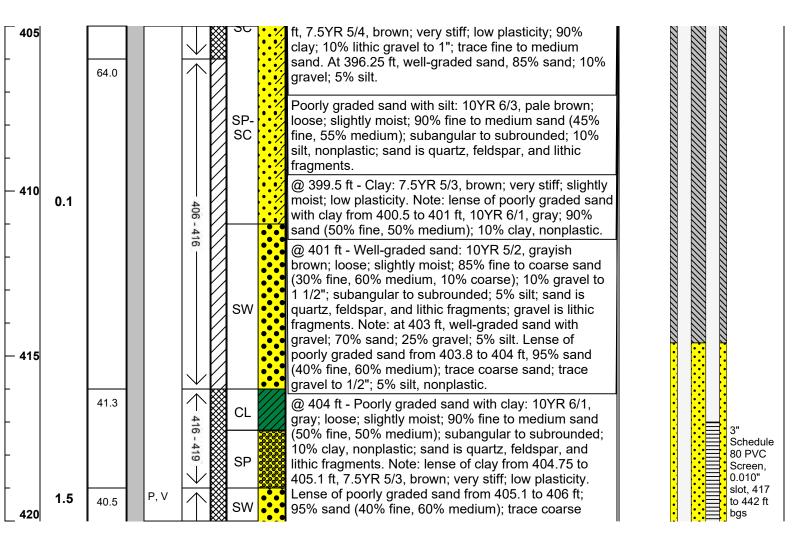
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Run Recover USCS Samples PID (ppmv) 8 Depth (ft) Details Sample Description Field I Core (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

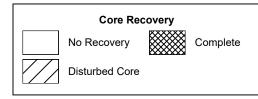
DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced



Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Construction of the control of the$ 



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

WELL LOG

Well ID: KAFB-106S8

Page: **29 of 35** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 514 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

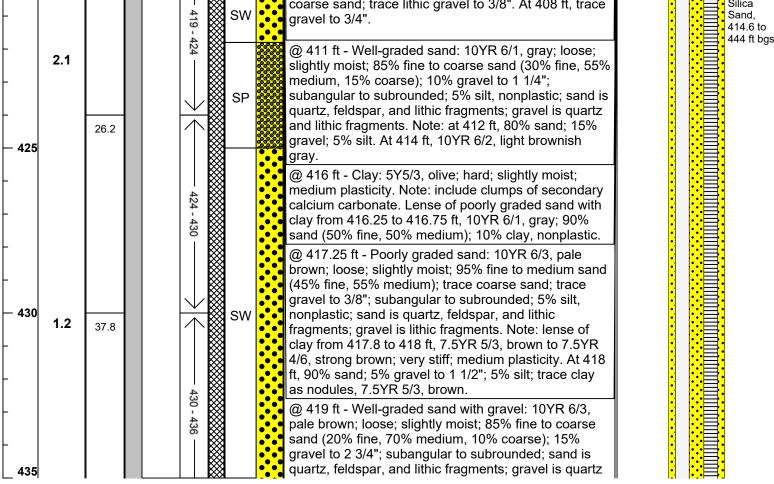
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Temp (oc)	Samples Collected	Core Run (ft)		Lithology	Sample Description	Completion Details
420	1.1		i	419	sw		sand; trace gravel to 1/2"; 5% silt. At 406 ft, trace coarse sand; trace lithic gravel to 3/8". At 408 ft, trace gravel to 3/4".	(1) (2) 10/20 Silica Sand, 414.6 to
-	2.4			- 424			@ 411 ft - Well-graded sand: 10YR 6/1, gray; loose;	444 ft bgs



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

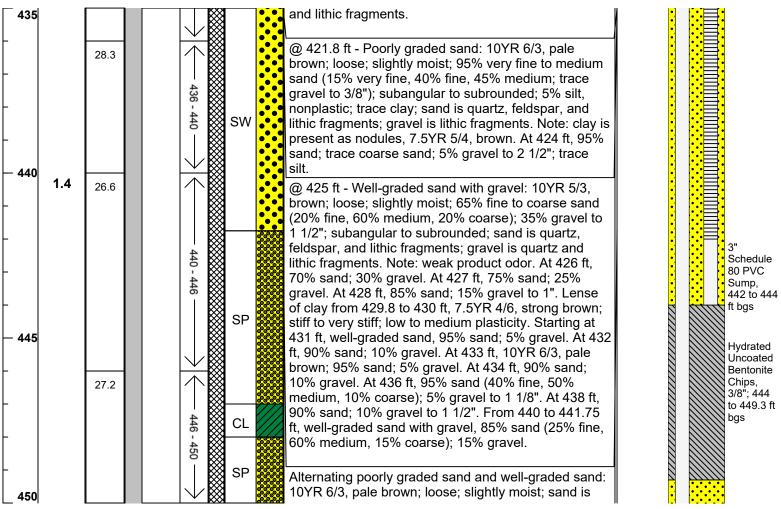
**WELL LOG** 

(2)

Well ID: KAFB-106S8

Page: 30 of 35

Drilling Company: Cascade Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 514 ft Drilling Method: Sonic Coring 0.010" Slot Screen Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.67 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Collected Run Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core



Complete

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 31 of 35

Drilling Company: Cascade Boring Depth (ft): 514 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

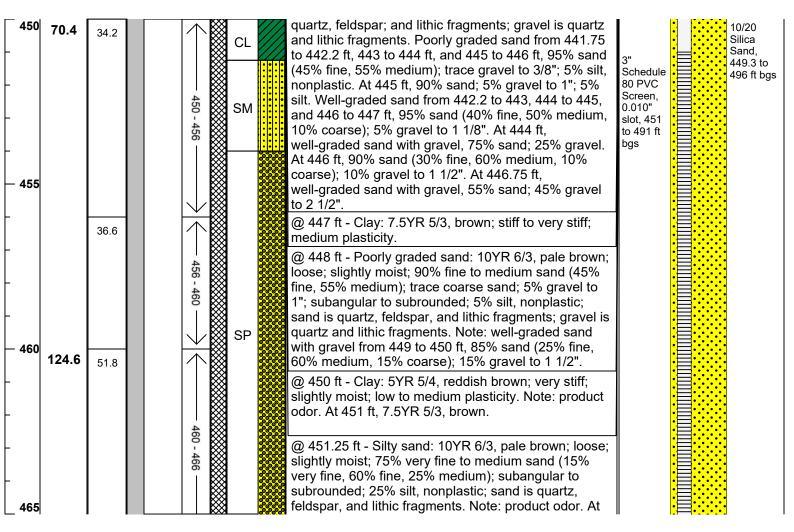
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Run Recover uscs Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

(2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 32 of 35

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez Geologist: J. Messenger Boring Depth (ft): 514 ft Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Collected Run Recover USCS Lithology Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core (1) (2)

452 ft, poorly graded sand with silt; 90% sand; 10% 465 silt. Lense of well-graded sand from 453 to 454 ft, 80% sand (40% fine, 50% medium, 10% coarse); 10% 40.6 466 gravel to 1 1/4"; 5% clay nodules, 7.5YR 5/3, brown; 5% silt. @ 454 ft - Poorly graded sand: 10YR 6/3, pale brown; loose; slightly moist; 95% very fine to medium sand 31.9 (15% very fine, 60% fine, 25% medium); trace gravel to 1"; subangular to subrounded; 5% silt, nonplastic; trace clay; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: product 470 54.1 odor. At 457 ft, trace coarse sand. At 458 ft, 90% 468 sand; 5% gravel to 1 1/2"; 5% silt. At 460 ft, trace coarse sand. At 462 ft, trace clay as nodules, 7.5YR 5/3, brown. SP @ 466 ft - Poorly graded sand: 10YR 6/3, pale brown; loose; slightly moist; 90% very fine to medium sand (15% very fine, 60% fine, 25% medium); trace coarse sand; 5% gravel to 1 1/2"; subangular to subrounded; 21.8 5% silt, nonplastic; sand is quartz, feldspar, and lithic 475 fragments; gravel is lithic fragments. Note: product P, V, odor. At 474 ft, moist. At 476 ft, 95% sand; trace gravel M. B to 3/8"; 5% silt; no clay. At 478 ft, 95% sand; 5% gravel to 2 1/2"; trace silt. 27.3 480

Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: **33 of 35** 

Boring Depth (ft): 514 ft
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

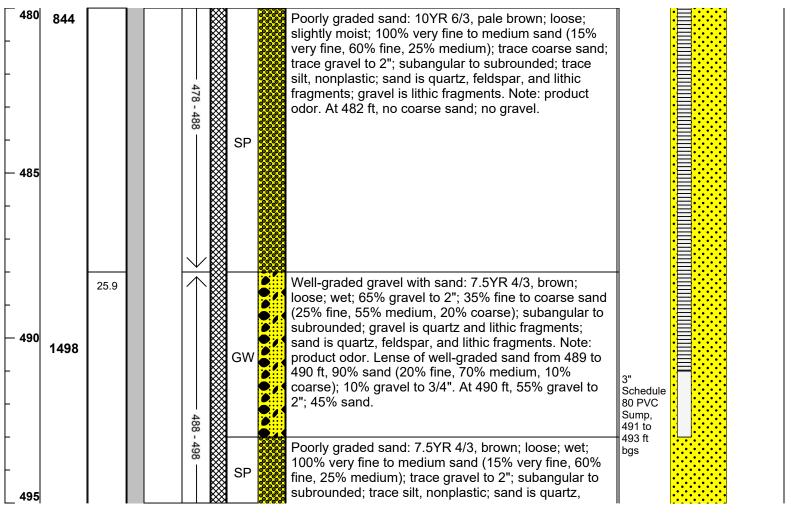
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion
Details

Completion
Details



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery									
	No Recovery		Complete						
	Disturbed Core								

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: J. Messenger

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 1/4/2019

Completion Date: 3/1/2019

**WELL LOG** 

Well ID: KAFB-106S8

Page: 34 of 35

Drilling Company: Cascade Boring Depth (ft): 514 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 473.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

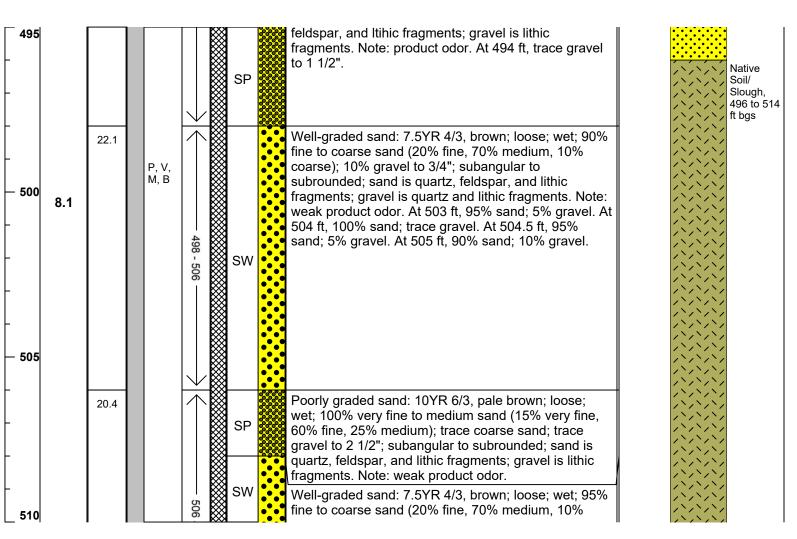
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Collected Run Recover USCS Lithology Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

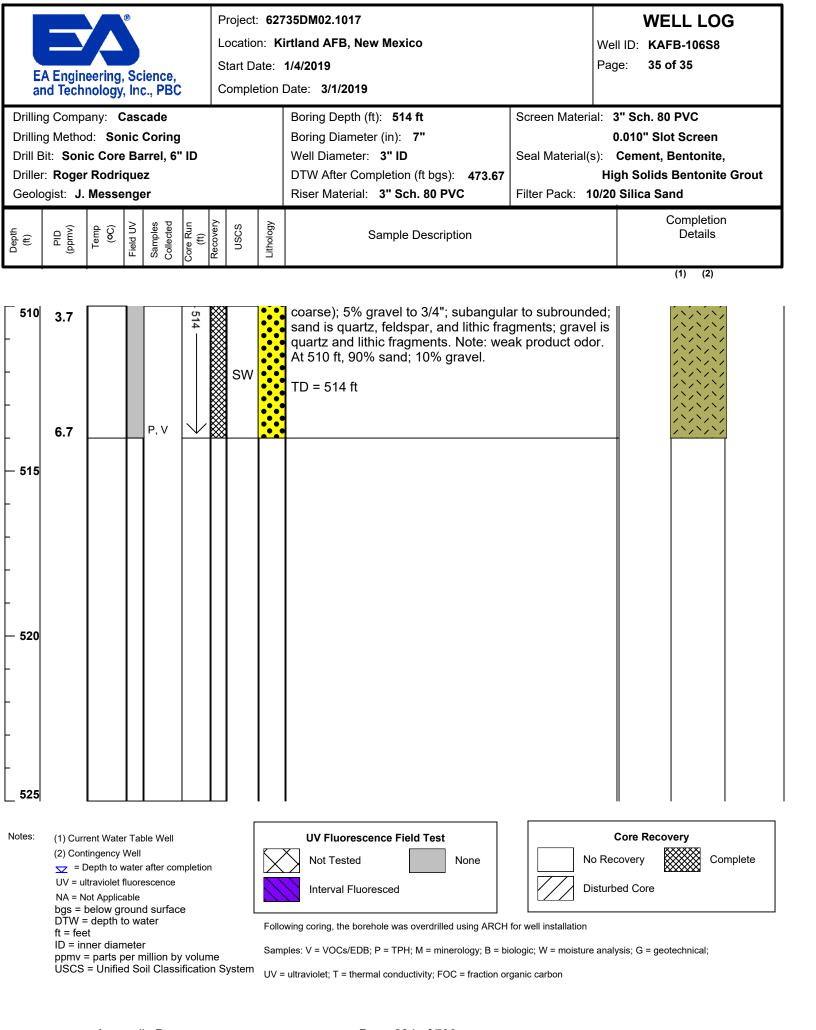
ID = inner diameter

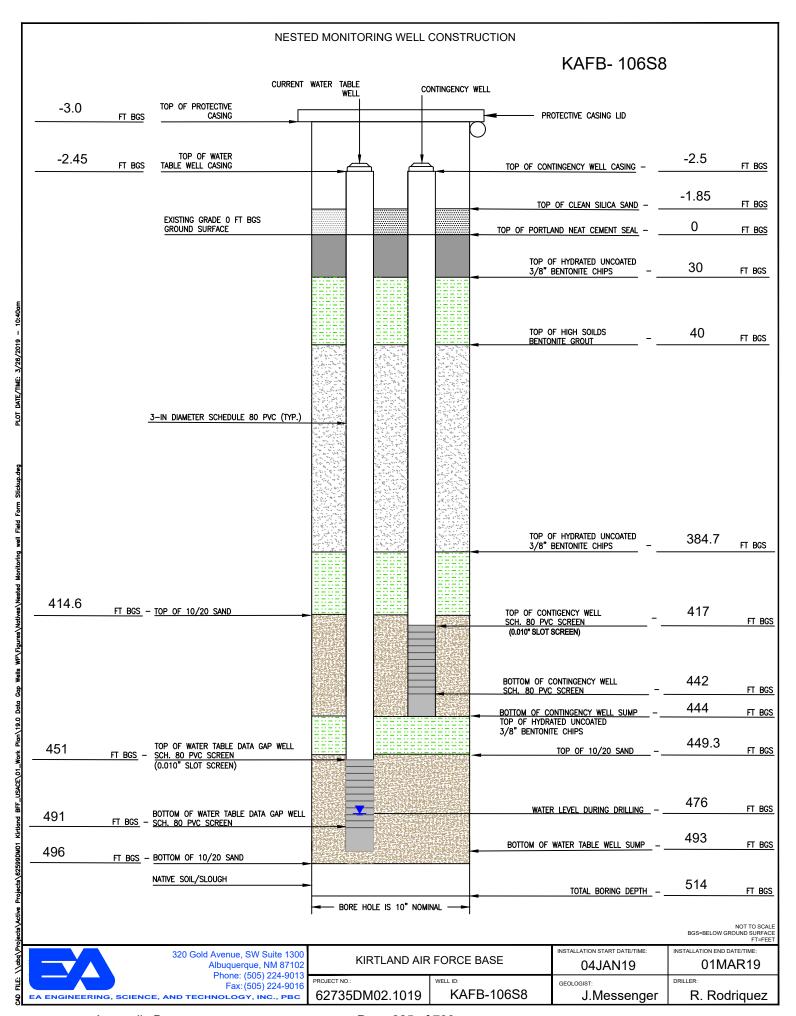
ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

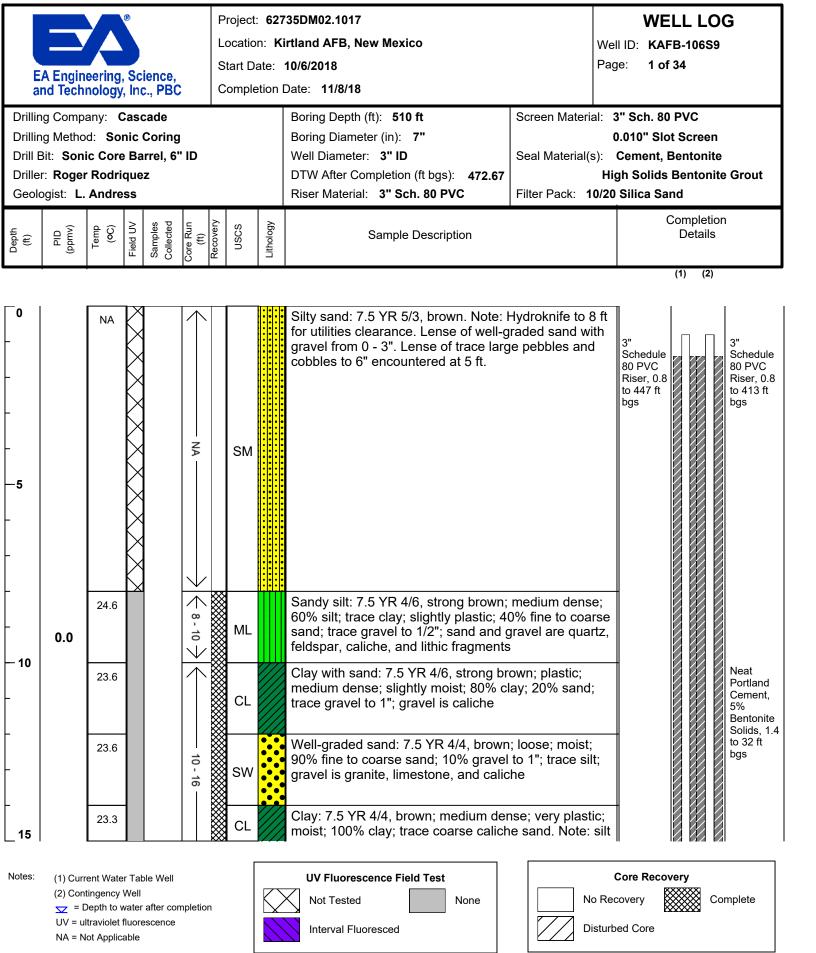
Core Red	covery	
No Recovery		Complete
Disturbed Core		

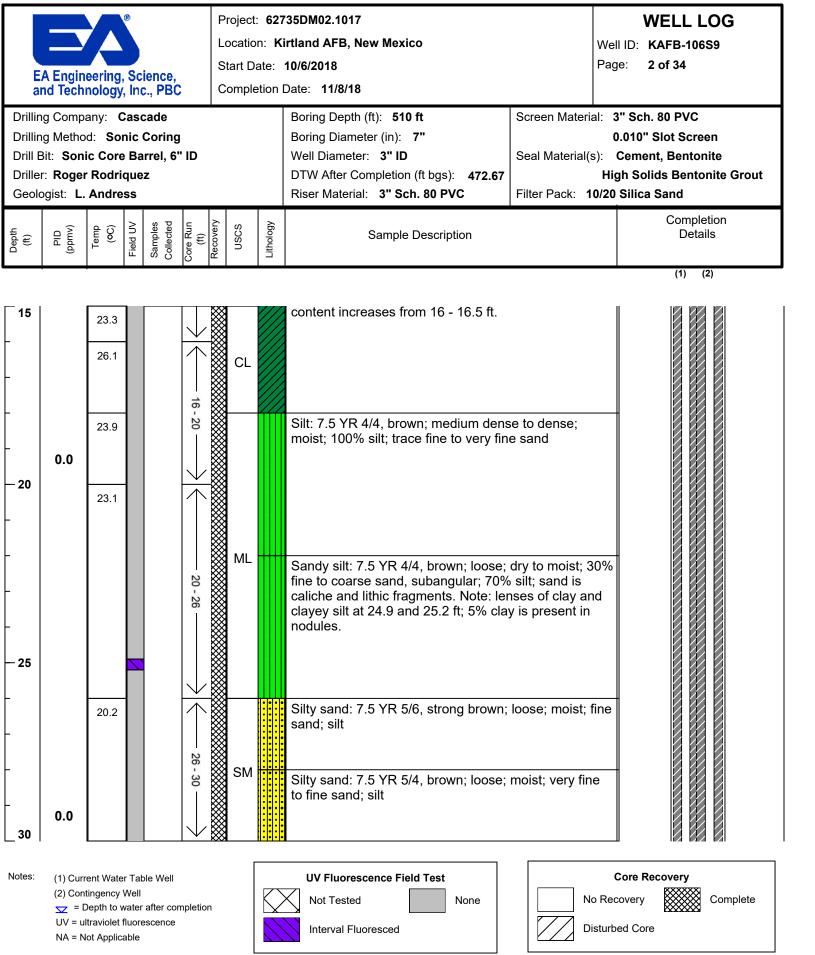
Following coring, the borehole was overdrilled using ARCH for well installation

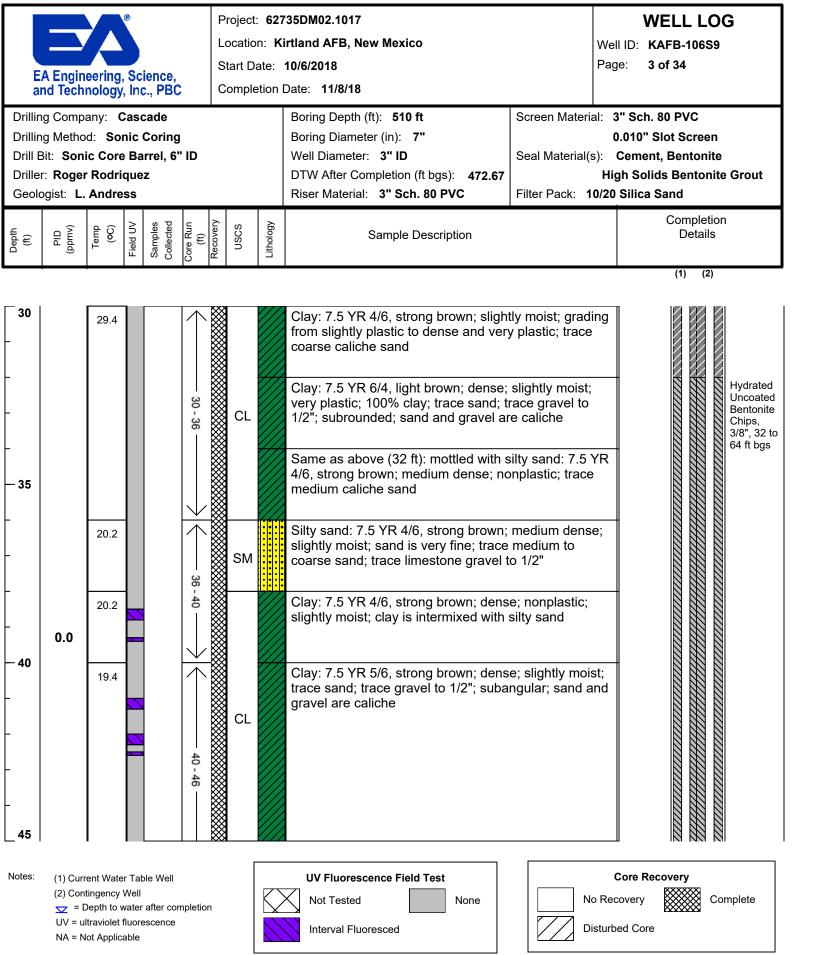
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;

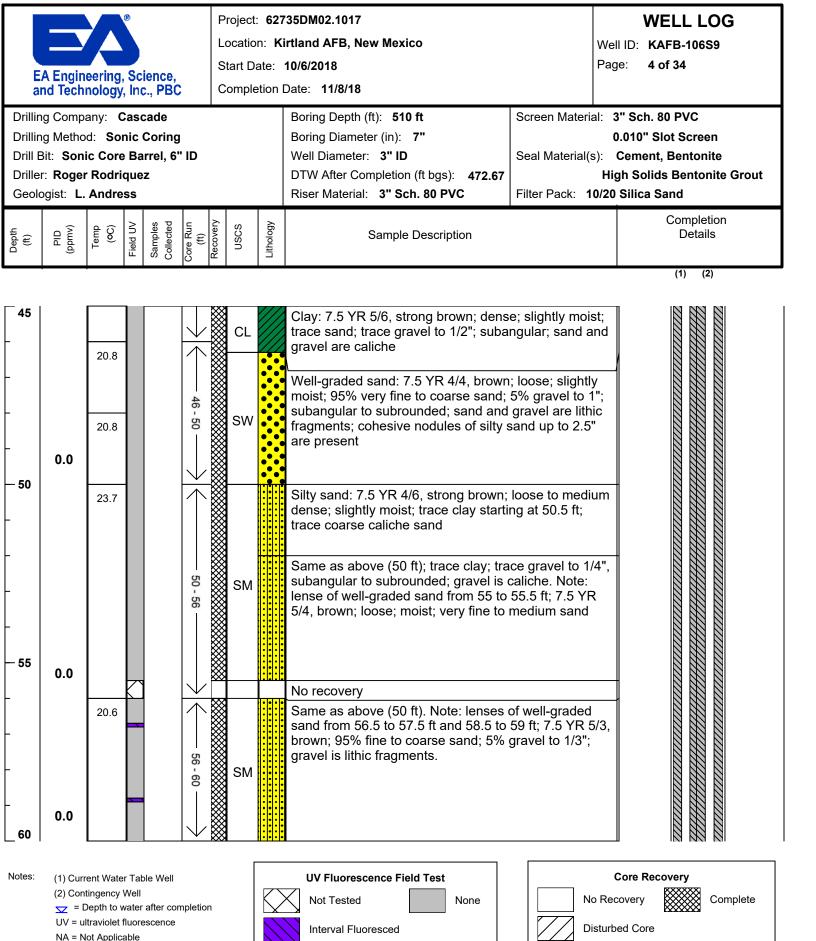


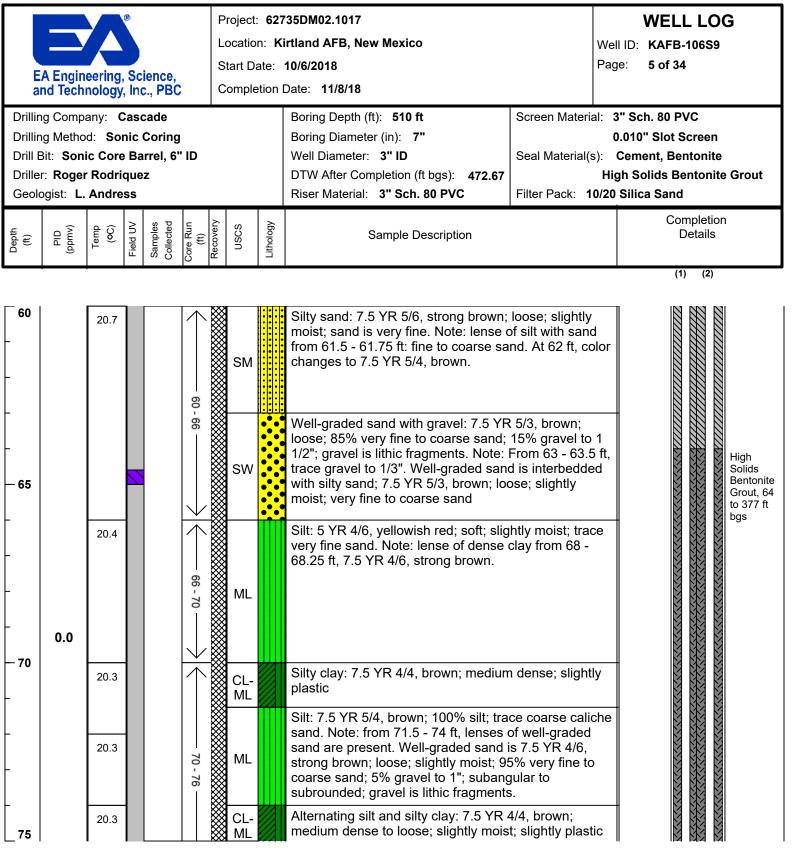












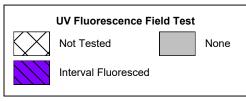
Notes: (1) Current Water Table Well

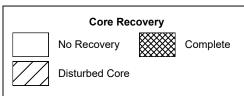
(2) Contingency Well

= Depth to water after completion

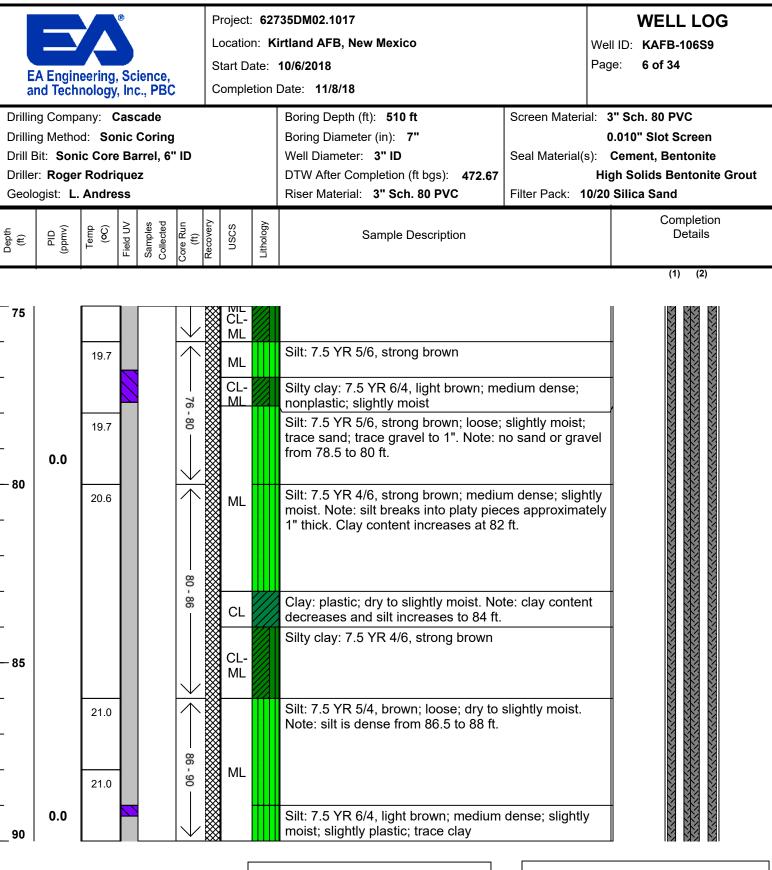
UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  



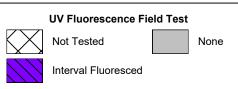
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



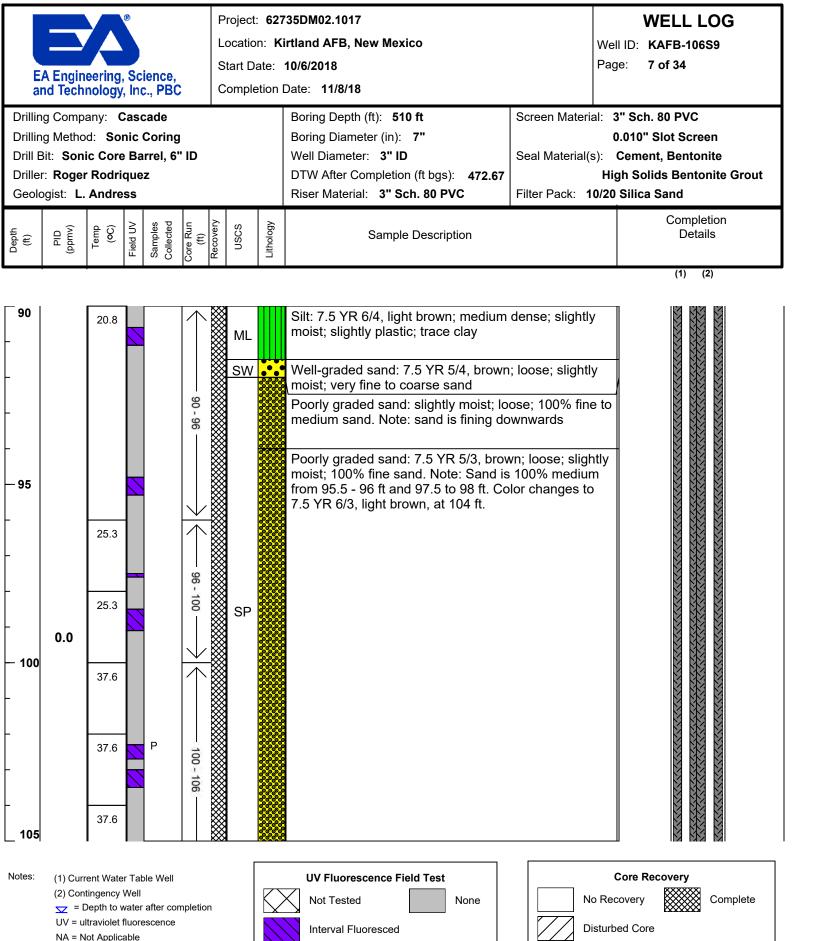
Core Recovery

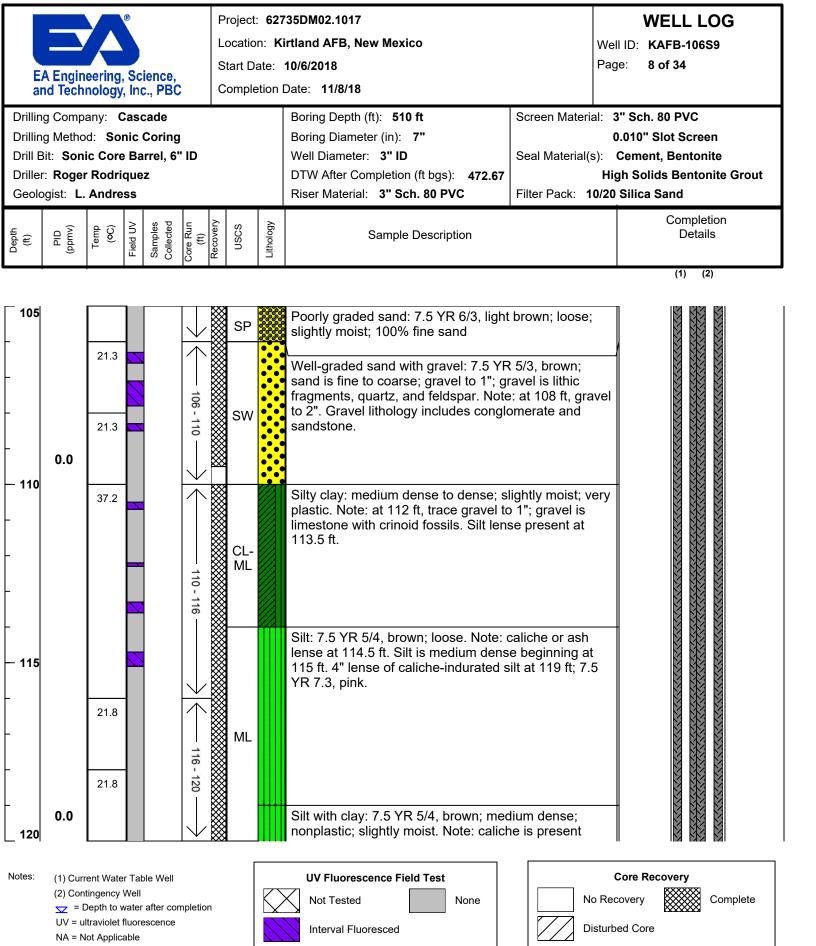
No Recovery

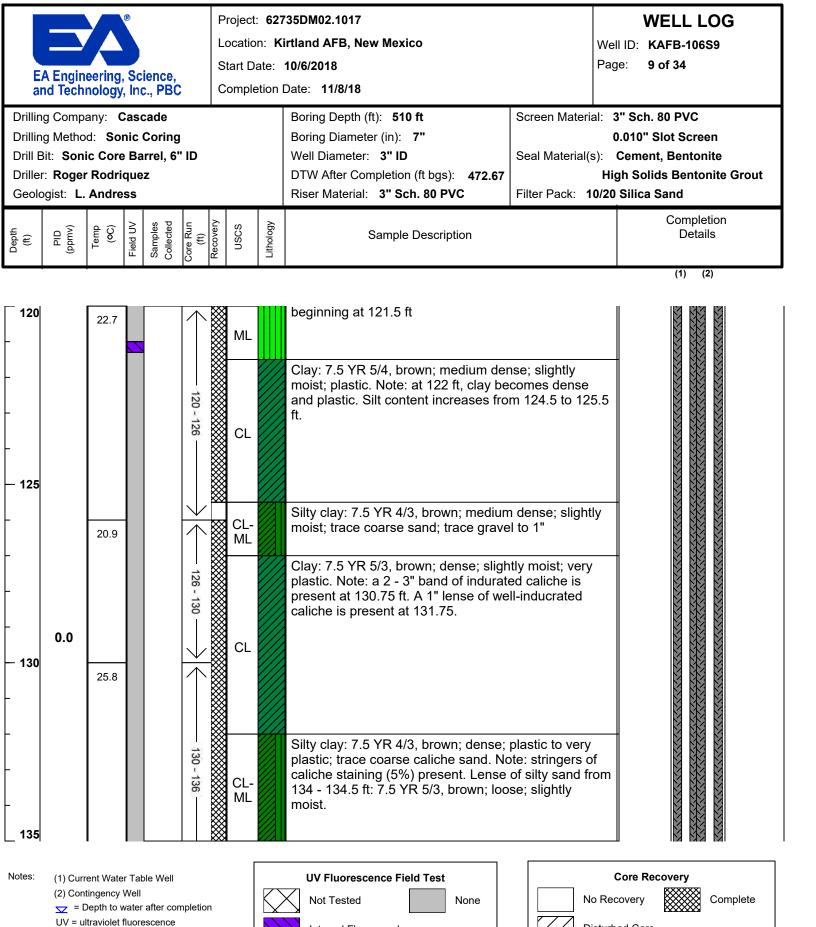
Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  







Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

NA = Not Applicable

Disturbed Core

Interval Fluoresced



Driller: Roger Rodriquez

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

**WELL LOG** 

Well ID: KAFB-106S9

Page: 10 of 34

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 510 ft 0.010" Slot Screen

Seal Material(s): Cement, Bentonite

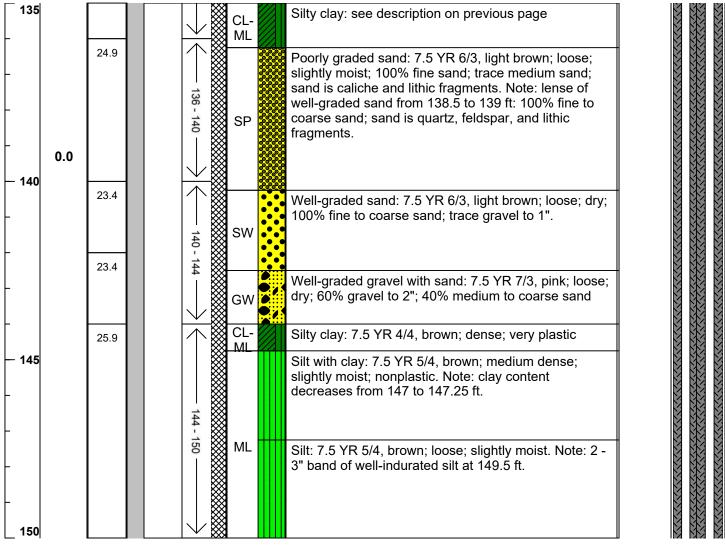
**High Solids Bentonite Grout** 

Geologist: L. Andress					Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20	Silica Sand		
Depth (ft) (PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) Recovery USCS Lithology				re Rur (ft) ecover	itholo	Sample Description		Completion Details	
	•	•							(1) (2)

DTW After Completion (ft bgs): 472.67

Boring Diameter (in): 7"

Well Diameter: 3" ID



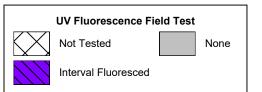
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

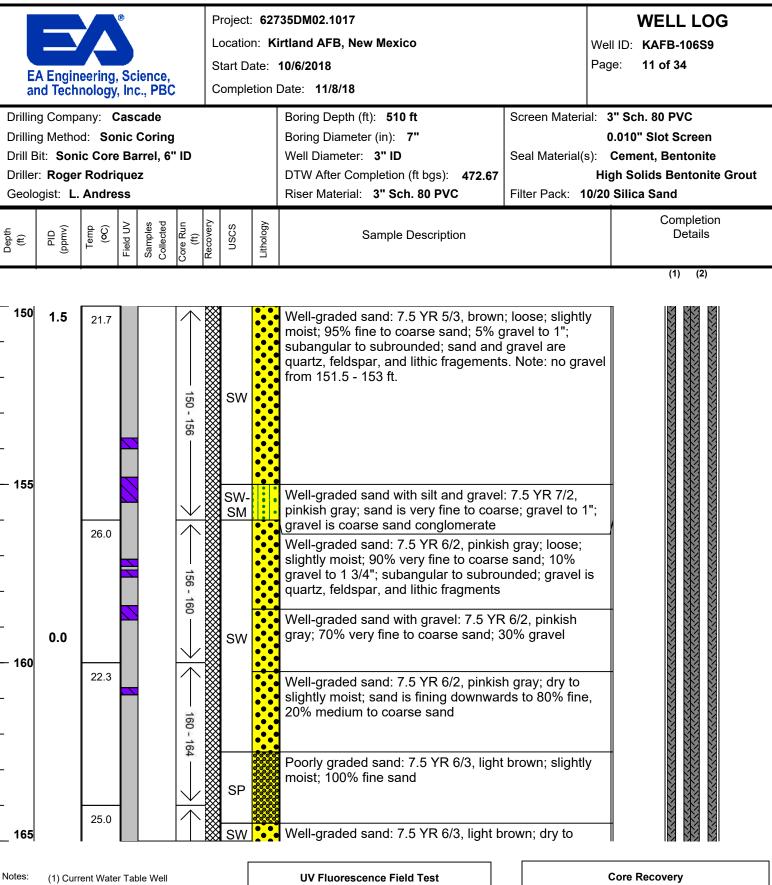
UV = ultraviolet fluorescence

NA = Not Applicable



**Core Recovery** No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

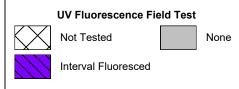


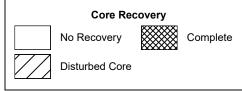
UV = ultraviolet fluorescence

= Depth to water after completion

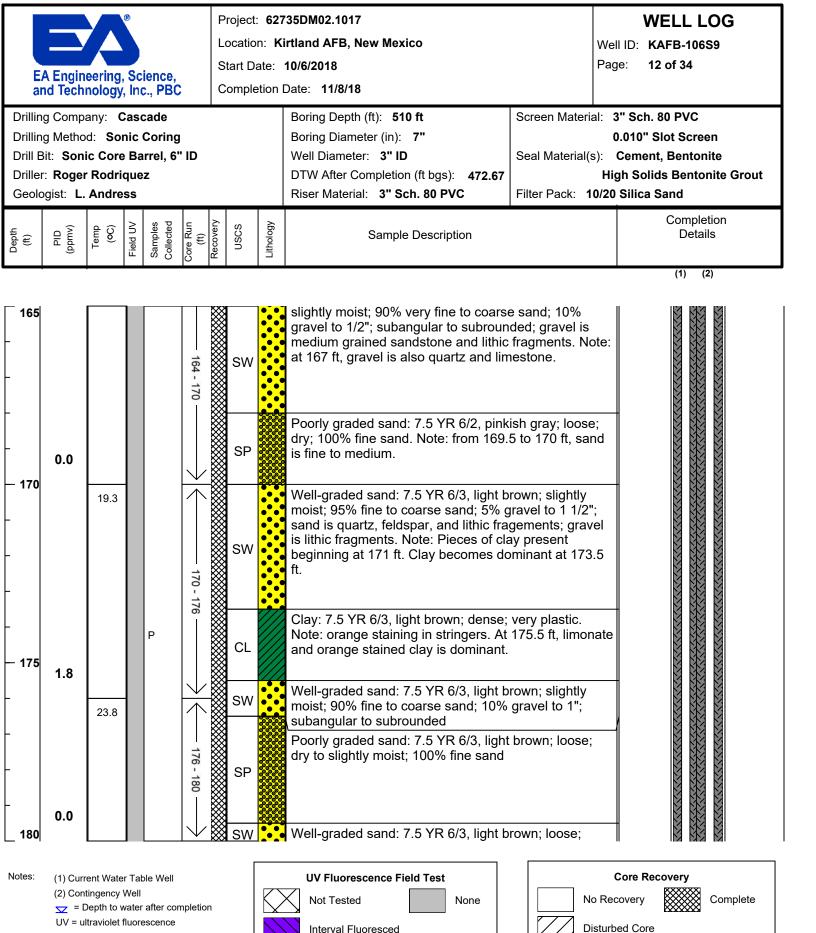
NA = Not Applicable

(2) Contingency Well





Following coring, the borehole was overdrilled using ARCH for well installation



NA = Not Applicable

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

Interval Fluoresced



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

**WELL LOG** 

Well ID: KAFB-106S9

Page: 13 of 34

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Core Run Samples Collected Recover USCS Lithology PID (ppmv) 8 Depth (ft) Details Sample Description Field I (1) (2)

slightly moist; 95% very fine to coarse sand; 5% 180 23.2 gravel to 1"; subangular to subrounded; gravel is lithic fragments. Note: at 180 ft, sand increases to 100%; trace gravel to 1/3" to 182 ft, and trace gravel to 1/2" 180 from 182 to 184 ft. 184 Well-graded sand: 7.5 YR 6/3, light brown; 90 - 95% 78.3 fine to coarse sand; 5 - 10% gravel to 3/4"; subangular 185 to subrounded; sand and gravel are quartz, feldspar, and lithic fragments. Lense of poorly graded sand from approximately 188 - 188.5 ft bgs. Note: poor recovery from 184 - 190 ft. Depths associated with

> Well-graded sand: 7.5 YR 6/3, light brown; moist; 100% fine to coarse sand; trace gravel to 1/2"; gravel and coarse sand are quartz, feldspar, and lithic fragements. Note: lense of silty clay at 192 ft.

> lithologic descriptions from 184 - 190 are not precise.

Well-graded sand: 7.5 YR 6/1, gray; slightly moist; 100% very fine to coarse sand; trace gravel; coarse sand is quartz, feldspar, and lithic fragments. Note: coarsening downwards. At 194 ft, sand is 45% fine, 40% medium, 15% coarse; gravel is lithic fragments. Core Recovery Complete

Notes: (1) Current Water Table Well

190

195

0.0

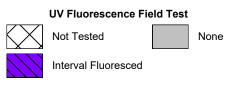
49.3

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



No Recovery Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

184 - 190

190 -

196

SW



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

WELL LOG

Well ID: KAFB-106S9

Page: **14 of 34** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

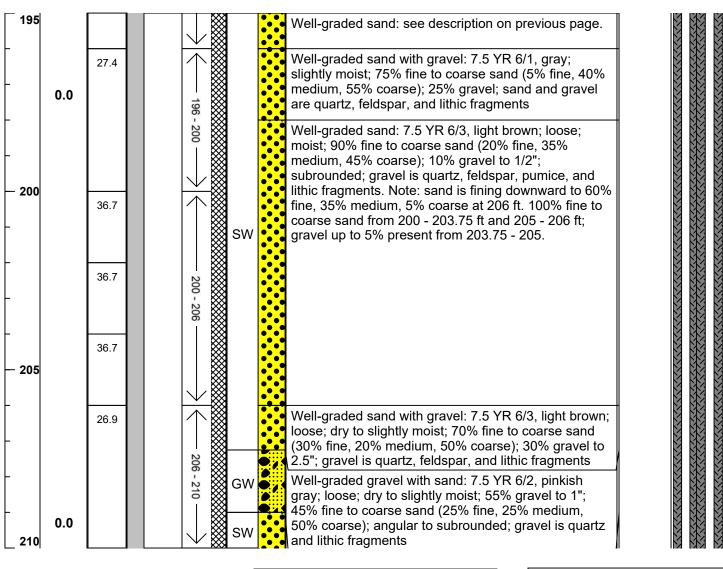
Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Notes:

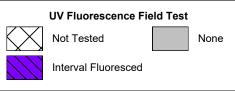
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

WELL LOG

Well ID: KAFB-106S9

Page: 15 of 34

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

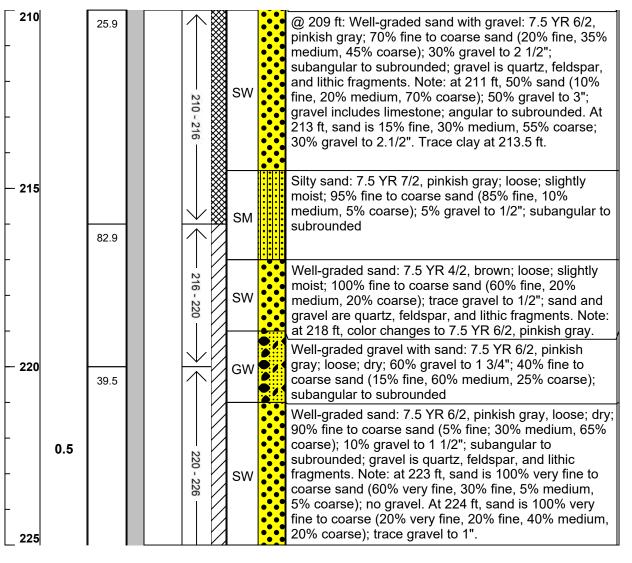
0.010" Slot Screen

Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Core Run Lithology Collected Recover uscs Samples PID (ppmv) 8 Depth (ft) Details Sample Description Field I (1) (2)



Notes:

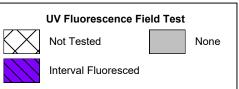
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

WELL LOG

Well ID: KAFB-106S9

Page: 16 of 34

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 472.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

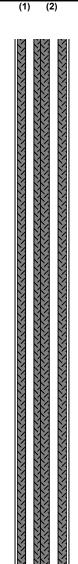
Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Samples Collected Recovery USCS Sore Rur PID (ppmv) 8 Depth (ft) Details Sample Description Field I

225 Well-graded sand: 7.5 YR 6/2, pinkish gray; loose; dry; 100% very fine to coarse sand (30% very fine, 40% fine, 10% medium, 20% coarse); subangular to 34.8 subrounded; sand is quartz, feldspar, and lithic fragments. Note: at 227 ft, sand is 50% very fine, 30% fine, 5% medium, 15% coarse; trace gravel to 4". 226 230 34.8 5.8 Same as above (225 ft): sand is 20% very fine, 20% fine, 50% medium, 10% coarse); subrounded; sand is 230 guartz and pumice. Note: at 228.5 ft, sand lithology 36.4 230 -SW includes feldspar and lithic fragments. Trace gravel to 1" from 230.25 - 232; gravel is pumice to 230.5 and - 232 angular to subangular quartz, feldspar, and lithic fragments to 232. Well-graded sand: 7.5 YR 5/2, brown; loose; dry to 24.2 slightly moist; 100% very fine to coarse sand (10% very fine; 30% fine; 50% medium, 10% coarse); trace 232 gravel to 3/4"; subrounded to rounded. Note: sand is - 236 fining downwards to 235.5 ft. Lense of poorly graded sand from 235.5 to 236 ft; 7.5 YR 6/4, light brown; 100% fine sand. 235 Well-graded sand: 7.5 YR 6/3, light brown; loose; 19.2 slightly moist; 100% very fine to coarse sand (20% very fine, 20% fine, 40% medium, 20% coarse); trace 236 gravel to 1"; subrounded; gravel is quartz, feldspar, and lithic fragments. Note: core is wet at 236.8 ft due SW 240 to ice added to core barrel. At 238 ft, sand is 20% very 19.2 fine, 10% fine, 60% medium, 10% coarse. 0.0 240



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

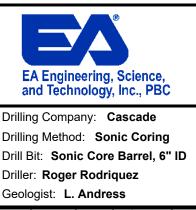
UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

WELL LOG

Well ID: KAFB-106S9

Page: 17 of 34

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

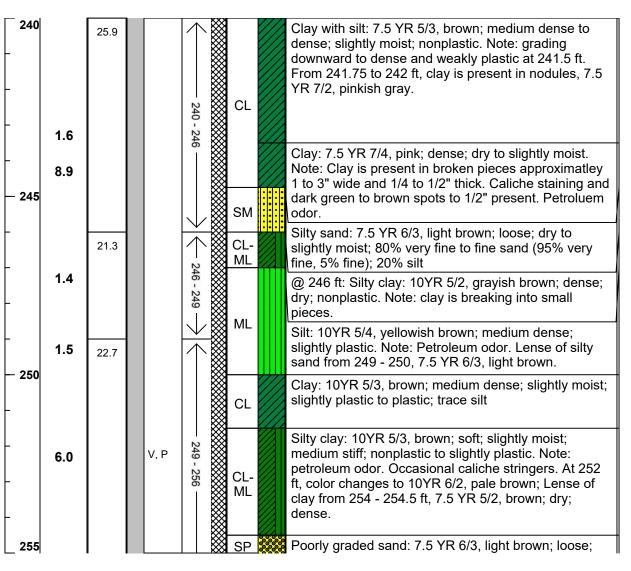
Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Core Run Samples Collected Recover uscs Lithology PID (ppmv) 8 Depth (ft) Details Sample Description Field I

> (1) (2)



Notes:

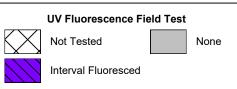
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



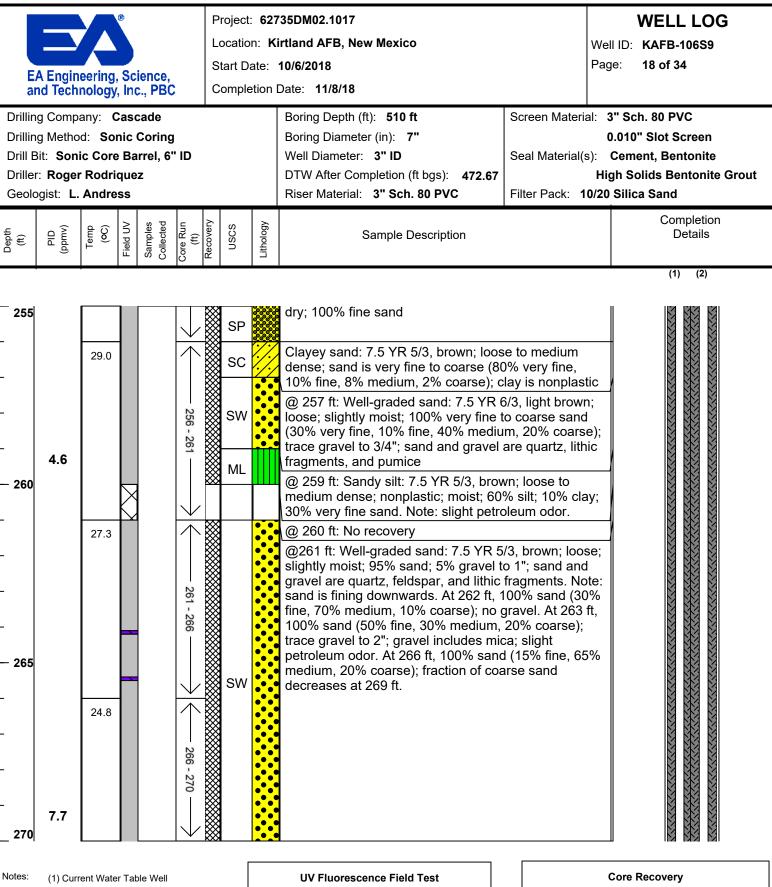
Disturbed Core

No Recovery

Core Recovery

Complete

Following coring, the borehole was overdrilled using ARCH for well installation

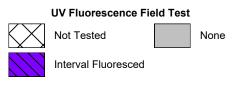


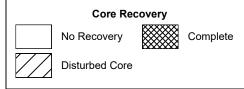
(2) Contingency Well

= Depth to water after completion

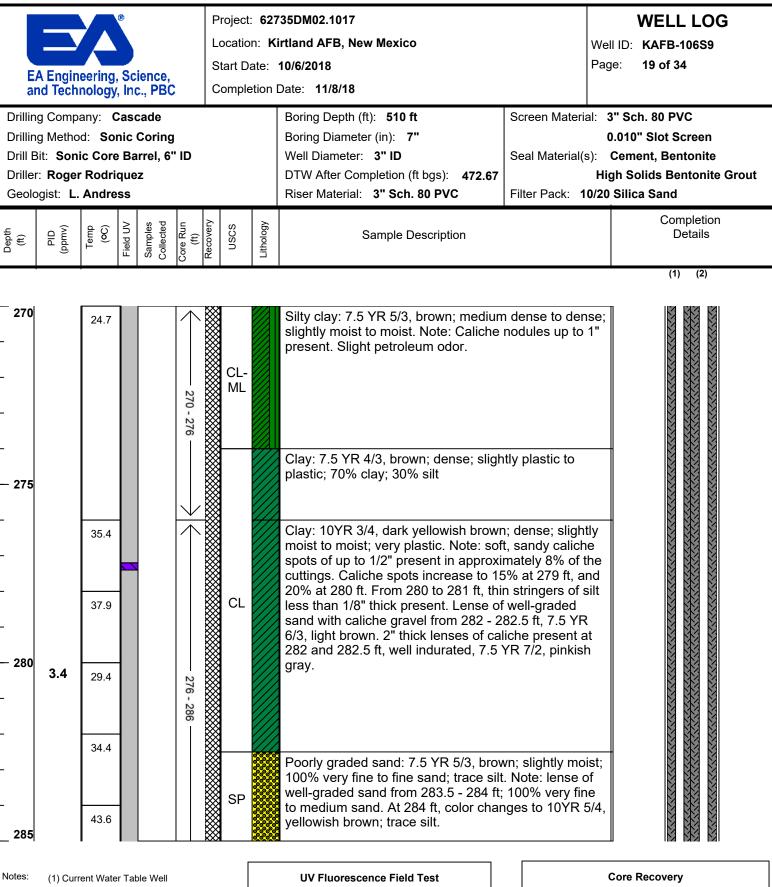
UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation

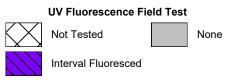


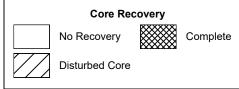
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 10/6/2018

Completion Date: 11/8/18

WELL LOG

Well ID: KAFB-106S9

Page: 20 of 34

Screen Material: 3" Sch. 80 PVC

Seal Material(s): Cement, Bentonite

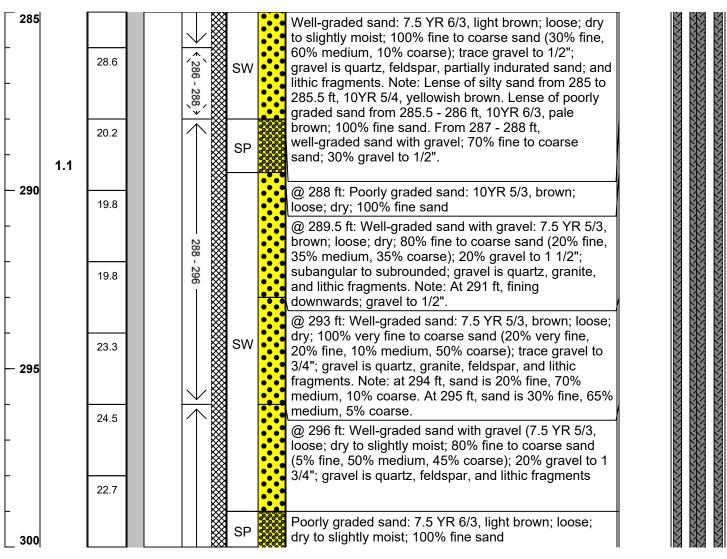
**High Solids Bentonite Grout** 

0.010" Slot Screen

Filter Pack: 10/20 Silica Sand

Geologist: L. Andress									Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand		
Depth (ft)	PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) Recovery USCS					cover	nscs	itholc	Sample Description		Completion Details	
	•										(1) (2)	

DTW After Completion (ft bgs): 472.67



Notes:

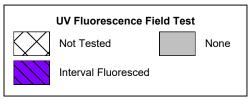
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

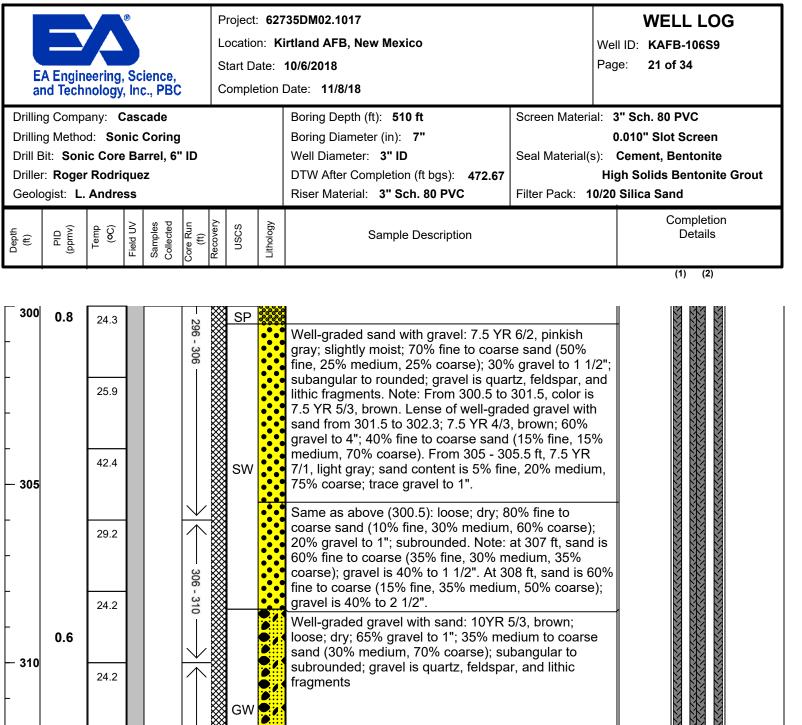
UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery												
	No Recovery		Complete									
	Disturbed Core											

Following coring, the borehole was overdrilled using ARCH for well installation



Notes: (1) Current Water Table Well

315

(2) Contingency Well

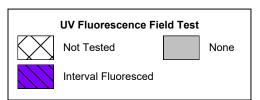
25.9

30.4

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Disturbed Core

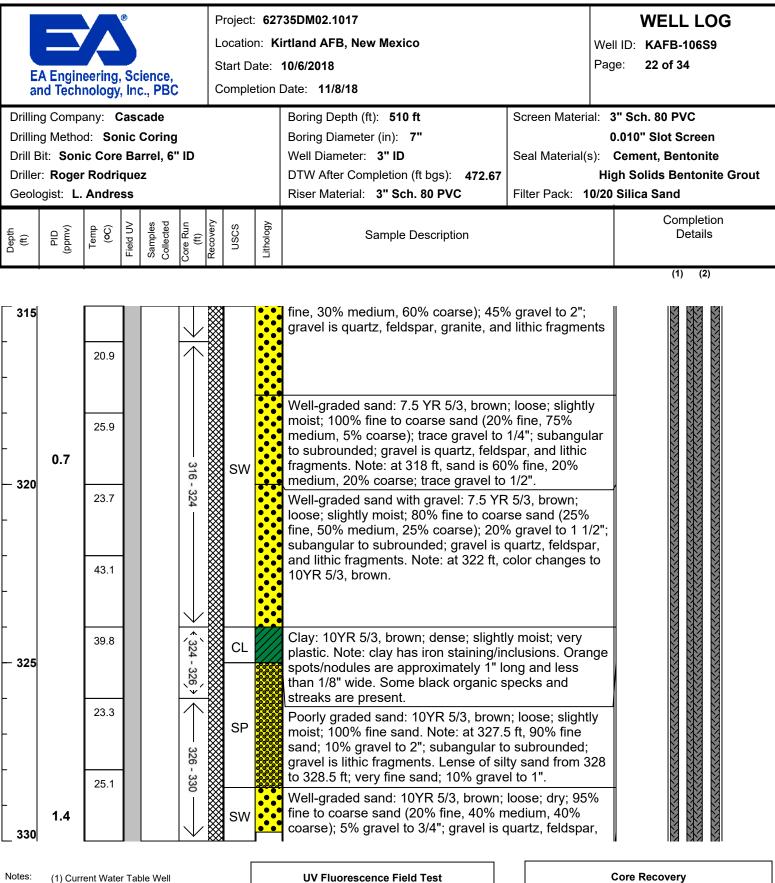
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

310

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

Well-graded sand with gravel: 10YR 5/3, brown;

loose; slightly moist; 55% fine to coarse sand (10%



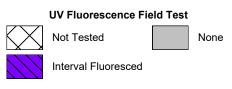
(2) Contingency Mell

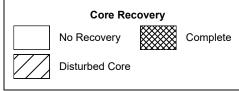
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Driller: Roger Rodriquez

Geologist: L. Andress

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

WELL LOG

Well ID: KAFB-106S9

Page: 23 of 34

Drilling Company: Cascade Boring Depth (ft): 510 ft Boring Diameter (in): 7" Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Core Run Samples Collected Recovery uscs Lithology PID (ppmv) 8 Depth (ft) Details Sample Description Field I

and lithic fragments. Note: lense of poorly graded 330 25.4 sand from 329.75 to 330 ft: 100% fine sand @330 ft: Well-graded sand with gravel: 10YR 5/3, SW brown; loose; slightly moist; 70% fine to coarse sand (30% fine, 30% medium, 40% coarse); 30% gravel to 1 1/2"; subangular to subrounded; gravel is quartz, 27.2 330 feldspar, and lithic fragments 336 CL @332 ft: No recovery @ 333 ft: Clay: 7.5 YR 5/3, brown; dry to slightly 28.4 moist; medium dense to dense; plastic to very plastic; ••• 335 SW trace silt @ 334 ft: Well-graded sand with gravel: 10YR 5/3, brown; loose; dry to slightly moist; 70% fine to coarse 21.6 sand (55% fine, 15% medium, 30% coarse); 30% SP gravel to 1"; subangular to subrounded; sand and gravel are quartz, feldspar, and lithic fragments 336 @ 336 ft: Poorly graded sand: 7.5 YR 5/3, brown; 340 loose; slightly moist; 100% fine to medium sand (70% 27.3 fine, 30% medium); sand is quartz, feldspar, and lithic SW fragments @ 337 ft: Well-graded sand: 7.5 YR 5/3, brown; loose; 340 slightly moist; 95% fine to coarse sand (20% fine, 21.6 70% medium, 10% coarse); 5% gravel to 1/2"; subangular to subrounded; sand and gravel are SM 31.0 quartz, feldspar, and lithic fragments. Note: trace silt CLat 339.5 ft. Lense of poorly graded sand from 340 -ML 340.5 ft. V, P 24.3 340 SW @ 340.5 ft: Silty sand with gravel: 7.5 YR 4/3, brown; 40% sand; 30% gravel to 2"; subangular to CL subrounded; 30% silt and clay, slightly plastic; gravel is quartz and lithic fragments 31.7 SP @ 341.5 ft: Silty clay: 7.5 YR 4/6, strong brown; 345

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1017

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 10/6/2018

Completion Date: 11/8/18

WELL LOG

Well ID: KAFB-106S9

Page: 24 of 34

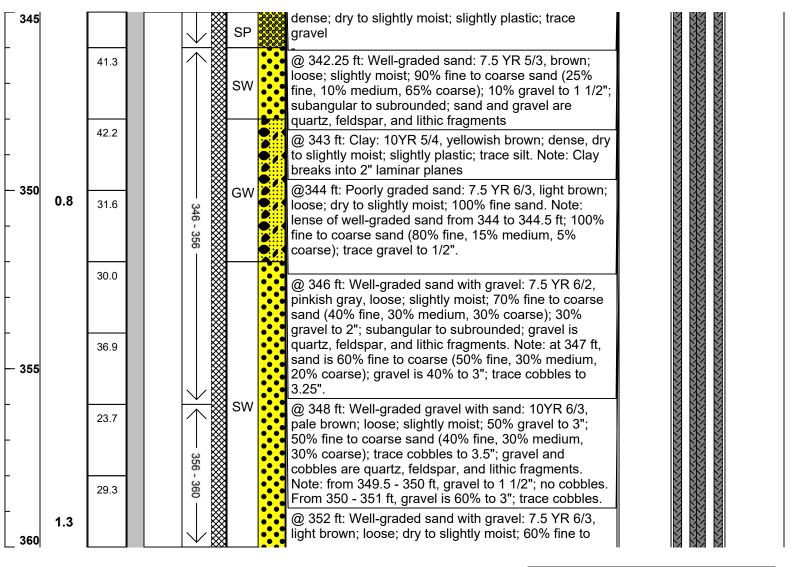
Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

Geologist: L. Andress									Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20 Silica Sand	
Depth (ft)	OIA (vmdd)	Temp (OC)	Field UV	Samples Collected	Core Run (ft)	Š   Š	SSSO	Lithology	Sample Description		Completion Details
	•	•									(1) (2)

DTW After Completion (ft bgs): 472.67



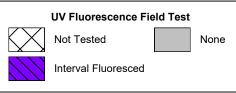
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

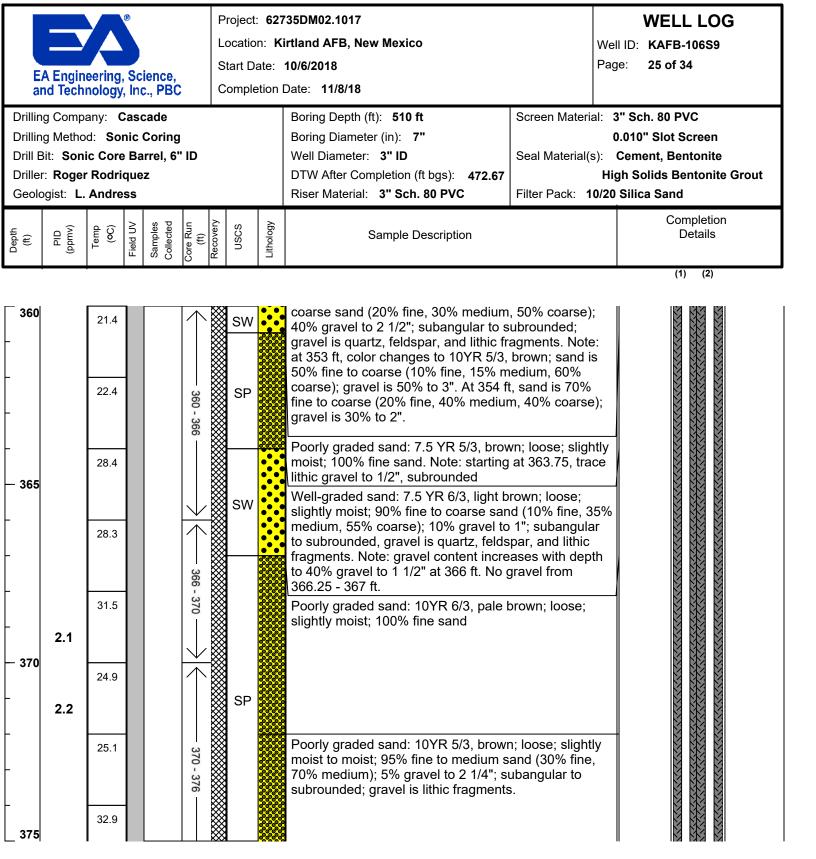
UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery No Recovery Complete **Disturbed Core** 

Following coring, the borehole was overdrilled using ARCH for well installation



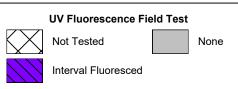
Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable



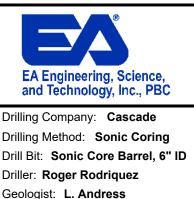
Core Recovery

No Recovery

Disturbed Core

Complete

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

**WELL LOG** 

Well ID: KAFB-106S9

Page: 26 of 34

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

Completion

Completion

Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 472.67

Boring Depth (ft): 510 ft

Boring Diameter (in): 7"

Well Diameter: 3" ID

375 SP Well-graded sand with gravel: 10YR 5/3, brown; 32.3 loose; slightly moist, 85% fine to coarse sand (20% fine, 50% medium, 30% coarse); 15% gravel to 2"; subangular to subrounded; sand and gravel are quartz, feldspar, and lithic fragments. Note: at 378 ft, sand is 90% fine to coarse (35% fine, 45% medium, 31.7 20% coarse); 10% gravel to 1/2". At 380 ft, sand is 80% fine to coarse (25% fine, 50% medium, 25% 1.2 coarse); 20% gravel to 1". At 382 ft, sand is 95% fine 380 to coarse (15% fine, 75% medium, 10% coarse); 26.8 gravel is 5% to 1/2"; at 384 ft, sand is 60% fine to 376 coarse (20% fine, 30% medium, 50% coarse); 40% 386 gravel. 35.2 SW 52.6 385 Well-graded sand: 7.5 YR 6/3, light brown; loose; 21.9 slightly moist; 100% fine to coarse sand (40% fine, 40% medium, 20% coarse); trace gravel to 1/3"; 386 subangular to subrounded; sand and gravel are quartz, feldspar, granite, and lithic fragments. Note: at 390 388 ft, sand is 95% fine to coarse sand (20% fine, 27.5 60% medium, 20% coarse); gravel is 5% to 1". 1.5 390

Hydrated Uncoated Bentonite Chips, 3/8", 377 to 408.8 ft bgs

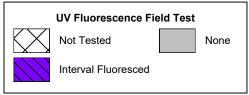
Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable



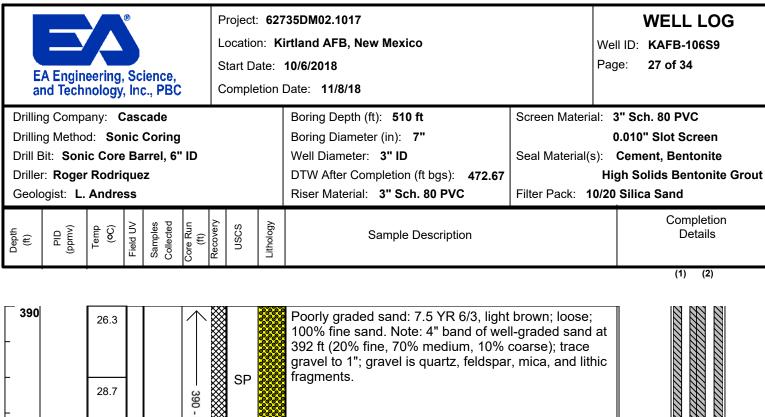
Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



396 Well-graded sand with gravel: 7.5 YR 5/3, brown; 31.4 loose; slightly moist; 80% fine to coarse sand (15% 395 SW fine, 50% medium, 35% coarse); 20% gravel to 1 1/2"; subangular to subrounded; sand and gravel are quartz, feldspar, and lithic fragments 40.6 SP @ 396 ft: Poorly graded sand: 7.5 YR 6/3, loose; 100% fine sand. Note: sand is coarsening downwards to medium. 396 SW @ 397 ft: Well-graded sand: 7.5 YR 5/3, brown; loose; 400 slightly moist to moist; 100% fine to coarse sand (5% 49.5 fine, 85% medium, 10% coarse); trace gravel to 1/2"; subangular to subrounded; gravel is quartz, feldspar, 1.4 SP and lithic fragments. Note: sand is dry at 398 ft. 400 @ 398.5 ft: Poorly graded sand: 7.5 YR 6/3, light 23.5 brown; loose; dry to slightly moist; 100% very fine @ 400 ft: Well-graded sand: 7.5 YR 5/3, brown; loose; slightly moist; 95% fine to coarse sand (45% fine, 20% medium, 35% coarse); 5% gravel to 1"; 22.9 400 SW subangular to subrounded; sand and gravel are quartz, feldspar, and lithic fragments. Note: from 401.5 406 to 404 ft, gravel to 1/2". Well-graded sand with gravel: 7.5 YR 5/3, brown; 26.5 loose; slightly moist; 85% fine to coarse sand (10% 405

Notes:

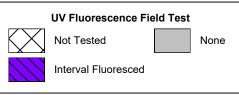
(1) Current Water Table Well

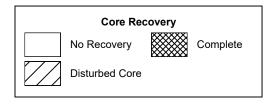
(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable





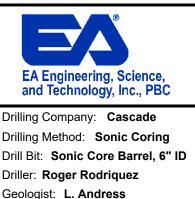
27 of 34

Completion

Details

(1) (2)

Following coring, the borehole was overdrilled using ARCH for well installation



Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

**WELL LOG** 

Well ID: KAFB-106S9

Page: 28 of 34

Boring Depth (ft): 510 ft Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 472.67

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Core Run Lithology Samples Collected Recovery uscs Depth (ft) PID (ppmv) 8 Details Sample Description Field I

fine, 35% medium, 55% coarse); 15% gravel to 1/2"; 405 subangular to subrounded; sand and gravel are quartz, feldspar, and lithic fragments 33.2 Well-graded sand: 7.5 YR 5/3, brown; loose; slightly 2.8 moist; 100% fine to coarse sand (60% fine, 30% 406 medium, 10% coarse). Note: lense of poorly graded -410 sand from 406 - 406.5 ft, 100% very fine sand; trace 33.4 10/20 1.9 Silica SW Sand 410 408.8 to Well-graded sand: 7.5 YR 4/3, brown; loose; slightly 440.1 ft 22.9 moist to moist; 100% very fine to coarse sand (20%) bgs very fine, 30% fine, 40% medium, 10% coarse); subangular to subrounded; sand is quartz, feldspar, and lithic fragments. Note: at 411 ft, sand is 40% very 28.8 fine, 10% fine, 50% medium. At 412 feet, color is 7.5 410 YR 6/3, light brown; sand is 90% very fine to coarse (10% very fine, 30% fine, 30% medium, 30% coarse); 3" Schedule 10% gravel to 3/4". 80 PVC Screen, Clay with sand: 7.5 YR 4/3, brown; medium dense; 27.2 CL 0.010" slightly moist; plastic; sand is coarse slot, 413 415 V, P Well-graded sand: 7.5 YR 4/3, loose; slightly moist; to 438 ft 100% fine to coarse sand (30% fine, 40% medium, •• SW 30% coarse); trace gravel to 1/2"; subangular to 40.2 416 subrounded; sand and gravel are quartz, feldspar, and lithic fragments. Note: lense of clay with sand from -418 415.75 - 416 ft, underlain by lense of poorly graded SP sand to 416.25 ft. @ 417 ft: Poorly graded sand with gravel: 10YR 6/3, 28.7 pale brown; loose; slightly moist; 55% medium to SW coarse sand (45% medium, 55% coarse); 45% gravel; 1.5 subangular to subrounded; sand and gravel are 420

Notes:

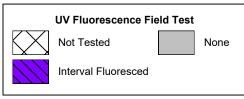
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

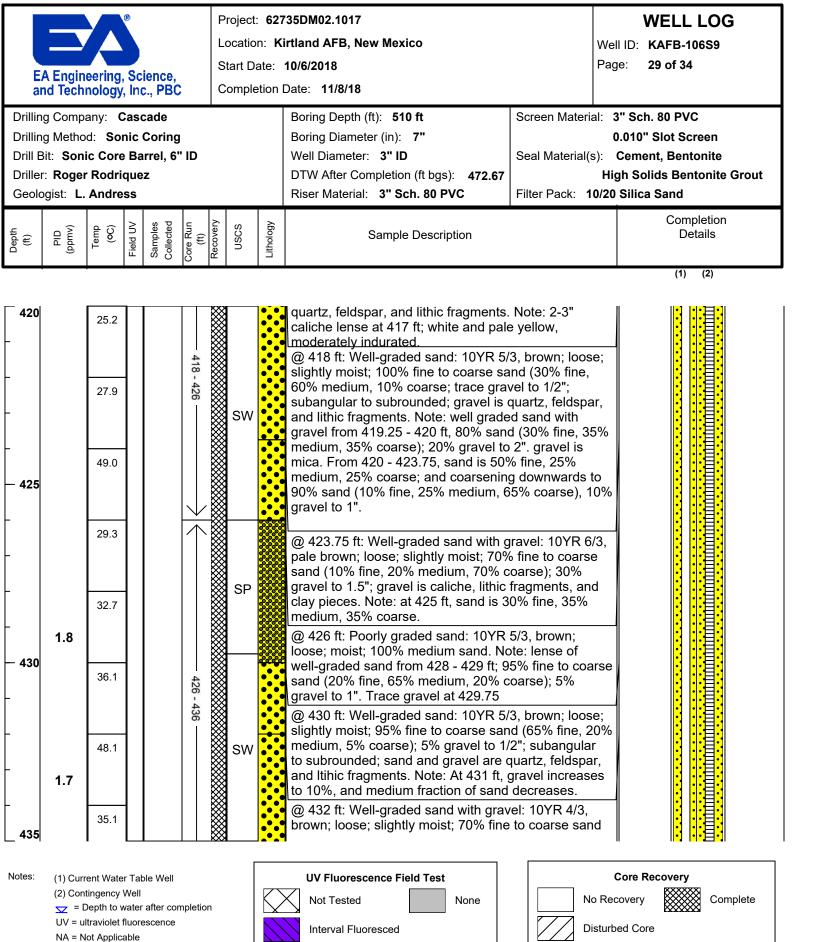
UV = ultraviolet fluorescence

NA = Not Applicable

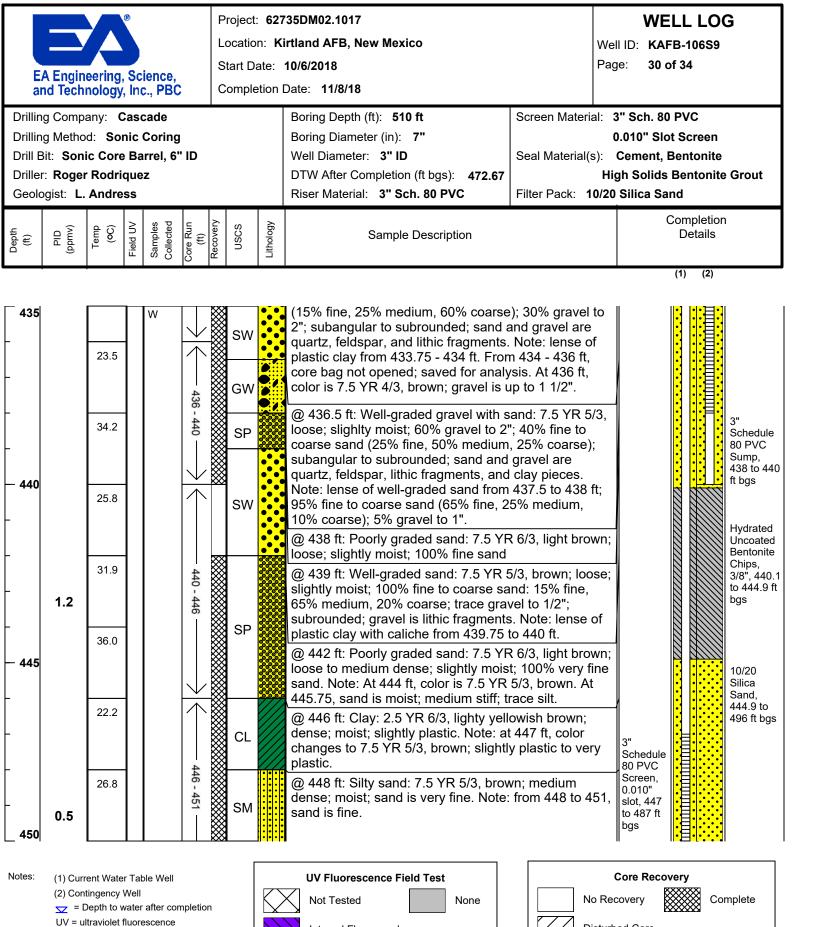


Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



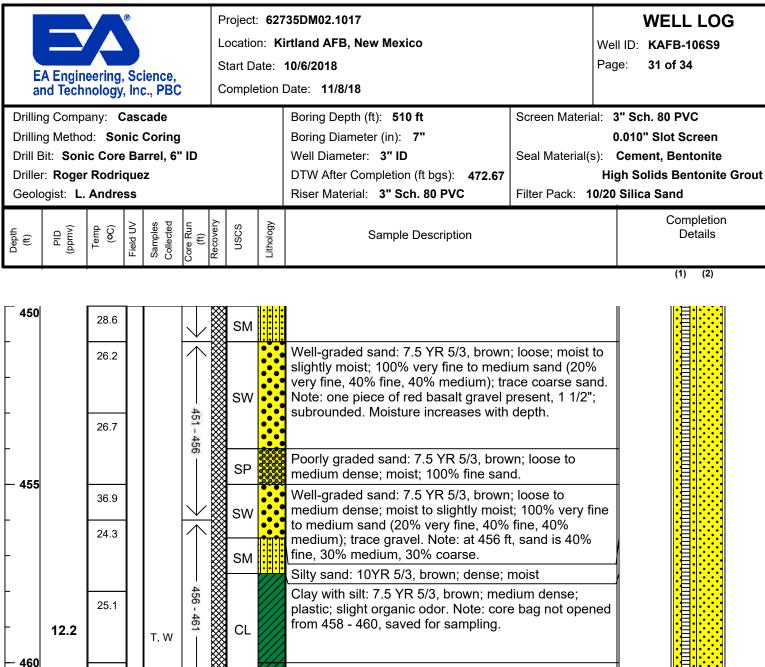
Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

NA = Not Applicable

Disturbed Core

Interval Fluoresced



Notes: (1) Current Water Table Well (2) Contingency Well

159.0

96.1

143.2

465

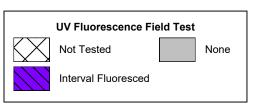
27.6

27.6

25.4

UV = ultraviolet fluorescence

NA = Not Applicable



vapor odor

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

461

466

T, W

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

SM

SW

Clay: 10YR 5/3, brown; medium dense to dense;

slightly plastic to plastic; strongly weathered, organic

Silty sand: 10YR 5/3, brown; medium dense; moist;

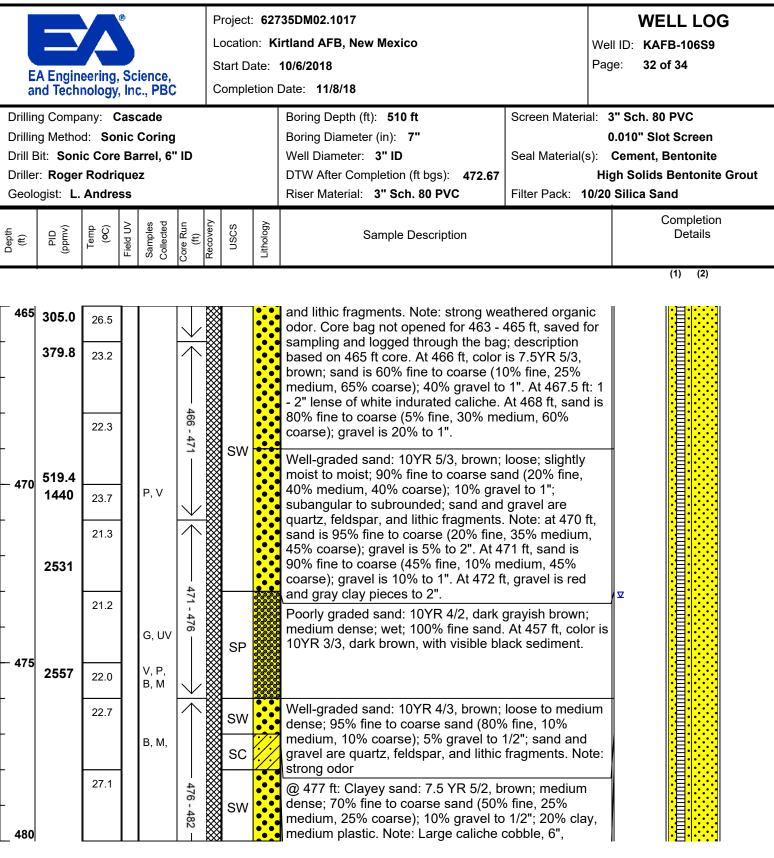
70% very fine to fine sand; 30% silt; strong organic

loose; moist; 50% fine to coarse sand (20% fine, 30%)

subangular to subrounded; gravel is quartz, feldspar,

Well-graded sand with gravel: 10YR 4/3, brown;

medium, 50% coarse); 50% gravel to 1 1/2";

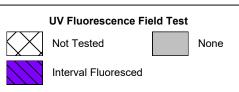


Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable



Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 



Location: Kirtland AFB, New Mexico

Start Date: 10/6/2018

Completion Date: 11/8/18

**WELL LOG** 

Well ID: KAFB-106S9

Page: 33 of 34

Drilling Company: Cascade Boring Depth (ft): 510 ft Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez DTW After Completion (ft bgs): 472.67 Geologist: L. Andress Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

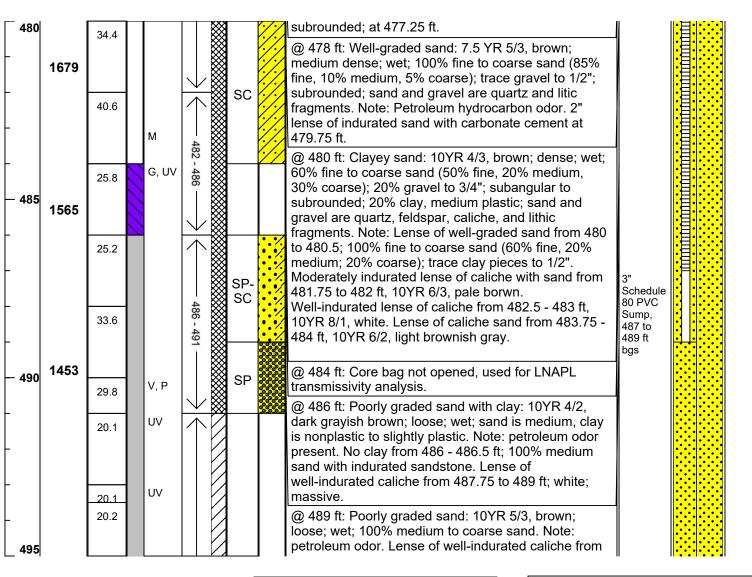
Seal Material(s): Cement, Bentonite

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Core Run Samples Collected Recover uscs Lithology Depth (ft) PID (ppmv) Details Sample Description Field I

(2)



Notes:

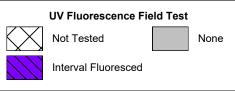
(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

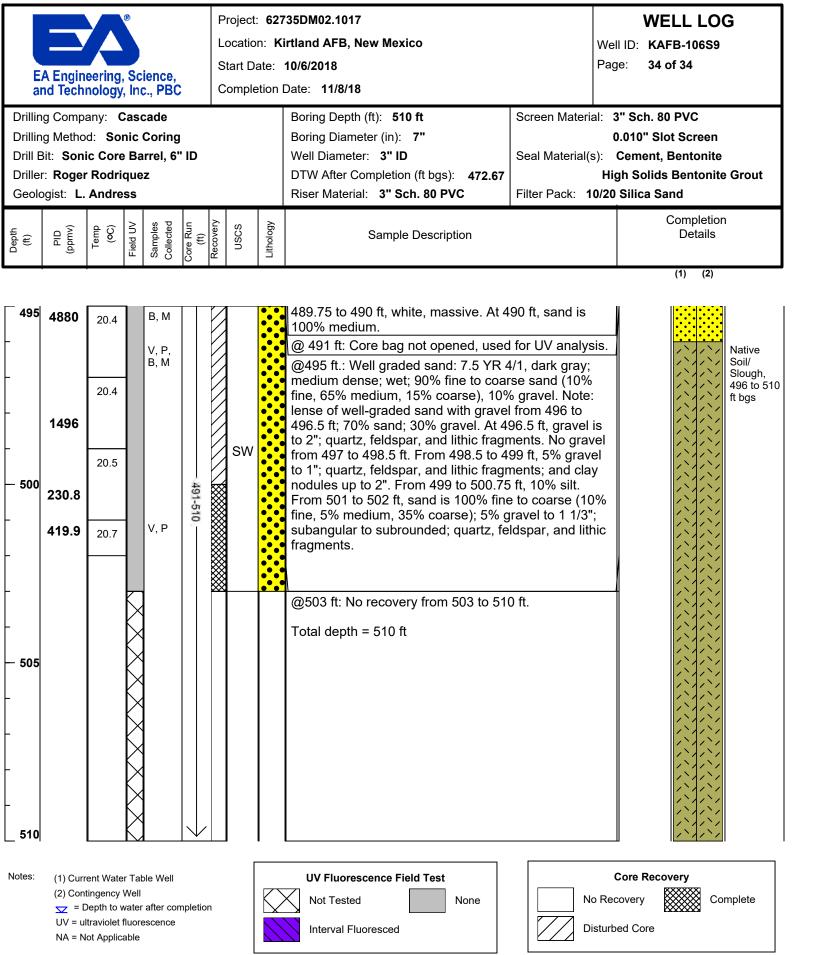
UV = ultraviolet fluorescence

NA = Not Applicable

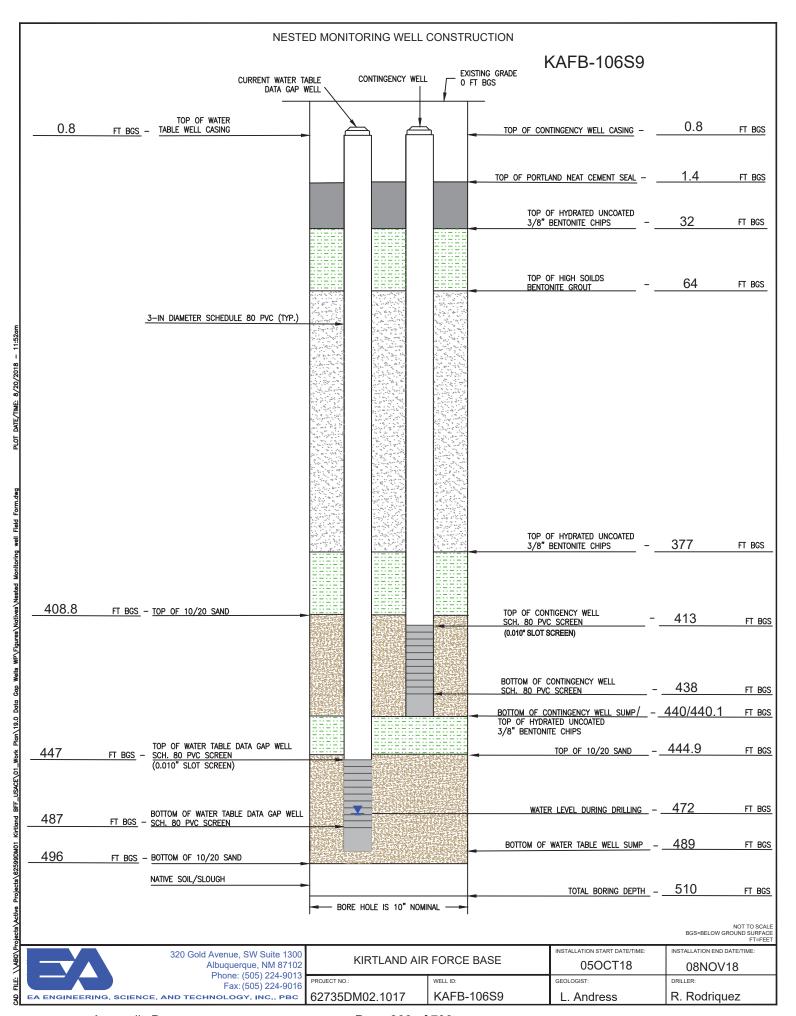


Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation



Following coring, the borehole was overdrilled using ARCH for well installation





Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 1 of 52

Boring Depth (ft): 515 Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen

Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

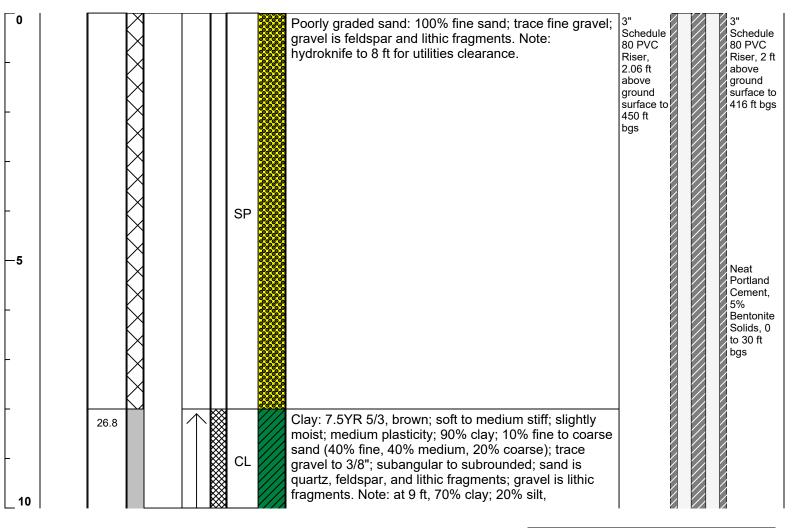
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Core Run Samples Collected Recover USCS Lithology Depth (ft) PID (ppmv) 00 Details Sample Description Field (  $\Xi$ 

> (1) (2)



Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery												
No Recovery		Complete										
Disturbed Core												

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 2 of 52

Drilling Company: Cascade Boring Depth (ft): 515 Boring Diameter (in): 7" Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Driller: Roger Rodriquez

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Collected Core Run Samples Recover USCS Lithology PID (ppmv) Depth (ft) Details Sample Description Field ( (1) (2)

nonplastic; 10% sand. At 10 ft, 50% clay; 40% silt; 10 0.3 10% sand. CL 6 Silt: 5YR 5/4, reddish brown; soft; slightly moist; low to medium plasticity; 65% silt; 30% clay; 5% fine to medium sand; subangular to subrounded; sand is quartz and lithic fragments. Note: slightly mottled to 5YR 7/3, pink; secondary calcium carbonate present. At 14 ft, trace lithic gravel to 3/8". - 15 Silt: 5YR 5/4, reddish brown; soft; slightly moist; low to medium plasticity; 70% silt; 20% clay; 10% fine to medium sand; subangular to subrounded; sand is ML quartz and lithic fragments. Note: slightly mottled to 22.8 5YR 7/3, pink; secondary calcium carbonate present. At 16 ft, silt with sand; 7.5YR 5/3, brown; 75% silt; 10% clay; 15% sand. At 17 ft, trace gravel to 1/2". At 18 ft, 90% silt, 5% clay; 5% sand; no gravel. 6 20 20

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery										
	No Recovery		Complete							
	Disturbed Core									

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 515 Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 3 of 52

Screen Material: 3" Sch. 80 PVC

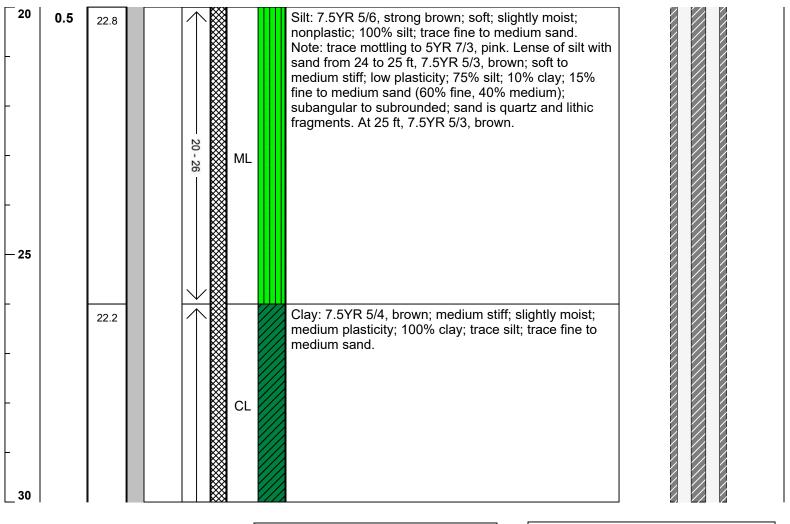
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Geolo	ogist: <b>J.</b>	Messe	nge	er					Riser Material: 3" Sch. 80 PVC Filter P	ack: <b>10/20</b>	Silica Sand
Depth (ft)	OIA (vmdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description		Completion Details
											(1) (2)

DTW After Completion (ft bgs): 473.94



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

**Core Recovery** No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Boring Diameter (in): 7"

Well Diameter: 3" ID

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: **KAFB-106247** 

Page: 4 of 52

Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen
Seal Material(s): Cement, Bentonite,

High Solids Bentonite Grout

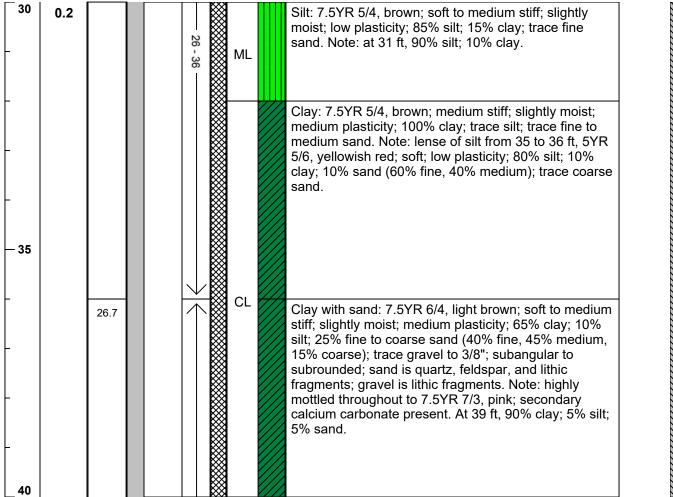
Filter Pack: 10/20 Silica Sand

Filter Pack: 10/20 Silica Sand

The part of the pa

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC



Hydrated Uncoated Bentonite Chips, 3/8"; 30 to 40 ft bgs

Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 5 of 52

Drilling Company: Cascade	Boring Depth (ft): 515	Screen Material:	3" Sch. 80 PVC
Drilling Method: Sonic Coring	Boring Diameter (in): 7"		0.010" Slot Screen
Drill Bit: Sonic Core Barrel, 6" ID	Well Diameter: 3" ID	Seal Material(s):	Cement, Bentonite,

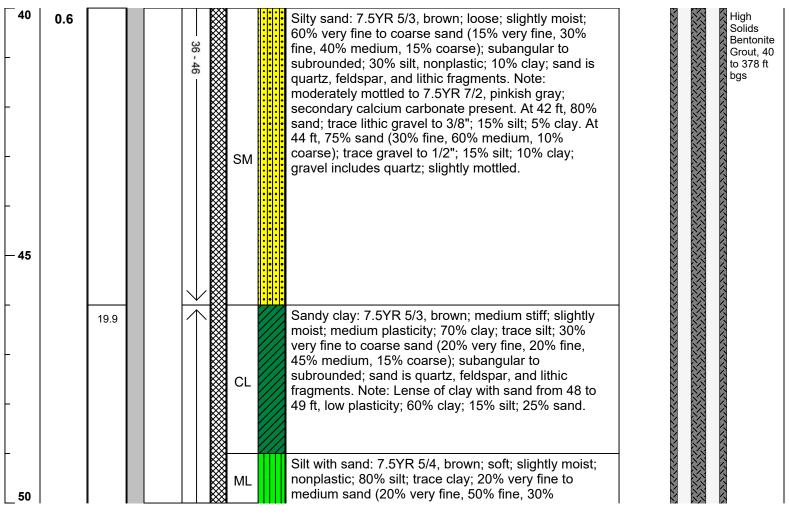
Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 Geologist: J. Messenger

Riser Material: 3" Sch. 80 PVC

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ymdd)	(Oo)	Field UV	Samples Collected	e R	Recovery	nscs	Lithology	Sample Description	Completion Details
										(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 515

Well Diameter: 3" ID

Boring Diameter (in): 7"

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: **6 of 52** 

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	(Amdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	0	SOSO	Lithology	Sample Description	Comple Deta	
	•									(1)	(2)

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 473.94

medium); trace coarse sand; trace gravel to 1/2"; 50 0.4 subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: 46 lense of clay from 55 to 56 ft, 7.5YR 6/4, light brown; 56 medium stiff; medium plasticity; 90% clay; 5% silt; 5% sand; trace gravel to 3/8"; highly mottled throughout to 7.5YR 7/3, pink; secondary calicum carbonate present. ML 55 Sandy clay: 7.5YR 5/4, brown; medium stiff; slightly 21.5 moist; low plasticity; 50% clay; 10% silt; 35% very fine to coarse sand (20% very fine, 20% fine, 40% medium, 20% coarse); 5% gravel to 1/2"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: CL moderately mottled to 7.5YR 7/3, pink; secondary calcium carbonate present. Lense of silt with sand from 57 to 58 ft, soft; nonplastic; 80% silt; trace clay; 20% sand (20% very fine, 50% fine, 30% medium); trace coarse sand; trace gravel to 1/2". At 58 ft, clay with sand; 70% clay; 5% silt; 25% sand; trace gravel to 3/8"; slightly mottled. At 59 ft, 7.5YR 5/3, brown. At 60

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Recovery												
	No Recovery		Complete									
	Disturbed Core											

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

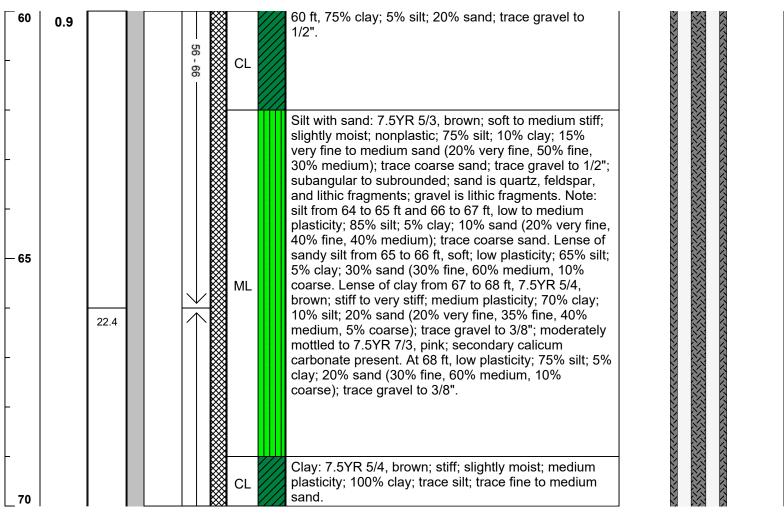
WELL LOG

(1) (2)

Well ID: KAFB-106247

Page: **7 of 52** 

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 515 Boring Diameter (in): 7" Drilling Method: Sonic Coring 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Collected Run Recover USCS Lithology Temp (OC) Samples PID (ppmv) Depth (ft) Details Sample Description Field I Core



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery												
No Recovery		Complete										
Disturbed Core												

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Drilling Method: Sonic Coring

Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 515

Well Diameter: 3" ID

Boring Diameter (in): 7"

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: **KAFB-106247** 

Page: 8 of 52

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv) Temp (oC)	Field UV	Samples Collected	ore Rur (ft)	Recovery	nscs	Lithology	Sample Description	Completion Details
---------------	----------------------	----------	----------------------	-----------------	----------	------	-----------	--------------------	-----------------------

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 473.94

1.1 Clay: 7.5YR 5/4, brown; stiff; slightly moist; medium plasticity; 100% clay; trace silt; trace fine to medium 66 sand. Note: lense of silt from 71.5 to 72 ft, 7.5YR 5/3, CL - 76 brown; soft; low plasticity; 85% silt; 5% clay; 10% sand (30% fine, 60% medium, 10% coarse); trace gravel to 3/8". Silty sand: 10YR 5/4, yellowish brown; loose; slightly moist; 70% very fine to coarse sand (20% very fine, 20% fine, 50% medium, 10% coarse); trace gravel to 3/8"; subangular to subrounded; 30% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: lense of silt from 73 to 73.75 ft, SM 7.5YR 5/4, brown; soft; nonplastic; 100% silt; trace fine to medium sand. At 73.75 ft, 85% sand (30% fine, 50% medium, 20% coarse); trace guartz and lithic 75 gravel to 2"; 15% silt. Clay: 7.5YR 5/4, brown; stiff; slightly moist; medium 32.2 CL plasticity; 100% clay; trace silt; trace fine to medium sand. Well-graded sand with silt: 7.5YR 5/2, brown; loose; slightly moist; 85% fine to coarse sand (35% fine, 50%) medium, 15% coarse); 5% gravel to 3/4"; subangular SWto subrounded; 10% silt, nonplastic; sand is quartz, SM feldspar, and lithic fragments; gravel is quartz and lithic fragments. Silt: 7.5YR 5/4, brown; soft; slightly moist; nonplastic; 100% silt; trace fine sand.

UV Fluorescence Field Test Core Rec

Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

80

ID = inner diameter

ppmv = parts per million by volume

USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

(1) (2)

Well ID: KAFB-106247

Page: 9 of 52

Boring Company: Cascade Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Diameter (in): 7"

0.010" Slot Screen

Well Diameter: 3" ID

Seal Material(s): Cement, Bentonite,

Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 High Solids Bentonite Grout

Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand

Completion
Details

Completion
Details

80 Silt: 7.5YR 5/4, brown; soft; slightly moist; nonplastic; 0.8 100% silt; trace fine sand. ML 76 86 Clay: 5YR 4/4, reddish brown; very stiff; medium plasticity; 90% clay; 10% silt. CL Silt: 7.5YR 5/4, brown; soft; slightly moist; nonplastic; 100% silt; trace fine sand. Note: at 86 ft, trace fine to medium sand. At 87 ft, soft to medium stiff; low plasticity; 80% silt; 20% clay; trace fine to medium sand; slighlty mottled to 7.5YR 6/3, light brown, and 7.5YR 7/2, pinkish gray; secondary calcium carbonate 85 ML 34.5

Notes:

90

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

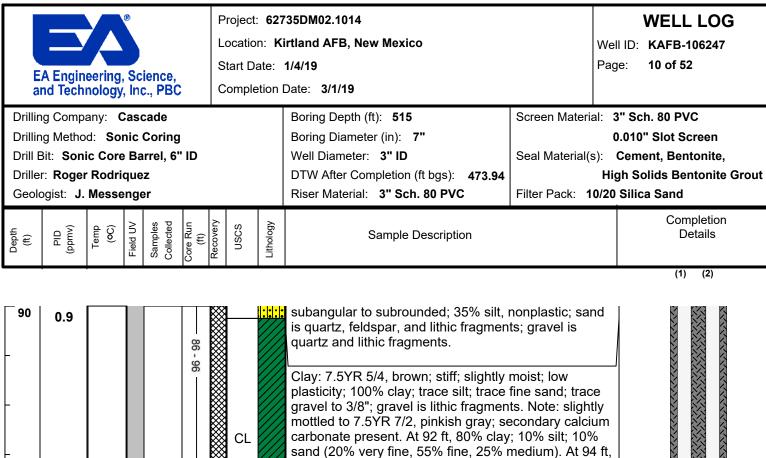
Not Tested None
Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Silty sand: 7.5YR 5/3, brown; loose; slightly moist; 65% very fine to coarse sand (25% very fine, 35% fine, 35% medium, 5% coarse); trace gravel to 1/2";

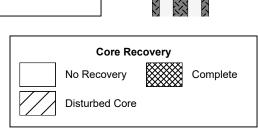
 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



70% clay; 20% silt; 10% sand.

Silt: 7.5YR 5/4, brown; soft to medium stiff; slightly moist; low plasticity; 70% silt; 20% clay; trace fine sand. Note: at 96 ft, dry to slightly moist; 100% silt; no clay; no sand; highly mottled to 7.5YR 8/1, white;

contains secondary calcium carbonate. At 97 ft, dry.



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;

None

UV = ultraviolet; T = thermal conductivity; FOC = fraction organic carbon

UV Fluorescence Field Test

Not Tested

Interval Fluoresced

95

100

Notes:

38.7

(1) Current Water Table Well(2) Contingency Well

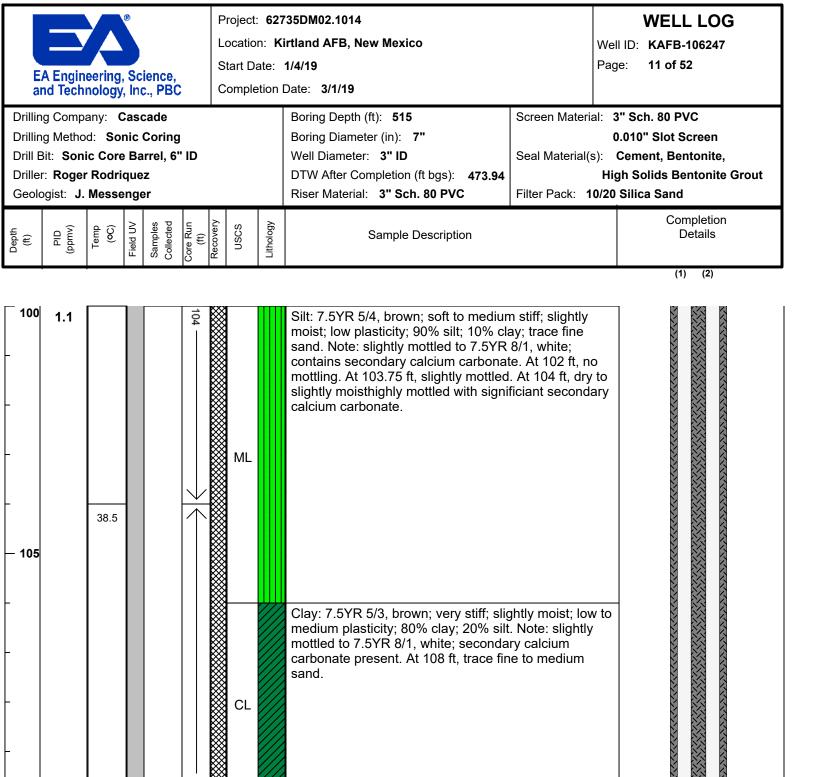
NA = Not Applicable bgs = below ground surface DTW = depth to water

ID = inner diameter

ft = feet

ppmv = parts per million by volume USCS = Unified Soil Classification System

ML



Notes: (1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

110

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: **KAFB-106247** 

Page: **12 of 52** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Boring Depth (ft): 515

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft)

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion
Details

Completion

Completion

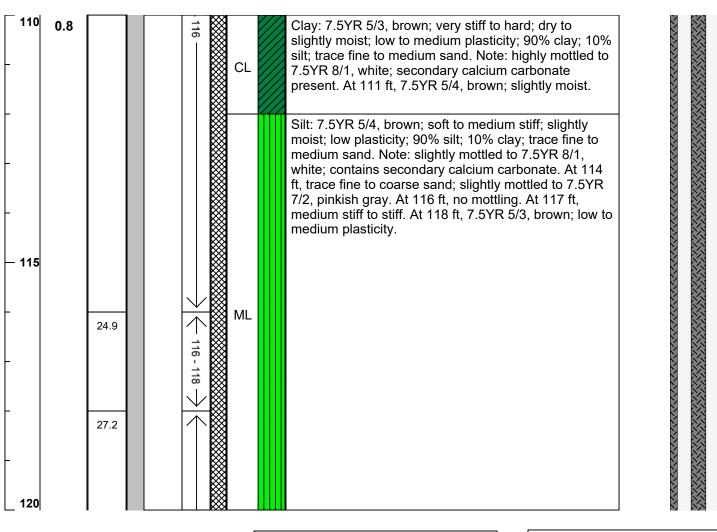
Completion

Completion

Completion

Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: **KAFB-106247** 

Page: **13 of 52** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 515

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

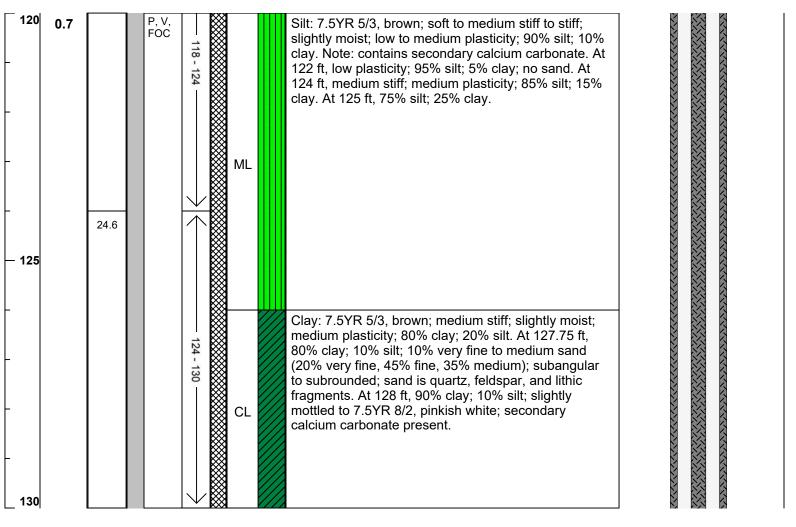
Completion

Completion

Completion

Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System VV Fluorescence Field Test

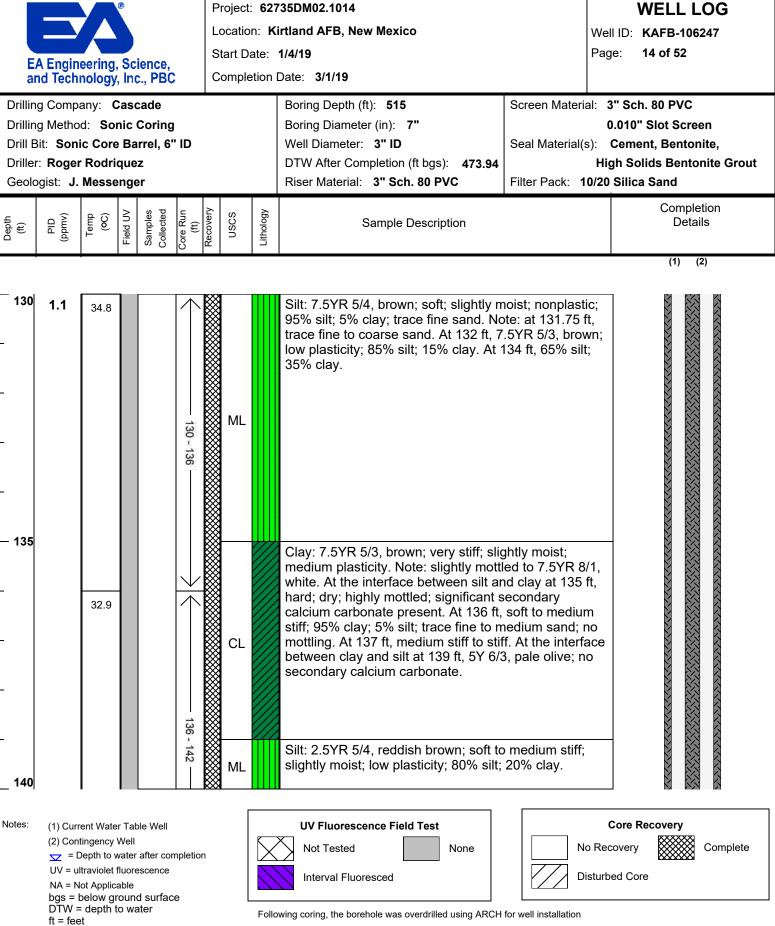
Not Tested None

Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



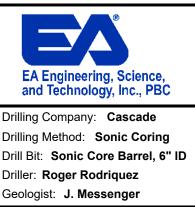
Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;

UV = ultraviolet; T = thermal conductivity; FOC = fraction organic carbon

ppmv = parts per million by volume USCS = Unified Soil Classification System

ID = inner diameter



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: **15 of 52** 

Boring Depth (ft): 515
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

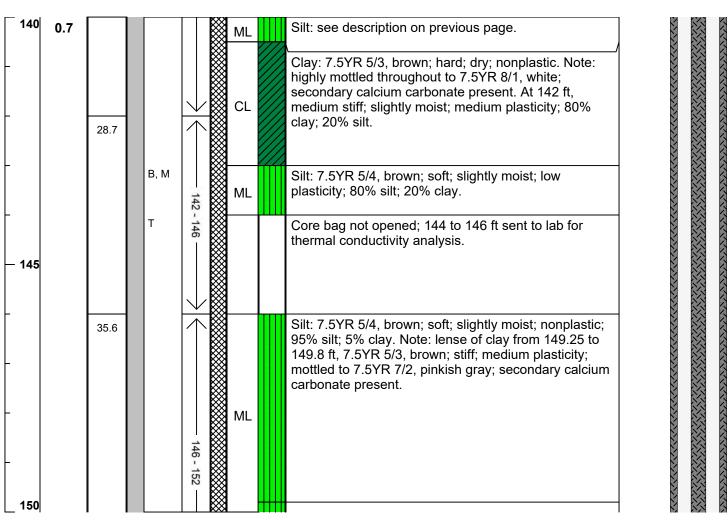
Completion

Completion

Completion

Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

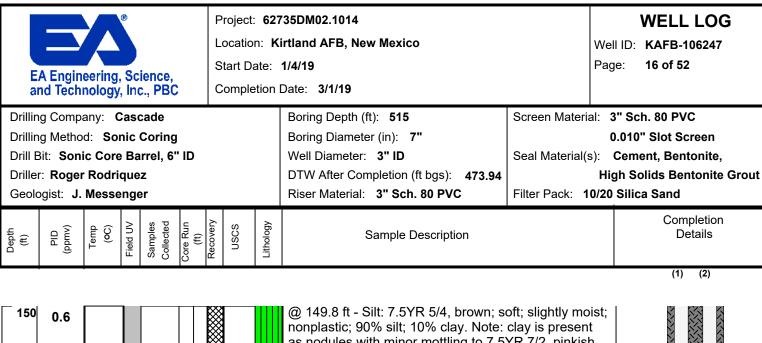
ID = inner diameter

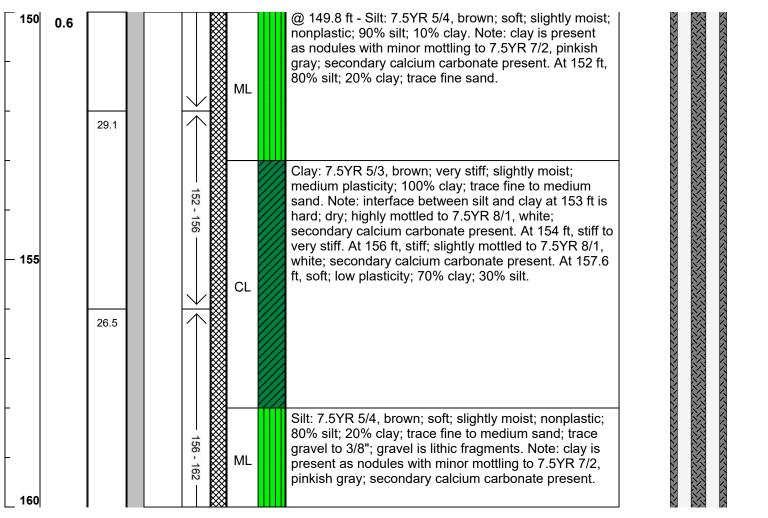
ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Continuous (Continuous Continuous Co$ 





Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Re	coverv	
	ĭ	XXXXXX	
	No Recovery		Complete
	1		
<i>  / /</i>	Disturbed Core		
	_		

Completion

Details

(1) (2)

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 17 of 52

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 515 0.010" Slot Screen Drilling Method: Sonic Coring

Boring Diameter (in): 7" Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

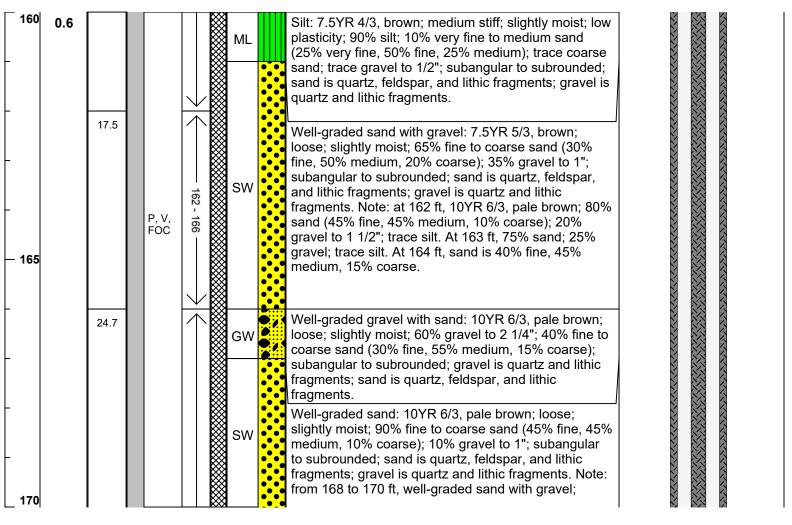
DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Riser Material: 3" Sch. 80 PVC

Completion Core Run Lithology Collected Recover uscs Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: **18 of 52** 

Boring Depth (ft): 515
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

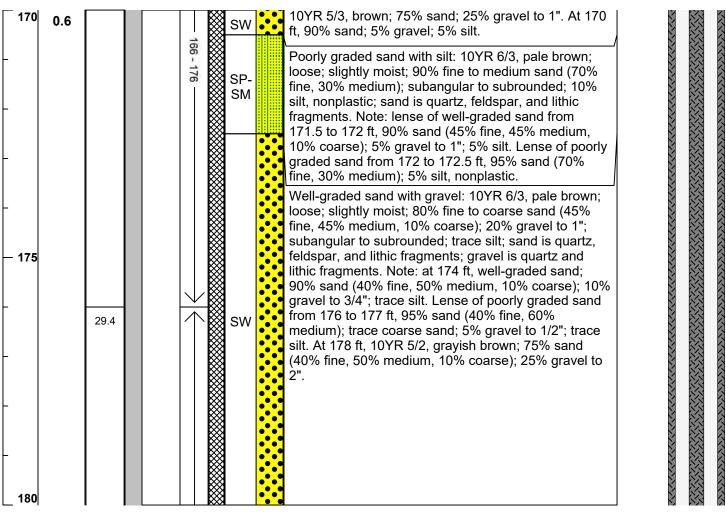
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

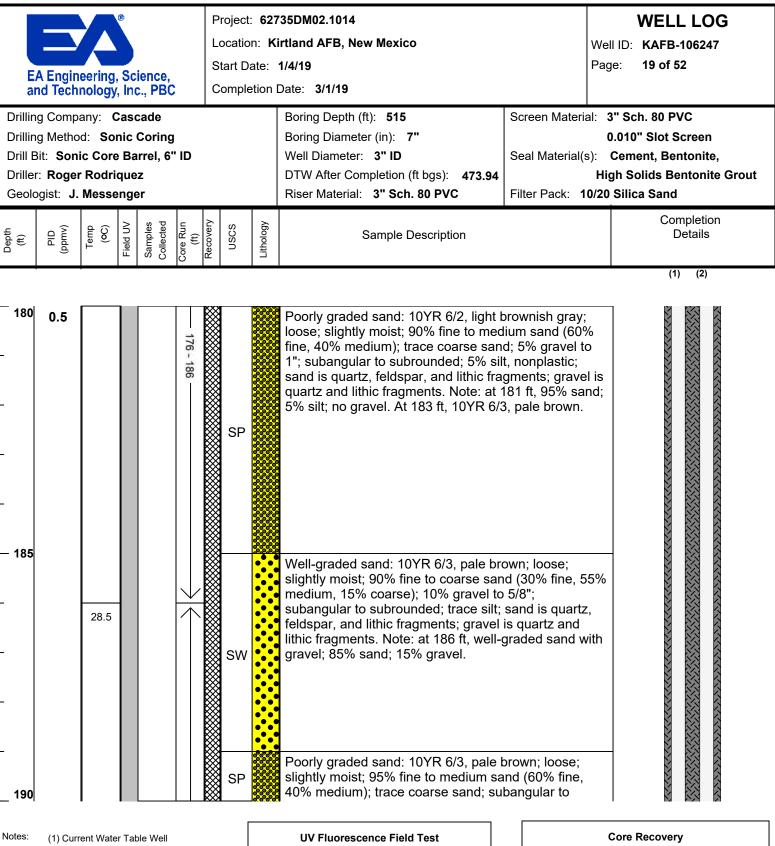
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

ſ	Core Re	covery	
ı	Ooie ite	COVERY	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Continuous (Continuous Continuous Co$ 



(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

(1) (2)

Well ID: KAFB-106247

Page: **20 of 52** 

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 515 Boring Diameter (in): 7" 0.010" Slot Screen Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Collected Run Recover uscs Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core

subrounded; 5% silt, nonplastic; sand is quartz, 190 0.1 feldspar, and lithic fragments. Note: lense of 186 well-graded sand with clay from 190 to 191 ft, 10YR 5/3, brown; 80% sand (40% fine, 50% medium, 10% 196 coarse); 10% gravel to 1 1/8"; 10% clay as nodules, SP low plasticity, 7.5YR 5/3, brown. At 191 ft, 90% sand; 5% gravel to 1"; 5% silt. At 192 ft, trace clay; no gravel. Poorly graded sand with silt: 7.5YR 5/2, brown; loose; slightly moist; 90% very fine to medium sand (25% very fine, 55% fine, 20% medium); subangular to SPsubrounded; 10% silt, nonplastic; sand is quartz, SM feldspar, and lithic fragments. 195 Poorly graded sand: 10YR 6/2, light brownish gray; loose; slightly moist; 100% fine to medium sand (80% fine, 20% medium); subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments. 27.7 Note: from 196 to 197.75 ft, sand is 45% fine, 55% medium; trace coarse sand; trace quartz and lithic SP gravel to 1"; trace silt. Well-graded sand: 10YR 6/3, pale brown; loose; slightly moist; 90% fine to coarse sand (20% fine, 70% SW medium, 10% coarse); 10% gravel to 1 1/4"; 200

Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

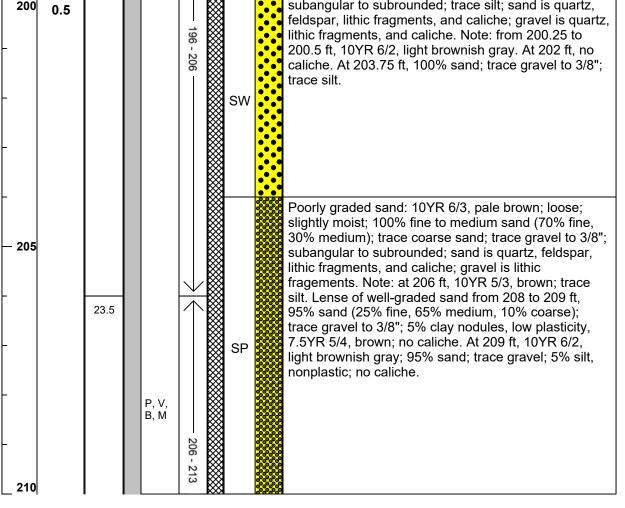
**WELL LOG** 

Well ID: KAFB-106247

Page: **21 of 52** 

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 515 Boring Diameter (in): 7" Drilling Method: Sonic Coring 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion

Lithology Samples Collected Recover USCS Core Rur PID (ppmv) 0 Depth (ft) Details Sample Description Field ( (1) (2) subangular to subrounded; trace silt; sand is quartz, 200 0.5 feldspar, lithic fragments, and caliche; gravel is quartz, lithic fragments, and caliche. Note: from 200.25 to



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: **22 of 52** 

Drilling Company: Cascade Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Core Run Lithology Collected Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I

(1) (2) 210 0.8 Clayey sand: 10YR 5/2, grayish brown; loose; slightly moist; 85% very fine to medium sand (30% very fine, SC 50% fine, 20% medum); subangular to subrounded; 15% clay, low plasticity; sand is quartz, feldspar, and lithic fragments. Note: clay present as medium stiff nodules, 5YR 5/3, reddish brown. At 211 ft, 75% sand (20% very fine, 55% fine, 25% medium); 25% clay. @ 211.5 ft - Clay: 2.5Y 6/2, light brownish gray; soft; CL slightly moist; medium plasticity. Note: at 212 ft, 2.5Y 19.6 5/2, grayish brown; medium stiff to stiff. At 213 ft, 2.5Y 6/2, light brownish gray; soft to medium stiff. Poorly graded sand with silt: 10YR 6/3, pale brown; loose; slightly moist; 90% very fine to fine sand (30% 214 - 216 very fine, 70% fine); trace medium sand; subangular SP-215 to subrounded: 10% silt, nonplastic; sand is quartz. SM feldspar, and lithic fragments. Note: lense of silty sand from 215 to 215.5 ft, 10YR 5/3, brown; 70% sand (40% very fine, 60% fine); 30% silt. Lense of sandy

50% fine).

@ 216 ft - Clayey sand: 10YR 5/3, brown; loose; slightly moist; 70% fine to medium sand (40% fine, 60% medium); trace coarse sand; trace gravel to 1/2"; subangular to subrounded; 30% clay, nonplastic; sand is quartz, feldspar, lithic fragments, and caliche; gravel is lithic fragments and caliche.

clay from 215.5 to 216 ft, 10YR 5/3, brown; very stiff;

low plasticity; 70% clay; 30% sand (50% very fine,

@ 217 ft - Clay: 10YR 6/2, light brownish gray; stiff to very stiff; slightly moist; low plasticity. Note: at 217.75 ft, soft to medium stiff. At 219 ft, 7.5YR 6/3, light

Notes:

220

(1) Current Water Table Well

26.0

SC

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(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

ſ	Core Re	covery	
ı	Ooie ite	COVERY	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 23 of 52

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Boring Depth (ft): 515

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft)

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

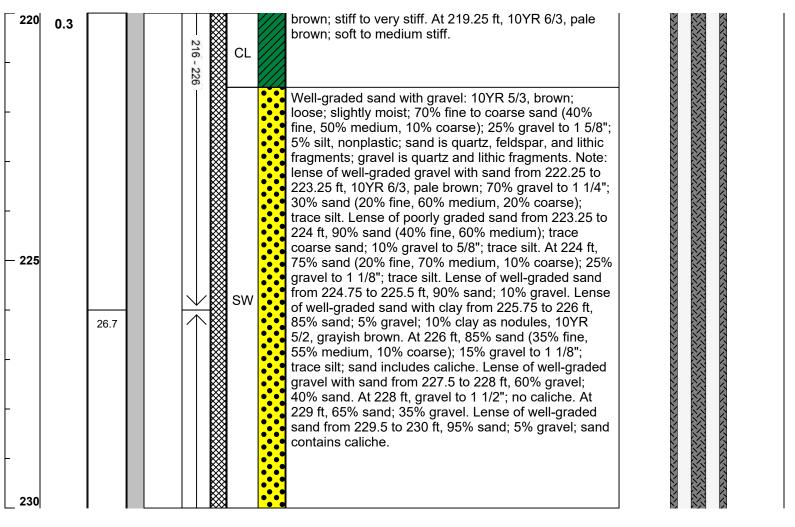
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	(vmdd)	Temp (oC)	Field UV	Samples Collected	E E	Recovery	nscs	Lithology	Sample Description	Completion Details	
				·				•		(1) (2)	



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None

Interval Fluoresced

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

0

PID (ppmv)

Depth (ft)

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Lithology

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

0.010" Slot Screen

**High Solids Bentonite Grout** 

Page: 24 of 52

Drilling Company: Cascade Boring Depth (ft): 515 Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

> Recover USCS

Collected

Core Rur

Samples

Field I

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

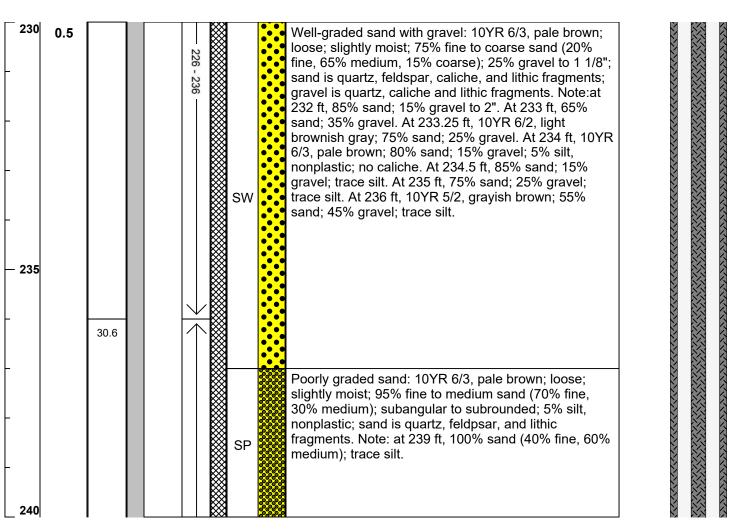
Filter Pack: 10/20 Silica Sand

Screen Material: 3" Sch. 80 PVC

Seal Material(s): Cement, Bentonite,

Completion Details Sample Description

> (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: **25 of 52** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Boring Depth (ft): 515

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft I

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

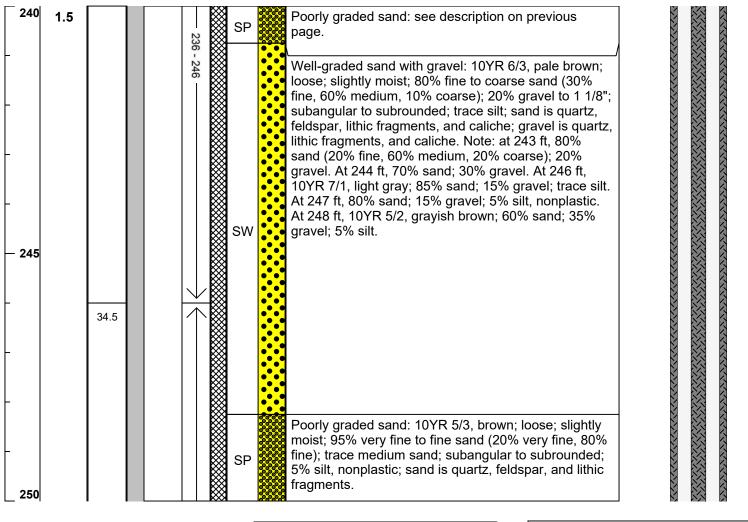
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	2	(ft) Recovery	nscs	Lithology	Sample Description	Completion Details
---------------	---------------	--------------	----------	----------------------	---	------------------	------	-----------	--------------------	-----------------------

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Not Tested None
Interval Fluoresced

Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: **26 of 52** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: J. Messenger

Boring Depth (ft): 515

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Filter Pack: 10

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	(\nudd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	sosn	Lithology	Sample Description	Comp Det	
										(1)	(2)

250 0.8 Poorly graded sand: 10YR 5/3, brown; loose; slightly moist; 95% very fine to fine sand (20% very fine, 80%) 246 - 256 fine); trace medium sand; subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments. Note: at 253 ft, sand is 20% very fine, 65% fine, 15% medium. At 254 ft, trace coarse sand; trace quartz and lithic gravel to 1". SP 255 Well-graded sand with gravel: 10YR 5/4, yellowish 44.6 brown; loose; slightly moist; 70% fine to coarse sand (20% fine, 60% medium, 20% coarse); 30% gravel to 2"; subangular to subrounded; trace clay; sand is SW quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: clay is present as nodules, 7.5YR 5/3, brown. At 257ft, 10YR 6/3, pale brown. At 257.75 ft, trace silt. Poorly graded sand: 10YR 6/3, pale brown; loose; slightly moist; 95% very fine to medium sand (20% very fine, 65% fine, 15% medium); trace coarse sand; SP 5% gravel to 1"; subangular to subrounded; trace clay; 260

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: 27 of 52

Boring Depth (ft): 515 Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Core Run Lithology Collected Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I

sand is quartz, feldspar, and lithic fragments; gravel is 260 0.6 quartz and lithic fragments. Note: clay is present as 256 - 266 nodules, 7.5YR 5/3, brown. At 259.5 ft, 90% sand; 5% gravel; 5% silt, nonplastic. At 260 ft, 10YR 5/3, brown; 90% sand; 5% gravel; 5% clay nodules, low plasticity. @ 260.25 ft - Clay: 10YR 5/3, brown; stiff; slightly moist; medium plasticity; 100% clay. At 261.75 ft, soft; CL low plasticity; 80% clay; 10% silt; 10% sand (40% very fine, 60% fine); subangular to subrounded. At 262.25 ft, very stiff; 100% clay. At 263.5 ft, soft; 80% clay; 20% silt; trace very fine to fine sand. Poorly graded sand with silt: 10YR 5/4, yellowish brown; loose; slightly moist; 90% very fine to medium SP-265 sand (20% very fine, 70% fine, 10% medium); SM subangular to subrounded; 10% silt, nonplastic; trace clay; sand is quartz, feldspar, and lithic fragments. Note: lense of poorly graded sand from 265 to 266 ft, 10YR 6/3, pale brown; 95% sand (45% fine, 55% 35.8 medium); trace coarse sand; trace gravel to 3/8"; 5% silt; sand includes caliche. @ 266 ft - Clay: 10YR 6/3, pale brown to 10YR 7/3, very pale brown; hard; slightly moist; nonplastic; 100% clay. Note: secondary calcium carbonate present. At CL 268 ft, soft to stiff; 85% clay; 15% silt; trace fine to medium caliche sand. At 269.75 ft, 5YR 5/4, reddish brown; soft to medium stiff; low plasticity; 100% clay; trace silt; trace fine to coarse caliche sand. 270

Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery No Recovery Complete Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: **KAFB-106247** 

Page: **28 of 52** 

Drilling Company: Cascade
Drilling Method: Sonic Coring
Drill Bit: Sonic Core Barrel, 6" ID

Driller: **Roger Rodriquez**Geologist: **J. Messenger** 

Boring Depth (ft): 515
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

(1) (2)

Filter Pack: 10/20 Silica Sand

Completion Details

0.7 Silt: 7.5YR 5/2, brown; soft; slightly moist; nonplastic; 70% silt; 20% clay; 10% fine to medium sand (70% 266 - 276 fine, 30% medium); subangular to subrounded; sand is quartz, feldspar, lithic fragments, and caliche. Note: lense of silty sand from 270.25 to 270.75, 70% sand (20% very fine, 70% fine, 10% medium); 30% silt, nonplastic. Lense of well-graded sand from 270.75 to 272 ft, 10YR 6/3, pale brown; 90% sand (25% fine, 55% medium, 20% coarse); 10% gravel to 1"; trace silt. At 272 ft, 10YR 5/3, brown; stiff; 75% silt; 25% ML clay. At 273, ft, soft to medium stiff. At 275 ft, 70% silt; 20% clay; 10% sand (60% very fine, 40% fine). 275 Clay: 7.5YR 5/3, brown; very stiff; slightly moist; low 30.4 plasticity. Note: slightly mottled to 7.5YR 8/1, white; secondary calcium carbonate present. At 277 ft, moderate mottling. At 277.5 ft, 7.5YR 5/2, brown; dry; nonplastic; highly mottled. At 278 ft, hard; highly mottled. CL 280

overy

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None

Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: **KAFB-106247** 

Page: **29 of 52** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez
Geologist: J. Messenger

Boring Depth (ft): 515
Boring Diameter (in): 7"
Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

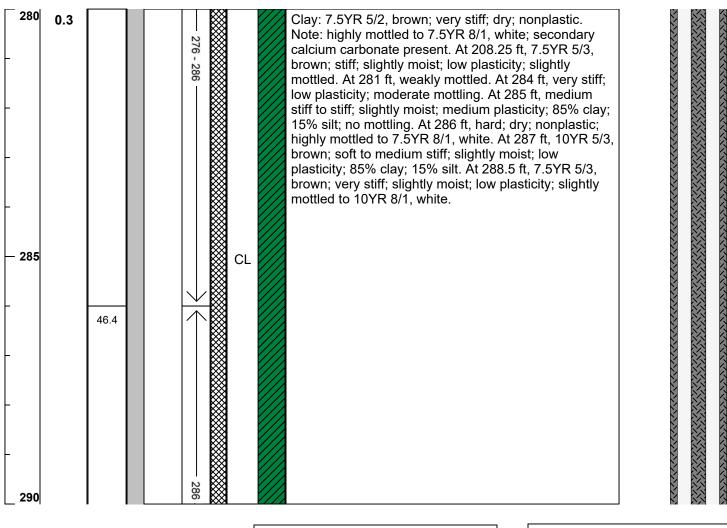
Completion

Completion

Completion

Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: **30 of 52** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 515

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

Completion

Completion

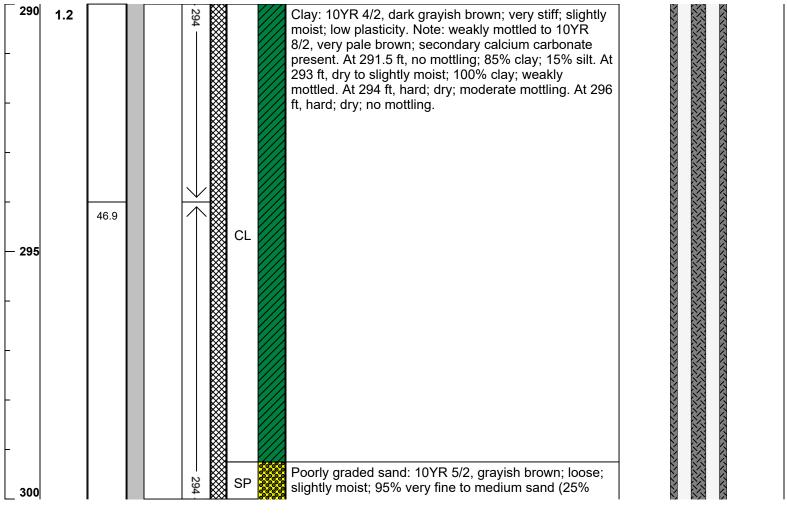
Completion

Completion

Completion

Details

(1) (2)



Notes: (1

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Recovery											
No Recovery		Complete									
Disturbed Core											

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: **KAFB-106247** 

Page: **31 of 52** 

Drilling Company: Cascade Boring Depth (ft): 515

Drilling Method: Sonic Coring Boring Diameter (in): 7"

Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

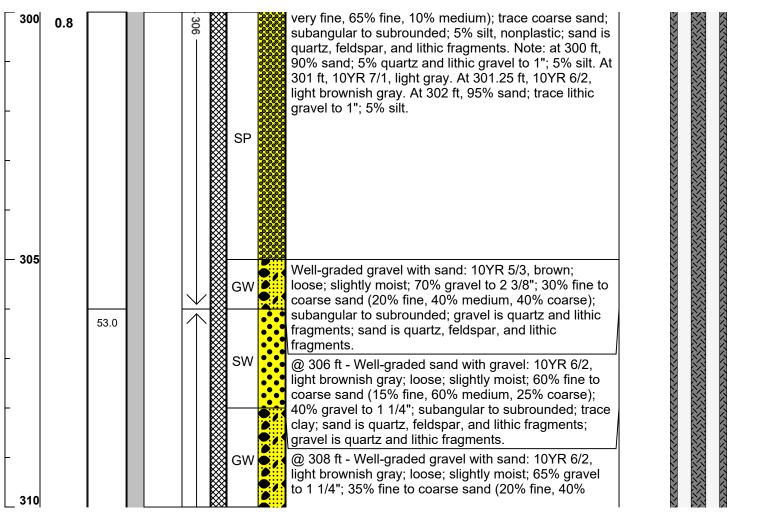
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Details

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Recovery											
	No Recovery		Complete								
	Disturbed Core										

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 32 of 52

Boring Depth (ft): 515 Boring Diameter (in): 7"

Well Diameter: 3" ID DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

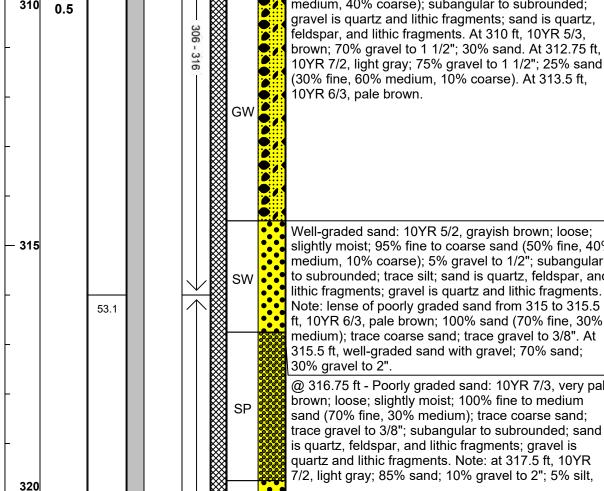
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Recover USCS Samples Core Rur PID (ppmv) (S Depth (ft) Details Sample Description Field (  $\Xi$ (1) (2) medium, 40% coarse); subangular to subrounded; 310 0.5 gravel is quartz and lithic fragments; sand is quartz,



Well-graded sand: 10YR 5/2, grayish brown; loose; slightly moist; 95% fine to coarse sand (50% fine, 40% medium, 10% coarse); 5% gravel to 1/2"; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: lense of poorly graded sand from 315 to 315.5 ft, 10YR 6/3, pale brown; 100% sand (70% fine, 30% medium); trace coarse sand; trace gravel to 3/8". At 315.5 ft, well-graded sand with gravel; 70% sand;

@ 316.75 ft - Poorly graded sand: 10YR 7/3, very pale brown; loose; slightly moist; 100% fine to medium sand (70% fine, 30% medium); trace coarse sand; trace gravel to 3/8"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 317.5 ft, 10YR 7/2, light gray; 85% sand; 10% gravel to 2"; 5% silt,

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

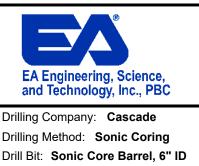
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

ſ	Core Re	covery	
ı	Ooie ite	COVERY	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 33 of 52

Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen Boring Diameter (in): 7" Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Temp (oC) Field UV	Samples Collected Core Run	(ft) Recovery	USCS	Sample Description	Completion Details
320	0.9				sw	nonplastic. At 318 ft, poorly graded sand with gravel; 70% sand; 25% gravel to 1 1/2"; 5% silt.	(1) (2)
_			310 - 320	XX		@ 319.75 ft - Well-graded sand with gravel: 10YR 6/3, pale brown; loose; slightly moist; 85% fine to coarse sand (50% fine, 40% medium, 10% coarse); 15%	

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

gravel to 1/2"; trace cobbles to 3 1/8"; sand is quartz, feldspar, and lithic fragments; gravel is quartz and GW lithic fragments; cobbles are lithic fragments. @ 321 ft - Well-graded gravel with sand: 10YR 6/3, pale brown; loose; slightly moist; 80% gravel to 2 5/8"; 20% fine to coarse sand (30% fine, 50% medium, 20% coarse); subangular to subrounded; trace silt; gravel is quartz and lithic fragments; sand is quartz, feldspar, and lithic fragments. Note: at 322 ft, trace SP lithic cobbles to 3 1/2". Lense of well-graded sand with 325 gravel from 323 to 323.75 ft, 10YR 6/2, light brownish gray; 70% sand (20% fine, 70% medium, 10% coarse); 25% gravel to 1 3/4"; 5% silt, nonplastic. @ 323.75 ft - Poorly graded sand: 10YR 6/2, light 36.1 brownish gray; 85% fine to medium sand (70% fine, 30% medium); trace coarse sand; 10% gravel to 1" subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: at 324.5 ft, 100% sand; GW trace gravel to 2"; trace silt. At 325.5 ft, 95% sand; 5% gravel to 1 1/4"; no silt. @ 326 ft - Well-graded gravel with sand: 10YR 6/2, light brownish gray; loose; slightly moist; 80% gravel to 2 5/8"; 20% fine to coarse sand (30% fine, 50% medium, 20% coarse); trace cobbles to 4"; subangular 330

Notes: (1) Current Water Table Well (2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

	Core Re	coverv	
l			
	No Recovery		Complete
	Disturbed Core	LAAAAA	

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 515

Well Diameter: 3" ID

Boring Diameter (in): 7"

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: 34 of 52

Screen Material: 3" Sch. 80 PVC

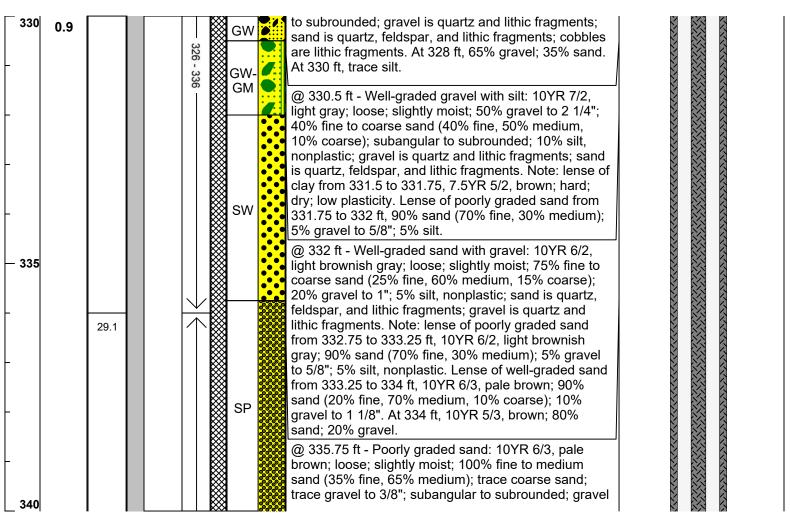
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Geologist: J. Messenger								Riser Material: 3" Sch. 80 PVC	Filter Pack: 10/20	Silica Sand
Depth (ft)	OIA (vmdd)	(oc)		Samples	Core Run (ft)	3   3	Lithology	Sample Description		Completion Details
	•			-						(1) (2)

DTW After Completion (ft bgs): 473.94



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery											
	No Recovery		Complete								
	Disturbed Core										

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

0.010" Slot Screen

Page: **35 of 52** 

Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC

Seal Material(s): Cement, Bentonite,

High Solids Bentonite Grout

Filter Pack: 10/20 Silica Sand

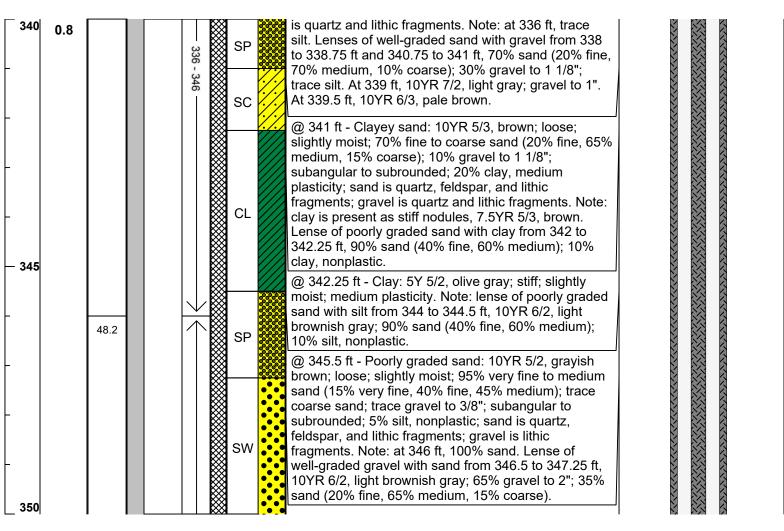
Completion Collected Lithology Run Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core (1) (2)

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Boring Diameter (in): 7"

Well Diameter: 3" ID



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Recovery											
	No Recovery		Complete								
	Disturbed Core										

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

0.010" Slot Screen

Page: 36 of 52

Drilling Company: Cascade Boring Depth (ft): 515 Drilling Method: Sonic Coring Boring Diameter (in): 7" Drill Bit: Sonic Core Barrel, 6" ID

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

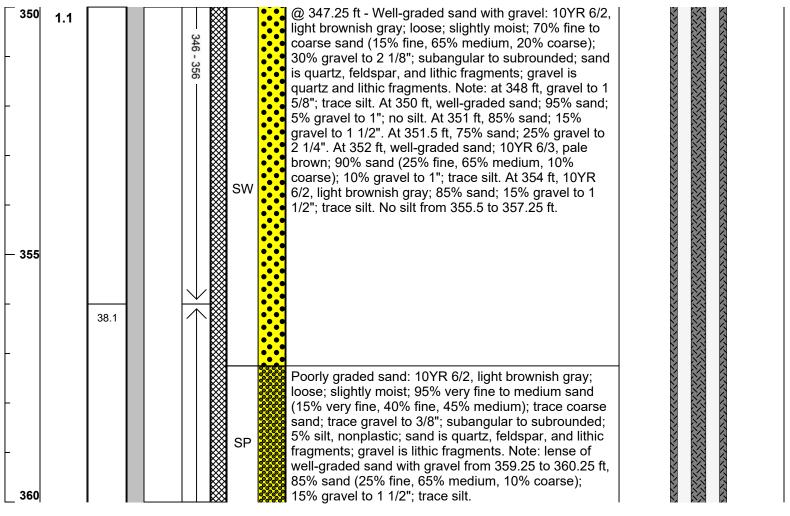
Seal Material(s): Cement, Bentonite,

Screen Material: 3" Sch. 80 PVC

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Recover USCS Samples Core Rur PID (ppmv) (S Depth (ft) Details Sample Description Field I (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

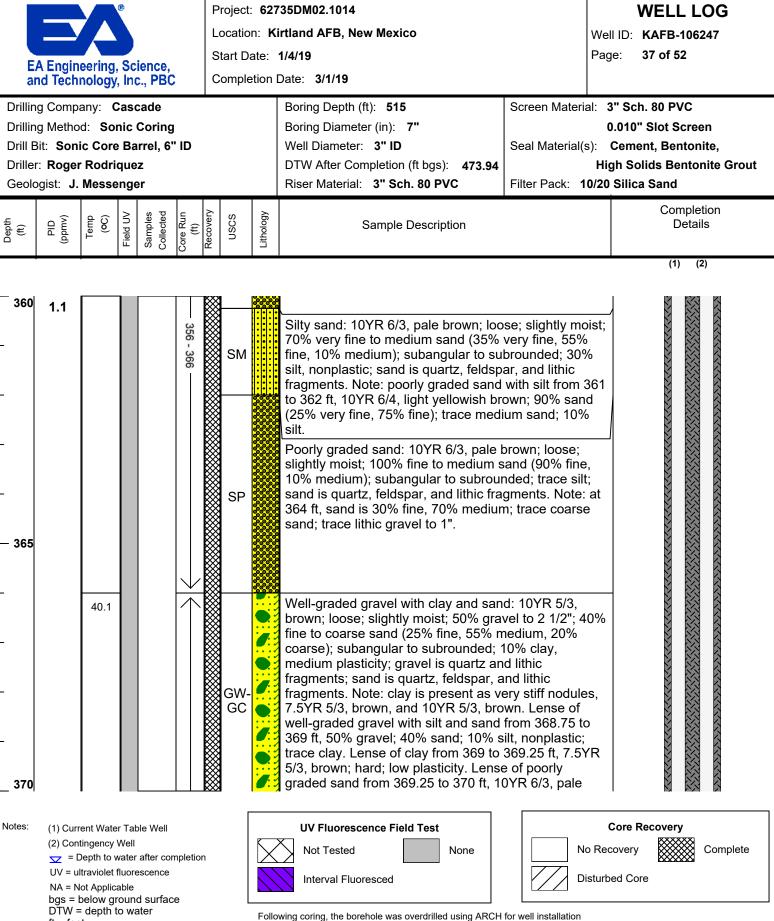
ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



I ollowing coming, the borehole was overthined using AICOT for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;

UV = ultraviolet; T = thermal conductivity; FOC = fraction organic carbon

ppmv = parts per million by volume USCS = Unified Soil Classification System

ft = feet

ID = inner diameter



Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: **KAFB-106247** 

Page: **38 of 52** 

Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC

Boring Diameter (in): 7" 0.010" Slot Screen

Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

High Solids Bentonite Grout

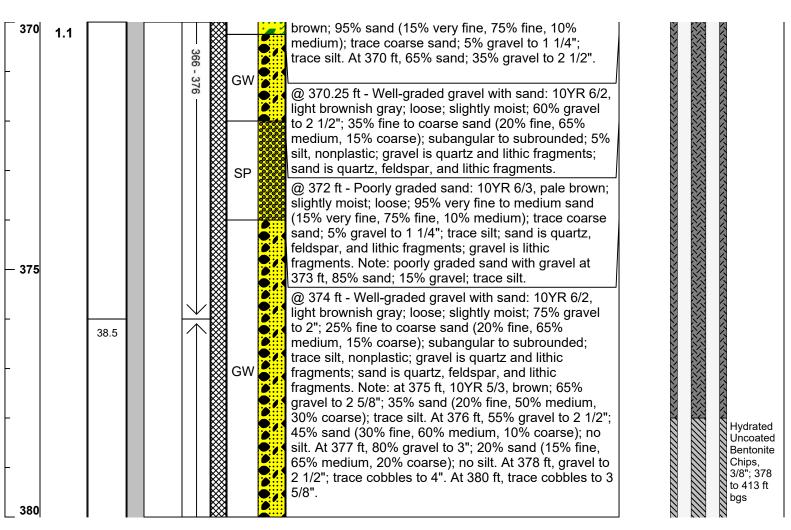
Filter Pack: 10/20 Silica Sand

Completion Details

Riser Material: 3" Sch. 80 PVC

DTW After Completion (ft bgs): 473.94

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Recovery

No Recovery

Complete

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: 39 of 52

Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 515 0.010" Slot Screen Boring Diameter (in): 7"

Well Diameter: 3" ID Seal Material(s): Cement, Bentonite,

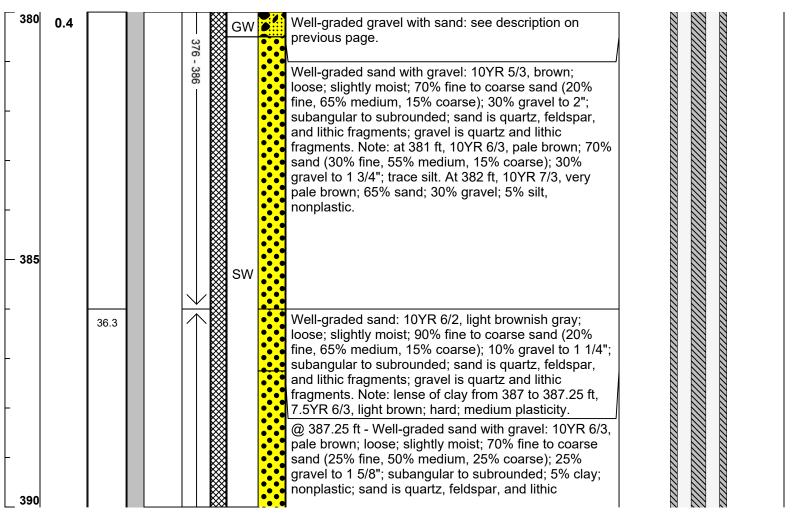
**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	OIA (vmdd)	Temp (oC)	Field UV	Samples	Pro Pil	E E	Recovery	nscs	Lithology	Sample Description	Completion Details
		·									(1) (2)

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC



Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery											
	No Recovery		Complete								
	Disturbed Core										

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

SP

SW

SP

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: **40 of 52** 

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 515 Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion 0 Details Sample Description

Lithology Collected Recover USCS Samples Core Rur PID (ppmv) Depth (ft) Field ( (1) (2) fragments; gravel is quartz and lithic fragments. Note: 390 1.5 lense of poorly graded sand from 388.5 to 389.25 ft, 386 - 396 10YR 7/3, very pale brown; 95% sand (20% very fine, 60% fine, 20% medium); trace coarse sand; trace gravel to 1 3/8"; 5% silt, nonplastic. At 389.25 ft, gravel to 2 5/8". At 390 ft, 75% sand; 25% gravel to 1 SW 5/8"; trace silt. At 393 ft, 10YR 7/2, light gray; 75% sand; 20% gravel; 5% silt. Poorly graded sand: 10YR 6/3, pale brown; loose; slightly moist; 95% very fine to medium sand (20% very fine, 60% fine, 20% medium); trace coarse sand; trace gravel to 1"; subangular to subrounded; 5% silt;

Well-graded sand with gravel: 10YR 6/3, pale brown; loose; slightly moist; 85% fine to coarse sand (25% fine, 60% medium, 15% coarse); 15% gravel to 1 1/8"; subangular to subrounded; trace silt; trace clay; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: clay is present as nodules, 2.5Y 5/3, light olive brown.

present as nodules, 2.5YR 4/8, red. At 394 ft, no clay.

trace clay; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: clay is

Poorly graded sand: 10YR 7/2, light gray; loose; slightly moist; 95% very fine to medium sand (20%

Notes:

400

395

(1) Current Water Table Well

48.3

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None
Interval Fluoresced

Core Recovery											
	No Recovery		Complete								
	Disturbed Core										

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: 41 of 52

Drilling Company: Cascade Boring Depth (ft): 515 Boring Diameter (in): 7" Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC 0.010" Slot Screen

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description	Completion Details
400	0.3				396 - 406 —		SW		very fine, 60% fine, 20% medium); trace coarse sand; trace gravel to 1"; subangular to subrounded; 5% silt; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: lense of well-graded sand from 399 to 399.25 ft, 85% sand (25% fine, 60% medium, 15% coarse); 10% gravel to 1 1/8"; 5% silt, nonplastic. At 399.25 ft, trace lithic gravel to 1 1/4"; trace	
							01		conglomerate cobble with secondary calcium carbonate cement.	

lithic fragments.

SW

SP

@ 401 ft - Poorly graded sand with gravel: 10YR 6/3, pale brown; loose; slightly moist; 90% fine to medium (30% fine, 70% medium); trace coarse sand; 10% gravel to 1 3/8"; subangular to subrounded; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments.

@ 400 ft - Well-graded sand with gravel: 10YR 7/2, light gray; loose; slightly moist; 70% fine to coarse sand (25% fine, 60% medium, 15% coarse); 30% gravel to 2"; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments; gravel is

@ 402.75 ft - Clay: 10YR 5/3, brown; hard; slightly moist; nonplastic.

@ 403.25 ft - Well-graded sand with gravel: 10YR 6/3, pale brown; loose; slightly moist; 85% fine to coarse sand (25% fine, 60% medium, 15% coarse); 15% gravel to 1 1/8"; trace cobbles to 4"; subangular to subrounded; trace silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments; cobbles are lithic fragments. Note: at 404 ft, no cobbles. Lense of poorly graded sand from 404.75 to

Notes:

410

405

(1) Current Water Table Well

41.1

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Well Diameter: 3" ID

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: **42 of 52** 

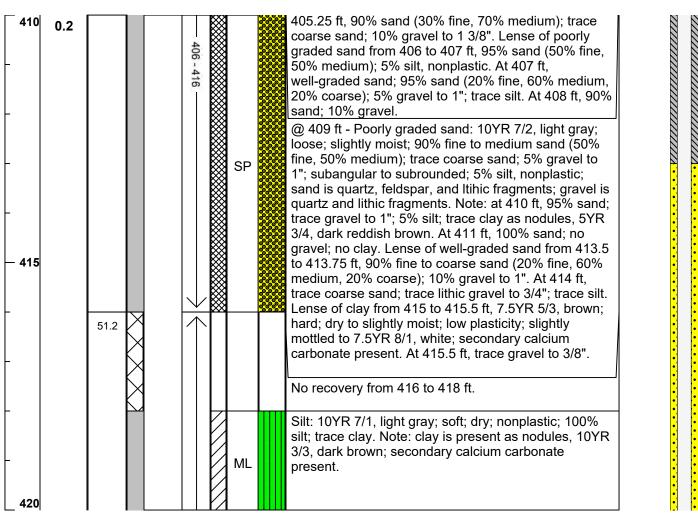
Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC
Boring Diameter (in): 7" 0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

High Solids Bentonite Grout

Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Collected Run Recover USCS Samples PID (ppmv) (S Depth (ft) Details Sample Description Field I Core (1) (2)

DTW After Completion (ft bgs): 473.94



3" Schedule 80 PVC Screen, 0.010" slot, 416 to 441 ft bgs

Notes: (1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

	Core Red	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 43 of 52

Drilling Company: Cascade Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez Geologist: J. Messenger Boring Depth (ft): 515 Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

0.010" Slot Screen

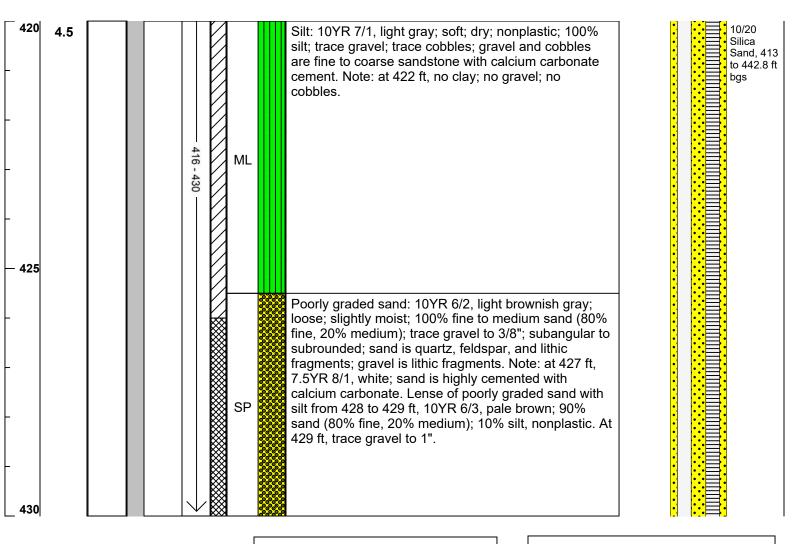
Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Core Run Samples Collected Recover USCS Lithology Depth (ft) PID (ppmv) (S Details Sample Description Field (

(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test

Not Tested

None

Interval Fluoresced

Core Recovery No Recovery



Complete

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

Page: 44 of 52

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 515

Boring Diameter (in): 7" Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

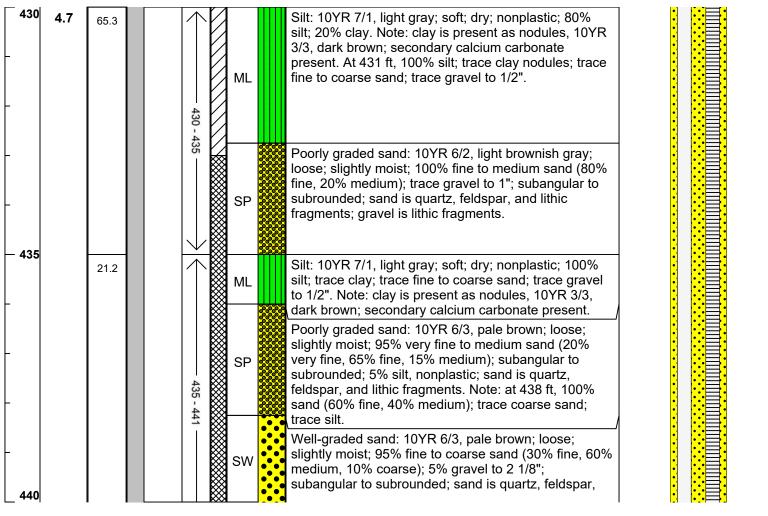
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	PID (vmdd)	Temp (oC)	Field UV	Samples Collected	E E	Recovery	nscs	Lithology	Sample Description	Completion Details
										(1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

ſ	Core Re	covery	
ı	Ooie ite	COVERY	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

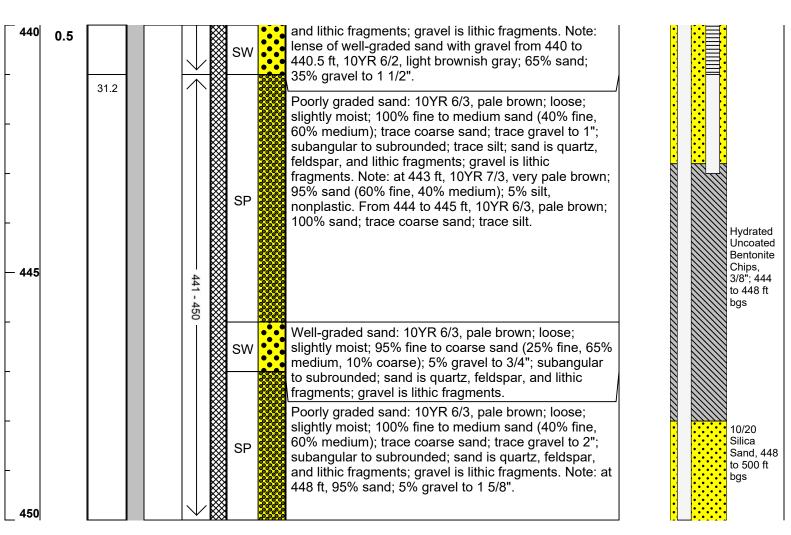
**WELL LOG** 

(2)

Well ID: **KAFB-106247** 

Page: **45 of 52** 

Drilling Company: Cascade Screen Material: 3" Sch. 80 PVC Boring Depth (ft): 515 Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Lithology Collected Recover USCS Samples Core Rur PID (ppmv) 8 Depth (ft) Details Sample Description Field I



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Not Tested None
Interval Fluoresced

Core Recovery

No Recovery

Disturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drill Bit: Sonic Core Barrel, 6" ID

Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: **46 of 52** 

Boring Depth (ft): **515**Boring Diameter (in): **7"**Well Diameter: **3" ID** 

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

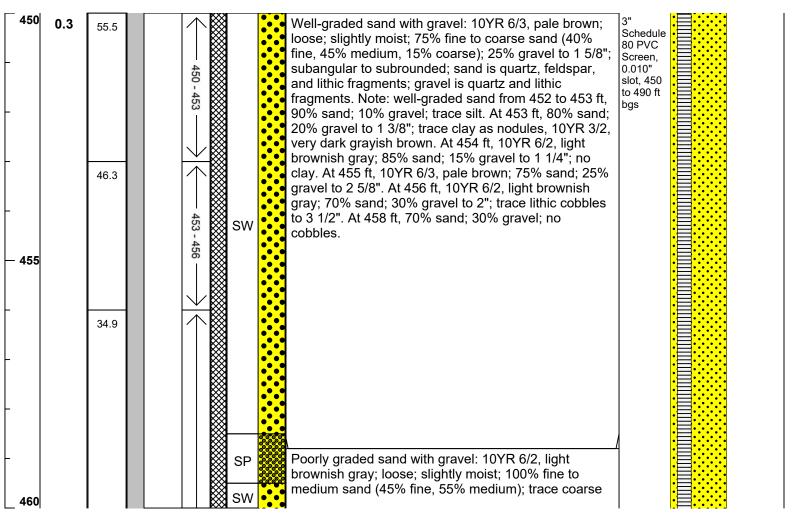
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Completion Lithology Collected Run Recover USCS Samples PID (ppmv) 0 Depth (ft) Details Sample Description Field I Core (1) (2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

	Core Rec	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Continuous (Continuous Continuous Co$ 



Driller: Roger Rodriquez

Geologist: J. Messenger

Drill Bit: Sonic Core Barrel, 6" ID

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: KAFB-106247

Page: 47 of 52

Boring Depth (ft): 515 Boring Diameter (in): 7" Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

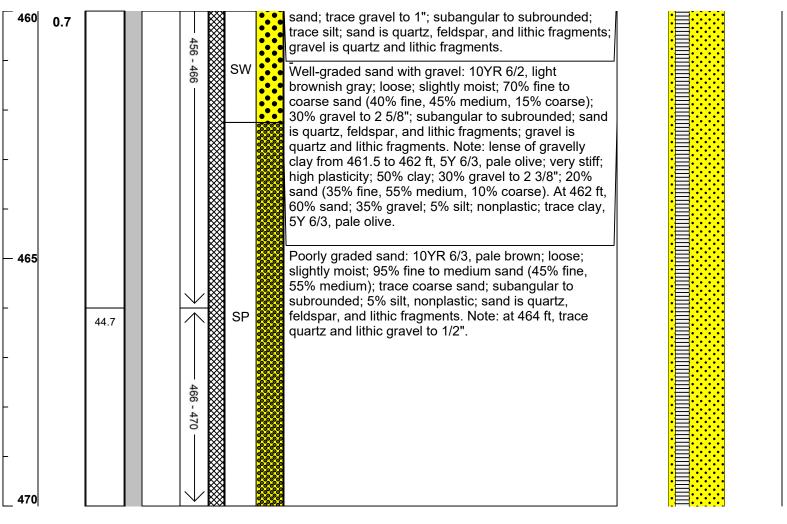
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	(vmdd)	(Oc)	Field UV	Samples Collected	Core Run	Œ	Kecovery	USCS	Lithology	Sample Description		oletion tails
											(1)	(2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Rec	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Driller: Roger Rodriquez

Geologist: J. Messenger

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

**WELL LOG** 

Well ID: **KAFB-106247** 

Page: **48 of 52** 

Drilling Company: Cascade

Drilling Method: Sonic Coring

Drill Bit: Sonic Core Barrel, 6" ID

Boring Depth (ft): 515

Boring Diameter (in): 7"

Well Diameter: 3" ID

DTW After Completion (ft bgs): 473.94

Riser Material: 3" Sch. 80 PVC

Screen Material: 3" Sch. 80 PVC

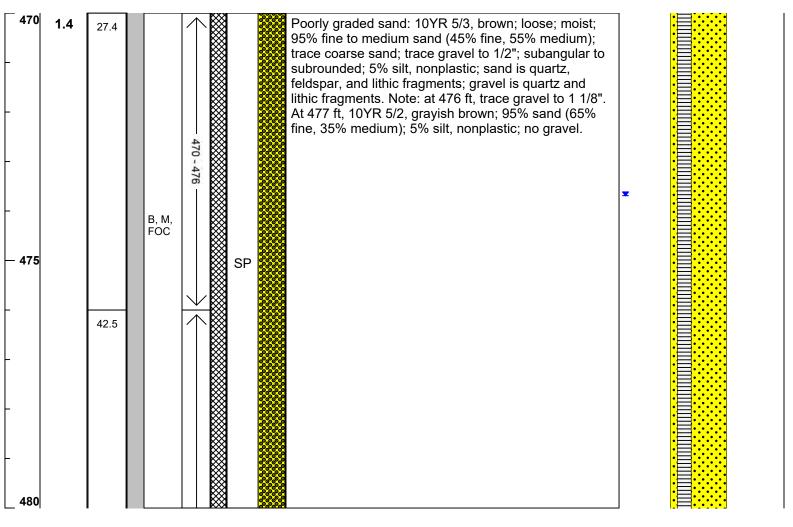
0.010" Slot Screen

Seal Material(s): Cement, Bentonite,

**High Solids Bentonite Grout** 

Filter Pack: 10/20 Silica Sand

Depth (ft)	Old (\nudd)	Temp (oC)	Field UV	Samples Collected	Core Run	Recovery	nscs	Lithology	Sample Description		eletion cails
										(1)	(2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System Not Tested None

Interval Fluoresced

Core Red	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

 $Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture \ analysis; G = geotechnical; Constraints of the contraction of the c$ 



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: **KAFB-106247** 

Page: **49 of 52** 

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 515 Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Core Run Samples Collected Recover USCS Lithology PID (ppmv) (S Depth (ft) Details Sample Description Field I  $\Xi$ 

(1) (2) 480 1.4 Poorly graded sand: 10YR 5/2, grayish brown; loose; P, V, moist; 95% fine to medium sand (65% fine, 35% FOC 476 medium); subangular to subrounded; 5% silt, - 486 nonplastic; sand is quartz, feldspar, and lithic fragments. Note: at 480.75 ft, 10YR 5/3, brown; trace quartz gravel to 1 1/8". At 482 ft, trace lithic gravel to 1 7/8". SP

Well-graded sand: 10YR 5/3, brown; loose; moist; 90% fine to coarse sand (25% fine, 65% medium, 10% coarse); 10% gravel to 2 7/8"; trace silt; sand is quartz, feldspar, and lithic fragments; gravel is quartz and lithic fragments. Note: well-graded sand with gravel at 487 ft, 75% sand; 25% gravel.

Poorly graded sand: 10YR 5/2, grayish brown; loose; moist; 95% fine to medium sand (65% fine, 35% medium); trace gravel to 1 1/4"; subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic

Notes:

490

485

(1) Current Water Table Well

34.7

SW

SP

(2) Contingency Well

B, M,

P, V, FOC

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Details

Well ID: KAFB-106247

Page: 50 of 52

Screen Material: 3" Sch. 80 PVC Drilling Company: Cascade Boring Depth (ft): 515 Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion

Core Run Lithology Samples Collected Recover USCS Depth (ft) PID (ppmv) (S Sample Description Field (  $\Xi$ (1) (2) fragments. 490 1.3 Schedule 80 PVC 486 - 496 Core bag not opened, 490 to 492 ft sent to lab for Sump, thermal conductivity analysis. 490 to 492 ft bgs Well-graded gravel with sand: 10YR 4/2, dark grayish brown; loose; moist; 70% gravel to 2 7/8"; 30% fine to 0 coarse sand (20% fine, 60% medium, 20% coarse); subangular to subrounded; trace clay; gravel is quartz and lithic fragments; sand is quartz, feldspar, and lithic Ø. fragments. Note: clay is present as nodules. GW 7 495 Well-graded sand with clay and gravel: 10YR 5/2, 34.3 grayish brown; loose; moist; 50% fine to coarse sand (20% fine, 65% medium, 15% coarse); 40% gravel to SW-2 1/4"; subangular to subrounded; 10% clay, SC nonplastic; sand is quartz, feldspar, and lithic 496 fragments; gravel is quartz and lithic fragments.

Notes:

500

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

500

B, M, Ρ, ٧

GW

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

UV Fluorescence Field Test Not Tested None Interval Fluoresced

feldspar, and lithic fragments.

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Well-graded gravel with sand: 10YR 5/2, grayish brown; loose; moist; 50% gravel to 2 1/4"; 45% fine to coarse sand (20% fine, 65% medium, 15% coarse);

is quartz and lithic fragments; sand is quartz,

subangular to subrounded; 5% clay, nonplastic; gravel

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



(S

PID (ppmv)

Depth (ft)

Collected Run

Core

Samples

Field I

Recover USCS

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Start Date: 1/4/19

Completion Date: 3/1/19

WELL LOG

Well ID: KAFB-106247

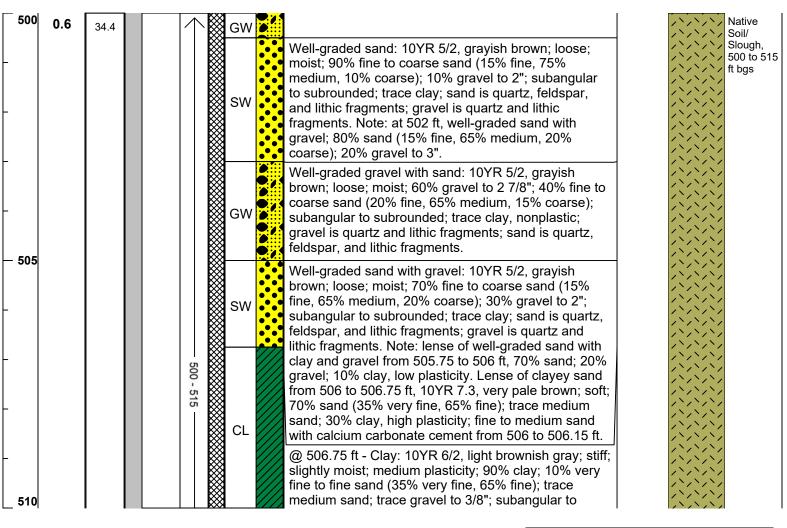
Page: 51 of 52

Drilling Company: Cascade Boring Depth (ft): 515 Screen Material: 3" Sch. 80 PVC Drilling Method: Sonic Coring Boring Diameter (in): 7" 0.010" Slot Screen Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand

Sample Description

Completion Details

(2)



Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test Not Tested None Interval Fluoresced

Core Recovery			
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;



Drilling Company: Cascade

Project: 62735DM02.1014

Location: Kirtland AFB, New Mexico

Boring Depth (ft): 515

Start Date: 1/4/19

Completion Date: 3/1/19

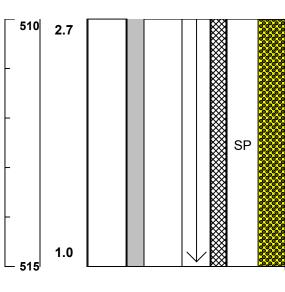
**WELL LOG** 

Well ID: KAFB-106247

Page: 52 of 52

Screen Material: 3" Sch. 80 PVC

Boring Diameter (in): 7" 0.010" Slot Screen Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Well Diameter: 3" ID Seal Material(s): Cement, Bentonite, Driller: Roger Rodriquez DTW After Completion (ft bgs): 473.94 **High Solids Bentonite Grout** Geologist: J. Messenger Riser Material: 3" Sch. 80 PVC Filter Pack: 10/20 Silica Sand Completion Collected Run Recover uscs Lithology Samples Depth (ft) PID (ppmv) (S Details Sample Description Field I Core



subrounded; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: lense of clayey sand from 508 to 509 ft, 70% sand (35% very fine, 65% fine); trace medium sand; 30% clay, low plasticity. Lense of poorly graded sand with silt from 509 to 510 ft, 90% sand (25% very fine, 75% fine); trace medium sand; 10% silt, nonplastic.

@ 510 ft - Poorly graded sand: 10YR 6/2, light brownish gray; loose; moist; 95% fine to medium sand (25% fine, 75% medium); trace coarse sand; trace gravel to 2"; subangular to subrounded; 5% silt, nonplastic; sand is quartz, feldspar, and lithic fragments; gravel is lithic fragments. Note: at 511 ft, poorly graded sand with gravel; 75% sand; 20% gravel to 2 1/2"; 5% silt; trace clay as nodules. At 512 ft, 65% sand; 30% gravel to 2"; trace lithic cobbles to 3 1/4"; 5% silt. At 513 ft, no cobbles.

TD = 515 ft



(1) (2)

Notes:

(1) Current Water Table Well

(2) Contingency Well

= Depth to water after completion

UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

DTW = depth to water

ft = feet

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System UV Fluorescence Field Test

Not Tested



None

Interval Fluoresced

No Recovery



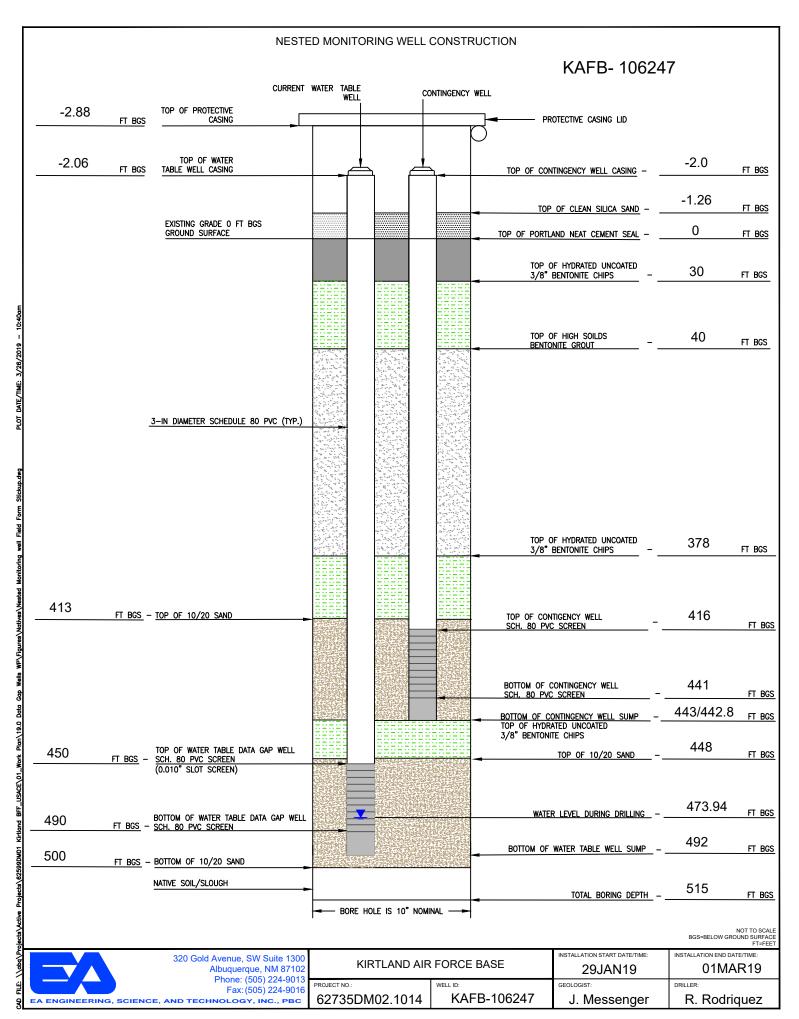
Core Recovery

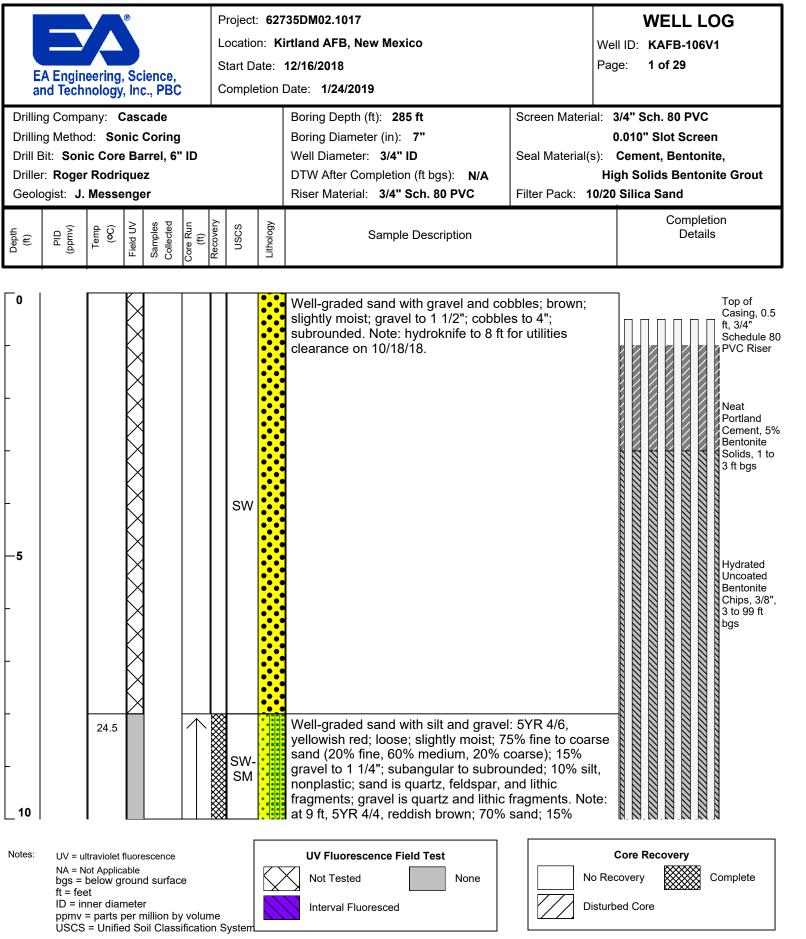
Complete

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical;

UV = ultraviolet; T = thermal conductivity; FOC = fraction organic carbon





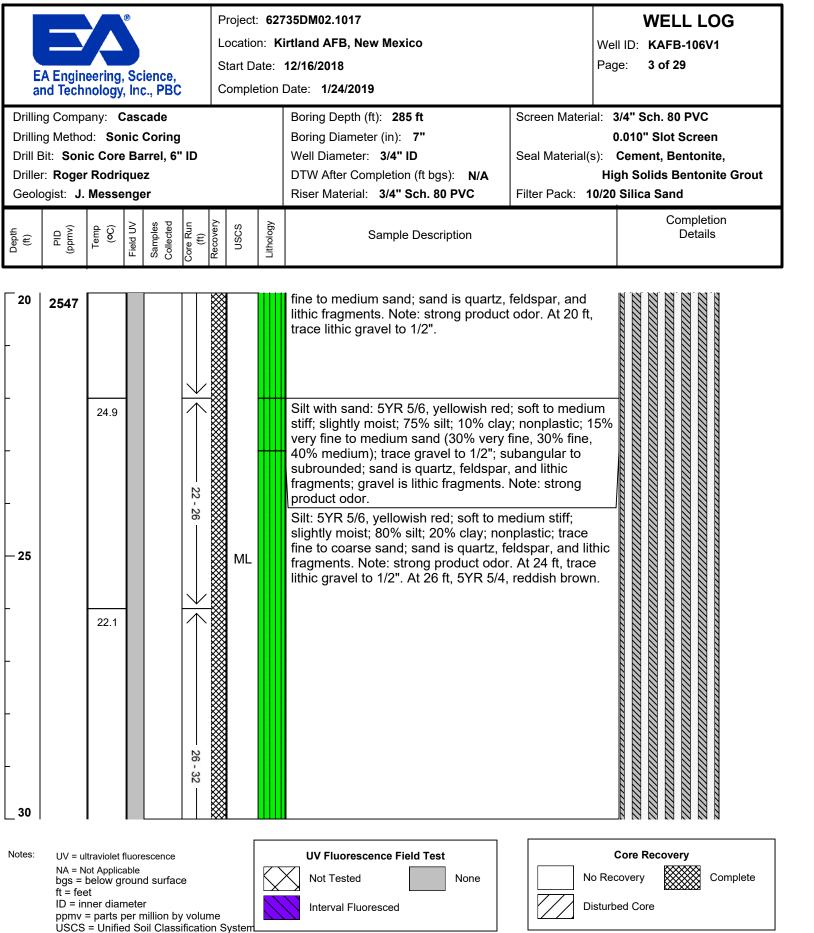
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

EA Engineering, Science,	Location: <b>Ki</b> Start Date:	ast DM02.1017  rtland AFB, New Mexico 12/16/2018  Date: 1/24/2019  Boring Depth (ft): 285 ft  Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A  Riser Material: 3/4" Sch. 80 PVC	WELL LOG Well ID: KAFB-106V1 Page: 2 of 29  II: 3/4" Sch. 80 PVC 0.010" Slot Screen ): Cement, Bentonite, High Solids Bentonite Grout 0/20 Silica Sand		
(ft) PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) (ft)	USCS	Sample Description		Completion Details	
15	SW-SM	Gravel; 10% silt; 5% clay, nonplastic.  Clay with sand: 5YR 5/4, reddish browlow plasticity; 60% clay; 5% silt, nonpto coarse sand (30% fine, 40% mediu 10% gravel to 5/8"; subangular to subis quartz, feldspar, and lithic fragment quartz and lithic fragments. Note: clay 5YR 7/2, pinkish gray, and includes so calcium carbonate. Weak product odd Silt: 5YR 5/6, yellowish red; soft; sligh silt; 20% clay; nonplastic. Note: produt to 14.5 ft, stiff; stringers of secondary carbonate present, 5YR 7/2, pinkish grace fine to medium sand. At 15.5 ft, medium sand; trace gravel to 3/8"; sa lithic fragments; gravel is lithic fragments product odor.	lastic; 25% find m, 30% coarse rounded; sand s; gravel is r is mottled to econdary or. tly moist; 80% ict odor. From calcium gray. At 14.5 ft, trace fine to nd is quartz ar	e e);	
20	SC	Clayey sand: 5YR 5/6, yellowish red; moist; 70% very fine to coarse sand (20% fine, 40% medium, 30% coarse); 1/8"; subangular to subrounded; 15% nonplastic; sand is quartz, feldspar, a fragments; gravel is quartz and lithic f strong product odor.  Silt: 5YR 5/6, yellowish red; soft to me slightly moist; 80% silt; 20% clay; non	e:		
tes: UV = ultraviolet fluorescence  NA = Not Applicable bgs = below ground surface ft = feet ID = inner diameter ppmv = parts per million by volume USCS = Unified Soil Classification S		UV Fluorescence Field Test  Not Tested  Interval Fluoresced  Core Recovery  No Recovery  Disturbed Core			

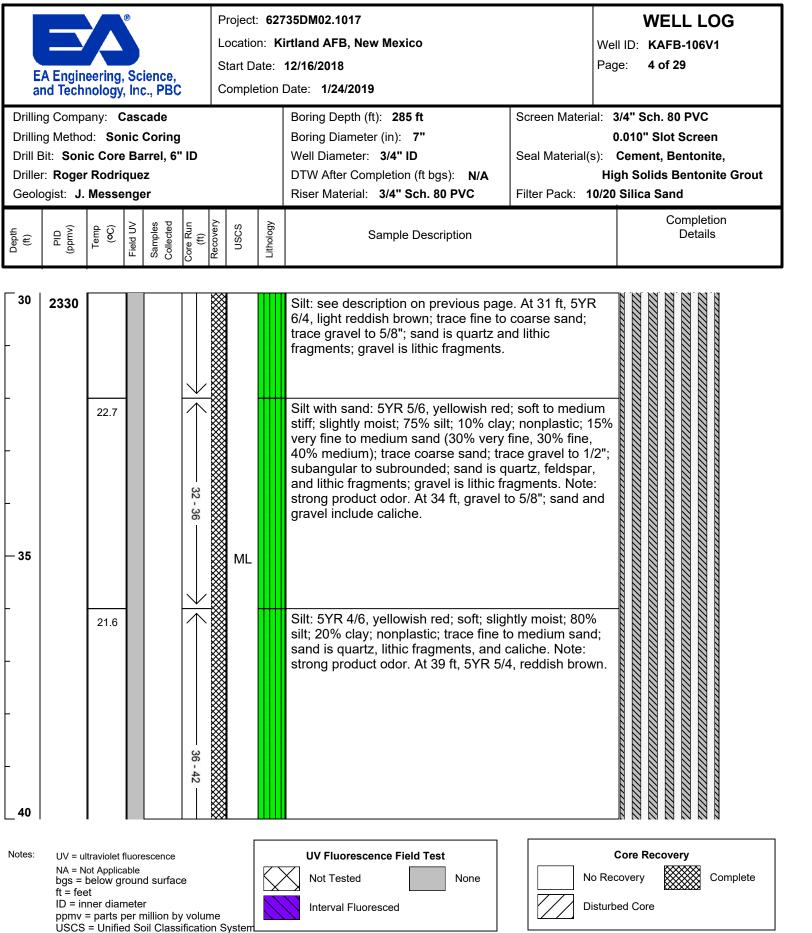
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



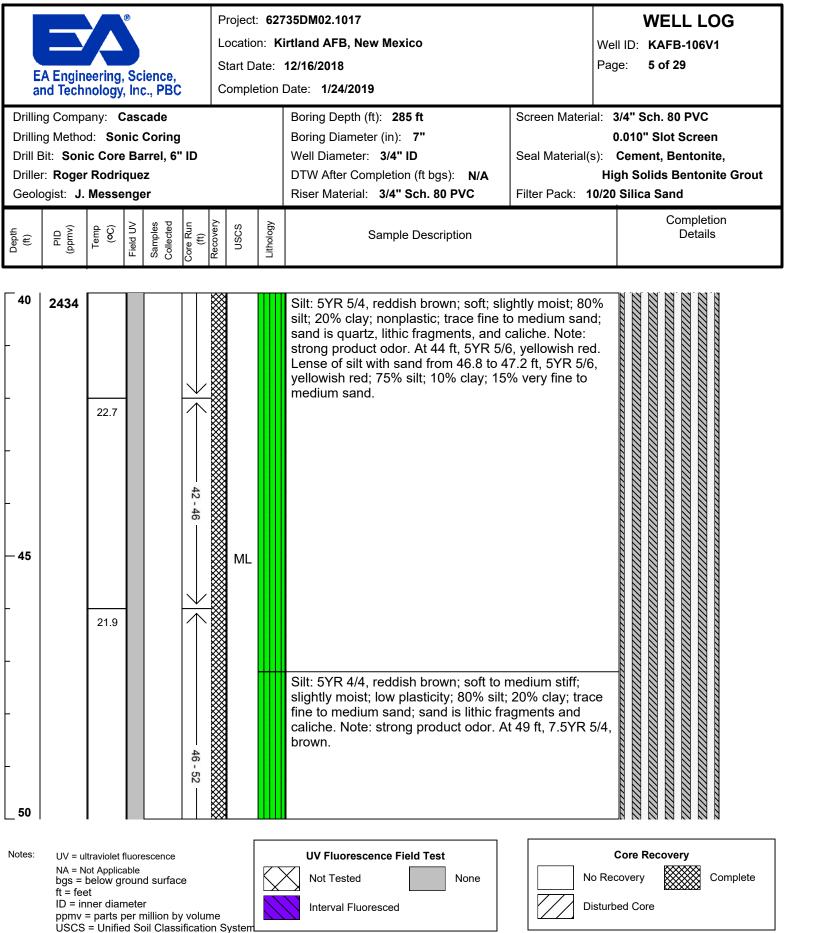
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



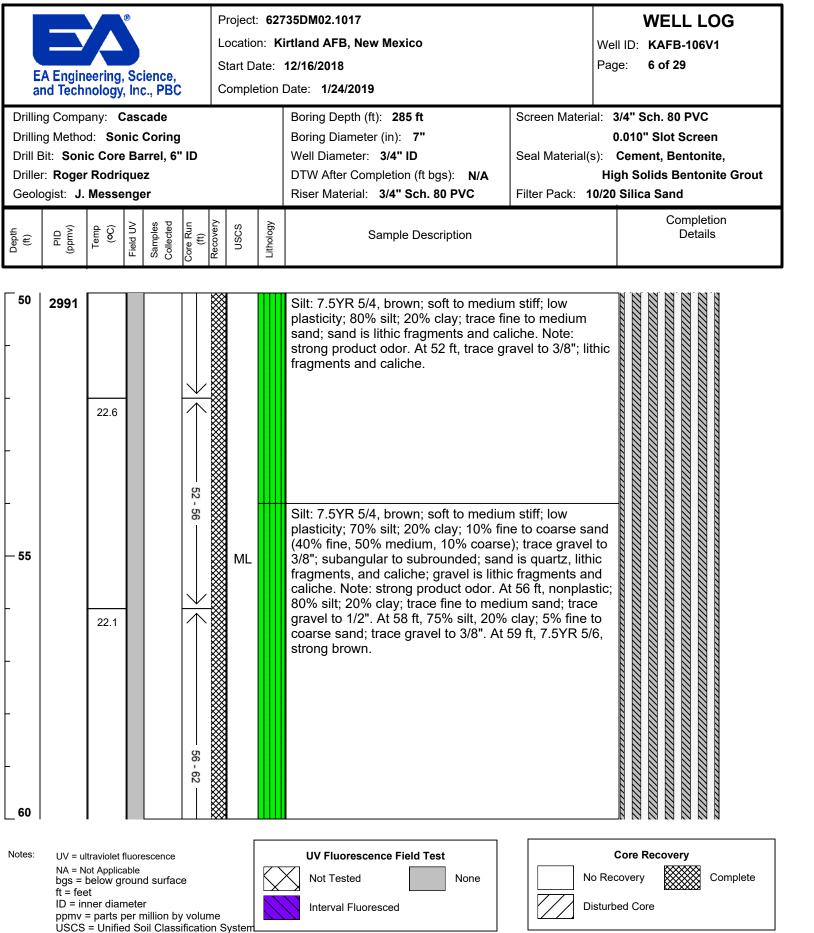
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



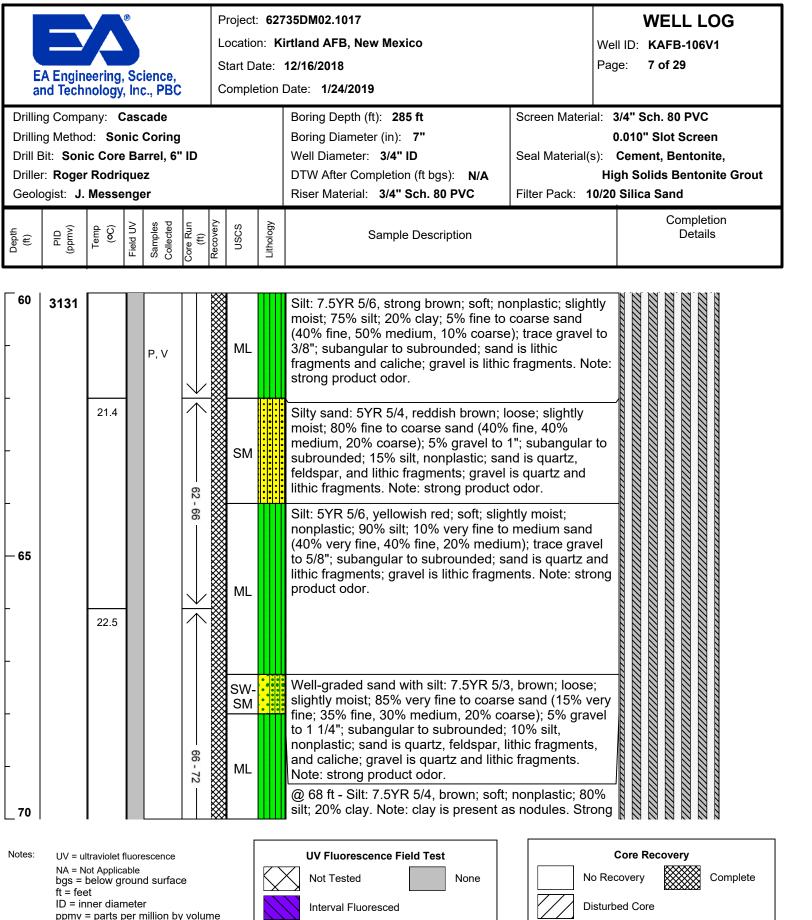
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

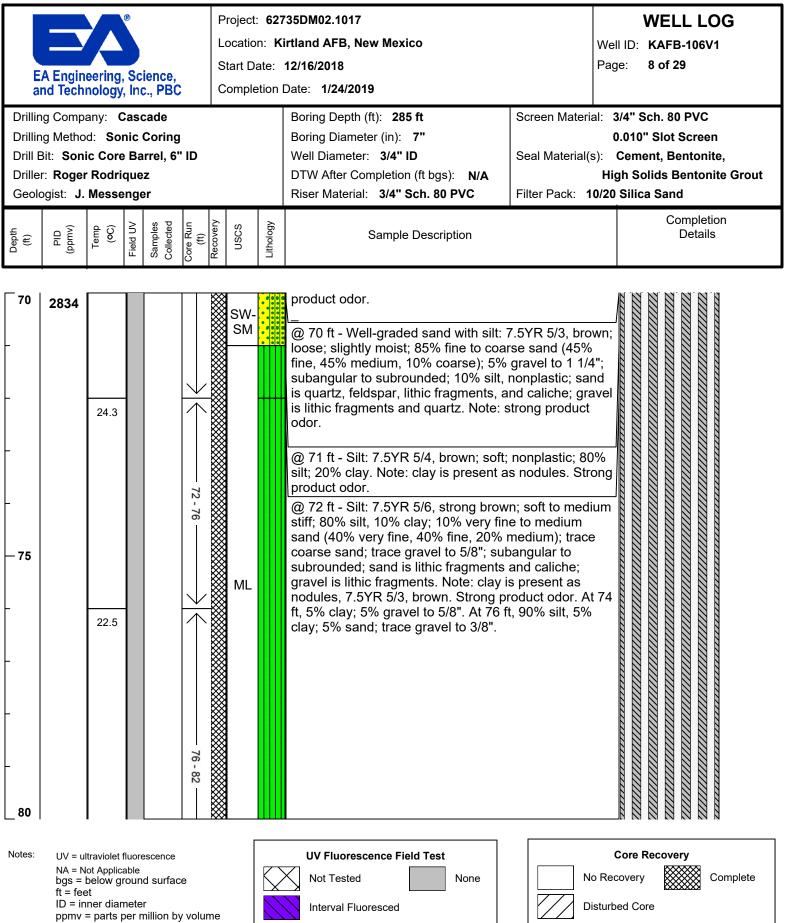


Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

There is a 0.4 ft sump underlying each screen.

USCS = Unified Soil Classification System



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

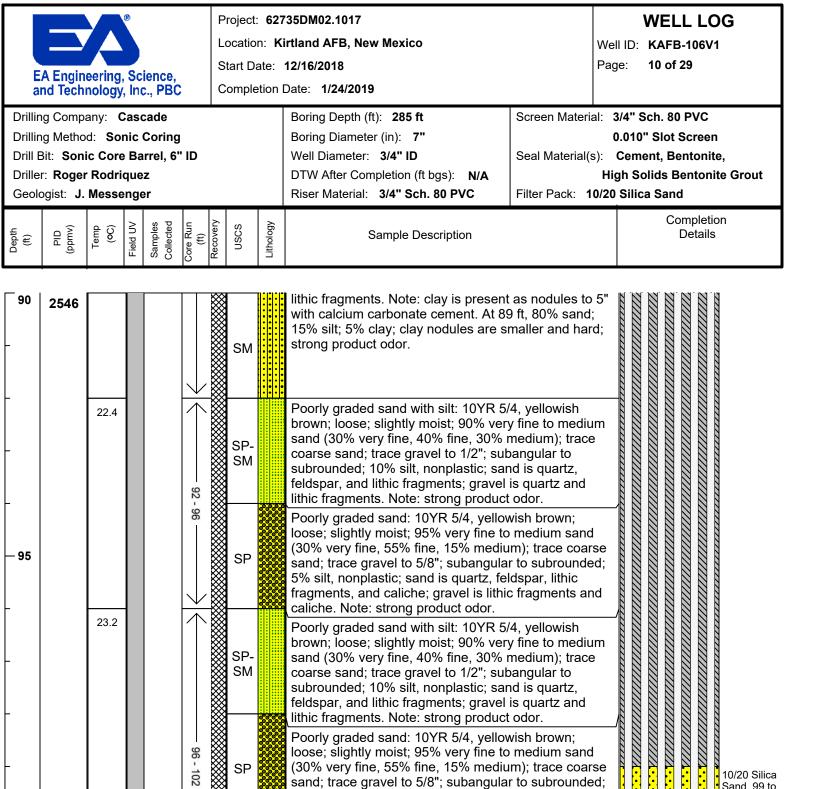
There is a 0.4 ft sump underlying each screen.

USCS = Unified Soil Classification System

ar	A Engine	eering, nology,	Inc	., PBC	;	Lo	cation	n: <b>K</b> ate:	735DM02.1017 irtland AFB, New Mexico 12/16/2018 Date: 1/24/2019 Boring Depth (ft): 285 ft	WELL LOG Well ID: KAFB-106V1 Page: 9 of 29 al: 3/4" Sch. 80 PVC							
Drilling Company: Cascade  Drilling Method: Sonic Coring  Drill Bit: Sonic Core Barrel, 6" ID  Driller: Roger Rodriquez  Geologist: J. Messenger									Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A  Riser Material: 3/4" Sch. 80 PVC  O.010" Slot Screen  Seal Material(s): Cement, Bentonite,  High Solids Bentonite Gro  Filter Pack: 10/20 Silica Sand								
Depth (ft)	PID (vmdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description		Completion Details						
- - - -85	2271	23.1			82 - 86		ML		Silt: 7.5YR 5/6, strong brown; soft to m 80% silt; 15% clay; 5% very fine to me (40% very fine, 40% fine, 20% mediun sand; sand is lithic fragments and calic secondary calcium carbonate coating throughout core. Strong product odor. hard; 80% silt; 20% clay; no sand.								
-					86 - 92		SM		Sandy silt: 7.5YR 5/6, strong brown; somoist; 50% silt, nonplastic; 10% clay; a medium sand (30% very fine, 30% fine medium); subangular to subrounded; somedium stiff nodules. Strong product of silty sand: 7.5YR 5/3, brown; loose; sledow very fine to medium sand (20% very fine, 15% medium); subangular to sub silt, nonplastic; 10% clay; sand is quar	40% very fine e, 40% sand is quarta ay is present odor. lightly moist; very fine, 65% prounded; 30%	, as as a second of the second						
Notes: UV = ultraviolet fluorescence  NA = Not Applicable bgs = below ground surface ft = feet ID = inner diameter ppmv = parts per million by volume USCS = Unified Soil Classification Syster									Not Tested None Interval Fluoresced		Core Recovery  Discreption Recovery  Complete  Sturbed Core						

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



Notes: UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

ft = feet

100

ID = inner diameter

ppmv = parts per million by volume
USCS = Unified Soil Classification Syster

Not Tested None

Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

103.5 ft bgs

Following coring, the borehole was overdrilled using ARCH for well installation

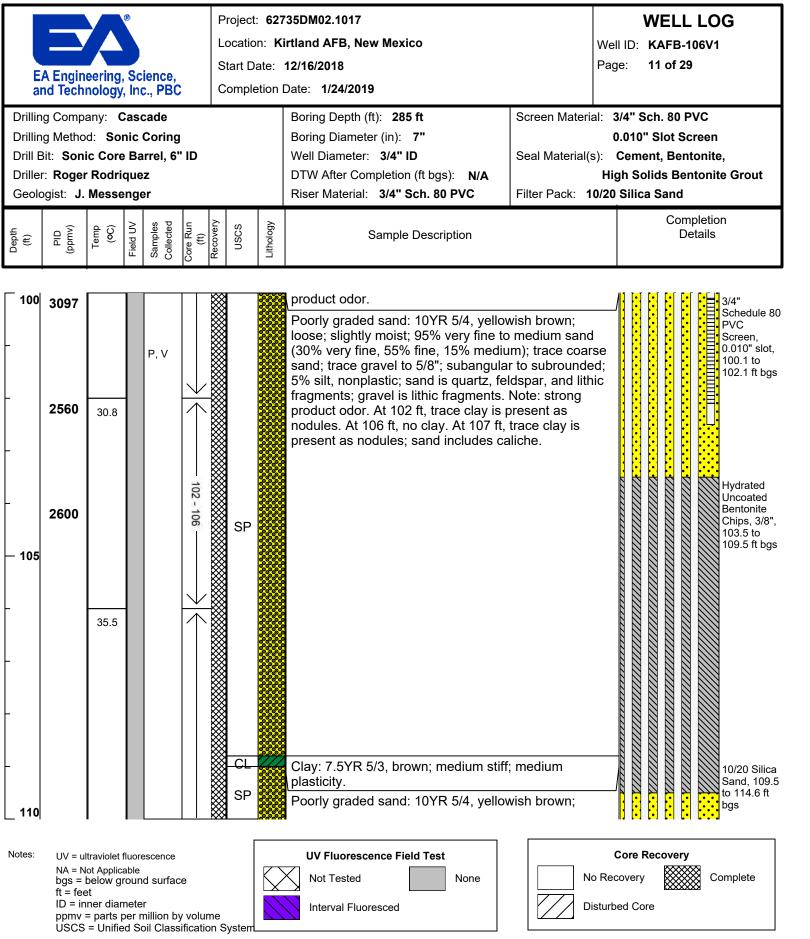
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

There is a 0.4 ft sump underlying each screen.

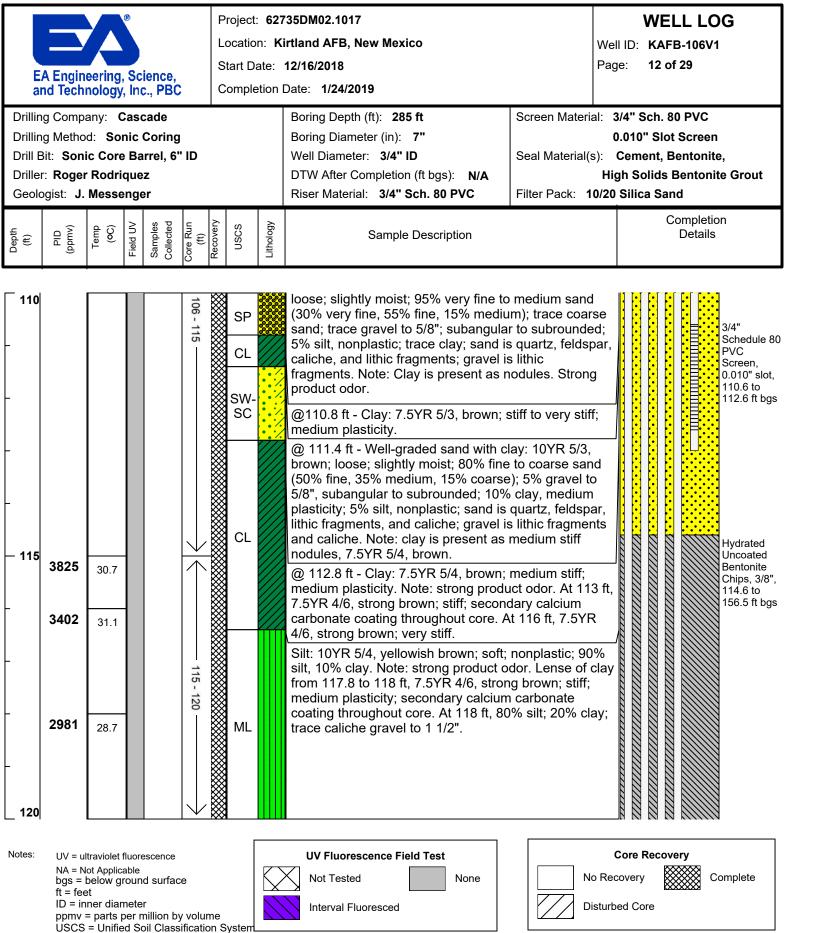
5% silt, nonplastic; sand is quartz, feldspar, and lithic

fragments; gravel is lithic fragments. Note: strong



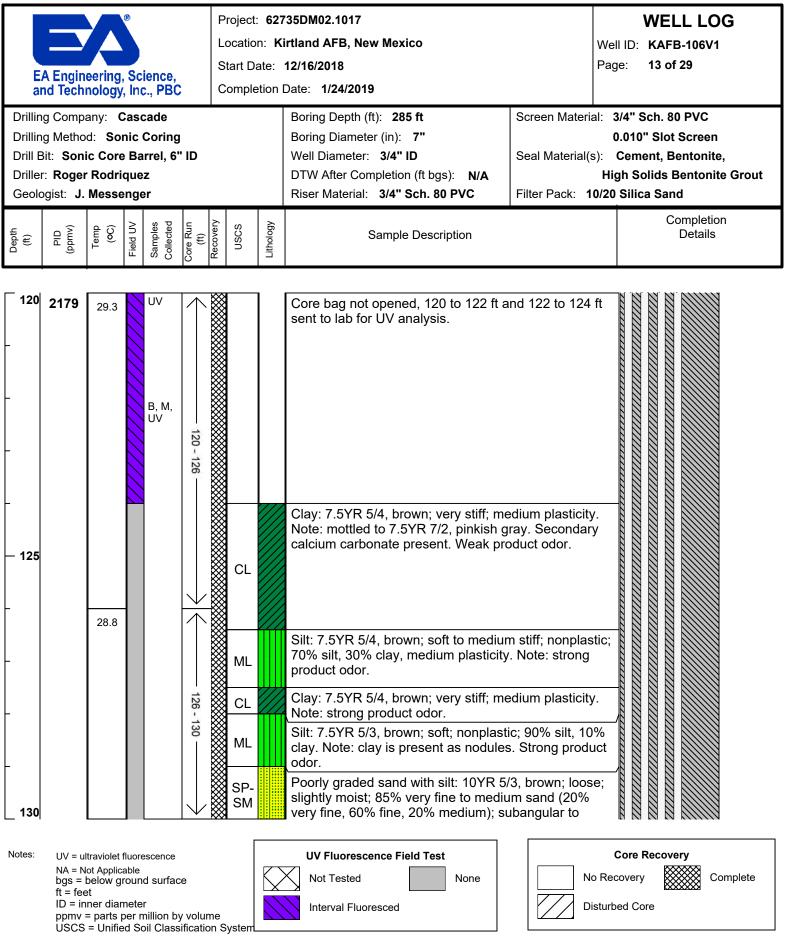
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

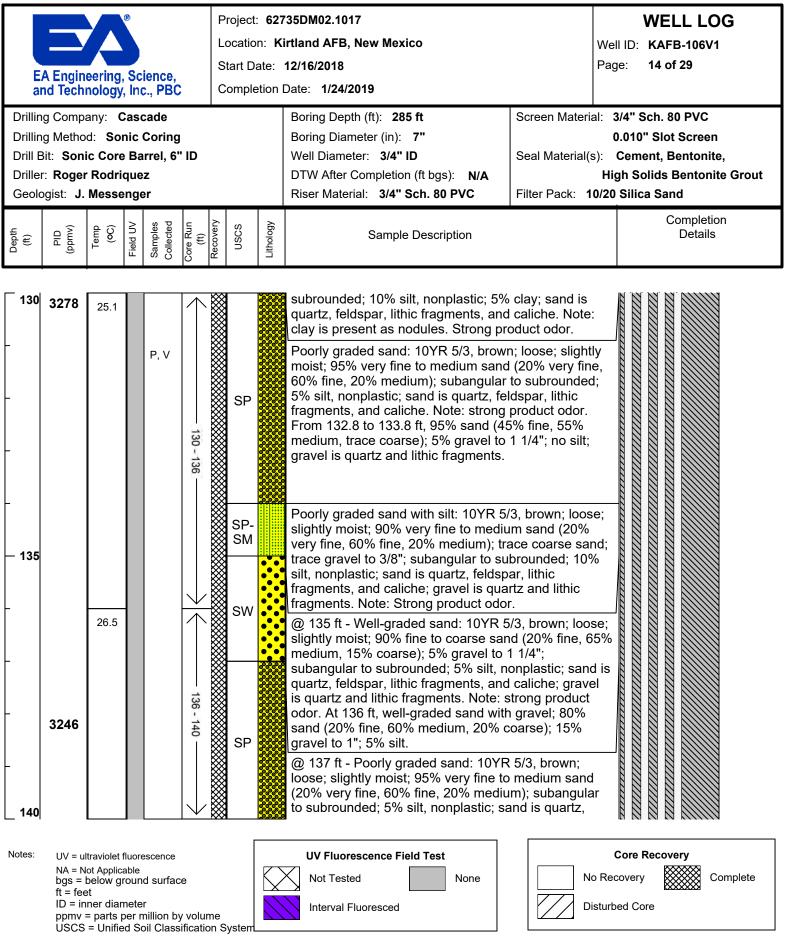
T = thermal conductivity



Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 1\right) +\left( 1\right) \left( 1\right) \left( 1\right) +\left( 1\right) \left( 1\right)$ 

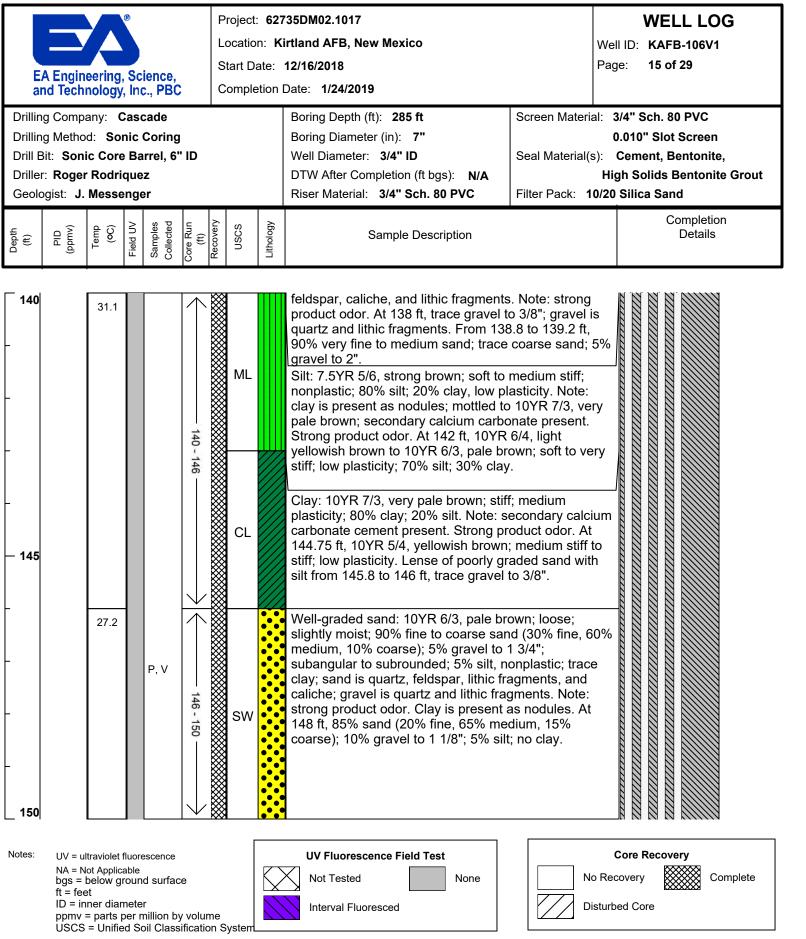
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

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Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

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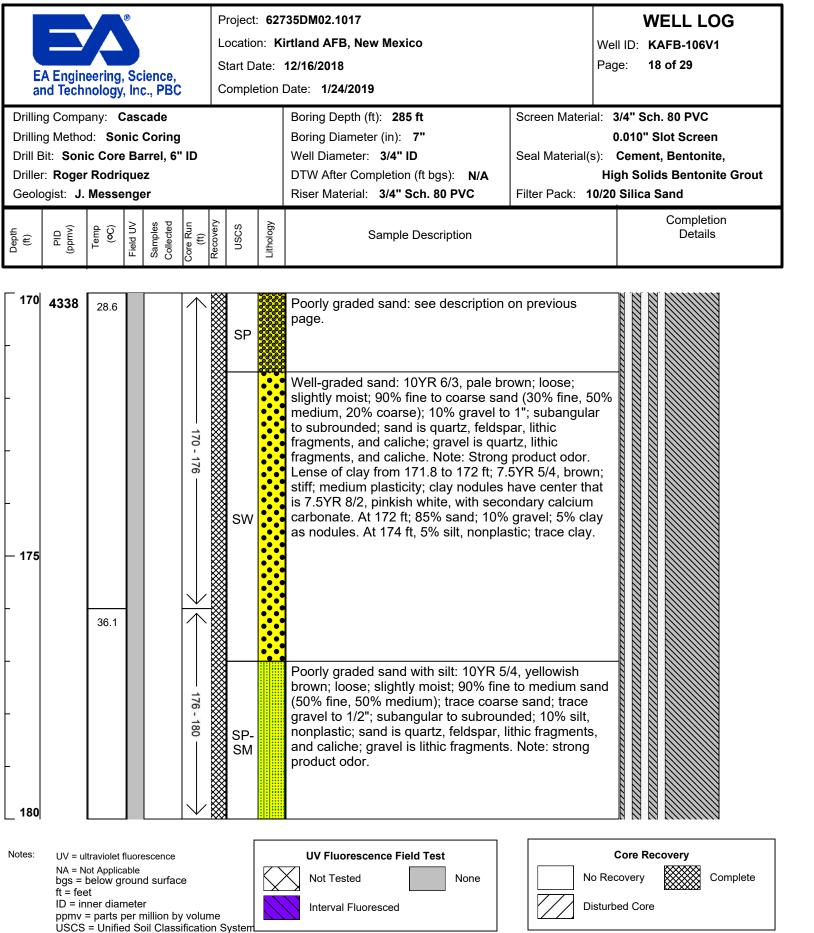
Drilling Drill B Driller	A Engine nd Techr g Compa g Method it: Soni : Roger gist: J.	eering, nology, any: C d: Son c Core Rodric	asc nic ( Bar que	ade Coring rrel, 6'	l	Lo	catio	n: <b>K</b> i ate:	Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A	Seal Material(s	Page: al: 3/4" ( 0.010 b): Cem High S	WELL LOG  ell ID: KAFB-106V1  age: 16 of 29  3/4" Sch. 80 PVC  0.010" Slot Screen  Cement, Bentonite,  ligh Solids Bentonite Grout  0 Silica Sand  Completion		
Depth (ft)	PID (hmdd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description				npletio etails	n
_ 150 155 	4229	29.6		UV			SP-SM		Well-graded sand: 10YR 6/3, pale browslightly moist; 85% fine to coarse sand medium, 10% coarse); 10% gravel to 2 to subrounded; 5% silt, nonplastic; san feldspar, lithic fragments, and caliche; and lithic fragments. Note: strong prod of clay from 151.8 to 152 ft, 7.5YR 5/3, medium plasticity.  Well-graded sand with gravel: 10YR 6/100se; slightly moist; 70% fine to coars fine, 65% medium, 15% coarse); 25% subangular to subrounded; 5% silt, nor is quartz, feldspar, lithic fragments, and is quartz and lithic fragments. Note: strodor. At 154 ft, 80% sand; 15% gravel; ft, well-graded sand; 90% sand; 5% gravel; ft, well-graded sand; 90% fine to mediu fine, 60% medium); trace coarse sand; 1/2"; subangular to subrounded; 10% strace clay; sand is quartz, feldspar, lith and caliche; gravel is lithic fragments. present as nodules, 7.5YR 5/4, brown. odor.  @ 157 ft - Poorly graded sand: 10YR 6/100se; slightly moist; 95% fine to mediu fine, 60% medium); trace coarse sand; subrounded; 5% silt, nonplastic; sand if feldspar, lithic fragments, and caliche.	(20% fine, 7 2"; subangular dis quartz, gravel is qua uct odor. Len, brown; stiff;  (3, pale brown; e sand (20% gravel to 2 3/ nplastic; sand dische; gravel to 2 3/ nplastic; sand dische; sand dische; sand sand (40%; trace gravel silt, nonplastic; fragments, Note: clay is Strong product (3/3, pale browum sand (40%; subangular is quartz,	r rtz rtz rtz rtz rtz rtz rtz rtz rtz rt			10/20 Silica Sand, 156.5 to 161.2 ft bgs 3/4" Schedule 80 PVC Screen, 0.010" slot, 157.6 to 159.6 ft bgs
Notes: UV = ultraviolet fluorescence  NA = Not Applicable bgs = below ground surface ft = feet ID = inner diameter ppmv = parts per million by volume USCS = Unified Soil Classification System									Not Tested None Interval Fluoresced		Core  Recovery	′ 🟻	, XXX	omplete

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

aı	A Engin	eering, nology,	, Inc	., PBC		Lo	ocatio tart Da	n: <b>K</b> i ate:	35DM02.1017 rtland AFB, New Mexico 12/16/2018 Date: 1/24/2019		Well ID: Page:	WELL LOG KAFB-106V1 17 of 29
Orilling Company: Cascade Orilling Method: Sonic Coring Orill Bit: Sonic Core Barrel, 6" ID Oriller: Roger Rodriquez Geologist: J. Messenger									Boring Depth (ft): 285 ft Boring Diameter (in): 7" Well Diameter: 3/4" ID DTW After Completion (ft bgs): N/A Riser Material: 3/4" Sch. 80 PVC	Screen Material Seal Material(s Filter Pack: 1	0.010 s): Cem High So	" Slot Screen ent, Bentonite, olids Bentonite Grout
(ft)	PID (pmmv)	Temp (oC)	Field UV	Samples Collected	Core Run	Recovery	nscs	Lithology	Sample Description			Completion Details
160	5743	29.4		P, V, B, M UV			CL		product odor.  ② 158 ft - Core bag not opened, 158 lab for UV analysis. ② 160 ft - Clay: 10YR 5/4, yellowish be stiff; medium plasticity. Note: mottled light gray. Mottled areas contain seconcarbonate. Brownish yellow and black mottling. Strong product odor.  Core bag not opened, 162 to 164 ft ar sent to lab for UV analysis.  Poorly graded sand: 10YR 6/3, pale be slightly moist; 95% fine to medium sand 40% medium); trace coarse sand; trace subangular to subrounded; 5% silt, not is quartz, feldspar, lithic fragments, art is lithic fragments. Note: strong product of clay from 168.6 to 168.8 ft, 7.5YR 5 medium stiff; medium plasticity; interbisecondary calcium carbonate stringer trace gravel to 5/8".	prown; mediur to 10YR 7/2, ndary calcium a staining arou and 164 to 166 prown; loose; and (60% fine, be gravel to 3/ onplastic; sand and caliche; gra ct odor. Lense 5/3, brown; hedded with	n nd ft 8";	Hydrated Uncoated Bentonite Chips, 3/8", 161.2 to 214 ft bgs
tes: UV = ultraviolet fluorescence  NA = Not Applicable bgs = below ground surface ft = feet ID = inner diameter ppmv = parts per million by volume USCS = Unified Soil Classification System									Not Tested None Interval Fluoresced		Core	IXXXXXXI

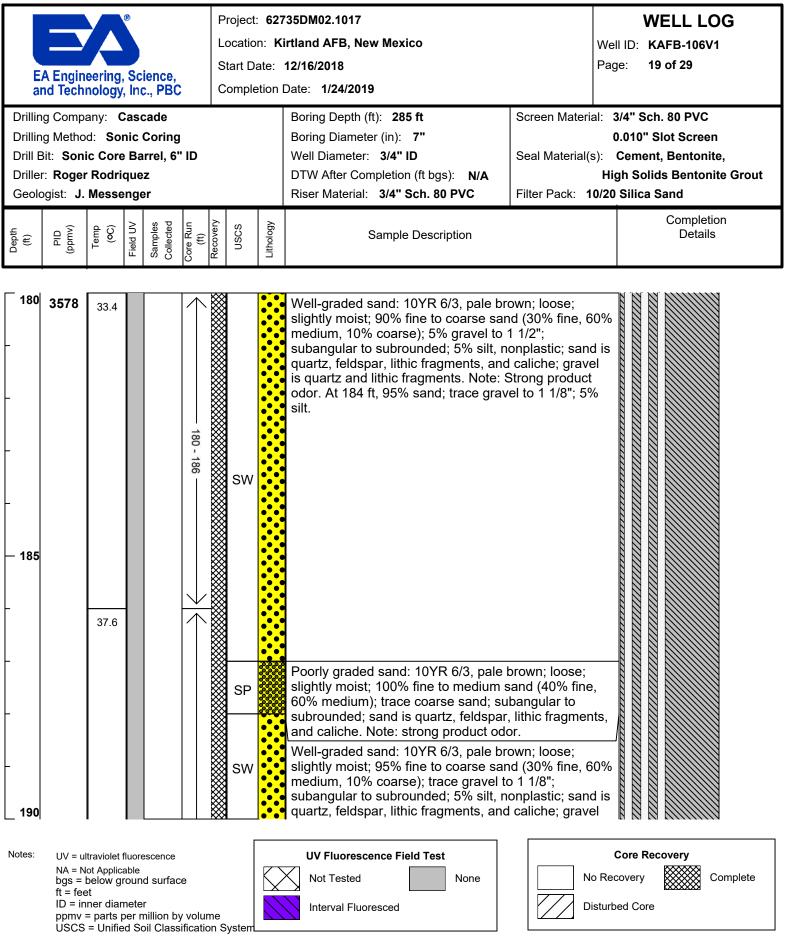
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



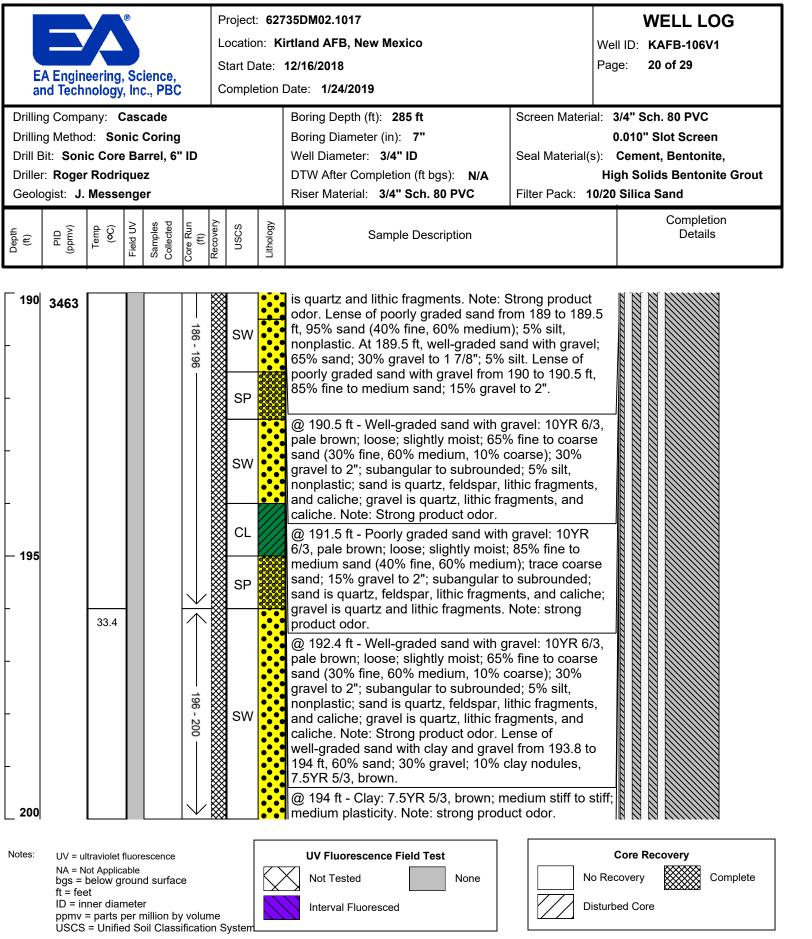
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



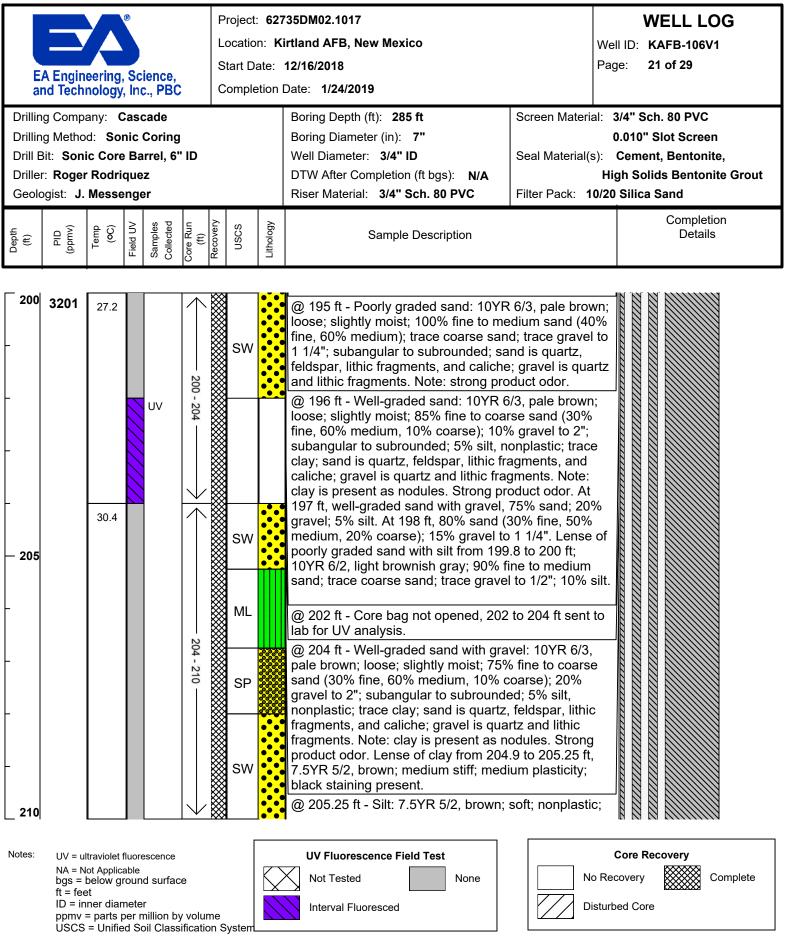
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



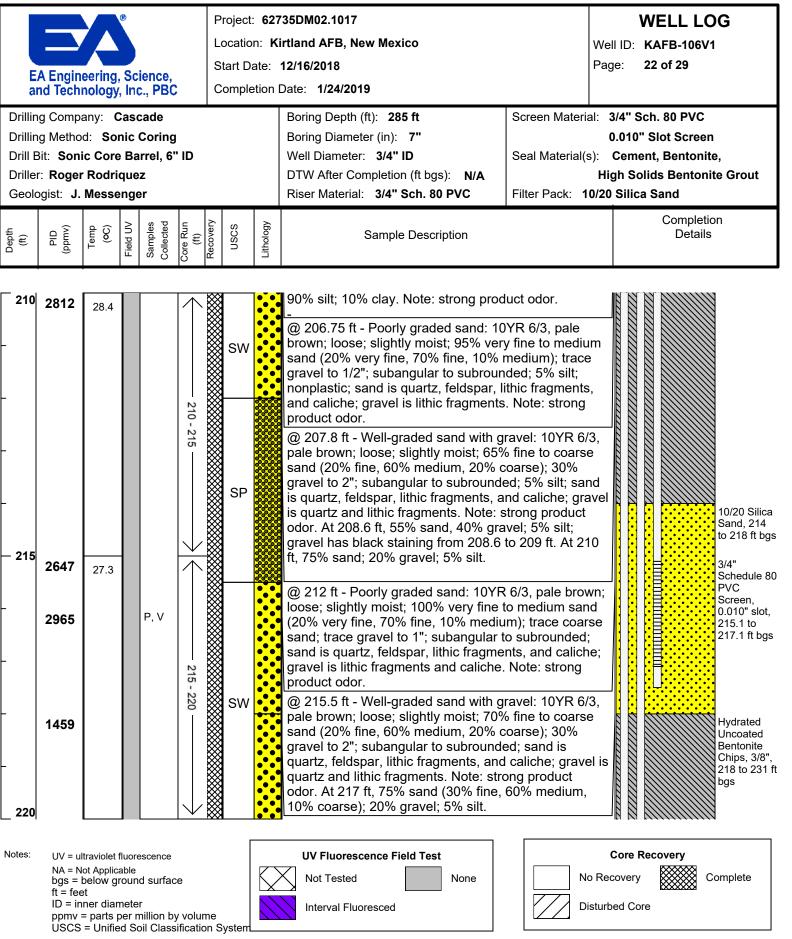
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



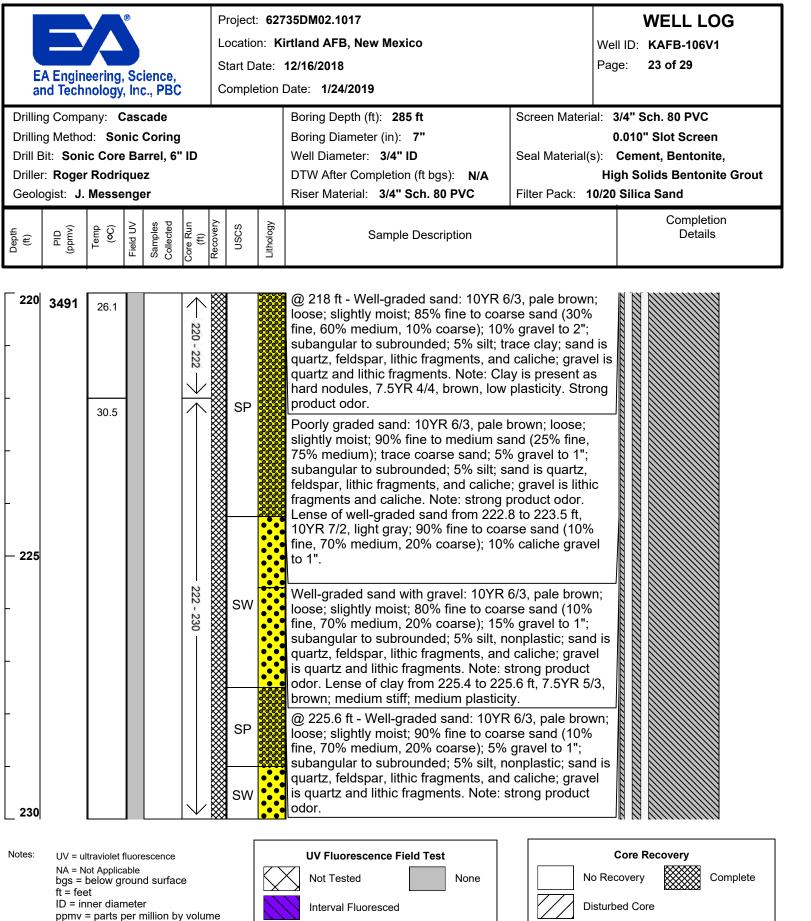
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

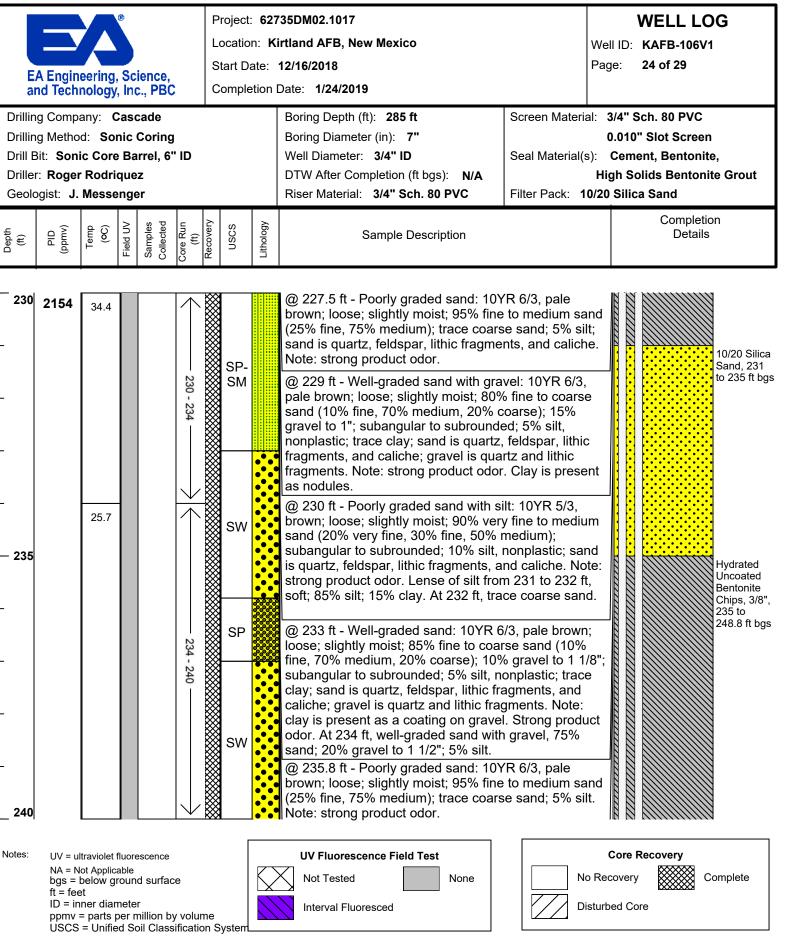


Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

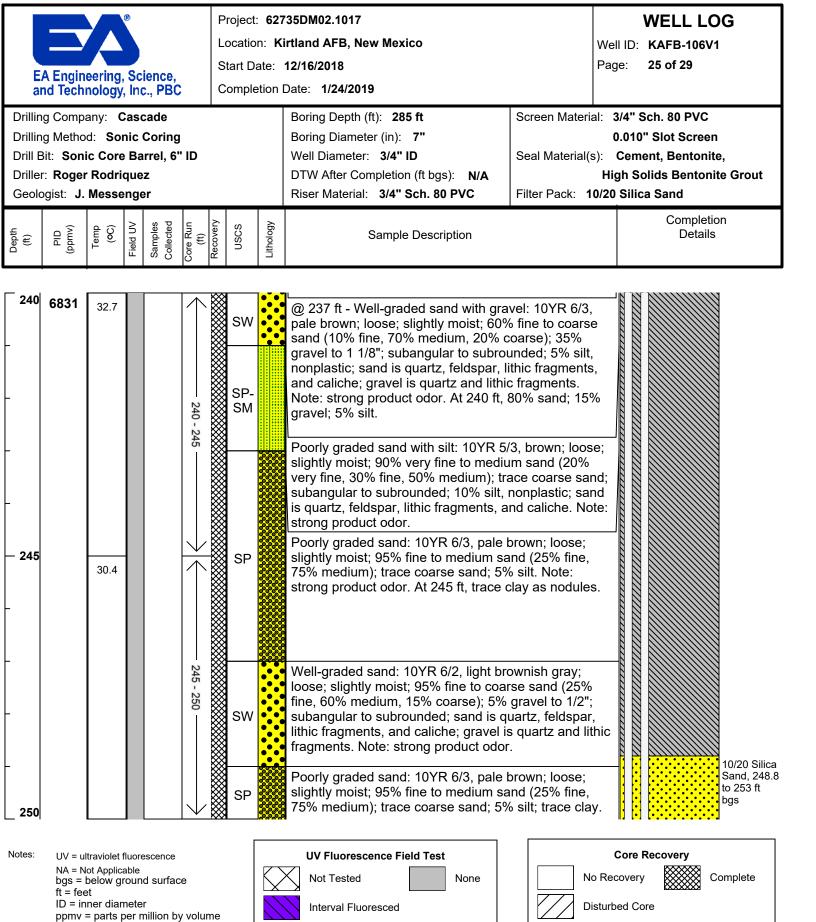
There is a 0.4 ft sump underlying each screen.

USCS = Unified Soil Classification System



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

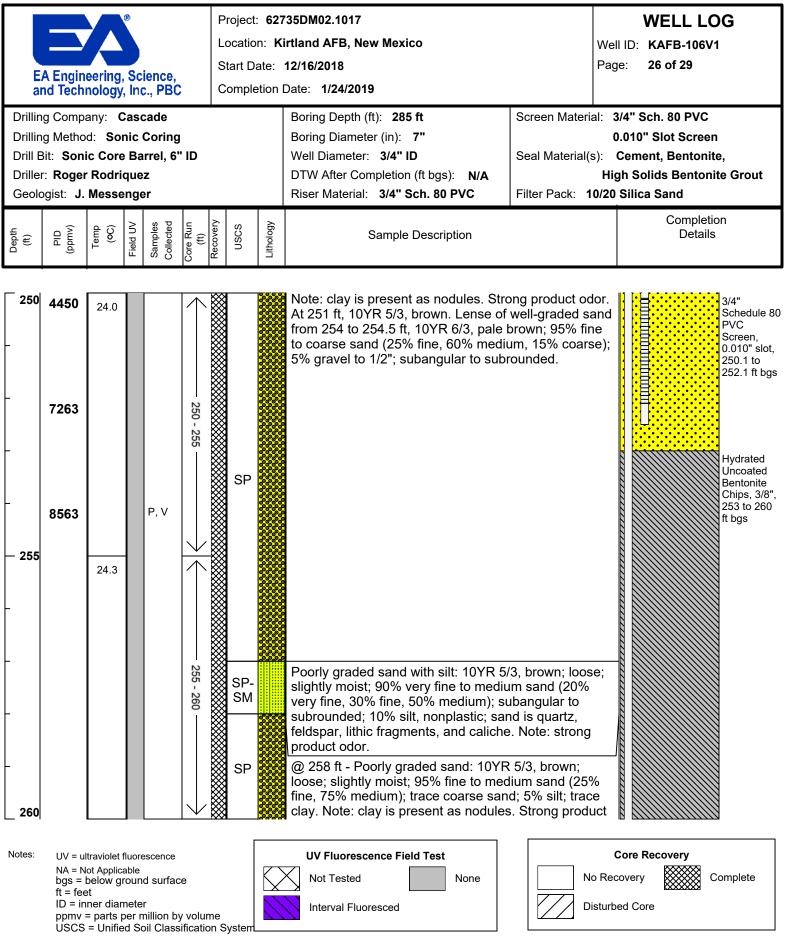


USCS = Unified Soil Classification System

Following coring, the borehole was overdrilled using ARCH for well installation

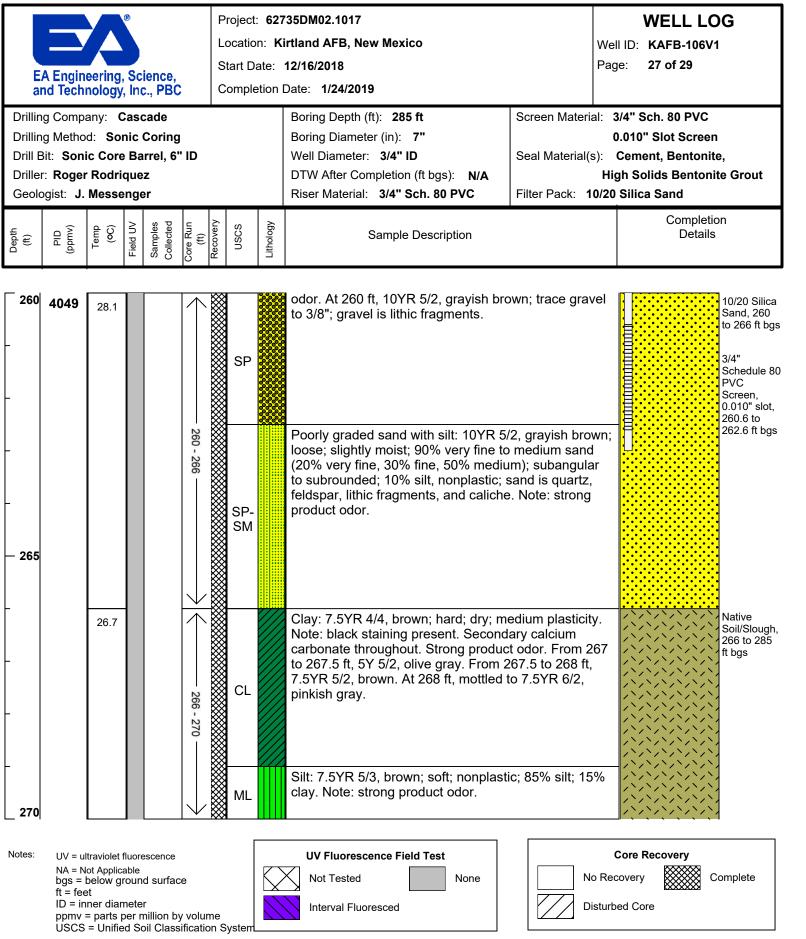
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

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Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

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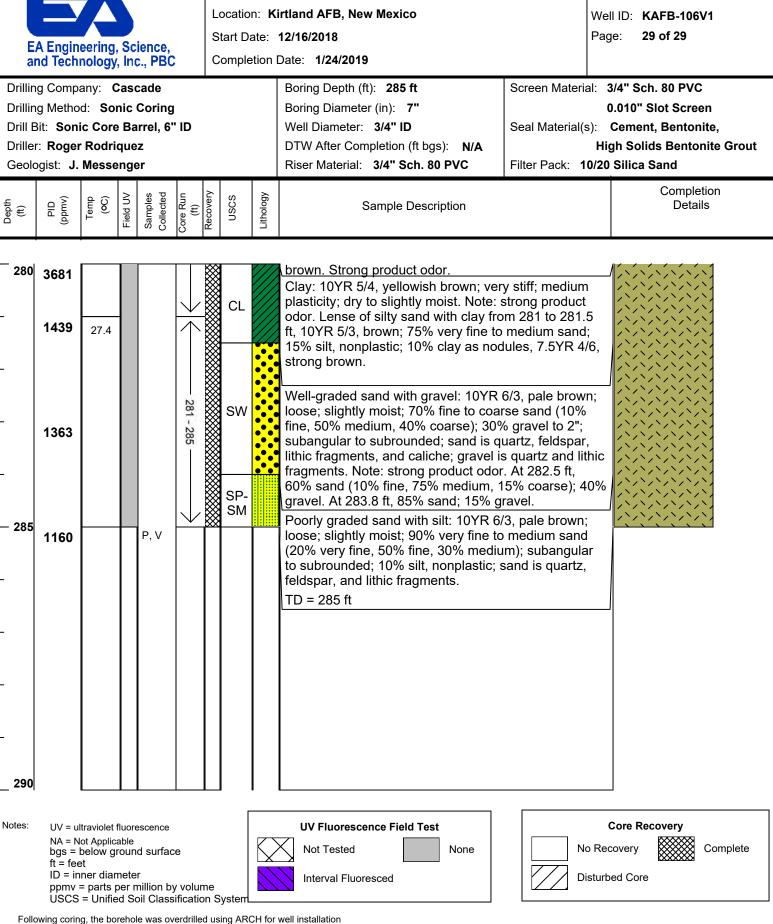
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

Drilling Method: Sonic Coring Drilling Method: Sonic Coring Drill Bit: Sonic Core Barrel, 6" ID Driller: Roger Rodriquez  Boring Diameter (in): 7" Well Diameter: 3/4" ID DTW After Completion (ft bgs): N/A										Seal Material(s	WELL LOG  Well ID: KAFB-106V1  Page: 28 of 29  al: 3/4" Sch. 80 PVC  0.010" Slot Screen  s): Cement, Bentonite,  High Solids Bentonite Grout  0/20 Silica Sand
(#)	OId (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description		Completion Details
270	1788	35.4		P, V	270 - 275				Clay: 7.5YR 5/3, brown; hard; dry; low plasticity; 100% clay; trace caliche gra cobbles. Note: strong product odor. Se calcium carbonate staining throughout white.	vel and econdary	
275		28.3			$\uparrow$		CL silt, noi Note: o staining	Clay: 7.5YR 5/3, brown; soft to hard; 9 silt, nonplastic; trace cobbles; cobbles Note: clay contains secondary calcium staining. Strong product odor.  Clay: 7.5YR 5/3, brown; very stiff; dry to medium plasticity. Note: secondary cal carbonate staining throughout. Strong	are caliche. carbonate  to slightly molcium	ist;	
280					275 - 281		ML		Silt: 10YR 5/3, brown; soft; nonplastic; 70% silt; 30% clay, medium plasticity. present as medium stiff nodules, 10YR	Note: Clay is	/ / / / / / / / / / / / / / / / / / / /
otes:	NA = No bgs = k ft = fee ID = in ppmv =	traviolet for Applicated of Ap	able round neter per m	d surfac nillion by	/ volu		ystem		Not Tested None Interval Fluoresced		Core Recovery  Discrepance Complete  Sturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



WELL LOG

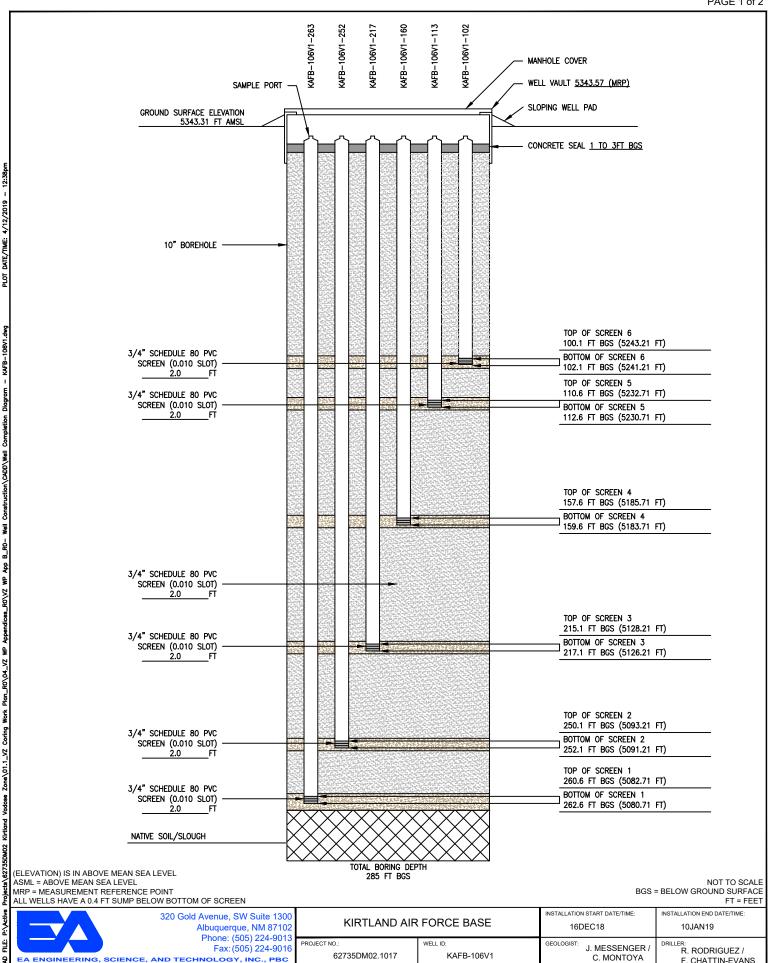
Following coring, the borehole was overdrilled using ARCH for well installation

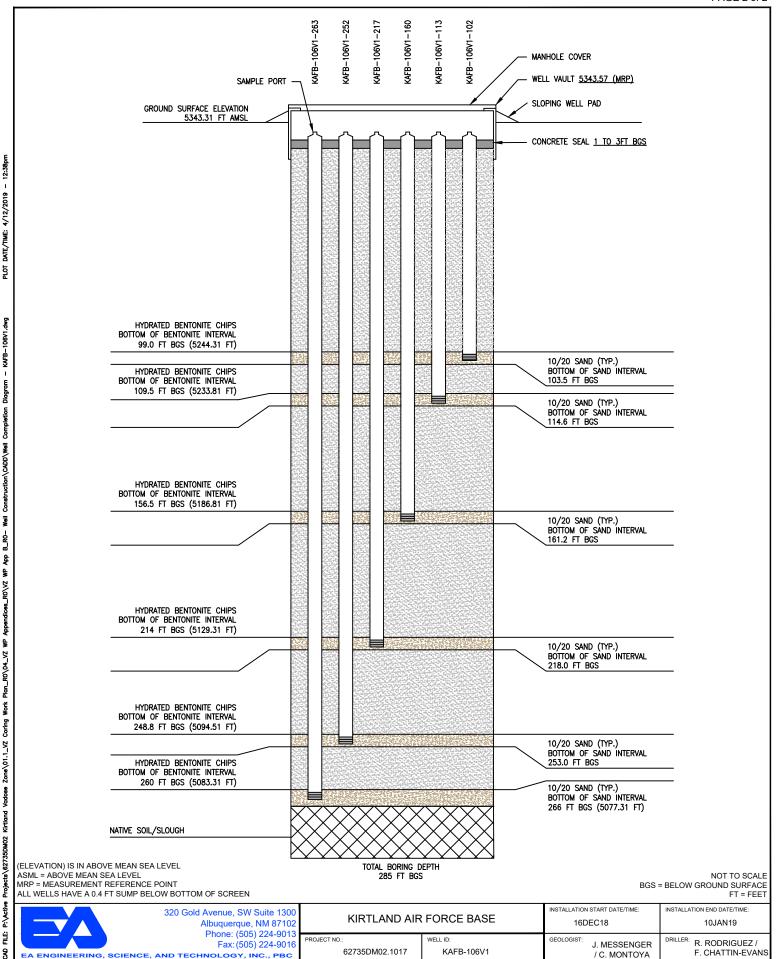
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

Project: 62735DM02.1017

T = thermal conductivity

F. CHATTIN-EVANS





*						Project: <b>62735DM02.1017</b>						WELL LOG			
					Lc	catio	n: <b>K</b> i	rtland AFB, New Mexico			Well ID	ell ID: KAFB-106V2			
E	A Engin	eering. Sc	ience.		St	Start Date: 12/11/2018 Pa					Page:	1 of	29		
ar	nd Tech	eering, Sc nology, Ind	e., PBC		Co	omple	tion I	Date: 1/24/19							
Drilling Drill B Driller	g Metho sit: Soni :: Roger	chod: Sonic Coring  Boring Diameter (in): 7"  Well Diameter: 3/4" ID  Ger Rodriquez  Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A										l: 3/4" Sch. 80 PVC 0.010" slot screen ): Cement; Bentonite; High Solids Bentonite Grout 0/20 Silica Sand			
Depth (ft)	PID (ppmv)	Temp (oC) Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description				Completion Details			
				$\leftarrow$ 8 - 10 $\rightarrow$		SW		Well-graded sand with gravel and cobb slightly moist; gravel to 1 1/2"; subrour 4"; subrounded. Note: Hydroknife to 8 clearance on 10/18/2018.	nded; co	bbles	to			Top of Casing, 0.5 ft, 3/4" Schedule 80 PVC Riser  Neat Portland Cement, 5% Bentonite Solids, 1 to 3 ft bgs  Hydrated Uncoated Bentonite Chips, 3/8", 3 to 98.5 ft bgs	
Notes:	NA = N bgs = I ft = fee ID = in ppmv :	traviolet fluore ot Applicable below groun et ner diamete = parts per n = Unified Sc	d surface r nillion by	volun		vatam		Not Tested None  Interval Fluoresced			Core Recove	, X	XXXX	Complete	

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

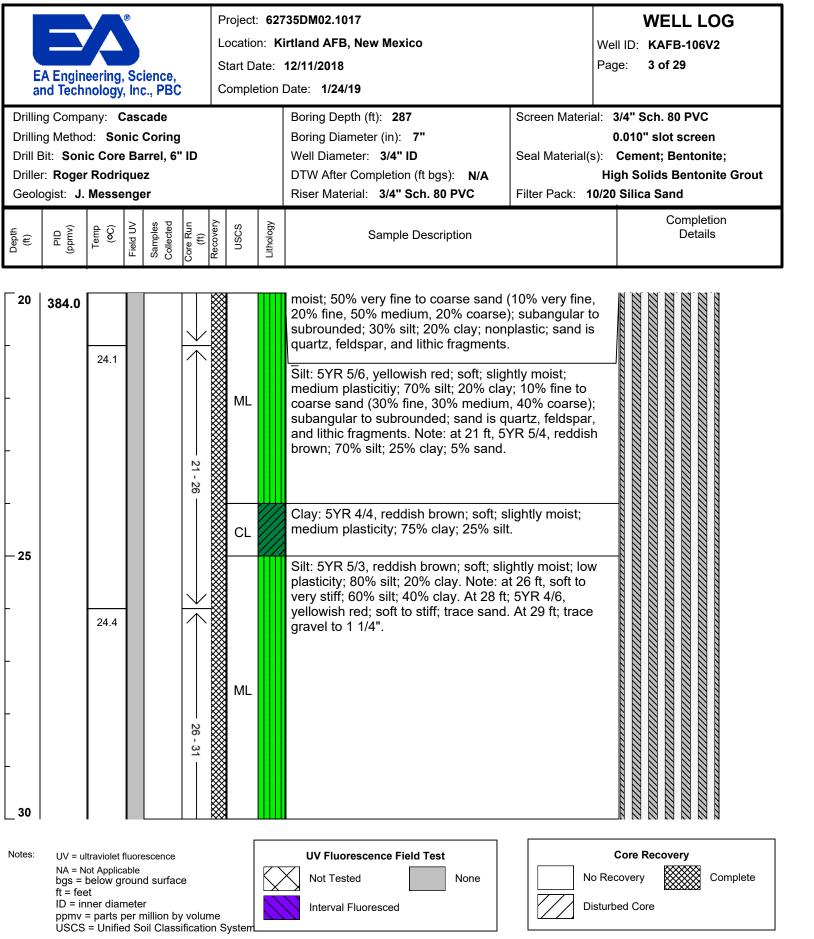
EA Er and T Orilling Co Orilling Mo Orill Bit: S	echnolog ompany: ethod: So Sonic Cor oger Rode : J. Mess	Case onic e Ba	cade Coring arrel, 6'	l	Lo	cation art Da	n: <b>K</b> i ate:	Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A	Screen Materia Seal Material(s	WELL LOG  Well ID: KAFB-106V2  Page: 2 of 29  al: 3/4" Sch. 80 PVC  0.010" slot screen  s): Cement; Bentonite;  High Solids Bentonite Grout  0/20 Silica Sand	
(ft) PID	PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft) Recovery USCS							Sample Description	Completion Details		
15   173	24.5			<u> </u>		ML SC SM		Silt: 5YR 5/6, yellowish red; soft; slight nonplastic; 90% silt; 10% clay.  Clayey sand: 5YR 5/6, yellowish red; I moist; 70% very fine to coarse sand (120% fine, 50% medium, 20% coarse); 3/8"; subangular to subrounded; 15% nonplastic; sand is quartz, feldspar, ar fragments; gravel is quartz and lithic from Clay: 5YR 5/4, reddish brown; soft to medium plasticity; 100% clay; trace sat 13.5 ft, 80% clay; 20% silt.  Clay with sand: 5YR 5/4, reddish brown medium stiff; medium plasticity; 70% clay; trace sat 13.5 ft, 80% clay; 20% silt.  Silt: 5YR 5/6, yellowish red; soft; slight medium plasticity; 70% silt; 20% clay; coarse sand (30% fine, 30% medium, subangular to subrounded; sand is quand lithic fragments.  Clayey sand: 5YR 5/6, yellowish red; I moist; 60% very fine to coarse sand (120% fine, 50% medium, 20% coarse); subrounded; 20% clay; 20% silt; nonpiquartz, feldspar, and lithic fragments.  Silty sand: 5YR 5/6, yellowish red; loosest sand: 5YR 5/6, yellowish red; loo	loose; slightly 10% very fine, 5% gravel to clay; 10% silt; nd lithic ragments. medium stiff; and. Note: at  vn; soft to clay; 10% silt; 0% medium, ed; sand is  tly moist; 10% fine to 40% coarse); artz, feldspar, loose; slightly 10% very fine, subangular to lastic; sand is		
N bç ft ID	V = ultraviole A = Not Appli gs = below g = feet ) = inner dia pmv = parts	cable groun imete	id surfac		me			Not Tested None Interval Fluoresced		Core Recovery  Discrepance Complete  Sturbed Core	

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

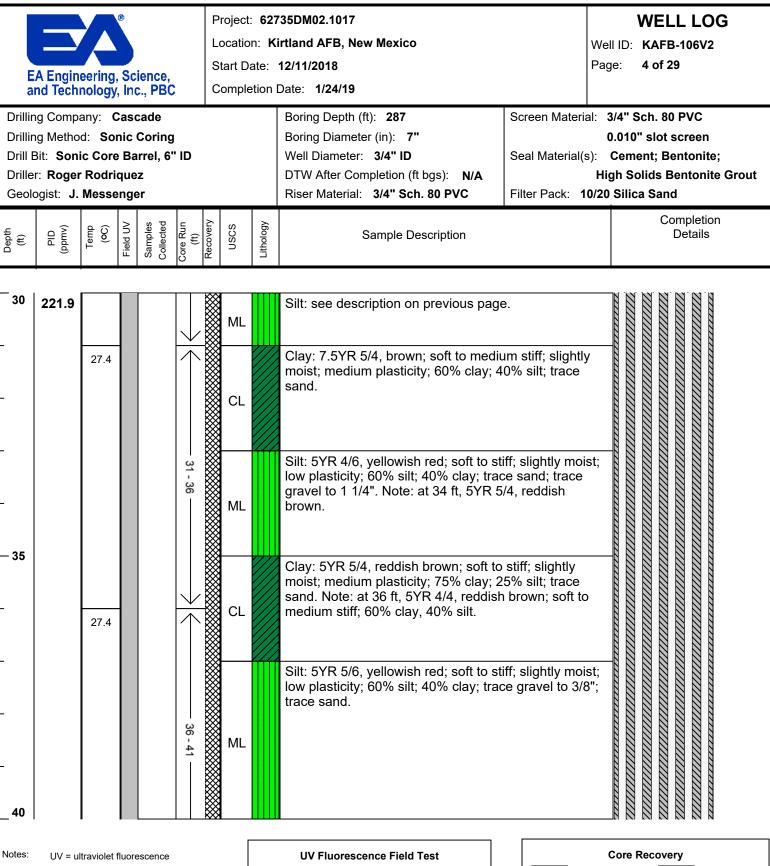
There is a 0.4 ft sump underlying each screen.

ppmv = parts per million by volume USCS = Unified Soil Classification System



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



bgs = below ground surface

NA = Not Applicable

ft = feet

ID = inner diameter

ppmv = parts per million by volume
USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced

Core Re	covery	
No Recovery		Complete
Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

E/	A Engin	eering.	Sci Inc	ence, , PBC	,	Lo S	Project: 62735DM02.1017  Location: Kirtland AFB, New Mexico  Start Date: 12/11/2018  Completion Date: 1/24/19				WELL LOG Well ID: KAFB-106V2 Page: 5 of 29
Drilling Drill B Driller	g Compa g Metho sit: Soni :: Roger ogist: J.	d: Son ic Core Rodriq	ic ( Ba jue:	Coring rrel, 6' z					Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A	al: 3/4" Sch. 80 PVC 0.010" slot screen s): Cement; Bentonite; High Solids Bentonite Grout 0/20 Silica Sand	
Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description		Completion Details
40	373.6	24.4			→		ML		Silt: 5YR 5/6, yellowish red; soft to stif low plasticity; 60% silt; 40% clay; trace 41 ft, weak product odor. At 42 ft, 50% 10% fine to coarse sand (30% fine, 50% coarse); trace gravel to 1/2"; subsubrounded; sand is quartz, feldspar, fragments; product odor.  Silt with sand: 5YR 5/4, reddish brown slightly moist; low plasticity; 50% silt; 3 fine to coarse sand (30% fine, 50% me coarse); trace gravel to 1/2"; subangul subrounded; sand is quartz, feldspar, fragments. Note: strong product odor.  Silt: 7.5YR 4/4, brown; soft to stiff; slig plasticity; 60% silt; 30% clay; 10% fine (30% fine, 50% medium, 20% coarse) feldspar, and lithic fragments. Note: stodor.  Silt with sand: 5YR 5/4, reddish brown slightly moist; low plasticity; 50% silt; 30% silt; 30% clay; 10% silt; 30% clay; 10% fine; 50% plasticity; 50% silt; 30% clay; 10% silt; 30% clay; 10% fine; 50% medium, 20% coarse) feldspar, and lithic fragments. Note: stodor.	e sand. Note: 6 silt; 40% clay 10% medium, angular to and lithic  11; soft to stiff; 130% clay; 20% edium, 20% lar to and lithic  12] the product 13; soft to stiff; 14; soft to stiff; 15] and lithic	at y;
Notes:	NA = No bgs = I ft = fee	traviolet fl ot Applica below gro et ner diam	ble ound	d surfac	æ				Not Tested None		Core Recovery  D Recovery  Complete  Sturbed Core

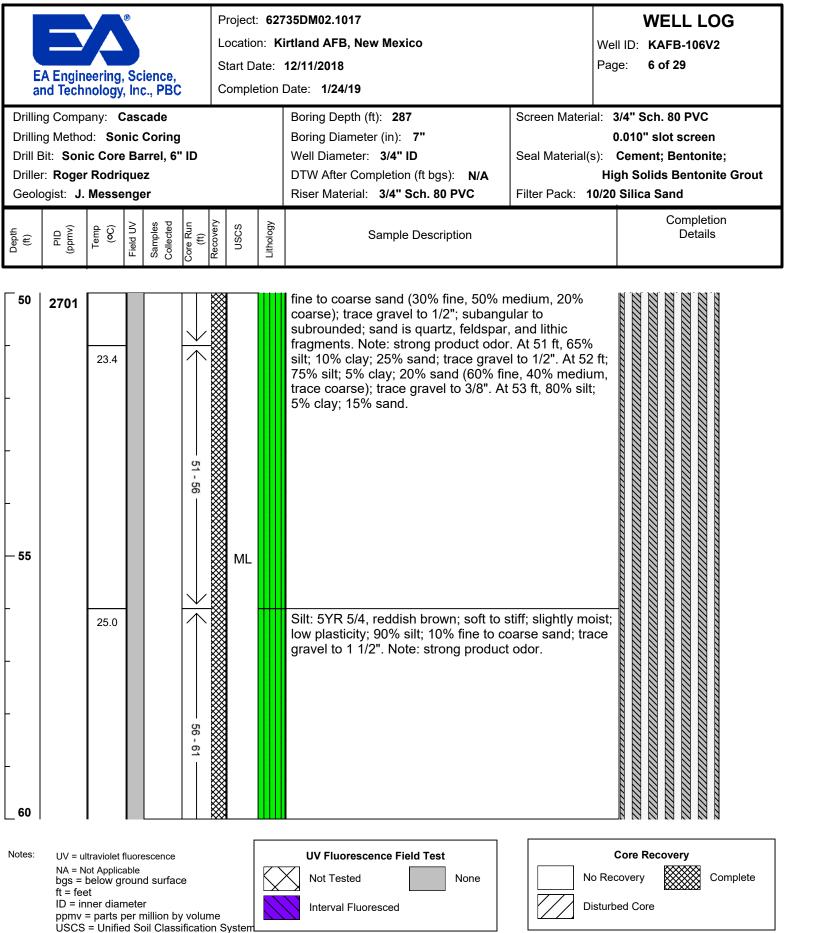
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

There is a 0.4 ft sump underlying each screen.

ppmv = parts per million by volume USCS = Unified Soil Classification System

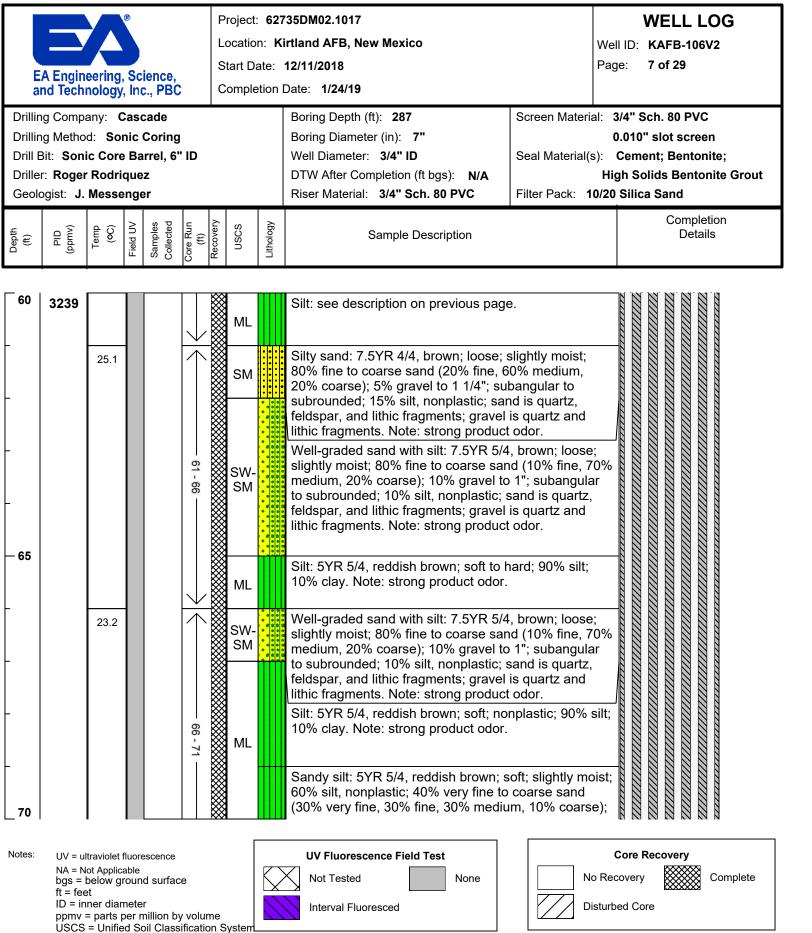
Interval Fluoresced

Disturbed Core



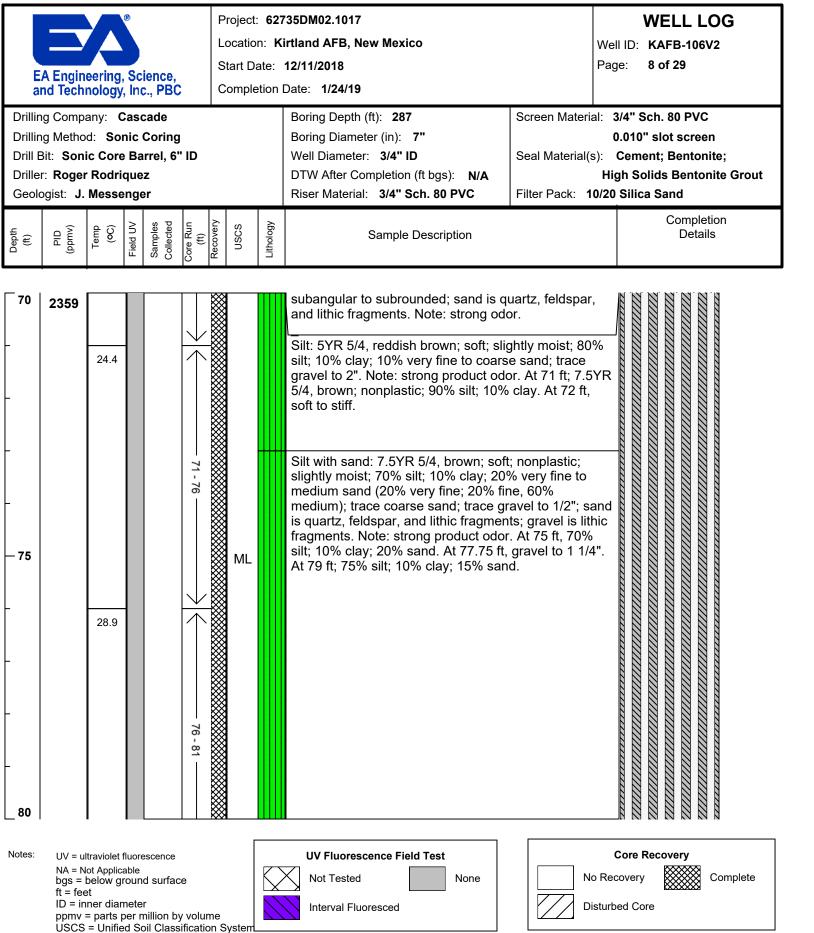
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



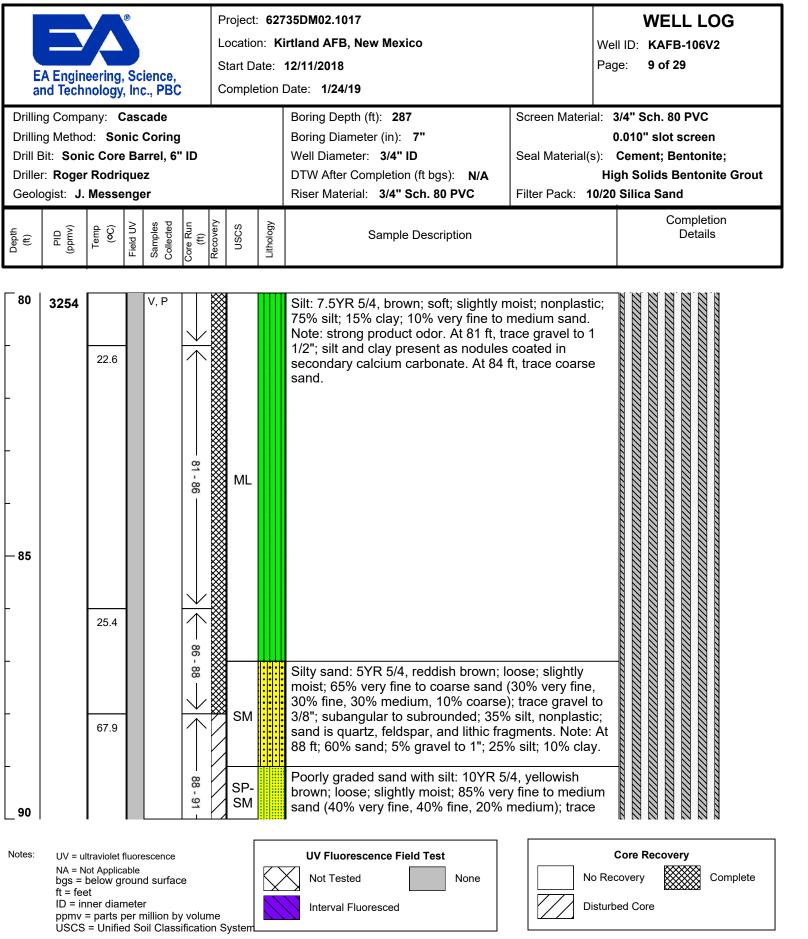
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

			P)			Pı	Project: <b>62735DM02.1017</b>				WELL LOG			
						Lo	ocatio	n: <b>K</b>	rtland AFB, New Mexico		Well ID:	KAFB	-106V2	
E	A Engine	eerina.	Sci	ience.		St	tart D	ate:	12/11/2018		Page:	10 of	29	
ar	nd Techi	nology,	Inc	., PB0		C	omple	etion I	Date: 1/24/19					
Drillin	g Compa	any: <b>C</b>	asc	ade					Boring Depth (ft): 287	Screen Materia	al: <b>3/4"</b>	l: 3/4" Sch. 80 PVC		
	g Metho			_					Boring Diameter (in): 7" 0.010" s					
	it: Soni			•	" ID					Seal Material(s	•			
	: <b>Roger</b> gist: <b>J.</b>		-						DTW After Completion (ft bgs): N/A Riser Material: 3/4" Sch. 80 PVC	Filter Pack: 1	High Solids Bentonite Grout er Pack: 10/20 Silica Sand			Grout
00010	giot. <b>Gi</b>								THE INDICATE OF CONTROL OF THE	Tillor Fuol.	0,20 0		mpletion	
Depth (ft)	PID (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description				Details	
) O	4 d)	⊥	Fie	Sar	Core	Rec	)	Εij						
90	2288								coarse sand; 5% gravel to 3/8"; suban					
									subrounded; 10% silt, nonplastic; sand feldspar, and lithic fragments; gravel is					
_		04.7			$\downarrow$		SP- SM		lithic fragments. Note: strong product of	odor. At 91 ft,				
		24.7			'		Oivi		10YR 6/3, pale brown.					
_								0000						
						$\otimes$			Poorly graded sand: 10YR 5/4, yellowing loose; slightly moist; 95% very fine to it.					
									(40% very fine, 50% fine, 10% mediun	n); trace grav	el 🖁			
					ဖ				to 1"; subangular to subrounded; 5% s sand is quartz, feldspar, and lithic frag					
					91 - 96	$\otimes$			lithic fragments. Note: strong product of		113			
-							SP							
						$\otimes$								
<b>– 95</b>						$\otimes$								
30														
						▩								
_		59.9			$\overline{\wedge}$	$\mathcal{Z}$			Poorly graded sand with clay: 10YR 6/	/2, light				
		00.0					SP- SC		brownish gray; loose; slightly moist; 90		0			
-								· /	medium sand (30% very fine, 50% fine medium); trace coarse sand; subangu					
							SW		subrounded; 10% clay, nonplastic; sar	nd is quartz,				
					96 -		011		feldspar, and lithic fragments. Note: st odor.	rong product				
			$\bowtie$		100				@ 97 ft - Well-graded sand: 10YR 6/3,					
			$\bowtie$						loose; slightly moist; 85% very fine to (20% very fine, 50% fine, 20% mediun		ے).			10/20 Silica Sand, 98.5
-									10% gravel to 5/8"; subangular to subr	rounded; 5%			. : t	o 103.5 ft
			$\bowtie$						nonplastic; sand is quartz, feldspar, ar fragments; gravel is quartz and lithic fr	nd lithic	te.			ogs
_ 100			$\bigvee$		V				magnionio, gravorio quartz and littlio li	agments. NO				
							Г				_	_		
Notes:		traviolet fl ot Applica		escence					UV Fluorescence Field Test			Recove	XXXX	
		below gr		d surfac	ce				Not Tested None	No.	Recover	у 🞇	₩ Co	mplete
	ID = in	ner diam = parts p			v volu	me			Interval Fluoresced	Di	sturbed C	ore		
		= parts p = Unified					vstem							

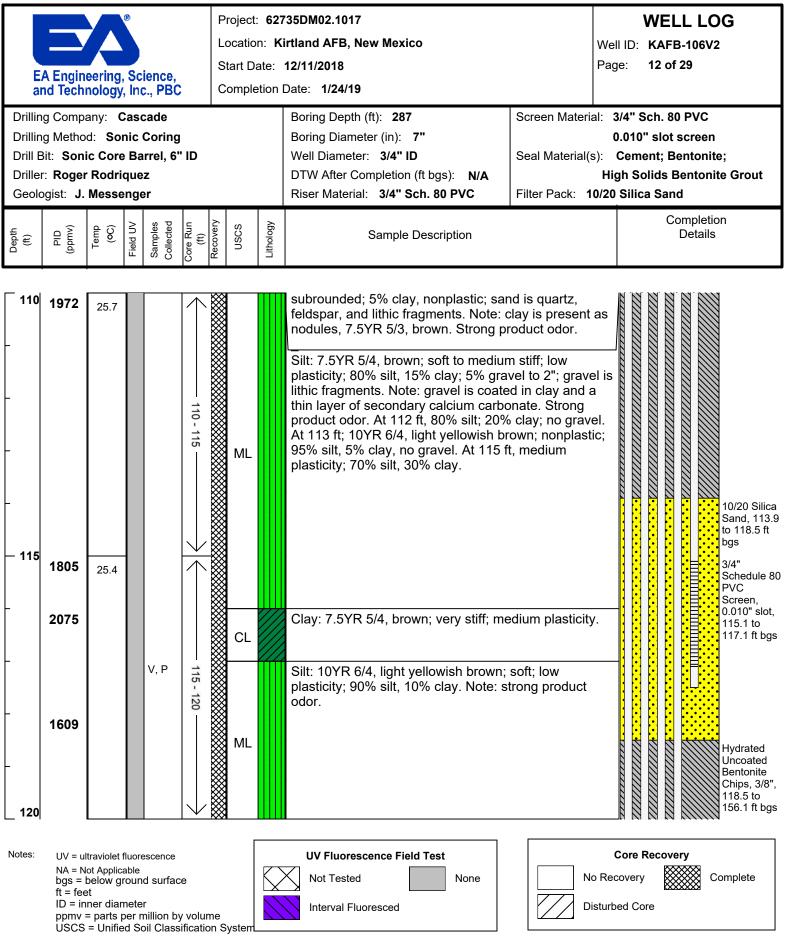
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

EA Engineering, Science, and Technology, Inc., PBC  rilling Company: Cascade  rilling Method: Sonic Coring  rill Bit: Sonic Core Barrel, 6" ID	Location: <b>K</b> i	rtland AFB, New Mexico 12/11/2018 Date: 1/24/19 Boring Depth (ft): 287 Boring Diameter (in): 7" Well Diameter: 3/4" ID	WELL LOG Well ID: KAFB-106V2 Page: 11 of 29  al: 3/4" Sch. 80 PVC 0.010" slot screen b): Cement; Bentonite;	
riller: Roger Rodriquez deologist: J. Messenger		DTW After Completion (ft bgs): N/A Riser Material: 3/4" Sch. 80 PVC	,	High Solids Bentonite Grout 0/20 Silica Sand
PID (ppmv) Temp (oC) Field UV Samples Collected Core Run (ft)	USCS	Sample Description		Completion Details
100 1778 57.2 100 100 100 100 100 100 100 100 100 10	SP	strong product odor.  @ 98 ft - No recovery  Poorly graded sand: 10YR 5/2, grayis slightly moist; 95% very fine to mediu very fine, 60% fine, 10% medium); tra 1/2"; subangular to subrounded; 5% sand is quartz, feldspar, and lithic fragithic fragments. Note: strong product 10YR 6/2, light brownish gray; 90% s fine, 60% fine, 20% medium, trace co to 1/2". At 102 ft, no gravel. At 105 ft, 5% soft nonplastic clay nodules, 7.5Y	m sand (30% ace gravel to 1 silt, nonplastic; gments; gravel odor. At 101 ff and (20% very parse); 5% graveno silt or grave	100.2 to 102.2 ft bgs
tes: UV = ultraviolet fluorescence NA = Not Applicable bgs = below ground surface ft = feet ID = inner diameter ppmv = parts per million by volum	ML CL SP	Silt: 10YR 6/4, light yellowish brown; moist; nonplastic; 100% silt. Note: strodor.  Clay: 7.5YR 5/4, brown; medium stiff medium plasticity. Note: strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong produced proof of the strong proof of the st	to very stiff; ict odor.  sh brown; loose m sand (30% ibangular to	Core Recovery  Recovery  Sturbed Core

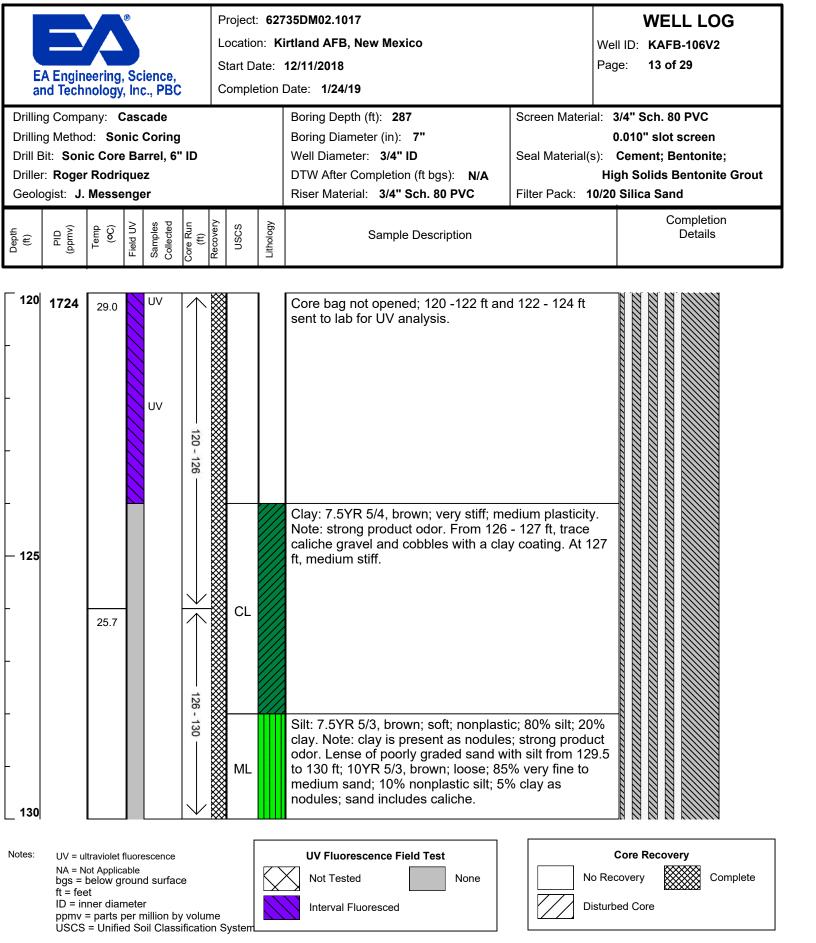
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



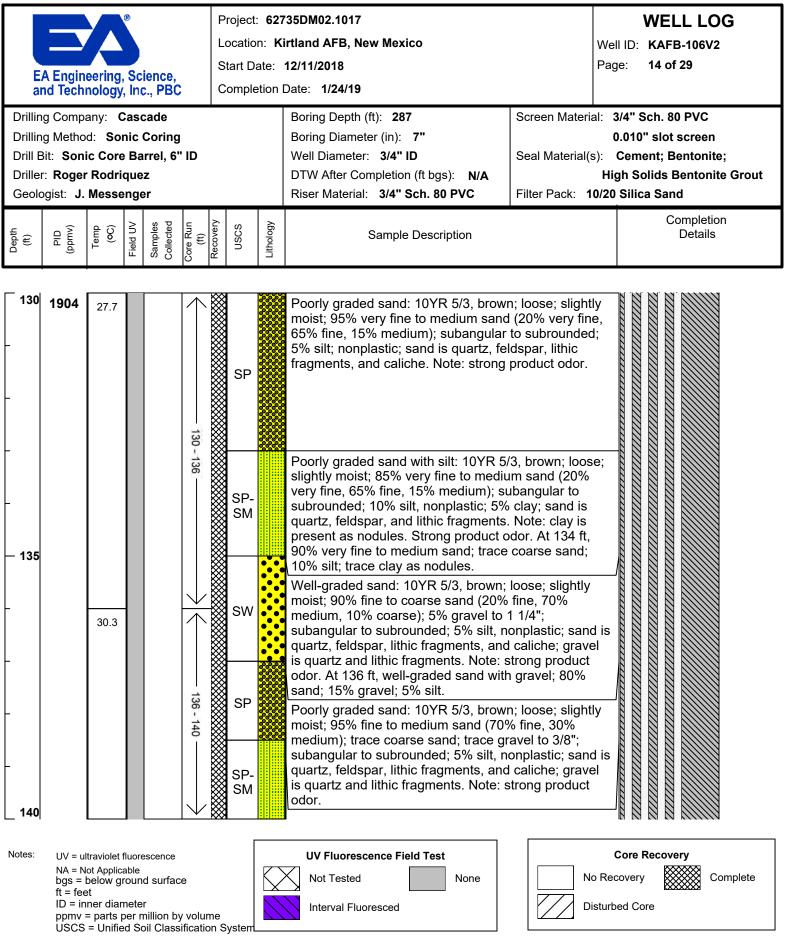
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



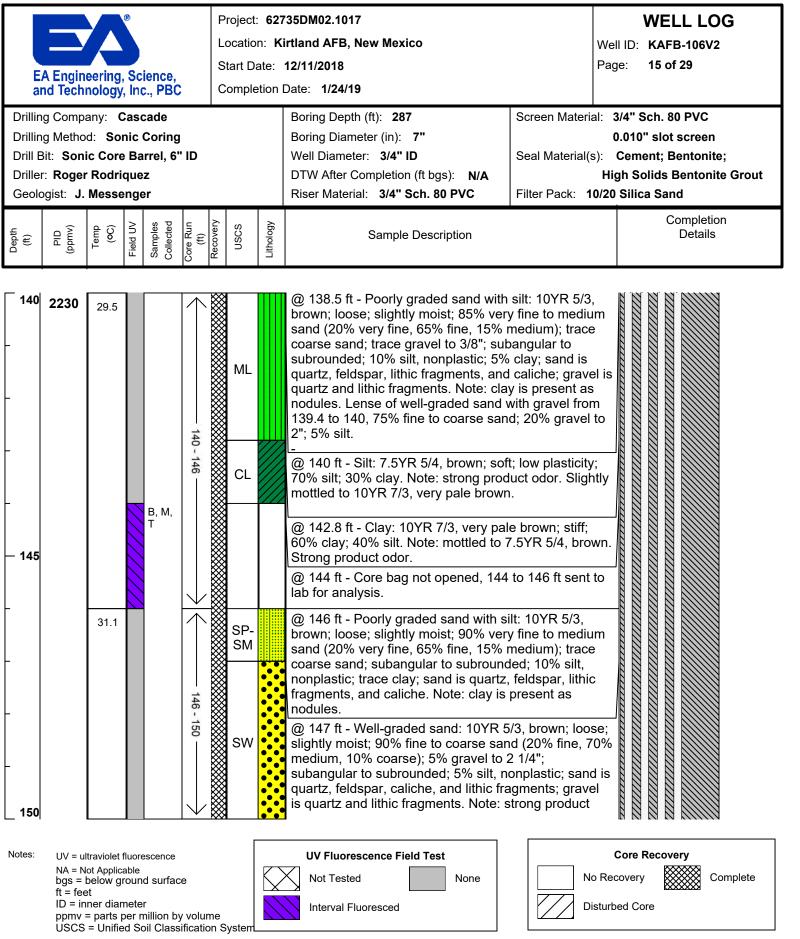
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

Drilling	A Engine nd Techi g Compa g Method	eering, nology, any: C	asc asc	., PBC ade Coring	l	Lo	Project: 62735DM02.1017  Location: Kirtland AFB, New Mexico  Start Date: 12/11/2018  Completion Date: 1/24/19  Boring Depth (ft): 287  Boring Diameter (in): 7"  Well Diameter: 3/4" ID  Seal Material(s				WELL LOG Well ID: KAFB-106V2 Page: 16 of 29 al: 3/4" Sch. 80 PVC 0.010" slot screen		
Driller	it: Soni : Roger gist: J.	Rodric	quez	2	טו		DTW After Completion (ft bgs): N/A			Filter Pack: 1	High S	olids Bentoi	
Depth (ft)	PID (pmdd)	Temp (OC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description			Comple Detail	
150	1806	27.4					SP		odor. At 148 ft, 85% sand; 10% grave Poorly graded sand: 10YR 5/3, brown moist; 90% fine to medium sand (40% medium); trace coarse sand. 5% grav silt; sand and gravel are quartz and lit Note: strong product odor.	n; loose; slightl 6 fine, 60% rel to 2 3/8"; 5°	у %		
_					150 - 156		SW		Well-graded sand with gravel: 10YR 5 loose; slightly moist; 75% fine to coars fine, 60% medium, 15% coarse); 20% subangular to subrounded; 5% silt, no quartz, feldspar, lithic fragments, and is quartz and lithic fragments. Note: st odor. Lense of clay from 152.5 to 153 yellowish brown; stiff; medium plastici	se sand (25% gravel to 2"; onplastic; sand caliche; grave trong product ft, 10YR 5/4,			
— <b>155</b> - -		26.2			→ ← 156 - 158 →		SM		25% silt. At 153 ft, well-graded sand; scoarse sand; 5% gravel to 1 1/2"; 5% clay from 154 to 154.5 ft, 7.5YR 5/3, bvery stiff.  Silty sand: 10YR 5/4, yellowish brown moist; 85% very fine to medium sand 45% fine, 25% medium); subangular to 15% silt, nonplastic; sand is quartz, fe fragments, and caliche. Note: strong processing 156 ft, 65% very fine to medium sand; 35% silt. Lense of well-graded strom 157.8 to 158 ft, 7.5YR 5/3, brown	90% fine to silt. Lense of prown; stiff to a; loose; slightle (30% very fine to subrounded eldspar, lithic product odor. s; trace coarse sand with silt	e, ; At		10/20 Silica Sand, 156.1 to 161.5 ft bgs
160	2264	20.8		P, V			SW		fine to coarse sand; 5% gravel to 3/8" nonplastic.  Well-graded sand: 7.5YR 5/3, brown; moist; 90% fine to coarse sand (50% medium, 20% coarse); 5% gravel to 3 to subrounded; 5% silt, nonplastic; sail	; 10% silt, loose; slighlty fine, 30% 8/8"; subangula			Schedule 80 PVC Screen, 0.010" slot, 157.9 to 159.9 ft bgs
Notes: UV = ultraviolet fluorescence  NA = Not Applicable bgs = below ground surface ft = feet ID = inner diameter ppmv = parts per million by volume USCS = Unified Soil Classification Syst							ystem		Not Tested None Interval Fluoresced		Core  Recovery	<b>********</b>	Complete

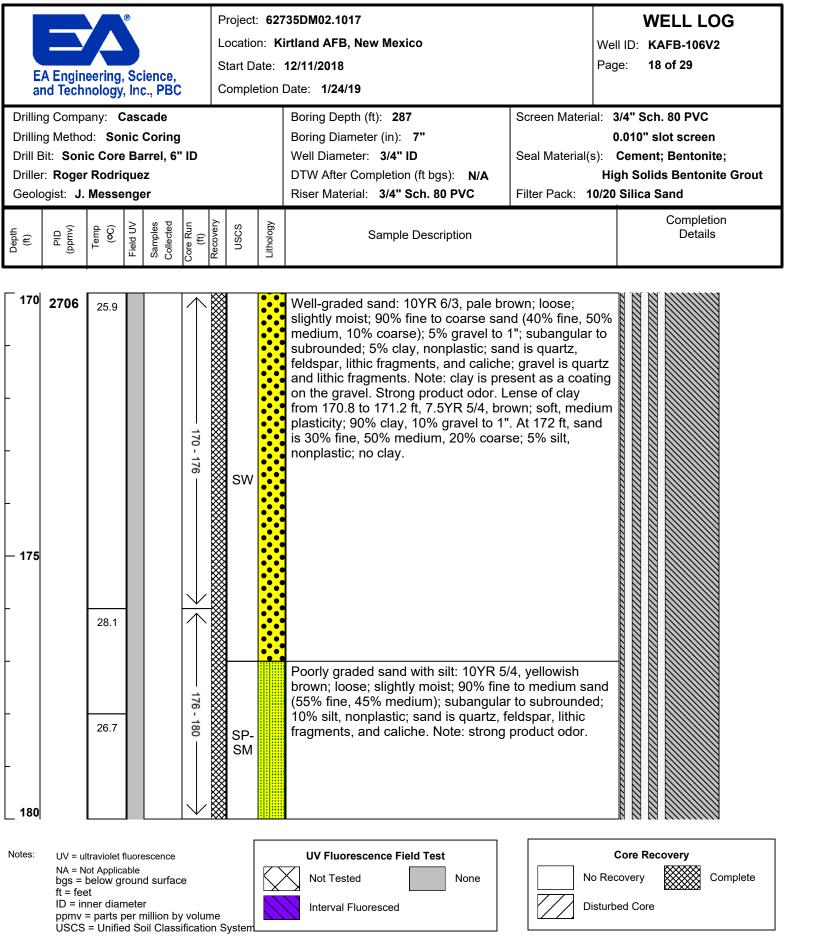
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

			®			Р	roject	627	35DM02.1017	WELL LOG			
			N			Lo	ocatio	n: <b>K</b> i	rtland AFB, New Mexico		Well ID:	KAFB-106V2	
F	A Engin	eering	Sci	ience		S	tart D	ate:	12/11/2018		Page:	17 of 29	
a	nd Techi	nology	, Inc	., PBC	;	С	omple	tion I	Date: 1/24/19				
Orillir Orill E Orille	ng Compa ng Metho Bit: Soni r: Roger ogist: J.	d: Soi ic Core Rodri	nic ( Ba que:	Coring rrel, 6' z			Boring Diameter (in): <b>7"</b> Well Diameter: <b>3/4" ID</b> DTW After Completion (ft bgs): <b>N/A</b> Seal Material(			Seal Material(s	al: 3/4" Sch. 80 PVC 0.010" slot screen s): Cement; Bentonite; High Solids Bentonite Grout 0/20 Silica Sand		
(t)	OIA (ppmv)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description			Completion Details	
165	1944	23.9 25.4 30.9		UV	158 - 163 —		SP		feldspar, lithic fragments, and caliche; and lithic fragments. Note: strong production of the proof of the proof of the proof of the product odor.  Foorly graded sand: 10YR 6/3, pale browning to subrounded; 5% silt, nor quartz, feldspar, lithic fragments, and of is quartz and lithic fragments. Note: strodor.  Well-graded sand: 10YR 6/3, pale browning to subrounded; 5% silt, nonplastic; trace of quartz, feldspar, lithic fragments, and of quartz and lithic fragments. Note: strondor.  @ 163 ft - Poorly graded sand: 10YR 6/100se; slightly moist; 95% fine to medium, 40% medium); trace coarse sand; subrounded; 5% silt, nonplastic; sand if feldspar, lithic fragments, and caliche. product odor.  Core bag not opened, 168 - 170 ft sent analysis.	wn; loose; looke; looke; looke; looke; gravel to 1"; loose; looke; graverong product wn; loose; looke; is : 0% to :: ///, to	Be Ch	vdrated incoated entonite nips, 3/8", 1.5 to 3.2 ft bgs	
otes:	NA = No bgs = I ft = fee ID = in ppmv =	traviolet to the Application of	able round neter per m	d surfac r nillion by	y volu		vetom		Not Tested None Interval Fluoresced		Core	××××××	plete

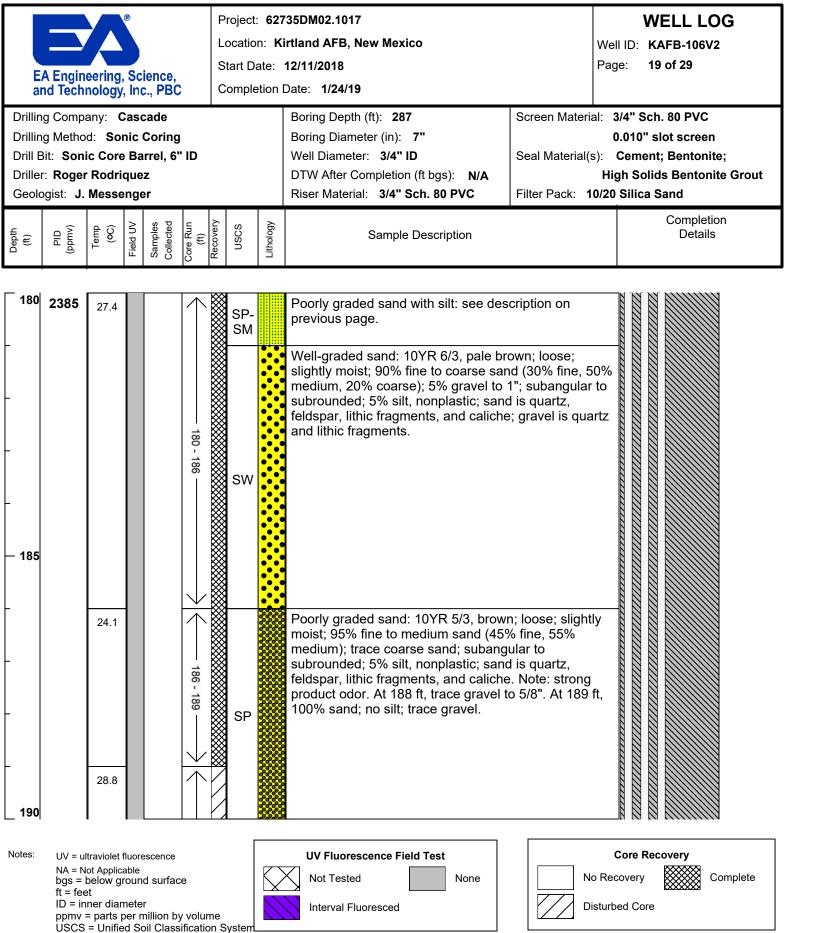
Following coring, the borehole was overdrilled using ARCH for well installation  $% \left( 1\right) =\left( 1\right) \left( 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity



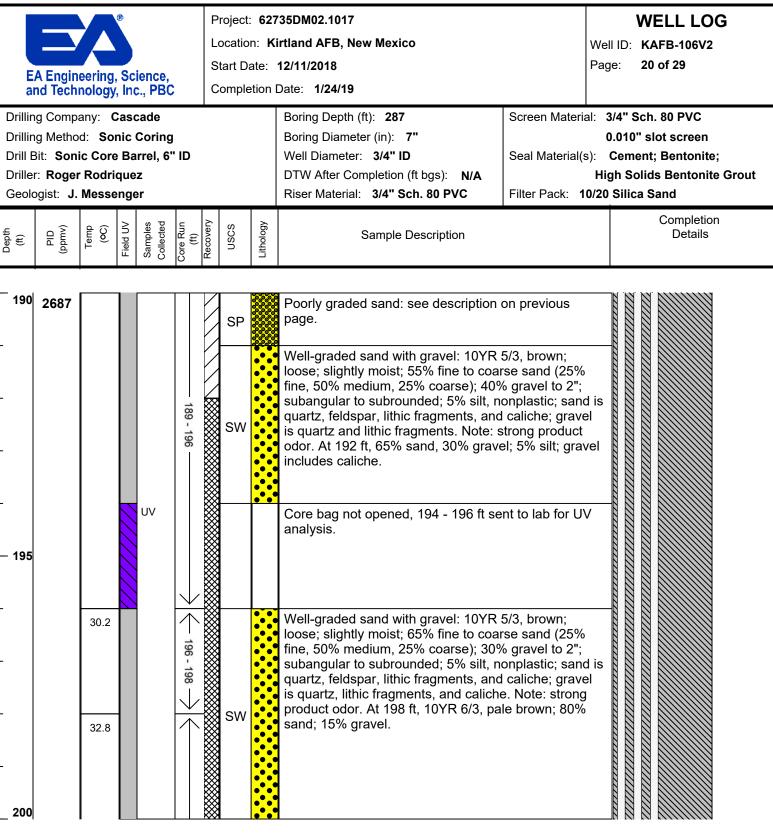
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Notes: UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

ft = feet

ID = inner diameter

ppmv = parts per million by volume

USCS = Unified Soil Classification System

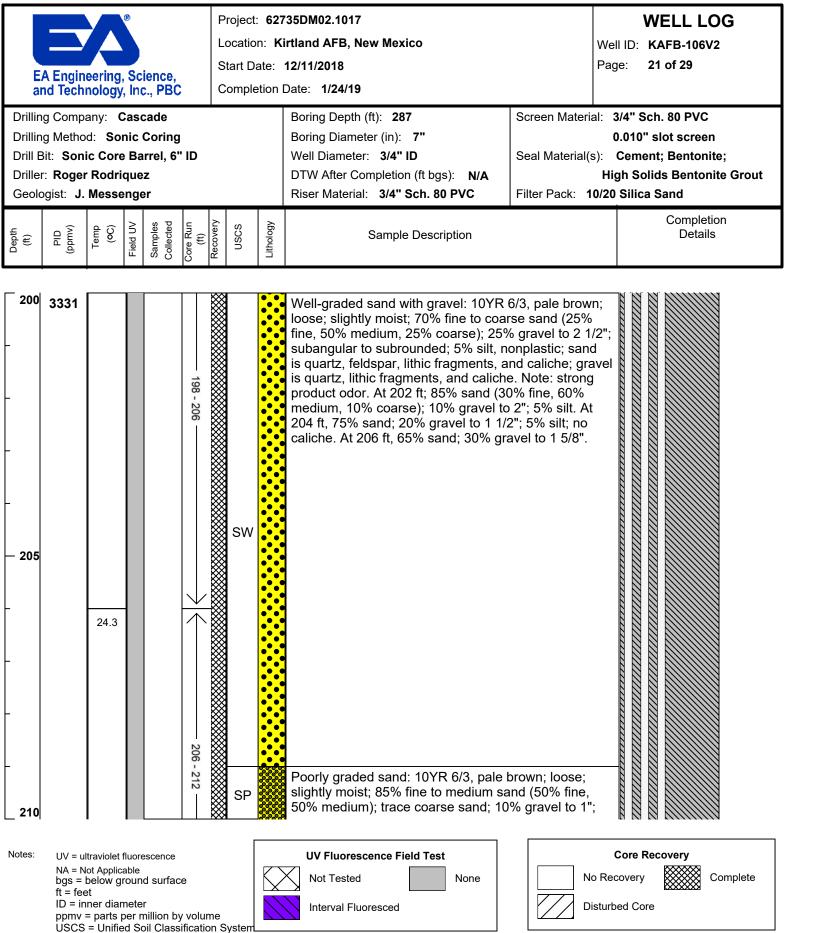
**UV Fluorescence Field Test** Not Tested None Interval Fluoresced

г			
	Core Re	covery	
	No Recovery		Complete
	Disturbed Core		

Following coring, the borehole was overdrilled using ARCH for well installation

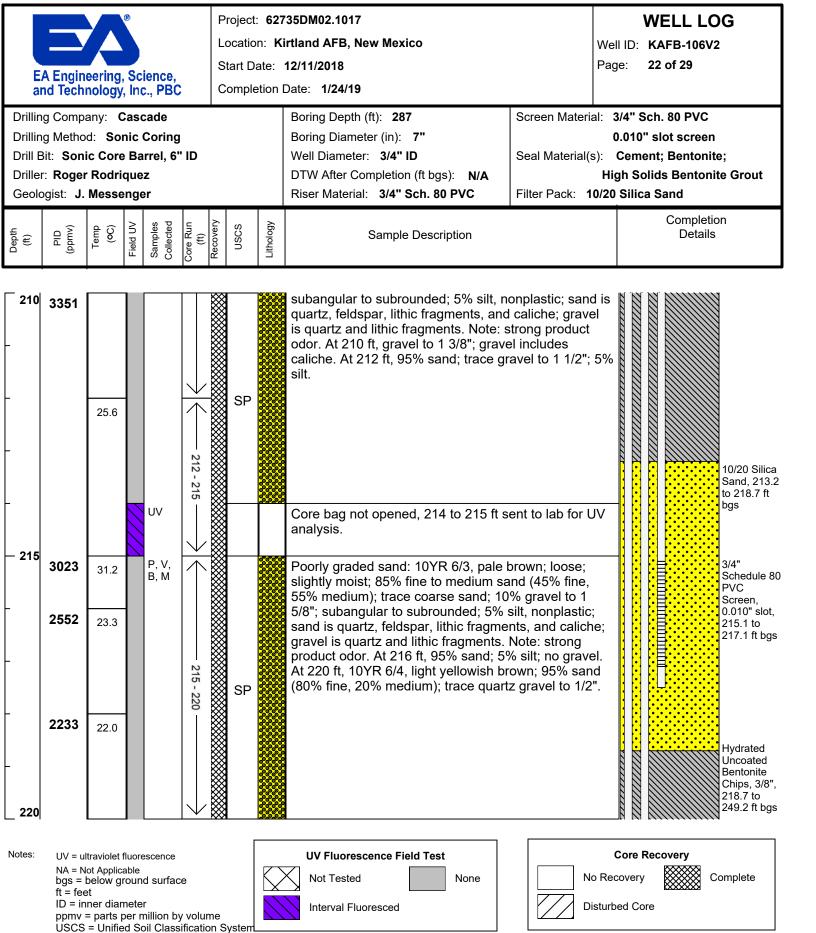
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



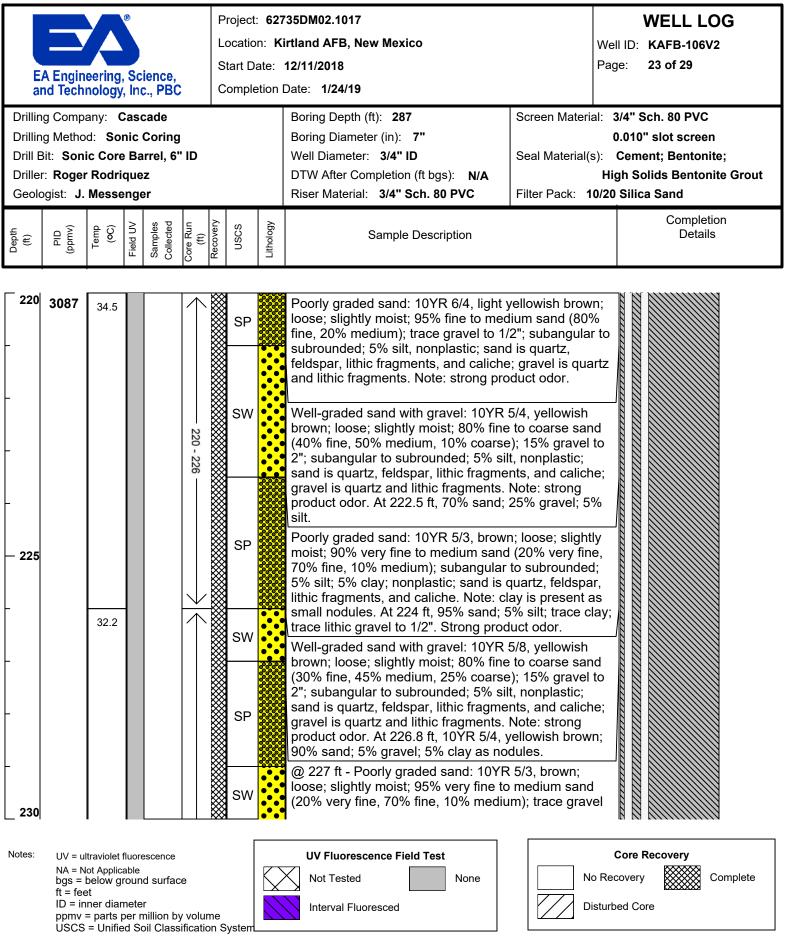
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



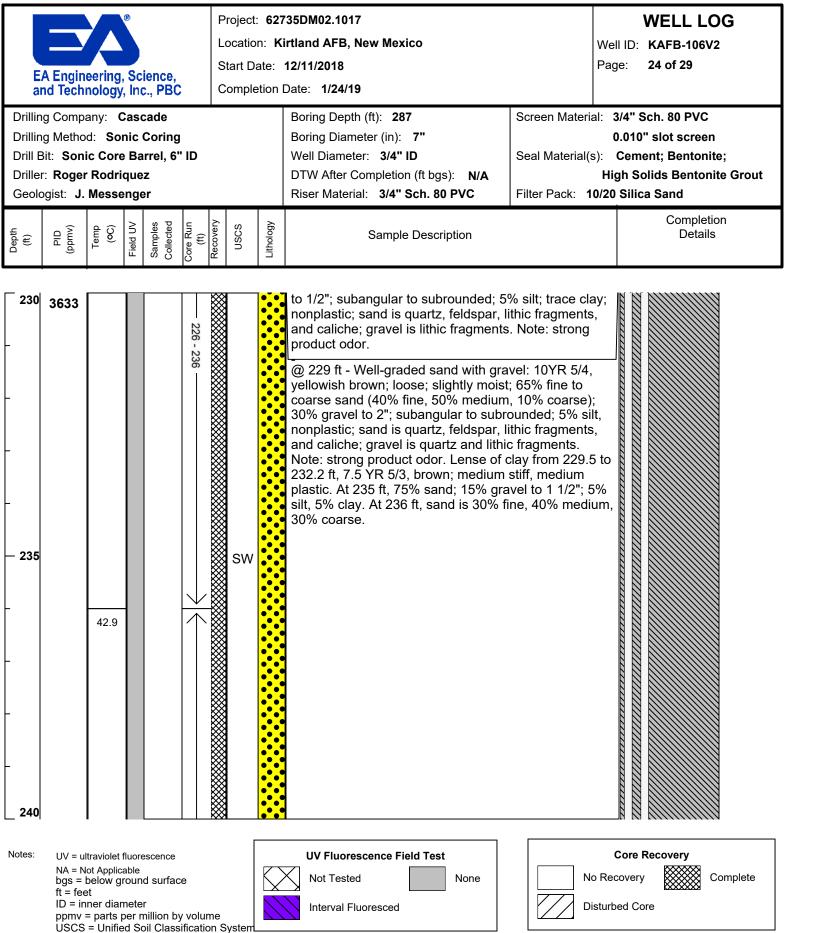
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



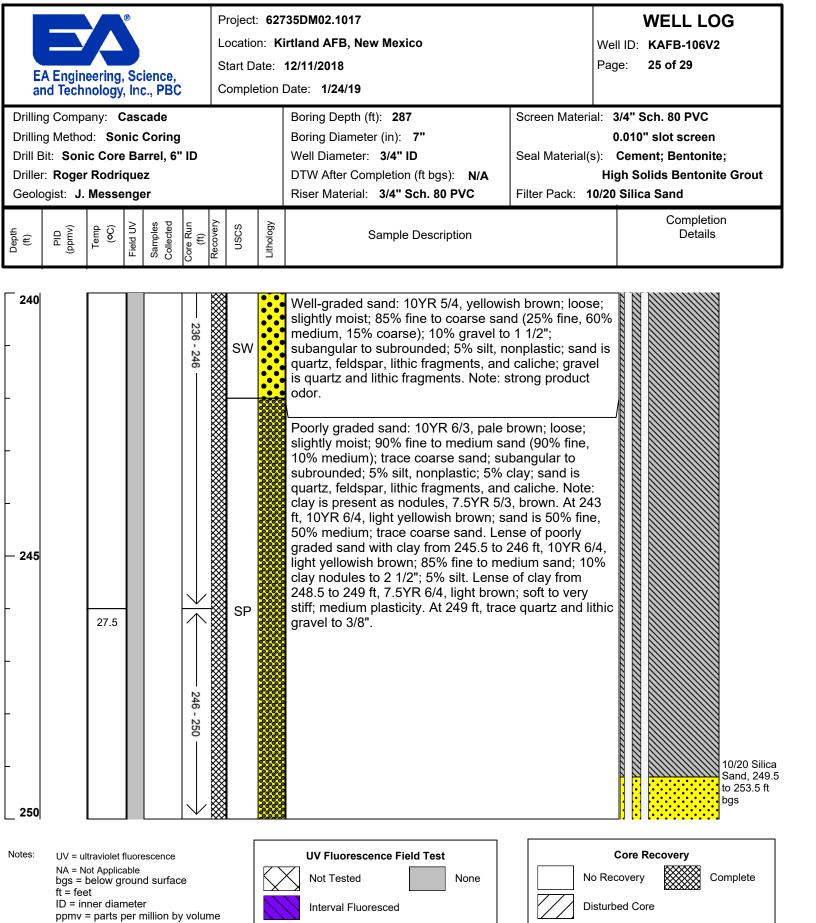
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

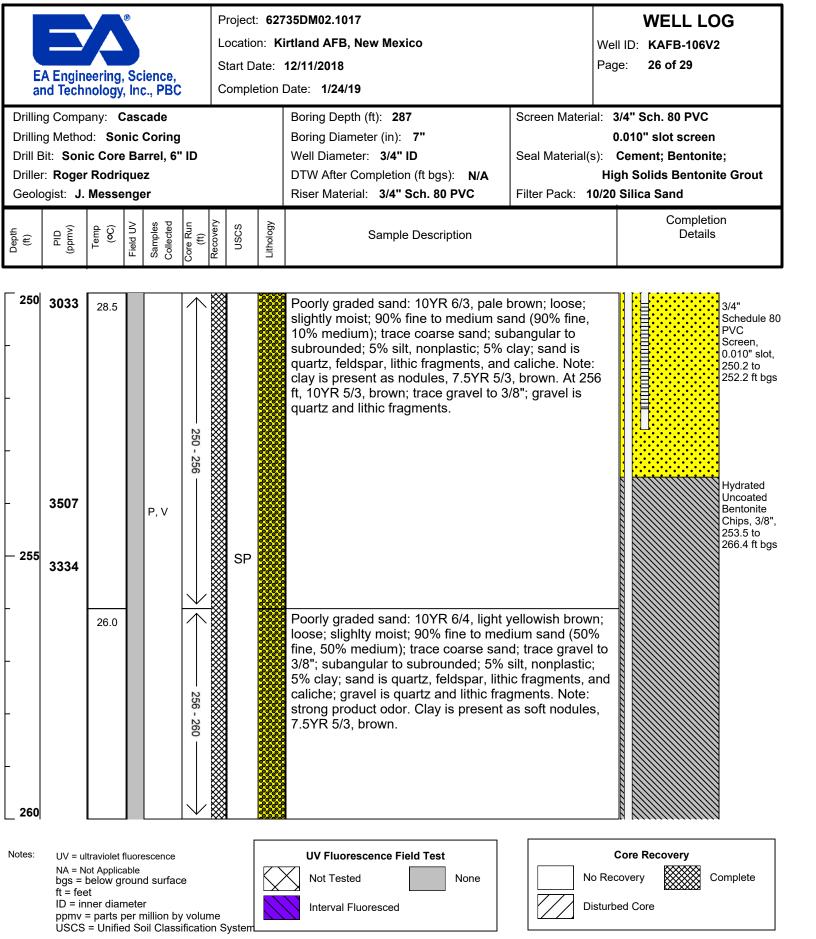


Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity

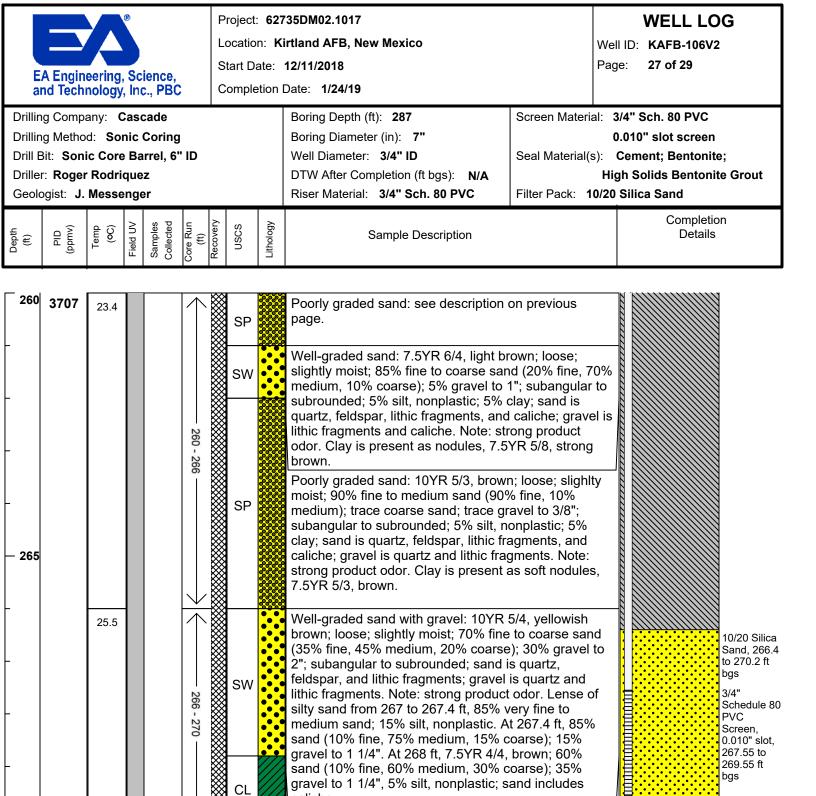
There is a 0.4 ft sump underlying each screen.

USCS = Unified Soil Classification System



Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

T = thermal conductivity



Notes: UV = ultraviolet fluorescence

NA = Not Applicable

bgs = below ground surface

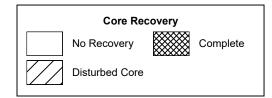
ft = feet

270

ID = inner diameter

ppmv = parts per million by volume USCS = Unified Soil Classification System

Not Tested None
Interval Fluoresced



Following coring, the borehole was overdrilled using ARCH for well installation

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet;

caliche.

T = thermal conductivity

E	A Engin	eering, Sonology, In	cience, c., PBC		Lo St	catio art Da	n: <b>K</b> i ate:	35DM02.1017 irtland AFB, New Mexico 12/11/2018 Date: 1/24/19	WELL LOG Well ID: KAFB-106V2 Page: 28 of 29	
Drillin Drill B Driller	g Metho Bit: Soni T: Roger	any: Cas d: Sonic ic Core Ba Rodrique Messeng	Coring arrel, 6" ez		Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A  Seal Material(s)				l: 3/4" Sch. 80 PVC 0.010" slot screen ): Cement; Bentonite; High Solids Bentonite Grout 0/20 Silica Sand	
Depth (ft)	PID (ppmv)	Temp (oC) Field UV	Samples	Core Run (ft)	Recovery	SOSO	Lithology	Sample Description		Completion Details
	963.3 452.1	23.9	P, V	< 270 - 275 - → < 275 - 280 -		CL		@ 268.8 ft: Clay: 10YR 5/4, yellowish the nonplastic; 60% clay; 40% silt. Note: stodor. Mottled with 10YR 7/2, light gray	dium plasticity dium plasticity nedium stiff; ci lling includes roduct odor.  nonplastic; et odor.	Uncoated Bentonite Chips, 3/8", 270.2 to 283.1 ft bgs
_ 280	702.2						-   -   -   -	ft, 10YR 5/4, yellowish brown; 60% cla nonplastic.		
Notes:	NA = N bgs = I ft = fee ID = in ppmv :	traviolet fluor ot Applicable below grour et ner diamete = parts per = Unified S	nd surfac er million by	/ volur		/stem		Not Tested None Interval Fluoresced		Core Recovery  Recovery  Complete sturbed Core

Following coring, the borehole was overdrilled using ARCH for well installation  $% \left\{ \left( 1\right) \right\} =\left\{  

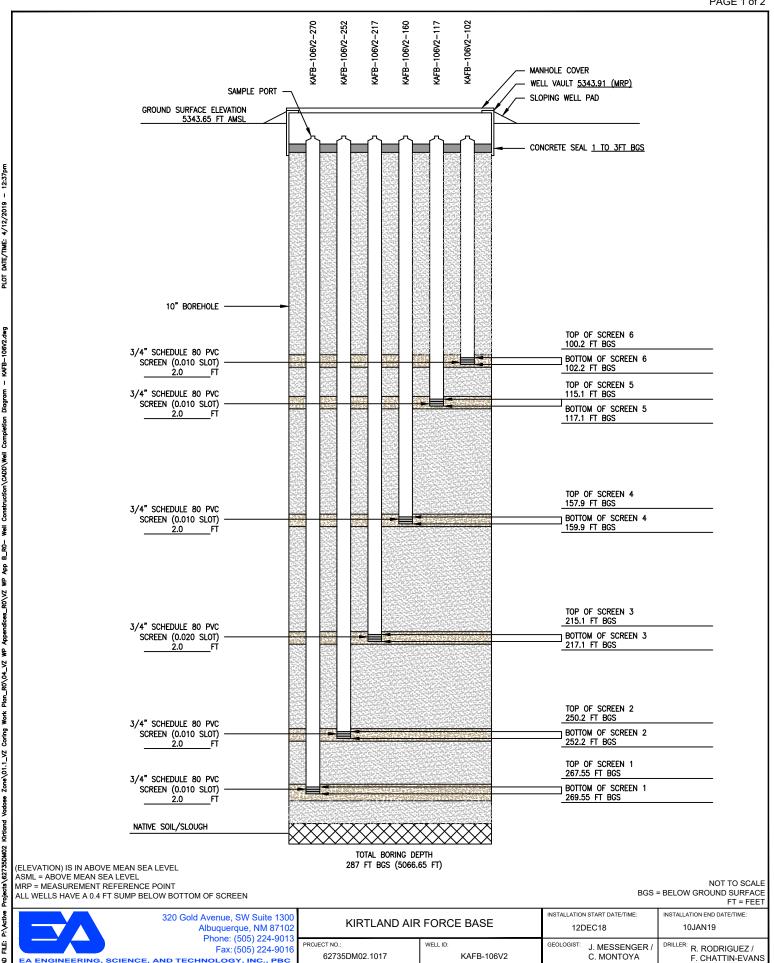
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

	A Engin				;	S	Start Date: 12/11/2018  Completion Date: 1/24/19					KAFB-106V2 29 of 29
Drillin Drill E Drille	g Compa g Metho Bit: Son Roger ogist: J.	d: So c Core Rodri	nic ( Ba que	Coring rrel, 6' z		1			Boring Depth (ft): 287  Boring Diameter (in): 7"  Well Diameter: 3/4" ID  DTW After Completion (ft bgs): N/A  Riser Material: 3/4" Sch. 80 PVC  Screen Material:  Seal Material(s):  H  Filter Pack: 10/2			" slot screen ent; Bentonite; olids Bentonite Grout
Depth (ft)	OIA (hudd)	Temp (oC)	Field UV	Samples Collected	Core Run (ft)	Recovery	nscs	Lithology	Sample Description			Completion Details
280	231.3 71.3	36.5			280 - 281		SM		@ 279.8 ft - Silty sand: 10YR 5/3, broslightly moist; 70% very fine to mediu very fine, 65% fine, 5% medium); subsubrounded; 30% silt, nonplastic; sar feldspar, and lithic fragments. Note: vodor.	m sand (30% pangular to nd is quartz,		
	25.5	23.3			281 - 287		SW		Well-graded sand with gravel: 10YR strown; loose; moist; 70% fine to coar fine, 60% medium, 15% coarse); 25% subangular to subrounded; 5% silt, not is quartz, feldspar, lithic fragments, a is quartz, lithic fragments, and caliched product odor. At 283.4 ft, 80% sand (medium, 20% coarse); gravel to 2".	rse sand (25% 6 gravel to 2 5/ onplastic; sand nd caliche; gra e. Note: weak	l wel	Native Soil/Slough, 283.1 to 287 ft bgs
- <b>285</b>	34.0	27.9			77	· · · · · · · · · · · · · · · · · · ·	SP- SM		Poorly graded sand with silt: 10YR 6/loose; slightly moist; 90% very fine to (20% very fine, 50% fine, 30% mediu to subrounded; 10% silt, nonplastic; sfeldspar, and lithic fragments. Note: vodor. At 286.7 ft, 10YR 5/3, brown; triclay present as nodules, 10YR 3/4, d brown.	medium sand m); subangula sand is quartz, veak product ace (up to 5%)	r ///	
_ 290				P, V					TD = 287 ft bgs			
Notes: Follo	NA = N bgs = I ft = fee ID = in ppmv : USCS	ner diar = parts p = Unifie	able round meter per ned Sc	d surfact r nillion b oil Class	y volu sificati	on S	•	CH for	Not Tested None Interval Fluoresced well installation		Core  Recover	· XXXXX

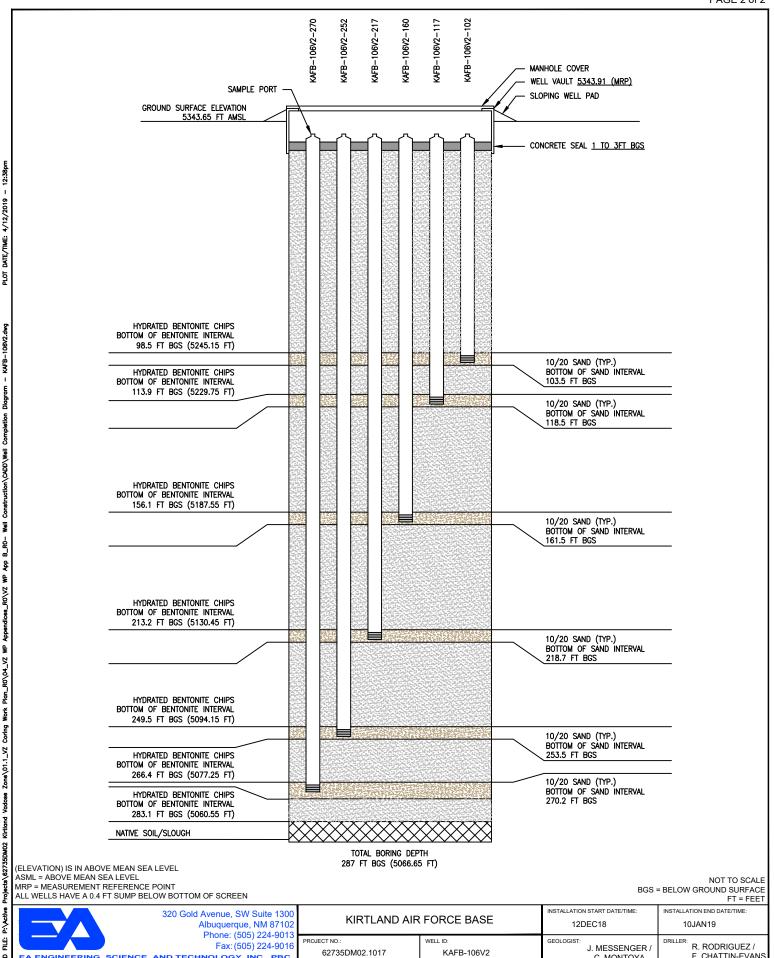
**WELL LOG** 

Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

Project: 62735DM02.1017



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC

C. MONTOYA

1								BORING/WELL CONSTRUCTION LOG	
Projec	- C							Project Number: 62735DM02.1017	
Lead	oriller	ipany:	C	scad Fo	5	7		Start Time/Date: 11-27-18/0815	
Drillin	12 Met	hod:	3	Servi	01	19	UN	Completion Time/Date: Final Depth:	
Casing			D:	20101	_			Bit Type and Outer Diameter	
Boring				FB-	-10	6	51	Logged By: Lan Andress Page 1	of JM
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	70	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  O-8'-CUH-vgs Remove V/ Mcokwife	Well Details
. T. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.				skrite		or the advanced	J		
- mennusta de l	NA	7 45		ed WHydra, Irties-c	1		3		
	<b>Y</b>		NA-	Possible uti	1	may num	<b>4</b>		
Pilighali (segana) ess				Ve - o			6		
		Manager Property Control		25.5			7		
A 4.43:1		<b>\</b>					8		
Addition	nai Co	ınmen	S:	O TON FINANCIA IN A STATE OF THE STATE OF TH					
Recover				)ta			artia		
AA = S				tz = quartz		, Le	F	Id = feldspar   Y = Yes   N = No   NA = Not   Applies	able
amples = Rou	nded.	SR = S	ubro	unded, SA =	Sub	angi	lar.	r; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = gravel	luctivity

Boringwell III S. R. P. B. 1865   Leged By: Land And Ress Page 2 of 57    Boringwell III S. R. P. B. 1865   Leged By: Land And Ress Page 2 of 57    Boringwell III S. R. P. B. 1865   Page 2 of 57    Boringwell III S. R. P. B. 1865   Page 2 of 57    Boringwell III S. R. P. B. 1865   Page 2 of 57    Boringwell III S. R. P. B. 1865   Page 2 of 57    Boringwell III S. R. P. B. 1865   Page 2 of 57    Boringwell III S. R. P. B. 1865   Page 2 of 57    Boringwell III S. R. P. B. R. P. B. R. P. B.				so	NIC (	CORING BORING/WELL CONSTRUCTION LOG	Walter Street
Solutional Comments:    Complete   Partial   Complete   SLAM = Slately and service   Scarce   Partial   Complete   SLAM = Slately and service   Partial   Complete   SLAM = Slately and service   Partial   Complete   Norman   Partial   Complete   N						Project Number (2775DAKO2 1017	72-10
Sold Description  soil type: Munsell color density (primarily coarse) consistency & plasticity  soil type: Munsell color density (primarily coarse) consistency & plasticity  soil type: Munsell color density (primarily coarse) consistency & plasticity  so and (includ grain size %; fine, medium, coarse, etc.)  soil type: Munsell color density (primarily coarse) coarses consistency & plasticity  soil type: Munsell color density (primarily coarse) coarses coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (primarily coarses) coarses (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density (etc.)  soil type: Munsell color density	Boring Well	ID:	FB-186	5	-	Logged By: Lan And Ress Page 2	0157
NA 200 Coorse sand placerly by - loss to mis densely  20% Coorse sand placerly by the condensely  (calculated series and placerly by the condensely  20% Coorse sand placerly by the condensely  21% SAA - minor clay - vary law plasticity  21% Coorse sand placerly  22% Coorse sand placerly  23% of your condensely  24% Partial The class of the condensely  24% Partial The complete State sports up  24% Sant a show of Otz = quartz  25% partial The complete State = State for the condensely  25% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly the condensely  26% Coorse sand placerly  27% Coorse sand placerly  28% place	USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence	Samples collected	Core Run	Recovery Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	
SAA @ 10.5 A increased devisity - occasionally what specks of to 3 mm.  13  13  14  15  15  15  15  15  15  15  15  15	M 3.1 ML					~ 20% Coarse sand o rained up to 24" of a model carbonal (called 58/54 - motting of white 15 ye 8/1) ~ 5%  @ 8.25" one 4" SA live from Cobbell 8/1) ~ 5%  @ 9ft SAA - minor clay - very law plasticty	
Cl 5 ft - silt - (eddish brann (5 YR 5/4) - dws, slm, ron plastic w/ caliche spots vp 40 1/2" (15%)  SAA e 15' but malina dwse  Secorcy: None Partial Complete SLM = Slightly 117  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Mod = Medium  Imples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotablish IV. In the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the sum of the complete of the com		8.20	N. 2   100 2				
dditional Comments:  Partial Complete  SLM = Slight by Modern Star = Slight by	CL ML				15		
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Wd = My d two  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical, UV = d to T			1	MILLIAN	17	SAA e 15' but medium dinse	
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Wd = My d two  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical, UV = d to T	*******						
mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = geotrophylost UV = other intervals.						SLM = Sugarty M	ricox
= Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Co			P = TPIL M	= pol-	Florendage	id icidspai	
The state of the s	= Rounded, SI	R = Subrou	inded, $SA = S$	ubar	igular, /	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Gravel	etivity

	SC	ONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland I	5F F		Project Number: 62735DM02.1017 Date:	1-27-18
Boring/Well ID:	AFB-1065		Logged By: Page 3	of 57
USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected Core Run		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
M	И	11/18		
ML 313°C	4	1111119	SAAC 16'- Loose to Medium dense	
M	h	1111120		
M 3.0 1	N		Silt-reddish bram (5 YR 5/4) de NSE-to medium divse-Dryto slightly Moist-tore clay-Non-plasticio Leur prostruty- 25% white caliche spres up to 3 mm	
ML .	N	111111111111111111111111111111111111111		
ML	N G	23	SAAC 20ft	
ML 55.5	N	no la la la la la la la la la la la la la	214 0 21 0 1	
ML !	J		25.ft-Sitt-reddish brangs VR 5/4) - show	
MC /	V V	26	185 ff - gitt - reddish brann 5 yr 5/4) - shightly with rediving onse - No chang - occasional with calicle spects up to 2 mm	
Additional Comment	).			and the same of th
		***********		
Recovery: None		Partia		
AA = Same as Above		Floring	l = feldspar Y = Yes N = No/None	-
= Rounded, SR = Su	brounded, $SA = Sub$	angular, A	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal col = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	nductivity

Soil Description  Soil Descrip	Drainati Kintl	and DEE	SO	NIC (	CORING BORING/WELL CONSTRUCTION LOG	
Soli Description  Solid Solid  Solid			11/6	,		11-77-15
Soll problems and interdegy an	Doring well I	CAP	2-1065		1 de	of 57
27 P 27 ft decreasing clay to a silf wy clay be 78'- as above e 26' (color, densty)  Non-plastic  Non-plastic  Silf-light Rodsh brain (5YRO/4) very dense dry to 51M - occasional whate caliche spects  op to 2 mm (15%) Non-plastic  Non-plastic  Non-plastic  Silf-light Rodsh brain (5YRO/4) very dense dry to 51M - occasional whate caliche spects  op to 2 mm (15%) Non-plastic  op to 2 mm (15%) Non-plastic  Non-plastic  Non-plastic  Silf-light Rodsh brain (15 YR 5/6) - Nedom duse to duse, 51M, face clay - Very law plastic to duse, 51M, face clay - Very law plastic  Non-plastic  Non-plastic  Non-plastic  Silf-light Rodsh brain (15 YR 5/6) - Nedom duse to duse, 51M, face clay - Very law plastic  Silf-light Rodsh brain  Non-plastic	USCS Soil Type PID Reading (ppm)	SERVICE STUDENT STREET	Samples collected	Recovery Depth, ft	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No None		2 2 2 2 2 2 1		27 28 29 30 31	27 ft decreasing clay to a silf w/clay  8 78'- as above & 26' (color, donsty -)  871f-light Redish brown (54RG/4) very dense dry to SLM-occasional white callete spects  871f-yellowish red (54R5/6)-medium duse to duse, 5LM, face clay - Very low plassicity.  clacking Armyrs & specks up to Zma (25%)  38.5-33.5'-51f-yellowsh red (54R5/6), Loss to reduce duse, 5LM-New Plastic  232.5'-61  2823.5 ft -5/ft of minor clay - light reddish brown 54R6/3)-Medium duse, 5LM-slightly plastic	
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No None	1			331		
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No None	lditional Com	nents:	-	4		
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No None	unional Comi	nents:				walnes and a second
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No None						
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No None	2212					
			-	Parti	al 🏥 Complete	
iples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; C = gastashaisab UV = absolute T				F	$Id = feldspar \qquad Y = Yes \qquad N = No None$	
	nples: V = VO	Cs/EDB; P =	TPH; M = m	inerolog	y; B = biologic; W = moisture analysis: G = geotechnical: IV = ub-moisture analysis: T = d	

		SONIC CORING BO	RING/WELL CONST	RUCTION LOG	
oject: Kirtland   oring/Well ID:			Project Number: 62	735DM02.1017	Date: 11-27-18
ting wen ii).	KAFB-	10651	Logged By: Law	Andress	Date: 11-27-18 Page 45 of 57
PID Reading (ppm)	UV fluorescence Samples collected	Becovery and (inches and minerol and miner	ology undedness clay)	coarse)/consistency & pla	sticity  Well Details
1 4.9 a J	N	10 SS SNA@ 3	)		
a mix	4	V 28	ft - gilt-reddish Lense to loose -	brand 5 YR 57 SLM, NON PLA	4) - whic
	N	1 5x4 e 3	)		
232	Ŋ	Clay w/ = 5LM, plas	oilt-reddish b struhen wetted	raun (5YR YM) -silt ~ 20%	dense,
	N	1 Clay - 1 Plasfic	ight braun (7.5 4	(RG/3)-deNSe,	slm,
tional Comment	Ŋ	bran (5 y to SLM calier 5	SILT of Clay - C R 5/4) - Coff dens - Low to medium p ports up to 3 mm	lay ~ 20% - pold ext modern see plasticity ~ 10%	ish use-day
donar Comment	i.		Company of the second s		
	***************************************		The state of the s	The second secon	
very: None	Qtz = quartz	Partial 🎞 Fld = feldspar	Complete		

Project: Kirtland		NIC CORING BORING/WELL CONSTRUCTION LOG	
	DIT	Project Number: 62735DM02.1017 Date: 11'-	27-18
Joing Well ID.	KAFB-1065	Page 3 60	of 5-7
PID Reading (ppm) Temperature (*C)	UV fluorescence Samples collected Core Run	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
1/2 1/2 25. 25. 25. 25. 24. 25. 25. 25. 25. 25. 25. 25. 25. 25. 25	N N N	244.5ft - Silt W/Clay- reddish bran(5 yr 5/3)  218, Dry to SLM - 20% clay - Law to medium  Plasticity - ~ 15% caliche specke & through  19 to 244 5mm  845.5 color change yo light reddish bran (5 yr 4/3)	
	<i>X</i>	5ilt_reduch bran (5 YR 5/4). dense to modum don's - SLM, non Plastic 25% calliche spects up to 3 mm	
45	N 9	Silt w/mor clay - reddish bron (5 / R 5/4) - diverse secks up to 3 mm  199  8 491 - 5ilt w/mor clay - 491 laust Red 5 42 5/6)  Medium dense - 2000 plasticity to NON - plastic, SLM  + took callide specks	
L 1.8	N	5/ 5/A @ 49'	
M litional Comment	N	53 Silty Clay - Redown Gram (5 YR Y/3) Jense-must to SLM - mediumplasticity	
ovanu Nasa I			
overy: None	e Qtz = quartz	Partial Complete  Fld = feldspar Y = Yes N = No/None	
= Same as Above	Utz = quarty	Fld = feldspar   Y = Yes   N = No/None	

		SONIC (	CORING BORING/WELL CONSTRUCTION LOG	-
Project: Kirtl:			Project Number: 62735DM02.1017 Date: 11	-27-18
Dornig Weir II	D: KAT-B	-1065	Page 67	of 57
USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence	Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
MY		53	(053 siltw/clay-reddish brom (5485/3)	Details 0
á	25 M	- Sev	Med dense, SLM, Low to med plasquity. Clay ~30% ~8% caliche specks up to 3mm	0 0
my a	I W	9 1155	54A C 531	
my/ce	<b>^</b>		54A 4 55 .5'	0
50)	N	52	544 455.5" ess.5-5and Brown (7.5425/3), Luose, SLM, well graded 5% M25% C50% C720% uptol "Grands	0 0
. 1			54A @55-54	0 0
5W		37		000
SW	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		-edt	0 0
50 3	,6 N	11 11 59	544 C 55.5 H	0 0
gu gu	N	111111111111111111111111111111111111111	@ 59.5 A SAAR 55.5' W) gravel up to 2"	0 0
Wy 1.5	7		Silt w/Clay-reddish brom (542 4/3) - Andrum Con plasticing - 52 M, clay ~ 30% - modum to e 61 ft - 5ilt-reddish brom (5424/3) modum e wse, SLM, Non to Low plastic - clay <10%	0 0
me	N	111162	duse, SLM, NoN to Low plastic - Clay 210%	0 0
Additional Comr	nents:			100
	Character to the second			
	-			
decovery: Non		Partia	Complete	
AA = Same as A amples: $V = VO$		artz F	d = feldspar Y = Yes N = No/None	
= Rounded, SR	= Subrounded, S	SA = Subangular,	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Coarse	etivity

			so	NIC C	ORING BORING/WELL CONSTRUCTION LOG			
Project: Kirt Boring/Well					Project Number: 62735DM02.1017 Date:	11-2	71	2
Bornig wen	11):	AFB-10	265	1	Logged By: Land Andress Page X	<b>B</b> of	57	
USCS Soil Type PID Reading (ppm)	Temperature (*C)	Samples collected	Core Run	Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)		Well	
	PO DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TO PERSON NAM	The state of the s	19	162	51/+- reduch from (Five 5/1) and a less	0	Detai	ls
M M	, M			7/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1	Silt-reddish bram (5.4R 5/4)-Molum dense to Loose, sLM-non plastic	0	0 0	0
1.	1/			16V	.(/		0	
5W .	30.6 N			3011111111111	Silty sond witrace gravel- reddyh Draw (5/25/4)- Look, 5 CM/ Well graded  Silty of F 5% M 5% C15% Gtace ve to l"  ASIO GS conglimento GS Lithes  Colored Silt of depth	0 0	0	0
SW CH	2 2			0	Sond - Scown (7-542 5/3)-lose-Dry to SLM well gaded. F15% MCO% C 25% + tace G up to 1/2" SRISH C C7-Silty Clay-Seddish brown (5 125/4) very dense, hard, dry to SLM, Medium plusticity	0	0	0
My a my	405 2		9 1111111111111111111111111111111111111	9	Silt w/clay (20%)- medium 2NSO, SLM, bew Plasticity	0	6	0
y 1.3 Additional Con	nments:	HEARING TO THE HEARING	11/11/11/11/11	71	SA4-e 67'	0	0	5
			**********					_
ecovery: No	Above (	Qtz = quartz		Partia Fi	d = feldspar V = Ves N N N N N N N N N N N N N N N N N N N	Vois	-	
= Rounded. S	R = Subro	P = TPH; N	I = mi	nerology	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor Angular, VF = Very Fine E = Fine M = Medium G = G = G = G = G = G = G = G = G = G	iductiv	ity	

	The second secon	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland	Brr		D ' . Y I dans	21-10
Boring/Well ID:	KAT-8-1	16651	Logged By: Lan Andress Page 8 9	27 18 9 of 57
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence	covery pth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
a/		1 7	5AA @ 67'	O O
ML	N	72	7	
MY CU MY	× .	101711171177	Silt W/ Clay (30%) - redoush bram 年(578 5/4) dense, Dey to SLM-Low to redown plasticity	
	7			0 0
my you		10 11 74	51/4 W/V fg Sand - 6 ram (7.5 YR 5/4)-LOOSE to	0 0
m/ sn	7	75		
ML NL	۲۰ .	76	Fift - 5 coun (7.5 YR. 5/3) mount dense-SLM, 276-5-silt-brown (7.5 YR 5/3) Dense to mount Sense, DLM - w/ pinkish white color (Redox) sports up to yz"~10%	
M	N	78		0 0
m	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	6 179	PhAC 76.5 pinksh white Red ox areas	0 0 0
n 39.4	N	8		0 0
Additional Comment	S:			Constitution of the Consti
Array - Law				
Recovery: None		Partial	- Complete	
SAA = Same as Above Samples: V = VOCe/F		Flo	V = Ves $V = Ves$ $V = Ves$	
R = Rounded, SR = St	brounded, $SA = S$	– minerotogy; Subangular, A	B = biologie; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

				The state of the s	SC	NIC	C	ORING BORING/WELL CONSTRUCTION LOG	-		
Proje	ct: Kirt	land	BFF					Project Number (2725DA102 1017	1	1	•/
Borin	g/Well	ID:	KY	FB-1	66	2	and a second	Logged Pud	1-2		
								Soil Description To	1001	51	-
1	Ê						- 3	soil type; Munsell color; density (primarily coarse)/consistency & plasticity			
9	PID Reading (ppm)	Ç	9	Samples collected		1.1		% sand (include grain size %; fine, medium, coarse, etc.)			
USCS Soil Type	0.0	Femperature (*C)	UV fluorescence	Jec			S	sand minerology			
=	di	1	esc	col	-		ft bgs	% gravel			
S	çea Çea	era	101	es	Core Run	Recovery	=	gravel minerology			
S	DE	du	=	du	-e	100	Depth,	angularity/roundedness		120	
5	2	Te	5	Sa	ပ္ပိ	Re	e l	% fines (silt/clay)		We	
	And the last	-			1	173			THE STREET	Deta	ils
1	1.3					13	1	clay-reddish brown (5 Yn 5/3) - Lewse, 2 M/to 5LM, kugh plasticky - ~ 15% white caliable spots a strugos up	0	0	1
11	4		1.1			1	-	key h plasticity - 15% which calidde sports a stranges up			
100			N		11	1	. 1	to 2 mm	0		P
1		- 4	1			7 8	3/			0	
						2	1		0		(
						7				0	
11			1.11			1		. /			
0			N			1	-	' [	0		р
-	-	. 1.				18	2			0	
			1 1		111	7		Clary-brand 7.54C 5/3) very dense, 5LM to plastic mid-high plasticity when wolled	0		0
			Lil		111	1		Dlastin - Mid - Mid Die 13 - Mily Color		0	
a			N			1		prostructy win worker			
					111	1	- 1		0		0
· + = - 'a		1		30.68	111	18	3			0	
		1			$\parallel \parallel \parallel$	17	-		0		0
11	,	924	1		11,	1		*	1 1	0	
U.		39.4	N		10	1	1		1.1		
	1	1	1		1	1	,		0		P
	•	111	-	-	+1 +	1 8	1			P	
		1				1		clay As about at 82'	0		C
			1		11 1	10	1	1 Ko about set &C	11	0	
CU	1		N			1	1		0	П	0
						5 11	-		11	0	
						183	7	'	0		0
						1	1				
0			14			1			11	0	
						1	1	•	0		0
	1	V				201	1			0	
		1			X	106	1		0		0
		1			7	3	C	lay- brown (7.5 YR Y/Y)-very Duce - DRY HATER			
		11				1	1:	LM -plastic when writted -		0	
11	1		N			3	11	lay-bran (7.5 YR Y/Y)-very Duse-Dry total ELM-plastic when withed - pinkish white 1.54R 8/1) Redox areas ~ 70% increasing to 80% at 87-54	0	11	0
			'		15	300	1	(0% increasing to copy		0	11
- 1						100		at \$7-54	0		0
				1	11	-	1	0. 41			11
11	1	1			1	3	1			0	
a			N	i	13	2			0		0
					1	388	-	Latin Latin de la latin de la latin de la latin de la latin de la latin de la latin de la latin de la latin de		0	
	-	4.1			18	400			0		0
	3	100	,		1	4	15	AA-e 86'		10	17
(1)		1	N		D' W	3	1			9	
u					11	1			0		0
					1	801				0	
Addition	al Com	ment	S:	and the same of the same of	araminado de la constanta de l	and a second	Page 25		)		Q
					-						
- dimension			-				-	A 84 (1.1)			
Recover	y: No	ne				Par	rtial	Complete SIM= shigherly mas	9		
AA = Si	ime as	Above		z = quartz		-	Fld	= feldspar V - Voc			
				= TPH: N	[ = m	nerolo	gv.	= feldspar Y = Yes N = No/None  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con			
t = Rour	ided, SI	R = Su	brour	ided, SA =	Suba	ngular	. A	- Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ductiv	rity	
AL AUG CUST	Who comme	NAME OF TAXABLE PARTY.	CONTRACTOR	THE PERSON NAMED IN COLUMN	HISTORY CO.		,	New rate of the rest of t	-	-	-

	10007				SC	N	C C	CORING BORING/WELL CONSTRUCTION LOG		
	t: Kirtl g/Well I		SFF	17.7				Project Number: 62735DM02.1017 Date: 14	-27	-18
DOLIN	y well I	D:	-	L A	F	3.	10	lac I	10f 5	70
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)		
		Ť			Ť	1	89	10 89 1 - 51 + W/ VG Sand - 51 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Det	ails
MY SM SM	2.0		2 2	ender end		177777777777777777777777777777777777777	90	Esq'-sitt w/ vfg sand-reddish bran (54R5/4), Lower to medium dinse, 5LM - sand ~ 40% Silfy sand - reddish bran (54R 5/4)-Love to wedien dense, SLM - sand ~ 70%		5
SM			4			11111	92	median sense, sem - sand ~ 70%	0	o
M		j	N			MILLIAN	93	Sitt-redden bom (5 YR 5/4) very dense-dry to SCM, Now Plastic Sand- Reddend bours (500 500)	0 0	0
SM	5'	41	N		10	Mullilling	1	silt 40% F 40% M 20% C+ace	0 0	6
2W			١			111111	5	5AA @ 93' - NO SIL+ ) F80% M20% C 0%	0 .0	0
Sul			J			11119	4		0 0	0
W						11111	,	5A A e-43 94'	0	0
5W	34	21	J	١	11111111	111119	X	coverted medium grance said sand 5A	0	0
ddition	al Comr	nents			-	-			444	0
									7.	$\dashv$
ecovery	: Non	e l	1				ortio!			
AA = Sa			Otz	= quartz		P	artial	Complete		
amples:	V = VO	Cs/ED			= mi	iner	ology	d = feldspar Y = Yes N = No ; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu		
= Roun	ded, SR	= Sul	round	led. SA =	Suba	ngu	lar A	A = Angular, VF = Very Fine $E = Fine M = Medium G = G$	activity	N.

The Assessment					SC	INC	CC	CORING BORING/WELL CONSTRUCTION LOG		_
	ct: <b>Kir</b> i ng/Well		BFF	1110				D. 1 131 1 22	7.10	-
DOLI	ig well	ID:	1	KAF	B	-10	00	Logged By: Lac And Ress Page 12 o	57	-
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well	
					T	7	18	SAA@ 97'	Details	9
SW SW	15-0		2 2			Mummin	79	@99'-1" cooks graned sand stare lease-well considered - made egg - sof band as below: 5 yr 5/3) - Loose, SLM  Fram MIS! C 80% G 5% of Sandson pieces up to 1"		The state of the s
SW.	1.3		N	W			31	5and-bram (7.54/2 5/3) -LOSSE-SLM, WG F 70% M 30% CHACE		
SW)			N			14/1/1/1/1	2		0 5	
SW.	12	4.2	N	ad South Annie ad South August	70,1	200111111	3	Sand-Sann (7-5 (1-5/3) ploose, SLM, WG  F 5% M 40% C 50% G 5% up + 34, "  Sandstone (of carnoted Sand  in this interval) SA  Get 1 fld, letture  103:5- six w/(104 - brown 7.5 Va. 5/3) dense G m	0	
SW			J		111111	0) 11/1/1/1/1/	1	0103.5 - sixt welay - brown (7.5 YR 5/3) dense, SLM or 7.5 YR 5/3) dense, SLM or 7.5 YR 5/3) dense, SLM or 7.5 YR 5/3)	0.0	
W	Company of the Compan	1	,	Make as the manyage.	11111	201000		Sand-pintoh gray (7-5 ye 5/3) dense, sim of the sold o	0 0	
sw Ma		1				100		2105.5 - Silt w/Clay - Som (7.5 424/3) - Sense-BLM - Clay ~ 20% NoN to slightly plastice	0 0	
SM	47	12/	/	10	9	loŦ		trace ufg sand a trace clay non plastic	0 0	
dditio	nal Com	ments:				-		9	11.0	
ecover	y: Noi	ne T				Par	rtial	Complete Gacul		
AA = S	ame as	Above	Qtz	= quartz		-	Flo	d = feldspar V = Ves N - N-		
amples	V = VC	Cs/ED	B; P :	TPH; M	= mi	nerol	ogy;	B = biologic; W = moisture analysis; G = geotechnical, IIV = alternative of	vity	
- Kou	naea, SI	c = Sub	roun	ded, SA =	Suba	ngula	r, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse		

				SON	VIC (	CORING BORING	WELL CONS	STRUCTION LOG		
	t: Kirtl						Project Number: 6	52735DM02.1017	Date: N	
Boring	g/Well II	): 	KAF	3-	106	31	r in i	no Andress	Date: 11-Z	of 57
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	Samples collected	Core Run	Depth, ft bgs	soil type; Munsell cold % sand (include grain sand minerology % gravel gravel minerology angularity/roundednes % fines (silt/clay)	Soil De or; density (primari size %; fine, mediu	scription	OK	Well
SM		N			114	SAA@ 106"-	Loose to	Medum der	e.	Details
sny a		N			8011111111	FILT W/ Clay ( dense to dense plasticisty	30%) - 51 - 5LM, LO.	w N7.54R 3/4 ~ plasheuty to	) modern nedern	
SM		1	,	MILLIAM	0	511+ - h 10 m/2	.5 VO 5/2)	-10058,5CM-n		
\$\frac{1}{2}	1.6	h					2			) 0
SM	42	2		MULLICA	uz	Very divise -5	Z Z	7-54R5/3) -Dig Sand (50%)	7022 46	
SM	mm ) m (m) maga r	<u></u>	***************************************	10/1/11	113	, , ,		<i>I</i>		0 0
M	and the state of t	Ŋ		Millell	114.	317-51	/ (4.5)	(R-5/4)-Medu	n dose	0 0
ML		N	The state of the state of	MIIII	115	3124 05 at	us			0 0
my e		N		WWW.	NG	30% clay - 5	clay-so	om (7.5 yr 5/ to Nedern pla	4) dense, streety	
Addition	al Comn	nents:						CONTRACTOR OF THE PARTY OF THE	/	
	me as A	ove C	tz = quartz		Partial Fl	d = feldspar Y	Complete = Yes	N = No		
amples:	V = VO	Cs/EDB;	P = TPH; N	I = mine	erology	B = biologic; W = moistu	re analysis: G = geo	technical: IIV = ultraviolat	T = thermal condi	activity
Roun	idea, SK	- supro	unued, SA =	Subang	gular, A	A = Angular, VF = Very Fi	ine . F = Fine. M = N	Medium C = Coorea		

SONIC CORING BORING/WELL CONSTRUCTION LOG
Project Number: 62735DM02 1017
Boring/Well ID: YAFR-10651 Logged By: Love And 755 Page 2/40f 57
Soil Description  Soil Descrip
Details
My SM N
Mill Silf-b(un (2.54 R. 5/4) - Dense, 5LM, Non plake of 119'- unestane cobble 4" 5t-fizzes 4thc1  No 119 @119'- interpretation of the stand Dry to 5LM
M N SLM
M 27 N 10 Silt-Down (7.5 Yr 5/4) - dense to medium dense - 9LM trace clay - Non to very law plasticity
ML 57 M BOOK
SW 123 CHOW Clay brown (7-5 /2 5/4)-very 2 densin-dry to Shally west-playtic when within within a shally wist-playtic when
NL NN Sitt-bran (7-54R 574)-Jense, SLM, tace
Additional Comments:
SLM = Slightly MOUST
ecovery: None Partial Complete  AA = Same as Above Qtz = quartz Fld = feldspar V = Ves N = N = N = N = N = N = N = N = N = N
AA = Same as Above Qtz = quartz Fld = feldspar Y = Ves N = No amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
= Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse

Boring Well ID:    Complete   Project Number 62735 May 1.017   Page 14   -7.7   K   Logged By: \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		SONIC CORING BO	ORING/WELL CONSTRUCTION LOG	
Logged By: And Jackeds Page 15/200 5 7  soil type; Mansell color, density fprimarily coarse/consistency & plasticity (primarily and dimerolog	Project: Kirtland BFF		Project Number: 62735DM02.1017	Date: 11 - 27 - 10
Sold Description  Soil Description  Soil Description  Soil Description  Soil Sold Sold Sold Sold Sold Sold Sold Sol	Dornig Well ID:	FB-10651	The state of the s	Page 44 150f 5 7
Clay - brand - 54 & 5/3) - very dasse, by +8 & A & e 124 & Share of calcum corbonate staring sity sond of son for the son of son of the clay - loose 51 +4 & San of calcum corbonate staring sity sond of son of the clay - loose 51 +4 & San of calcum corbonate staring sity sond of son of the clay - loose 51 +4 & San of calcum corbonate staring sity sond of son of the clay corbonate staring sity sond of son of the clay corbonate staring sity sond of son of the clay corbonate staring sity sond of son of the clay corbonate staring sity sond of son of the clay corbonate staring sity sond of son of the clay corbonate staring sity sond of son of the clay corbonate staring sity sond of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of the clay corbonate staring sity son of son of son of the clay corbonate staring sity son of son of son of the clay corbonate staring sity son of son	USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	Samples collect  Samples collect  Samples collect  Samples collect  Samples collect  Becovery	Soil Description unsell color; density (primarily coarse)/consistency & pl lude grain size %; fine, medium, coarse, etc.) clogy rology pundedness /clay)	asticity (primarily  Well
128   SAA @ 124     128   SAA @ 124     129   SAA @ 124     130   E   30' Zone of colour corbonate Stanny     131   SAA @ 126     132   SAA @ 126     133   SAA @ 126     134   Sand of colour corbonate Stanny     132   Silty Sand of colour corbonate Stanny     133   Silty Sand of colour corbonate Stanny     134   Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     132   Silty Sand of colour corbonate Stanny     133   Silty Sand of colour corbonate Stanny     134   Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     136   Silty Sand of colour corbonate Stanny     137   Silty Sand of colour corbonate Stanny     138   Silty Sand of colour corbonate Stanny     139   Silty Sand of colour corbonate Stanny     130   Silty Sand of colour corbonate Stanny     131   Silty Sand of colour corbonate Stanny     132   Silty Sand of colour corbonate Stanny     133   Silty Sand of colour corbonate Stanny     134   Silty Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     131   Silty Sand of colour corbonate Stanny     132   Silty Sand of colour corbonate Stanny     133   Silty Sand of colour corbonate Stanny     134   Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     132   Silty Sand of colour corbonate Stanny     133   Silty Sand of colour corbonate Stanny     134   Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     136   Silty Sand of colour corbonate Stanny     132   Silty Sand of colour corbonate Stanny     134   Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     136   Silty Sand of colour corbonate Stanny     137   Silty Sand of colour corbonate Stanny     138   Silty Sand of colour corbonate Stanny     135   Silty Sand of colour corbonate Stanny     136   Silty Sand of colour corbonate S	0 53.7 NO.	War when well	the passing festive, pla	spic o
Bo e 130' Zame of column corporator stammy  Shate 126'  Claim of column corporator stammy  Shate 126'	a   M	Plastic- B 126.2 Starni	5 a fractum in clay w) column	curbonato o
Complete  Partial  Partial  Partial  Partial  Complete  Partial  Partial  Complete  Parti	allr	128 SAA @ 1	241	
Covery: None Partial Complete  A = Same as Above Qtz = quartz Fid = feldspar Y = Yes N = No papers: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical VIV a when it is a stance of the papers of the	a   N	Na Paris		0 0
Covery: None Partial Complete  A = Same as Above Qtz = quartz Fid = feldspar Y = Yes N = No papers: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical VIV a when it is a stance of the papers of the	y 12 N	130 C 130' 3	in of column corbonato Stan 26	ing
Silty Sand of elay balls/preces - Isan (7-5 (12 5/3))  Note that some desire clay - Loose 31 ty Sand - 5 (20 5/3) and only elay balls preces in p to 3" - plastic - sand of governous order of the sand of governous order of the sand of governous order of the sand of governous order or the sand of governous order or the sand of governous order or the sand of governous order or the sand or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand order or the sand or the sand order or t	53.8 N	d'		
ditional Comments:  Partial  Complete  A = Same as Above Qtz = quartz  Fld = feldspar Y = Yes  Papeles: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = geotechnical; IVV = when in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term is the first term in the first term in the first term is the first term in the first term i	Y N	132 C131.75	1" Zan of calcum consort	staining of
ditional Comments:    Covery: None	M	morm du balls piece	Me clay - Loose 31/ty Sand - SCM 25 " p to 3" - plastic - sand v	-clay(30%) 0
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  nples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = geotechnical; IV = wheeting to the moisture analysis.	M N N N N N N N N N N N N N N N N N N N	134 scm, vfg	Sund (13 (15/3)	0 0 0
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  nples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = geotechnical: IV = when it is to be a second of the property of the prope				
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  nples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = geotechnical: IV = when it is to be a second of the property of the prope	covery: None	Partial W//A		
nples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = geotechnical; IIV = where it let T	A = Same as Above Qtz =	quartz Fld = feldspar	V = Vac	
BCHILLIANIBLE I E INTERNAL TO A STATE OF THE STATE OF	nples: V = VOCs/EDB; P =	TPH; M = minerology; B = biologic; W	= moisture analysis: G = geotechnical: IIV = where in late	T = thousand

	No. Named				so	NIC	CORING BORING/WELL CONSTRUCTION LOG	
-	ct: Kirt						Project Number: 62735DM02.1017 Date: \\-2	2 10
DOFIL	ig/Well	ID:	KYE	3-10	651		Languist D. A. Date: 11	57
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)	Well
58		53.8	'n		70	134	poorly graded- VFg	Details
SP —		*	M			136		0 0
CL			4		The state of the s	137	clay w/ SIH(20%) - reddish brown \$2. (8785/4) very diver, SLM, Highly plastic	o o
0			J		11/1/1/1/1/	138		0 0
a		7	J.	6		139	SAA @ 136'	0
du	5	3.8 			11/11/11/11/11/11/11/11/11/11/11/11/11/	640	@139'- Clay as a sove @ 138'-DeNSC	0 2
SM/ 3	6.6	N	1 P,	V	111111	/V/	Sitty Clayer Silt-reddush Bran (5 YR 5/4) Dry to SLM, very dense, silt ~ 40%	0 0
SMY		, ~			Mull		etyl-sarelyo-sin & mediumdouse	0
SW)	8			1	MOZEMBIO	142	silty sand-pinkush gray (7-54R7/2) Losser, Sey, well graded 5% C 5%	0 0
ddition	al Comr	nents:				-	1110	
							142-146 Juscelled-fell of of core borr	el
ecovery	: Non	e 🔲				Partial	2 re-re-rejived	
AA = Sa	me as A	bove	Qtz = q	uartz		FI	ld = feldspar V = Von	
amples:	V = VO	Cs/EDE	3; P = T	PH; M =	mine	rology	B = biologic: W = maisture analysis: C = mais	
= Roun	ded, SR	= Subr	ounded	, SA = S	ubang	gular, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	rity

					SC	INC	CC	CORING BORING/WELL CONSTRUCTION LOG	
Projec	t; Kirt	land I	BFF					Project Number: 62735DM02.1017 Date:   -	77 113
Borin	g/Well	ID:	AFB.	-10651				Logged By: L. Andress / J. Messenger Page 15	OF 57
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
					П		143	SAA e 142'	Details
SW						1-1461	144	7	0 0
5W	* e* .=	X.38			7	BED -145	145	Sand-light Gram (7.5 YR 6/3) Loose, SLM, well graded	
M		V			V	15tc	146	clay-higher brann (7-5 YR 6/3) - very duse, Dry plastic when wetted ~ 20% sift	0 0
CL	e pre crosson		N			11/1/1	147	clay - light brown (7.5 YR 6/4) - soft to stiff, dry, low plasticity when welfed & 30% silt  clay is loose and exist as clay  no odor  clay is loose and exist as clay  clay by to 3"(54)?	
CL	- Mary & Marketine - 1		N -			111111	WK.	SAH @ 146'	0 0
5C	opport the same of		V			11111	49	Clayer sand with silf - light brown (7.5 YR b/4) loose soft - clay clumps stiff to very stiff - Sand 60%: VF: 20% F= 70% m=10% sA-SP (Qtz, feld, lithics); clay 30% soft to NSHE silt & 10% non plastic no odor	0 0
3M		39.5	J		0	11111	50	silt & 10% non plastic no odor  silty sand with clay - light brown (7.54k 6/4) losse, soft  - clay clumps up to 11/2" still - very still; sand 70%: F=70%  M=30% str- SR (atz, feld, lithics); silt 20% nonplastic; clay 10%  Soft to very still (clumps)  No odor	0 0
5m /	1.7	1	J			11111	7	SAA @ 150'	0 0
SW- SM	,				1111	11/15	2	vell gladed sand with grave (- light from (15 YR 6/2) bose, loight or SLM; sand 80%: 6-30% M=40% C-30% SA-SR (atzelida Red, ithics); glave 10% up to 13/8" (atzelithics); silt 10% calida no odor	0 0
Addition	al Con	nments	:						
								142 - 146 elighthed lone yell at af lore	2
Recover	y: No	ne [			- 22	P	artia	Complete	
SAA = S	me as	Above		quartz			F	d = feldspar $Y = Yes$ $N = No$	
Samples:	V = V(	OCs/EI	OB; P = 7	грн; м	= n	iner	ology	; B = biologic; W = moisture analysis; G = geotechnical: IIV = ultraviolet: T = thermal cond-	etivity
R = Rou	ided, S	R = Su	brounde	d, SA =	Sub	angu	lar.	A = Angular, VF = Very Fine . F = Fine M = Medium C = Coarse	activity

	SONIC	CORING BORING/WELL CONSTRUCTION LOG
roject: Kirtland BI Boring/Well ID:	· r	Project Number: 62735DM02.1017 Date: 1/-20-11
oring well iD.	KAFB-10651	Logged By: J. Messenger Page 12/8657
USCS Soil Type PID Reading (ppm) Temperature (*C)	Core Run Recovery Depth, ft bgs	gravel minerology angularity/roundedness % fines (silt/clay)  Well
·w-		JAN @ 150-151 9(4) 10 to 11-16 11 11000
w +	1 153	to very still
W	10 154	153.5-154' gravel opto 2" (lithics) 25%
W 39.5 M	5	and F= 15% of graded sand: F= 15%
W N		SAACO 154 Well graded sand: F=15%  SAACO 154 well graded sand: F=15%  M=60% C=25% i gravel  M=60% C=25% i gravel  Sittion  No ador
u X	156	Well graded sand w/gravel - brown (7.548-5/3) loose, SLM, sand = 86% F = 20% M = 60% C = 20% 5A-5R (etz, &ld, lithic) gravel = 15% up to 24" (Qtz+ lithics), silt = 5% nonplastic
W   W	157	No odor
	158	Wel graded sand with clay - 60wn (1012 5/3) 10068 51M sad =
c 223 N	10 159	Wel graded sand with clay - 6 rown (10 12 5/3) loose, 5LM, 5and = 80%: F: 10% M= 75% C= 15% SA-SR (arz, feld, lithics); gravel = 10% of to 1" (Q+z, caliche, lithics); clay = 10% non plastic no odor
C	160	159-160 = clayer sand with gravel - brown (7542 54) loose,  Moist, Sand 65% F: 45%, M=25%, C=30% SA-SR (Qtz, fell, lith)  clay = 30 to jso for the medium, non-plastic; gravel 18% up to 144"  (Qtz + lithics) Silt = 5% non plastic 10 odor
M 4.3	l la	Sm State 160 - Sand = 65% Im sa 70% 65% (60 wn (7.54) 5:114 sand with graves: 15% 5% 5% 5% 65% (60 wn (7.54) 5% 5% 5% 5% 5% 60 of 60 00 00 00 00 00 00 00 00 00 00 00 00
litional Comments:		The state of the s
overy: None	Parti	al III Complete
= Same as Above	Qtz = quartz F	Id = feldspar
pies: v = v U(s/EDE	; r = 1PH; M = minerolog	v: B = biologic: W = mojeture analysis: C + + + + + + + + + + + + + + + + +

SAR Q   160 - 161   SAR	Project: Kirtland	DEE		SONIC	CORING BORING/WELL CONSTRUCTION LOG	-
Soil Description  Soil Soil Description  Soil Soil Soil Soil Soil Soil  Soil Soil Soil Soil Soil Soil Soil Soil	Boring/Well ID:	DIT	LAER	1865	Project Number: 62735DM02.1017 Date: //-	
Sold   Special Action		TT	HIFD	1000	Logged By: J. Messever Page +819	of 57
M N N N N N N N N N N N N N N N N N N N	USCS Soil Type PID Reading (ppm)	UV fluorescence	Samples collected	Core B Recove	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	
M 11.3 N 164  SAA @ 160-161   Ao odo?  SAA @ 1	sm	N			SAA Q 160-161 Sand 65 % No odor	o o
M	5M	V				0 0
SARY SARY FOR 1964 M2 TO LC 2006    164.5-165.5	5M 223	N		77777	SAA @ 166-161' no odor	0 0
	5M	N		11111	SAA Sand = 70%: F= 10% M= 70% C= 20%  grave = 15% up to 114"  silt = 15% NO CLAY NO ODO?	0 0
SANK = 85% = F = 30% M = 50% C = 20% sA-sk (ate, field, called to 11th)  Silt = 10% soft, non plastic; glavel = 5% up to 114" (ate+1.14); so on odor  Clay with sund - brown (7.54R 5/4) medium 5th ft, 5LM  Medium plasticity — Clay = 90%; sand = 10% F = 70%  Medium plasticity — Clay = 90%; sand = 10% F = 70%  M=30% 5R-SR (Qre, feld, 1.1th; s)  No odor  Silty sand with clay — light brown (7.54R 5/4) loose, 5LM  Sand = 70%; VF = 20% F = 65% m=15% 5A-se (Atg, feld, callede 1th)  Silt = 20% nonplastic; clay 10% low plasticity — exists as nodules  No odor  SAA & 168.2 - 169!  Itional Comments:  Overy: None Partial Complete	5M)	N		11111	51Hy sand - brown (7.54R 4/4) - 1005e, 5LM - SAND 80% F=40% M=308	0 0
Clay with sund - brown (7.54 Ps 54) medium shift SLM  Medium plasticity - Clay = 90%; sand = 10% F = 70%  M=30% san-sp (Qtz, fett, 1:this)  No odol  Silty sand with clay - light brown (7.54 Ps 64) losse, SLM  Sand = 70%; VF = 20% F = 65% m = 15% san-sp (Rtz, fett), calicke, 1:this)  Silt = 20% nonplashic; clay 10% low plashicity - exists as nodules  No odol  SAA @ 169.2 - 169!  Overy: None	w V	N		166	SANK = 85%: F= 30% M= 50% C= 20% SA-SP (Atz, Feld, calliche, lith) Silt = 10% soft, non plastic; gravel = 5% up to 14" (Atz+1. thics	
Silty Sand with clay - light brown (7.54R 6/4) losse, SLM  Sand = 70%: VF = 20% F = 65% M=15% SA-SE (Ata, feld, caliche lith.)  Silt = 20% Nonplashic; clay 10% low plashicity - exists as nodules  No odor  Overy: None Partial Complete  Partial Complete	.9	2		168	Clay with sund - Grown (7.5 4 P 5/4) medium stiff, SLM  Medium plasticity - Clay = 90%; sand = 10% F = 70%  M = 30% SA-SR (Qrz, feld, 1:this)	0 0
A Same as Above Otr = querty   Side Side   Same as Above Otr = querty   Side Side   Same as Above Otr = querty   Side Side   de   Side Side Side Side   Side Side Side Side Side Side Side Side	im 32.2	1	[(	169	Silty sand with clay - light brown (7.54R 6/4) losse, SLM  Sand = 70%: VF= 20% F= 65% M=15% SA-SE (2tz, feld, caliche, lith.)  Silt = 20% nonplastic; clay 10% low plasticity - exists as nodules	0
overy: None Partial Complete	m	N		170		0 0
a Same as Above Otz - quarter Eld Sala	ditional Commer	its:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
a Same as Above Otz - quarter Eld Sala						
= Same as Above Otz = quartz Fld = feldenar V = V						
ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity			= quartz		Fld = feldspar Y = Yes N = No/None	

Drei est Visit	1 1000		SONIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl: Boring/Well I				Project Number: 62735DM02 1017	18-18
Doring wen i	D:	KALR	-1065	Logged By: J. Messenger Page 20	
USCS Soil Type	Temperature (°C) UV fluorescence	Samples collected	Core Run Recovery Denth, it box	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
4.2			170	The state of the s	Details
5M (2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2.2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		177 177 174 175 174	Well graded sand with silt - light brown (7.5 YR 6/4) loose, SLM  Sand 90%: F= 50% M= 35% C=15% SA-SK (Arz, Feld, 11th, culiche)  Silt 10% nonplastic - trace gravel (<3%) up to 1/2" (1:thics)  Clayey sand with gravel - light brown (7.5 YR 6/4) clay exists as nodyles (7.5 YR 1/4-60wn) - sand 60%: F=15% M= 60% C=25%  SA-SK (Atz, feld, 1.thics, caliche); clay nodyles; brown; medium density, low plasticity; gravel=10% up to 1/2" (caliche + 1.thics)  Well graded sand with silt - SAA Q 172-173"  Cank gray (7.5 4/1)  174.5 - 176	
			TITO	110 0001	
SP SM 25 SP SM SP	N .5 N		178	SAA @ 174.5-176' No odor	
100	N		1	SAA - trace course grained sand	
5M	1		10		
dentional Comm	nente:	Correct American Const.	1179	trace gravel up to 1/2" (atz + lithics no odor o	
uartional Comn	nents:		THE PROPERTY OF THE PARTY OF TH	The state of the s	
ecovery: Non-			Parti	al H Complete	
AA = Same as A	bove Qt	z = quartz	I	Id = feldspar V - Vas	
= Roundad CD	= Sub===	= IPH; M=	minerolog	y: B = biologic: W = moisture analysis: C	uctivity
- Rodnoed, SK	- Suprou	idea, $SA = S$	ubangular,	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	

	9			SON	IC C	CORING BORING/WELL CONSTRUCTION LOC		_
		3FF				Project Number: 62735DM02 1017		
Boring/	Well ID:	-	KAPI	3-10	965	ll agged D.	of P2	
Boring/	Kirtland I Well ID:  Temperature (°C)	DV fluorescence	Samples collected		pth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Well gladed sand w/silt - light brown (7.54° 6/3) loose SLM  Sand = 85%: F= 35% M= 45% C= 20% sA-SF (atz, feld, 1.14.)  Silt = 10% Manplastic	Well Details	0
(3) (3) (3) (3) (3)	27.5				100	SAA: W. G. Sand = 80%   gravel = 10%   clay = 5% brown (7.5425M) chunks med. domse  silf = 5% homplastic  no odor  sAA - W. G. Sand  gravel = 5% 5ilf = 5%   no odor  no odor  well graded sand with gravel - light brown (7.542 6/3) loose,  sum - 5 and = 80%: F = 15% M = 60% C = 25% 5A-5½ (atz,  fold, lith); gravel 20% up to 1/2" (qrz+1.thics)		0 0 0
5P)		1			186	Poorly gladed Sand - light brown (7.54R 6/3) loose, SLM Sand = 95%: F = 60% M = 40% trace coarse grain sand - 5A-SE  (212, feld, lith) - gravel = 5% up to 3/8" (Otz + lithics)  NO odor  SAA Q 184-1851: W.B. Sand = 95%: F: 25% M=60%  C=15% — gravel = 5% up to 3/8"  NO odor  86.8-187.2" = clay - yellowish Grown (7.54R 5/6) med. bonse  100 plasticity		0
Additional	33.7 None			autority to	88	no odos	0 0	0
AA = Same		Otz =	quartz		Partial	Complete		1
				= miner	rology:	d = feldspar Y = Yes N = No/None  ; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu  = Angular, VE = V = v = Fig. F. F. F. F. F. F. F. F. F. F. F. F. F.		j
= Rounde	d, SR = Sub	rounde	d, SA = S	Subangi	ılar, A	Angular, VF = Very Fine $\cdot F = Fine \cdot M = Medium \cdot G = George \cdot G = G$	etivity	

1000 1000 1000 1000 1000 1000 1000 100	CC. THEODY				SC	ONIC	CC	ORING BOR	UNG/W	/FLL C	ONS	TRUCTION	100		-		
-		land B	FF						P	roject Num	ber 6	2735DM02.1017	LOG	-			
Borin	g/Well	ID:	-	KA-1	-B-	106	S			ogged By:			-	Date:			
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, it bgs	soil type; Muns % sand (include sand minerolog % gravel gravel minerole angularity/roun % fines (silt/cla	sell color; e grain siz y ogy dedness y)	So density (pr de %; fine,	il Des rimaril mediu		ency & plas		22 0	We Deta	ell
Addition Recovery	ul Com	333 N N N N N N N N N N N N N N N N N N					Wing	SATA Vell graded	SAA	- pale 90 mith with	brown face trace	and 25 clay (25 clay (25 clay (25 clay 6/3 mark) + - 5 trong browned = 1/3	loose, sA-SR (OV) VPto	SIM ato, Feld, In odos  Yz "  No odos  YZ "			
SAA = Sa	me as A	bove	Qtz =	= quartz			Fld =	= feldenar	1'-1'	Complete							
		Cs/EDB	: P =	TPH: A	[ = mi	nerolo	ry D	= biologie: W	Y = Y	es		N = No/None			-	-	
R = Roun	ded. SR	= Subr	mad	ed St -	Suba	nerolog	3); B	- Diologic; W = 1	moisture a	nalysis; G	= geot	N = No/None echnical; UV = ult edium, C = Coarse	raviolet; T	= thermal c	conduct	ivity	-
District Control of the last o		JUUI	uild	· u, DA =	oupai	iguiar,	A =	Angular, VF = V	ery Fine,	F = Fine. A	$I = M_0$	dium C - Coorse	C-C-	1			

	The second second	- Annie Annie	The Street House House	SON	VIC C	CORING BORING/WELL CONSTRUCTION LOG		-
-	t: Kirtla					Project Number: 62735DM02.1017 Date:		
Boring	/Well II	):	KAFB	-10	651	Logged By: J. Messenger Page 23	of 57	_
USCS Soil Type	PID Reading (ppm)	Temperature (*C)	Samples collected	Core Run	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details	O
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	)				199	Clay - 6 roun (7.5 4 R 5/3) Med. density, low plasticity		0
1	4.4	N .3 N		16 1	201	Clay - 6 roun (7.5 4 R 5/3) Med. density, low plasticity  No oder  clayey sand - 40thourst Im light 6 rown (7.5 1 R 6/4) loose sems  sand = 85%: F= 75% M= 75% trace coarse grain sand SA-SR  catificity relationship of the sand - clay 15% soft - low plasticity no odor  foorly graded sand - light 6 rownish gray (70 1/2 6/2) loose, sing  sand = 100%: 1=: 90% M=10% SA-SR (arz, feld, littics,  trace clay  No oder		0
(A) (A) (A) (A) (A) (A) (A) (A) (A) (A)		N N		111111111111111111111111111111111111111	203	SAA @ 2011		0
SW) Additions	al Comm	ents:			205	vell graded sand with gravel - pale brown (10th 6/3) loose, SLM Sand = 80%: F = 30% M = 30% Cz 40% sA-sk (atz, feld, lithics) gravel = 20% up to 23/4" (Qtz+lithics) - some of the gravel has black coating - supect it buint (?)  AD 0007		
Dagger	. Mari							1
Recovery SAA = Sai	-	ove O	tu m annut		Partia	Complete		1
Samples:	V = VOC	s/EDR	tz = quartz P = TPH: M	= min	rologu	$\frac{1 = \text{feldspar}}{R = \text{historics W}} = \frac{Y = Y \text{es}}{N} = \frac{No}{N \text{one}}$	***************************************	1
R = Round	led, SR =	Subron	inded. SA = 5	- mine	ular A	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	luctivity	1
MORNIA STORY OF THE STORY OF TH	TO THE PERSON NAMED IN	***********	and on the same	- unull	and , A	- August, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel		1

	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	1	Project Number: 62735DM02 1017	-
Boring/Well ID:	KAFB-1065	Logged By: TMesserges Page 24	of 57
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Samples collected Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness	Well
	1 201		Details
5W) N	207	SAA @ 204.5'-206'  W. b. Soud w/gravel  gravel up to 13/4  Same burnt observation on  gravel  Ao odof	
	208	gravel No odos	0
5W) N	24	S. no ados	0 0
3P   N	210	poorly graded sund - light brown'sh gray (1018 6/2) loose, 5LM sand = 95%: F= 85% M=15% sarse (atz, feld, lithic) silt: 5% nonplastic; trace gravel op to 3/4" (atz, lithics) No odor well graded sand with gravel - light brownish gray (1048 42) loose, 5LM - sand 70%: F=15% M=60% C=25% 5A-SP (atz, feld, lithics); gravel 30% up to 13/4" (atz, fet lithius)	
FW 2.1 33.9 N	24	well graded sand with gravel - light brownish gray (10/12/2) 1005e, SLM - sand 70%: F= 15% M=60% C=25% 5A-54 (Qtz, Fell, lithius); gravel 30% up to 13/4" (Qtz, Fet; Hius)	
5W) N	10 212		
5w)   N	213	SAA @ 210-211  @ 212' sand = 65%  gravel = 30% 5:11 = 5% nonplashe No odon	0 0
SW) N	214	no odon	0 0
9W N	215	SAA & 212-214'	0 0
Additional Comments:			
Samples: V = VOCs/EDB; 1	P = TPH; M = minerology	d = feldspar Y = Yes N = No/None  ; B = biologic; W = moisture analysis; G = geotochrical, IV = ultraviolet, T. et al.	
R = Rounded, SR = Subrou	nded, SA = Subangular, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	uctivity

EA	SONIC	CORING BORING/WELL CONSTRUCTION LOG
Project: Kirtland BI Boring/Well ID:	T ,	Project Number: 62735DM02.1017 Date:
Boring/Well ID:	KAF8-106:	Logged By: J. Messenger Page 25 of 57
USO	Samples collected Core Run Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
310	N 2	BAA - Grown (7.5 YR 5/3)  10 0000  0000000000000000000000000000
(SW) (N		no odor
5M	21	well graded fand w/silt — Pinkish gray (7.54R 6/2) loose, SLM   5and = 85%: F = 60% M = 20% C=20% SA-3R (Arz. fold, lithics) silt = 10% nonplastic; grave (5% up to 1" (Atz+lithics) no odor
5:W 2.5 24.6 SW 4.7	1 16 11 22	
;;w) \\	222	SAA @ 219-226 no odor
5W) N	223	SAA @ 218   light brown (7.548 6/3)  SAA @ Sand = 75%: F = 35% M= 35% C= 30%  gravel = 20% up to 142"
dditional Comments:	224	9 ravel = 20% up to 1/2"  5ilt = 5%
	Qtz = quartz	rtial $\longrightarrow$ Complete $\longrightarrow$ Fld = feldspar $Y = Yes$ $N = No/None$
= Rounded, SR = Subr	ounded, SA = Subangular	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  , A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

		SON	VIC CORING	BORING/WELL CONSTRUCTION LOG		
	ct: Kirtland BF	F		Project Number: 62735DM02.1017	Date:	
Borin	g/Well ID:	KAFB- 10	0651	Logged By: J. Messenger	Page 26	of 57
USCS Soil Type	PID Reading (ppm)  Temperature ('C)	Samples collected  Core Run	% sand mi	Soil Description  be; Munsell color; density (primarily coarse)/consistency & plast (include grain size %; fine, medium, coarse, etc.) inerology el minerology rity/roundedness s (silt/clay)	The state of the s	Well Details
(3)			225	SAA @ 223-224 NO 00		
Addition	2.4 N		227 @ 226.5 @ 227   Well 90 SLM - (R+2, fel Silt S Silt S SAA W/SI NOTE: SE Silty San F= 50% Silt S Silt S S S S S S S S S S S S S S	GART - Sand-85%: F= 30% M=40%  gravel = 10% up to 1" (atz, list  Silt = 5% non plastic  clumps of clay exist - Palle olive (54 6/2) up to 2"  clumps of clay exist - Palle olive (54 6/2) up to 2"  abed sand with gravel - Pinkish gray (7.5 fe colored sand with gravel - Pinkish gray (7.5 fe colored sand = 75%; F = 15% M= 60% C=25%  Id, lithics, caliche); gravel 20% up to 1½" (Atz, lithics, caliche); gravel 20% up to 1½" (Atz, lithics, caliche); gravel - plo 3/8" (atz, feld, lithics, caliche); gravel - plo 3/8" (atz, feld, lithics, caliche); gravel - plo 3/8" (att, feld, li	2" Pto 1/2"	
Recover	y: None		Partial ##	Complete		
SAA = S	ame as Above	Qtz = quartz	Fld = feldspa	Complete $Y = Yes$ $N = No/None$		
Samples	V = VOCs/EDB	; P = TPH; M = mine	erology; B = biolog	gie; W = moisture analysis: G = geotechnical: UV = ultradial : 2	'= thouse 1	
R = Rou	nded, SR = Subr	ounded, SA = Subang	gular, A = Angular	r, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Grav	vel	enviry

SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project Number: 62736D3102 1017	
Boring/Well ID: KAFB-106S1 Logged By: J. Messenger Page 26 of 5	2
Soil Description  Soil Descrip	Vell
SAA - Sant-3M - same percentages (20 months)	etails
Poorly goded Sand - brown (7.5 (R 5/3) loose, SLM; sand = 90% F = 70% M = 30% SA-SR (Rtz, feld, lithic) caliche)  gravel = 5% vp to 3/8 (lithics)  Silt = 5% non plastic  well graded sand with gravel - light brown (7.5 YR 6/3) loose, SLM?	
Well gladed sand with gravel - light brown (7.542 6/3) loose, SLM Sand 90%: F: 25% M=60% C=15% SA-SR (QF2, Feld, 1.thic); gravel 10% up to Tr (1.thics)  234"  Drown (7.5 14 5/3)	0 0
SW N 237 brown (7.5 M 5/3) Sand = 808 gravel = 20%	0
(5w) 42.7 N 12 238	
3.0 N	0
(SW)	0
Reporting graded sand - light brown (7.542 6/3) loose, SLM  Sand = 95%: F = 65% M = 35% SA-SE (ate, feld, lith, caliche)  242 Silt = 5% non plastic  Hace coarse gain no odd?	0
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar V = V = V = V = V = V = V = V = V = V	
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  R = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Crowd	

EA	SONIC CO	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF Boring/Well ID:		Project Number: 62735DM02.1017 Date:	
Boring well ID:	KAFB -1065	Logged By: J. Messerger Page 28	of 57
USCS Soil Type PID Reading (ppm) Temperature (**C) UV fluorescence	Samples collecte Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
(SP) (SP)	242	SAA 241-242' sand = 90% 10 odor =	0 0
MC 427 M	12 243	242.8-243' sixt - Ostotion grand = 5% up to 1/4" (ithius)	0 0
5W) N		well graded sand - very palebrown (104R 6/3 non plastic; soft sand 95%: F: 30% M= 50% C= 20% SA-SA (atz, feld, lith.)	0 0
	7 244	June 10 of to 1 (lithics) no oda	0
(SW)	245	SAA to 245:2'	0 0
(CL)   N	V 246	clay - Strong Grown (7.54R 4/6) medium dense medium plasticity  no odor	0 0
(C) 1 N	247	Play with sand - strong 6rown (7.54R 4/6) medium to stiff, medium plasticity - clay 8520; sand 15% Fto C grained (1:thics + caliche) SA-SR  NO Odor	0 0
(a)   N	248	SAA	0 0
(L) 46.4 N	0 249	( no oder)	
CL N	250	CL to 250.2 f	0 0
W) 22,7 N	251	If with clay - light 60wnish gray (104R 6/2) - 5ilt = 80%; soft non plastic i clay 70% - brown (104R 5/2) exists as clumps - clumps > medium dense + medium plasticity 100 odor	0 0
Additional Comments:		The second secon	
AA = Same as Above Qtz	Partial = quartz Fld = TPH: M = minarology	= feldspar V = Yes N = N = N = N = N = N = N = N = N = N	
= Rounded, SR = Subroun	ded, SA = Subangular, A	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Coarse	etivity

	1		STATE OF THE STATE	SONI	C CO	RING BORING/WELL CONSTRUCTION LOG	-	-
		and BF				Project Number: 62735DM02 1017	9	
Borin	g/Well	ID:	MA	-B-10	165	1 10	of 57	-
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	Samples collected	Core Run Recovery	Depth, ft bgs	Soil Description Soil type; Munsell color; density (primarily coarse)/consistency & plasticity sand (include grain size %; fine, medium, coarse, etc.) sand minerology gravel gravel minerology angularity/roundedness fines (silt/clay)	Well	ı
		1			251		Detail	Is
ML)		V-			252	SAA Q 246-247 clay = 90% Sand = 10% From ginin Medium plasticity  No odol		0 0
CL		16.4 1					0	0
CL		N			55	SAA - colon = pale olive (5x 6/3) color change	0	0
(CL)		V N		V     2	56	SAA @ 252-253'	0	0
SM		N		11112	5	Hy sand- pale brown (104R 6/3) lover, so ff, SLM - sand: 708: F= 25% F= 60% M= 15% SA-SR (Qtz, fold, lith., caliche) ilt = 30% nonplastic no odor	0	0
3W		6.2 N		1111112	50 fe (0	ell graded sand with silt - pale brown (10'18 6/3) lovel, SLM  and = 85%: VF = 15% F= 10% M= 50% C= 25% SA SR (2+2,  aliche + 1. thics); silf = 10% Nonplastic; gravel = 5% up to 46"  No odor  SAA @ 257-250 Sand = 90% F= 10% M= 70% C= 20%  silf = 10%  Kace gravel up to 1/2" no odor  8. 7' = clay - Strong brown (2.5 YR 4/6) medium to stift  divm plasticity  SLM	0	0
5M		N. N		10 11 24	59 25	SAA @ 257-250 sand = 90% F= 10% M= 70% C= 20% of the sold of the sand of the s	0 0	0
CV	<del>X</del>	N	<del>*                                    </del>	1111126	1	diver plasticity SLM (4.5 TK 4/6) medium to still	0	0
Addition	nal Com	ments:	W. A. S. C.	ntemperature dates	DESTRUCTION OF THE PARTY OF THE	A STATE OF THE CONTRACT OF THE PROPERTY OF THE		0
Recover				THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	artial	Complete		
SAA = S			tz = quart		Fld =	feldspar $Y = Yes$ $N = No/None$		-
R = Row	v = v(	= Subm	r = 1PH;	M = minero	ology; B	= biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	ictivity	
- Atom	iacu, Ol	- Subro	unutu, D.A	- oubangui	ar, A=	Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel		

	Lave	SONIC CORING B	BORING/WELL CONSTRUCTION LO	OG
Project: Kirtland Boring/Well ID:	d BFF	***	Project Number: 62735DM02.1017	Date: 30
Soring/Well ID:	***************************************		Logged By:	Page 29 of 57
USCS Soil Type PID Reading (ppm) Temperature (**)	CONTRACTOR OF THE PERSON NAMED IN COLUMN TWO	Barbara Sand (in sand miner % gravel gravel min angularity/	rerology (roundedness	& plasticity  Well
25.1	PI	260 clayey si	It - brown (7.54R 5/3) soft, low plastici	Ty Details
NL)	N	261	1t - brown (7.542 9/3) soft, low plastici or non plastic or non plastic or non plastic	
sm)			5/1 by sand - brown (1048 5/3) loose, st. = 55% M=10% sA-SR (atz, feld, lith, caliche);	M - sand = 70% Silt = 30% non plashing
56.	2 1		SAA silf = 15% (100	idon)
		J63		
The last of the la		264 SAA - 3 are (10 secondary	ilty sand with clay - rand color same - in 4/3) sand = 65% silt = 25% clay = y calcium canbonate comentation exis	clay chunks 10% still, med plastic
	K	264-SAA	6 762-263 CAI	0000
pr m	1	Foot of glad Sand = 190% Non plastic	ed sand w/silf - Pale brown (1012-6/3) to VF=20% F=70% M=10% SA-SR (arz, fe, trace gravel up to 1/2" (atz+1,+1).	18, 17th); silt = 10% 0 000
BY	-	264 SAA -	- sand 95% silt 5% take grav	vel same no odos
	N		A Star	
	N	2007	SAA (NO Octor)	
48.8	N	1 268 SAA @	264.8-265.7 W trace clay	10 odos
ditional Comme	nts:		STATE OF THE STATE	0
		Partial Partial	Ma	
Overv None		Partial H I D		
covery: None $\Lambda = Same as Above$	ve Qtz = qua	The state of the s	Complete $Y = Yes \qquad N = No/None$	

SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project Number: 62735DM02 1017	,
Logged By: Page 30 of	57
Soil Description  The soil type; Munsell color; density (primarily coarse)/consistency & plasticity  Soil Description  The soil type; Munsell color; density (primarily coarse, etc.)  Soil Description  Soil Desc	Well Details
SM NO odor  SP 11.2  NO odor  SP No odor	
5M 48.8 N 8 273 SAA (no odor) 5M N 8 273 SAA (no odor) 60 274	0 0
SAA to 275.7' NO ador)  CL) V 245  CLAY-brown (7.54/2 5/3) St. El, medium plasticity, SLM	
CD 60.1 P 977 Shiff to very stiff 10 do od or od od od od od od od od od od od od od	
Parayonu Mana Mana Mana Mana Mana Mana Mana Ma	
Recovery: None Partial Complete  AA = Same as Above Qtz = quartz Fld = feldspar V = Vos	
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic, W = vol.	
amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct  R = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	rivity

	0				SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	-	
	t: Kirt		BFF					Project Number: 62735DM02.1017 Date:		
Boring	g/Well	ID:	-	-	on posterior	-		Logged By: Page 32	of	57
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type: Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well Details
CL SP SP SP Additional	4 4 Al Com			P, V		28 28	34 5 6 W//	SAR (10 000)  Foothy graded send - 60wn (1048 5/3) loose, sim sand 90%: F= 95% m=5% sa-se (ato, fill, 14 ics) silt 5% nonplastic; clay 5% sa-se (ato, fill, 14 ics) face gravel to 3/8" (14 ics)  SAA NO adol  (AA - NO odo)  (AA - NO		
Recovery						Pa	ırtial	Complete		
SAA = San	ne as A	bove	Qtz	= quartz			Fld	= feldspar V V		
Samples: '	V = VO	Cs/EI	B; P	= TPH; M	= mir	nerol	ogv:	B = biologic: W = maisture analysis C		
R = Round	led, SR	= Sul	oroun	ded, SA = S	Subar	igula	r, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	uctivit	у

	0		-	SONIC (	CORING BORING/WELL CONSTRUCTION LOG		
	t: Kirtland	BFF			Project Number: 62735DM02.1017 Date:		
Boring	Well ID:	-		aparate a parate	l according	of r=	_
USCS Soil Type	PID Reading (ppm)	Z UV fluorescence	Samples collected	Core Run Recovery Depth, ft bgs	Logged By:  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Well Jm  SMA - W. G. SAND W/silt and gnavel  Sand = 80 B F = 35% m = 50% C = 15%  Silt = 10% non plastic  gravel = 10% same  A0 odor	Well Details	0
50 (5P) (5N)	2.7	NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN		161 291	JEG-290 - POORLY graded sand - brown (4.5 YR \$73) loose, SLAN  SAND = 100%; F = 65% M = 35% trace coarse sand trace gravel up to 3/4" (1.thics + Qtz) (95A-5R (atz, fold, 1.th.)  SAA  Well graded sand w/gravel - brown (4.5 YR \$13) loose, SLM Gond = 85%; F = 50% M = 35% (-15% 5A-5R (atz, fold, 1.thics)		0 0 0
SP)		7		294	SAA @ 289-290'  [SAA @ 291-292'		
Recovery				295 296 Partia	complete 1	6 0 0	
	ne as Abov		= quartz	Flo	d = feldspar V = Vac		
amples: \	V = VOCs/I	EDB; P	= TPH; M	= minerology;	B = biologic: W = moisture analysis: C = most about 1 VV		
Round	led, SR = S	ubround	led, SA = S	Subangular, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Coarse,	retivity	

The state of the s		SONIC CORING BORING	G/WELL CONSTRUCTION LOG	
Project: Kirtlan			Project Number: 62735DM02.1017	Date:
Boring/Well ID:	-	-	Logged By:	Page 34 of 57
PID Reading (ppm)	UV fluorescence	soil type; Munsell co % sand (include grai sand minerology % gravel gravel minerology angularity/roundedne % fines (silt/clay)	Soil Description  plor; density (primarily coarse)/consistency & p in size %; fine, medium, coarse, etc.)  ess	lasticity  Well  Details
5W) (1		297 298	- W.G. sand sand = 90%  gravel = 10% up to  no od	
5W) 0.8 37.	N N 2 N	300 SAA - larger Sand = 6 gravel = 6	Course sand fraction 35% 882: F=35% M=40% C=30% 20% up to 3" NO 00	dos
5W)	N A)	301	SAA) NO OC	0 0
(m)	N		Sand 90%: F=50% M=50% Silt 10% non plastic mod	
dditional Comme	ents:	Roorly gladed sand - Sand = 90%: F= 5ilt = 5% non plasti	02 - back to W.6. sand W/0661e up to 41/4" (1:14i=) light brown (7.54e 6/3) loose sem 95% M=5% SASP (atz.fold, 1:thic.  j glavel = 5% up to 15/8" (1:thic.	rodon o o o
				The same and the s
ecovery: None			Complete  Y = Yes  N = No/None	
mples: $V = VOCs$	s/EDB; P = TI	I; M = minerology; B = biologic; W = mois	sture analysis; G = geotechnical; UV = ultraviole Fine, F = Fine, M = Medium, C = Coarse, G = C	t; T = thermal conductivity

	SONIC CORING BORING/WELL CONSTRUCTION LOG	-
Project: Kirtland BFF	Project Number (2727D2502 1017	20
Boring/Well ID:	Longo J.D.	35 of 57
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	Soil Description  Soil Descrip	
Te PI	- Component	Well Details
SW N	305 Well graded sand - light brown (7.54R 6/3) loose, 5LM 5 and = 90% F = 50% M = 35% C=15% 50-54 (etz, feld, lik.) 306 yavel = 10% up to 11/2" (1.thics)  Pourly graded sand — light brown (7.54R 6/3) loose, 5LM	Details
5P) N	Postly gladed sand — light brown (7.54R 6/3) loose, SLM  Sand = 95%: F = 90% M=10% SA-SR (ote, feld, lithics)  5.1t = 5% non plastic  trace gravel up to 3/8" (1.thics)  Well graded sand — 1.1t brown (7.54R 6/3) loose, SLM (atz, feld, lith)  Sand = 95%: F = 25% M=60% C=15% SA-SR (atz, feld, lith)  307.51 gravel = 5% up to 1" (atz+lithics)  SAHA 306-307' — Sand = 90%; Silt = 5%, gravel = 5% up to  111  308	
3P) 39.2 N	308 SAH ( 306-307' - Sand = 90%; silt = 5%, gravel = 5% up to 12" (lithius+ata) no odos	
1.9 N	362.5  Well graded sand with clay - gray (10 PR 6/1) losse SLM  Sund = 85%: F= 45% M= 35% C= 20% sa-sx (atz, feld, 11th ics); clay= 10%  Soft, non plastic; gravel = 5% up to \$6" (atz+1:th:cs); clay= 10%  Well graded sand with gravel - yellowish brown (10 YR 9/4) losse, SLM  Sand = 85% F= 65% M= 25% C= 10% sa-sx (atz, feld, 1th)	
	gravel = 10% up to 23/41" (atz+lithics); silt = 5% non plastic	0 0
	312	0 0
N) 44.10 N	512,51) 514y sand - pale brown (10 YR 6/3) 1005e, 5LM - Sand = \$0 % VF : 30%	0 0
m)   N	Sity sand - pale brown (10 PR 6/3) 100 se, SLM - Sand = \$0 % VF: 30%  F = 70% SA SR (Q+2, feld, 1.7h)  Sit = 20% Non plashic  gravel=10% up to 21/14 it is  10 313.71	0 0
dditional Comments:	S 2 2 7 7	0
sardonal Comments.	10 / 10 / 10 / 10 / 10 / 10 / 10 / 10 /	6 M=202 Ca
	Clay - 17 U as elumps - 610w (4) medium dense la	wplasticity
covery: None	Partial Partial Complete	
A = Same as Above Qtz =	quartz Fld = feldsnar V = Ves	-
mples: $V = VOCs/EDB$ ; $P = '$	TPH; M = minerology; B = biologic; W = moisture analysis; C = gottobal, LVN	
Rounded, SR = Subrounde	d, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ectivity
	Course of the co	

			SO	NIC C	ORING BORING/WELL CONSTRUCTION LOG		-	-
roject: Kir		F			Project Number: 62735DM02.1017 Dat	e:		
oring/Well	ID:	-			Logged By: Pag	e 36	of 5	7
PID Reading (ppm)		p	Core Run	316 12 Necovery 316 316 318 319 316 321 320 320 320 320 320 320 320 320 320 320	Project Number: 62735DM02.1017 Dat    Logged By: Pas   Soil Description	50 50 ST ST ST ST ST ST ST ST ST ST ST ST ST	D	Well letails
ditional Cor	nments:	ess summer summer summer summer summer summer summer summer summer summer summer summer summer summer summer s		323	SAA @ 320-321' gravel up to 21/2"  no oder	9	0	0
COI				***************************************			-	- Contraction of the Contraction
			-		· ·			
overy: N	one [_]			Partia	al Complete			
overy: No	-	Otz = avas	tz		LI CII			
	-	Qtz = quar	tz		al Complete $d = feldspar   Y = Yes   N = No/None$			

THE STATE OF THE S	<b>A</b>		5	ONIC	C CORING BORING/WELL CONSTRUCTION LOG		
	t: Kirtland	BFF			Project Number: 62735DM02.1017 Date:		
Boring	g/Well ID:			- year up	Logged By: Page 37	of 57	1
USCS Soil Type	PID Reading (ppm)	UV fluorescence	Samples collected	Core Run Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	We	ell
1			OFFICE AND ADDRESS OF THE PARTY	111	833	Deta	ails
SUD SP	50:	7			5AA)  SAA)  SAA)  SAA)  SAA)  SAA  SAA	0 0	0
(or)		N			Clay - brown (7.54R 5/4) stiff - very stiff; med. plasticity  Ao odor	0 0	0
54)		N		34	Well gladed sand - pale 600m (104R 6/3) louse SLM sand: 90%: F: 40% M: 40% C=20% SA-5R' (Q+z, feld, 1. Hics) 9 (avel = 10% up to 5/8" (aterlithics)  No odo)	0 0	0 0
5W		N		3,	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0 0
5W)	28.3	M	10'	32	SAH & 397-328 Incobble up 4"  Sand 75% As sholl  gravel 70%  Silt 5%  Well graded sand with clay - brown (1012 5/3) loose, SIM	0 0	0
,     2	3.6	N		331	well graded sand with clay - brown (1012 5/3) loose, SLM sand = 80% F=40% M=50% C=10% SA-SE CATEGO 1.14 Clay = 15% Strong Grown (7.582 5/6) exist on medium of the stim low to medium plasticity; gravel 5% up to 5/8" (42+1.thics well graded sand - 600 un (1048 5/4) loose, SLM	0	0
SW		N		331	well graded gand - 600m (ork 5/2) loose, SLM sand = 95%: F=60% M=30% C=10% sA-5R (atz, feld, lithic) gravel 5% up to 3/8" (otz+lithics)  10 Odo	0 0	0
		1,		227		a	0
Additions	al Commen	ts:	C TOTAL CONTRACTOR OF THE PARTY	172 x	V	0	0
- COLLINIE	a. Commen	1.5.				-	AP SHEET PROPERTY.
-							
Recovery				Pa	rtial E Complete		
	me as Abov		z = quartz		Fld = feldspar V = Vas		
amples:	V = VOCs/I	DB; P	= TPH; M =	minerolo	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con-	ductivity	
- Monu	nent ou = 9	antonn	ucu, 5.1 = 511	pangulai	r. A = Angular VI = Vary Fine F = Fine 15 25 W		

	ACATO MANAGEMENT OF THE	SONIC CORING BORING	G/WELL CONSTRUCTION LOG	Charles and constitutions and analysis and discount and an artist and an artist and an artist and an artist and an artist and an artist and artist artist and artist artist and artist artist and artist artist and artist
Project: Kirtla			Project Number: 62735DM02.1017	Date:
Boring/Well II	):		Logged By:	Page 38 of 57
USCS Soil Type PID Reading (ppm)	Temperature (°C)	soil type; Munsell co % sand (include grains and minerology) % gravel gravel minerology % fines (silt/clay)  3334  SAA	Soil Description olor; density (primarily coarse)/consistency & pl in size %; fine, medium, coarse, etc.) sess	
(SW) 2	B.3 N	3334 334	NO ODO	
SW)		335	85% F=50% M=30% C=20 15% up to 2" (atz+lithics) AD DO	7
5°C)	N	Clayer sand with 5 and = 40% : F  gravel = 35% up  Clay = 25% - 6  Well graded sand  loose, SLM - 5an  Catz, feld, lith); grave  San Catz, feld, lith); grave	gravel - brown (7.54R.5/3) loose, = 10% M=60% C=30% SA-SR (Rts, to 11/4" (Rtz+lithics exown (7.54R.5/4) soft - med. dense with gravel and clay - pale brown and = 75% F=10% M=80% C=10% rel = 15% (Rtz.+1ith), non plastic	SLAT (Feld, lither) NO odor NOW Plasherty (104/12 6/3) NO SA-SR
38	H N	91 339 SW-SC	this is 338 - 340 1	0 0
2.5 5M 2.5	ents:	340 silty sand - light sand = 85% = F: (atz, feld, lith) - silt trace gri	hown (7.54R 6/3) loose, SLM = 80% M= 20%, trace coarse say t=15% non plastic trace clay avel up to 3/8" (1.4hics) (10	0
N7				
lecovery: None	-	Partial ##	Complete	
AA = Same as Ab		quartz Fld = feldspar	Y = Yes $N = No/None$	
= Rounded SD -	Subrana	TPH; M = minerology; B = biologic; W = mois ed, SA = Subangular, A = Angular, VF = Very I	ture analysis; G = geotechnical; UV = ultraviolet;	T = thermal conductivity
	~ aor oun	on on - Subangular, A = Angular, VF = Very I	rine F = Fine M - Medium C - C- C	

	3			SO	NIC	CORING BORING/WELL CONSTRUCTION LOG		
		BFF				Project Number (2717)		
Boring/	Well ID:	-	Parties Barrier	-	-	I and I D	of E	7
Boring/	Kirtland Well ID:  (https://www.mirch.com/mirc	VV fluorescence	Samples collected	S Core Run	-1	Soil Description  - soil type: Munsell color; density (primarily coarse) (consistency & plasticity  - % sand dinclude grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)   SAA  Soil Description  - % sand dinclude grain size %; fine, medium, coarse, etc.)  - sand minerology  - angularity/roundedness  - % fines (silt/clay)  SAA  Soil Description  - % sand minerology  - angularity/roundedness  - % fines (silt/clay)  SAA  Soil Description  - % sand minerology  - angularity/roundedness  - % fines (silt/clay)  SAA  Soil Description  - % sand minerology  - angularity/roundedness  - % fines (silt/clay)  Soil Description  - % sand minerology  - angularity/roundedness  - % fines (silt/clay)  Soil Description  - % sand = 80% F = 70% M = 20% C < 10% sa - 5k (at z, fild)   ibx  sond = 80% F = 40% M = 40% C < 20% sa - 5k (at z, fild)   ibx  sond = 85% F = 40% M = 40% C < 40% sa - 5k (at z, fild)   ibx  sond = 85% F = 80% M = 40% C < 40% sa - 5k (at z, fild)   ibx  sold = 85% F = 80% M = 20% face Coarse sand   sa - 5k (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story (at z, fild)   ibx  soil type: Month sold   sand with silt   sown (104k 5/3)   to se   story	W Det	Vell tails
SU SU Additional	None [				349 350	well graded sand with clay and glauch—pale brown (104R 6/3)  10058, SLM - 5 and = 75%: F = 35% M = 40% C = 25% SA-SR  (atz fela, 1. thics); Clay = 10% san plastic  glave 1 = 15% up to 15/8"  Complete  Complete		0
	-	1			-	- Complete		
AA = Sam			= quartz			Fld = feldspar $Y = Yes$ $N = No/None$		
amples: V	= VOCs/F	DB; P	= TPH: N	1 = mi	nerolo	gy: B = biologic: W = moisture analysis. C = 7.10/150ne		
= Rounde	ed, SR = Si	ibroun	ded, SA =	Suba	ngular	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine, E = Fine M = Madien G = G	uctivity	

			SO	NIC C	ORING BORING/WELL CONSTRUCTION LOG	Name of Street, or other party of the street, or other party or ot
Project: Kirt		F			Project Number: 62735DM02.1017 Date:	
poring/Well	11):	-				of 57
Boring/Well  Wending (ppm)  Boring (ppm)	D: Derature ('C)	Samples collected	Core Run	351	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine. medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)  Poorly graded Sand with silt—Pall brown (104P 6/3) loose, SLM sand = 85%; F = 70% m = 30% tace coarse sand sA-SR (drr, feld, lithics); silt=10% nonplastic; gravel 5% up to 4/2" (Oth-lith)  No odor  Well graded sand with gravel + silt—Pall brown (104P 6/3) loose, SLM—Sand = 50%; F=10% M=60% C=30% sA-SR (atz, Eld, lithics)  gravel = 40% up to 3" (otz+lith) trace cobble up to 3/4" (lithics)  Sum — graded gravel with sand — Pall brown (104P 6/3) loose  SLM— graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose  SLM—graded gravel with sand — Pall brown (104P 6/3) loose	Well Details
(6 W) (5 M)				354	SAAQ 251-252 gard = 35% up to 21/2" No Hace colble  No odof	
	9.1		(6)	357	5AA @ 352-353  NO trace collie	
Additional Cor	nments:			359	SAA (a 39-351' Sand = 70% pto 14"  grave = 20% pto 14"  silt = 10% ND odor	
Paporamii Ni	one			D*		
Recovery: No $AA = Same$ as		Ota =		Parti		
		Qtz = qua			ld = feldspar Y = Yes N = No/None	
= Rounded S	R = Sub	rounded S	1; M = 11	nnerolog	F; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity

	9		S	ONIC	CORING BORING/WELL CONSTRUCTION LOG	-	
	Kirtland I	BFF			Project Number: 62735DM02.1017 Date:		
Boring/V	Well II):			-	Logged By: Page 41	of 5	7
SCS Soil Type	PID Reading (ppm) Temperature (°C)	UV fluorescence	Samples collected	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well
			S	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	9 - 70 times (shuciay)	D	etails
SIN SUM SUM SUM SUM SUM SUM SUM SUM SUM SUM	29.1			36 36 36 36 36 36 36 36 36 36 36 36 36 3	SAA Q 360-362'  Well graded sand w/ gravel - 154+ 650w1 (75 YR 6/2)    1902, SLM Sand = 70%: F=350 M=40% C=25%   514=570 Non plustic    1902, SLM Sand = 30%: F=350 M=40% C=25%   514=570 Non plustic    1904	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
A d dist1	Com	THE PERSON NAMED IN		360		0	
Additional Recovery:	None	S:		Par	tial T Complete		
	e as Above	Otz =	= quartz	га			
				minerolo	Fld = feldspar Y = Yes N = No/None gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con		
Rounde	ed, SR = Su	bround	ed, SA = Su	bangula	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ductivi	ty

Tana Pa	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Dropped Name of Caracia and Caracia	
Boring Well ID:	I was I D	
	Soil Description	2 01 57
î l	soil type: Munsell color: density (primarily coarse) consistency & plasticity	
SCS Soil Type  ID Reading (ppm)  emperature (*C)  V fluorescence	% sand (include grain size %: fine, medium, coarse, etc.)	7
ly i	- sand minerology	
ii   di   di   si	8 _ 8 gravel	1
USCS Soil Type PID Reading (pp. Temperature (*C)	- % sand (include grain size %: fine, medium, coarse, etc.) - % gravel - gravel minerology - angularity/roundedness	
	The second of th	The Court
5 5 6 5	Solution of the state of the st	Well
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Details
SIM	SAA @ 364-365' sand = 80% up to 1"	0 0
1	gravel = 15th up to 1	
	1 = CZ	
	369	0
$\mathcal{M}$	tace collins	0
N)     N	A A A A A A A A A A A A A A A A A A A	0
	A A	
	370	0
3.2	1 1000	
y ===		0
	V to 370.7'	
	Paul action I what I will be	6
	371 Poorly graded sand Ws. 14 - pinkish gray (7.54R 6/2) lose SLM - Sand = 8.5%; F = 70% M = 30% frace coarse sand SA-SP (atz, feld, 1.76); sift = 10% nonplustic	0
m/	SLM - Sand = 8.5%; F= 70% M=362 Lange con	0
1 000	Sand SA-SE (atz feld 176) - 5/4 = 102 1000/41	2
38.2 N	gravel = 5% up to 1/2" (1:thics)	6 11
	372  well graded sand — yellowish blown (lote 54) bose, SLM  Sand = 85%: F= 40 M = 40% C=20% SA-SP  (atafold, lik): gravel = 10% up to 11/2" (14hics)  Gilt = 5% nonplastic	
	10 000	0
	well graded sand - yellowish blown / ( ve 5/2) Las Ste	
M	Sund = 85%; F= 40 M= 1/29 (2)	6     6
	(a) MI 10 10 70 0 C - 10 20 SA-512	0
	2-13 (212 total 1th); glave - 106 ys to 172 (1.thics)	0
01 11 11	1 9111- 3 Go nonplastic	0
	Sts Gilt=52 nonplastic	6
	1111	
		0
	374	00
		0
		10
	1 M	0
	1/91/	00
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	0
		0 0
		1 1 6
		000
	376	
	110/1 00 //	0 0
	Well graded sand = light brown (7.5 PR 6/2) loose sing	1 1 10
42.5 N	Well graded sand = light brown (7.5 12 6/2) loose SLM sand = 80% F = 45% M = 35% C = 20% 50-52 (0+2, fild, lith) 96avel = 10% up to 13/8" (0+2+lithics); 5, 1+= 5% nonplastic	0 6
	9 (avel = 10% up to 13/8" (a+z+lithics) - 5, 1+ - 50% and die	0 1 6
The work of the state of the st	11 377 Clay = 5% sof	000
tional Comments:	AU OUT	0   [ ]
None None	The state of the s	
very: None     = Same as Above   Qtz = q	Partial III Complete	
= Same as Above Qtz = q les: V = VOCs/EDB: P = T	uartz Fld = feldspar $Y = Yes$ $N = N_0/N_0 ne$	
ounded, SR = Subrounded	Hi M = minerology, R = biologic, W =	ductivity
ADDITION OF THE PERSON OF THE	SA = Subangular, $A = Angular$ , $VF = Very$ Fine, $F = Fine$ , $M = Medium$ , $C = Coarse$ , $G = Gravel$	-activity

Para Pa	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Propert Number (2225) 1102 to 2	
Boring Well ID:	Logrand Dec	: +-
5W)	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology % gravel gravel minerology angularity roundedness % fines (silt clay)  SAA Q 376-377	Well Details
12.5 N 25. V 25. V	378  SAA ( 376-377 Sand = 756 gavel = 10% clay = 10% silt = 5%  Clay (378.4-378.6) (Grown - 7.542 5/3 Stiff med. plasticity  349 SAA ( 378-378.4) (Stratified)  ( 379.4-379.6 that horizontal bed of well sorted/prorly galed sand cemented by secondary calcium canbonate (caliche)  SAA ( 378-378.4)	
0.4	1   380   1   1   1   1   1   1   1   1   1	
26.1	384  SAA Q 282-384	
itional Comments:	385 NO odar No	
every: None	Partial Complete  [uartz Fld = feldspar Y = Yes N = No/None  PH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct  [SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	tivity

	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Hroteet Number: 62735103402 1017	
Boring Well ID:	I properties	
	Project Number: 62735DM02.1017   Date:     Logged By:   Page III     Soil Description	Well Details
17 N 50 N 50 N	962 Vel = 10 % up to 14"  Clay - brown (7.54k 43) medium to stitl; medium plasticity well graded sand with clay and gravel - Pale Grown (1042 43) low se  52 M - 5 and = 80%: F=60% M=30% C=10% 54-54 (8tz, Feld, 1ith)  Clay = 10% soft, 104 plusticity - clay notates throughout - 6 10 wn (7.54)  gravel = 10% up to 1" (1thics)	
375	Clay with sand + gravel — brown (7.5 48 4/3) very dense, very still; medium plasticity clay = 60%; sand = 30%: F= 55% M= 35% C= 15% SA-SPE (Atz, feld, lith); Maxel = 10% up to 1"  392  JAA 40 393.8	
i)	394 5,149 sand - Diown (DYR 5/3) loose, FLM; Sand = 85%: VF=306 F=45% M=20	
litional Comments:	Sand W/sith Poorly graded sand with gitt brown (101/25/3)  395 - 395.5  M  See Page	
litional Comments:	Sand w/sith Poorly graded sand with gitt brown (1048 \$2)  395 - 395.5  M  Poorly graded sand with gitt brown (1048 \$2)  Sand No odd San page	
overy: None	Sand w/s,H)  Proch gladed sand with gitt brown (104R 5/2)  395 - 395.5  M  Proch gladed sand with gitt brown (104R 5/2)  Sand NO odd See page	

Description	Windson A			SC	ONIC	CORING BORING/WELL CONSTRUCTION LOG		
Deposition			FF			Project Number (3715Dates 1917	Datas	
### State   St	Boring	well ID:				I I I I		W 57
Pourly guided stand - Grown (off 5/2) loose, SLM: sand: 90%  F: 50% M:16% C=5% sh-52 (Qtz feld, 1ith); gravel = 5% opto 21/211  Soft - fow plas ticity  Additional Comments:  Recovery: None  Partial III Complete  AAA = Same as Above Qtz = quartz  Fid = feldspar Y = Yes N = No/None  samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G:	Project: Boring of Killies SUN SUN SUN SUN SUN SUN SUN SUN SUN SUN	Kirtland B Well (ID):  (mdd) Seading (mdd) S	UV fluorescence		1 Recovery 3 39 399	Logged By:   Soil Description	Page 45  Se, SLM  Page 45  Pag	Well Details
Additional Comments:  Recovery: None Partial Complete  AAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = most with the property of	4.	7 N N N N N N N N N N N N N N N N N N N	P,V	6	151	Elly = 85% Sind = 18%: F= 30% M=60% Color, gravel = 5% y  Sand = 80% F= 15% M= 55% C=30% SA-58 (Q+2, fill, 174); grav  of to 1/2" (Qt2+1ith); sitt = 5% non plastic  10 ode 0	sel=15%	
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = gootschoid LV		1	Long Data School (1) subsequen		404	no odor		
AA = Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None	Recovery:					Complete 335		
samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = gootschoid, LVV	AA = Same	as Above	Qtz = quar	tz		Fld = feldspar V - V	-	
	samples: V =	= VOCs/EDI	3; P = TPH;	M = mi	nerolo	gy; B = biologie; W = moisture analysis; G = gaotsological, UV	termal ac 1	

Constant of the constant of th	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	
Boring Well ID:	I Dute.	of 57
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	Soil Description  soil type: Munsell color: density (primarily coarse) consistency & plasticity  % sand (include grain size %: fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity roundedness  % fines (silt clay)	Well
	1 1904 SAA @ 4001 sund= 858, gard= 162, sit = 52	Details
5W) 27.7 N	405  SAA @ 402-4031  No odor  No odor  Well graded sand - Grown (7.5 TR 572) loose, SLM  Sand = 90% F = 35% M = 45% C=20% sa. SR (942, feld, lith.)  gravel = 10% up to 1/2" (942+1ith.)  (180k dm.) redor	
5P 5M N 5P-	poorly graded sand with silt - Pale brown (1048 6/3) loose, sign sand = 85% F = 90% M=10% SA-SE (etz; Feld, 1:42); silt = 10% nonplastic; gravel = 5% up to 78" (1:42)  108  108  108  108	
58)	SAA@ 406-TM 407' sand = 90% sitt=5% gravel=5%	
14.7 5P	to 409.8' and of present	
12.2 N	51 Hy sand w/gravel - Pinkish gray (7.54R 6/2) lose, 51m - sand = 65% for 55% m= 35% C=10% sk-512 (4tz, fold, lith); grade = 20% up to 1/2" (1thics) fold = 15% mon plastic  SAA - 410 -411": Sand = 65%; sitt = 15%; clay = 10% gravel = (0% up to 2.5" Have collider up to 3 34" - clay noducle & Kown 7.54%	
SM	411-412' = SAAQ 409.8-410' 5/4)	
	111-412' = SAA@ 409.8-410' 5/t)  111-412' = SAA@ 409.8-410'  112	
Additional Comments:	R wood odor In Hood - Hold for mot	
	A Meak Odol 406-400' - Slight ( 408 - noticeable > 4081	
ecovery: None	Partial Complete	
AA = Same as Above  Qtz = Q	uartz Fld = feldsnar V V	
mples: V = VOCs/EDB; P = T	PH; M = minerology; B = biologic; W = moisture analysis; C	
- Rounded, SK = Subrounded	SA = Subangular, $A = Angular$ , $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$ , $C = Coarse$	uctivity

SO	Boring Well II):    Control of the property of	Soil Description  Jeged By:  Page 47 of 57  Soil Description  Jensity (primarily coarse) consistency & plasticity  The soil of present  John present  Well Details  John Shift, Med. Phistory  Jose SLM  John Corp 6/3) Jose SLM  John Corp 6/3) Jose SLM  Well Common (1048 6/3) Jose SLM  Well Common (1048 6/3) Jose SLM  Well Details  John Common (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Common (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  Well Details  John Shift (1048 6/3) Jose SLM  John John John John John John John John
Soll Description  **sand tinclude grain size the fine, medium, course excess  **sand minarology  **sand mina	Solution (and state of the stat	Soil Description  Hensity (primarily coarse) consistency & plasticity  290: fine, medium, coarse, etc.)  Well  Details  Of  SAA  Shift, Med. Phistory  Well  Details  Of  SAA  (1042 4/2) [805e] SLM  Oto C = 10% SA-SR (atz, febt, lik)  Oto C = 10% SA-SR (atz, febt, lik)  Oto M- 30% thace coarse sand - SA-SR  So M- 30% thace coarse sand - SA-SR  So M- 30% thace coarse sand - SA-SR  So M- 30% thace coarse sand - SA-SR  So op to ["(1ith + Oto); clay = 5" B exists as  So op to ["(1ith + Oto); clay = 5" B exists
Soil per Minsell colors density remainly consists consistency & plasticity  - soil reper Minsell colors density remainly consists consistency & plasticity  - so mand include grain size to the medium, course, cles.  - some minsellance  - so mand the colors of the medium, course, cles.  - some mandative remainly consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some mandative remainly consists consistency & plasticity  - some partial His complete  - soil reper	SW SW SW SW SW SW SW SW SW SW SW SW SW S	Soil Description  Jensity (primarily coarse) consistency & plasticity  9% fine. medium. coarse, etc.)  Well  Details  John present  John prese
reovery: None Partial Complete	50)  5AA @ 416-418' bot grayed = 500 sitts 500  5AA @ 416-418' bot on sitts 500  5AA @ 416-418' bot on sitts 500  5AA @ 416-418' bot on sitts 500  5AA @ 418.5' sand = 95%  Frace clay as	larger cours sand fraction: F=60% M=30% C=10%  clay exists as nodules = 5% odon présent  sclay and trace gravel  silt: 5% adon présent  1 = 95% sit=5% trace course sand  nodules odon présent
reovery: None Partial Complete	43.5 5C 12 12 13 14 15 16 16 17 18 18 18 18 18 18 18 18 18 18	avel  t brown (7.54R 43)/005e, SCM, sand = 60%: F=40%  t brown (7.54R 43)/005e, SCM, sand = 60%: F=40%  tzfeld, 1/th ); clay = 20% soft nonplastic; gard=20% up to 1/2"  own (5/R 5/4) Stiff, dense, medium plasticity  edor present  ith silt—light brown (7.5/R 43) loose, 3 LM  = 65% C=25% 3A-SR (QFR, Pald, 17th); gravel = 15%  It=10% Man plastic  olm present
A = Same as Above Qtz = quartz Fld = feldspar V = V	proveny: None	and a second property with a property of the second property of the
	U = Sama as Uhava Ott	
GIVEN $T = TAVANT DBS F = TPHFAI = minor draw, D = Lt. U.s. Art.$		

Cara PA	SONIC CORING BORING/WELL CONSTRUCTION LOG	-
Project: Kirtland BFF	Proped Number (2775DAM)	
Boring Well ID:	11 77015	: 5-7
Boring Mell ID:  PID Reading (ppm)  Temperature ("C")	Project Number: 62735DM02.1017  Date:    Logged By: Page 48 of Soil Description	Well Details
54.2 N 54.2 N	Sand = 90%: F = 80% m = 20% frace coarse sand son SR (dets, field, 1:46)  1/24  SAND (21-423' Sand = 80% Silt-18% grand=10%  SAND (21-423' Sand = 80% Silt-18% grand=10%  Gravel up to \$6" (1:4):cs)  Sand: F = 60%  M = 58%  C = 10%	
25°C N 29.7 N	Poorly gladed sand with clay - light Grown (1078 6/3) loose, SLM Sand: SOVO: F:80% M=20% trace coarse sand sanse (atyfeld lith) clay=10% as clumps and notules - reddish brown (578 44) soft to still year medium plasticity; silt=5% non plastic; grave (=5% up to 1/2"  Strong-odot)  428	
50	SAR (128.7)  428.7)  429 Clay - Grown (10 PR 5/3) still - very still - Met. plasticity - For abbles with by clay 41/4   5AH & 423.3' - 424 (  frace grevel up to 2'8" stron adod to 4"  430.7 Well graded sand w/grave (- Grown (10 PR 5/3) loose, 51 M Sand = 75%   431 F: 40% M: 40% (228% sn selarz, fell, lith.); grave = 20% up to 3"(114+0tz); silt = 5% naglastic	
Recovery: None  AA = Same as Above Qtz =	Partial Complete  quartz Fld = feldspar Y = Yes N = No/None  IPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct  d, SA = Subangular, A = Angular, VF - Van Fin F. F. F. F. F. F. F. F. F. F. F. F. F.	
= Rounded, SR = Subrounde	d, $SA = Subangular$ , $A = Angular$ , $VF = Very Fine$ , $F = Fine$ , $M = Modium$ , $G = G$	tivity

LOSCS Soil Type  Pub Reading (ppm)  Temperature ("C")  Temperature ("C")  Samples collected	SO: IC CORING BORING/WELL CONSTRUCTION LOG    Project Number: 62735DM02.1017   Date:     Logged By:   Page 50     Soil Description     soil type: Munsell color: density (primarily coarse) consistency & plasticity     sand minerology     sand minerology     sand minerology     gravel minerology     angularity/roundedness     % fines (silt clay)	of 57
PID Reading (ppm) Temperature (*C) TV fluorescence Samples collected	Logged By:   Page 50	
150.0	Soil Description  soil type: Munsell color; density (primarily coarse) consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt clay)	
		Details
ny	441  5. H with sand - pale brown (1642 6/3) loose, SLM - 5, H = 50%  non plastic - sund = 45% VF = 55% F = 45% M = 5% SA-SP  (Qtz, fold, lith); Clay = 5% sof, non plastic  strong odor)	
	445 SAA Q 441-442  (445)  (447)  (548	
	1 446 Stones	
7) 63.7 N	1447 CLAY - yellowish (ed (54R & 16) very still - Med. plasticity - 447.1  5.14y sund - 650wn (1848 5/3) 10052 SLM - 5and - 76%: VF = 40%  F = 40% M = 20% SA-SE (0+z, 610, 1, 14); 5.1+ = 20% nonplastic  448 (970 xl) = 5% up to 3/8" (0+z+1, 412); clay = 5%	
itional Comments:	SAH clay = 10 %, giave (= 5%, sand = 65%, silt = 20% filty)  (4 448.5 - clayer sand with gia el - 6 sand (108 5/3) loose, SCM  1449 clay = 30%: VF-20% F= 40% M=10% C=20% sp-58 Cot2, fold, like)  Clay = 15%  Viavel = 15%  Viavel = 15%	
overy: None	D 1 too	
= Same as Above Qtz = quartz	Partial Complete	
	Fld = feldspar Y = Yes N = No/None  M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con-	

oject: Kirtland BFF	SONIC CORING BORING/WELL CONSTRUCTION LOG    Project Number: 62735DM02.1017   Date   D	
oring Well ID:	I D	
	Soil Description	e5/ of 57
PID Reading (ppm) Femperature (*C) UV fluorescence	soil type: Munsell color: density (primarily coarse) consistency & plasticity	Well
	- Commentant	Details
m) 452.8	1 449 Sitty sand - 47ht pale brown (1042 6/3) forse SLM  Sand = 60% : VF = 60% F = 40% SA-SK (Atz, Eld, 11th)  Silt = 40% non plastic  trace gravel up to 3/8"  Sand = 60%  Sand = 60%  Silt = 35%  Clay = 5%  (Strong odo)	
M)	san Strong dor	·
70:4	1953 Same as above to 453.7	- 1     1
	well graded sand with gravel - yellowish brown (0042 5/4) loose, and = 50%: 1= 35% M= 45% C= 20% SA-SR (002, Ed.) List.)  954 gavel = 15% up to 2" (00001/4h)  511+= 5% ronplustic	SLNI j
	456  SAA @ 450-459 446-447  Silt=55%  Sand=40%  Clay=10%  Clay=10%  Sand=20%  Shapedo  Clay=15%  Shapedo  Shape	iy .
	Well gladed sand with gladel and silt blown (7.58/8 5/3) losse, sand = 20% well gladed sand with gladel and silt blown (7.58/8 5/3) losse, sand = 75% F=35% M=45% C=20% stf-52 (orz, Ria, 1.76); gladel up to 2 34" (272+1.76); silt=10% nonplastic	SLM 1C9
itional Comments:	199 up to 234" (atz+1.th); sitt=10% nonplastic strong of on  497.41  Strong of on  458 sand = 85% f=50% M=40% C=10% sanse (atz, feld, 1.th)  Strong  458 sand = 85% f=50% M=40% C=10% sanse (atz, feld, 1.th)  Strong  458 sand=10% up & 3/4 (atz+1.th); silt=5% nonplastic (strong)	You,
overy: None	Partial Complete	
	irtz Fld = feldspar V = Ves V = V = V	

			SO	NIC (	CORING BORING/WELL CONSTRUCTION LOG		
Project: Kirtl		F			Project Number (2727) 102 102		
Boring Well I	D:		-		Logged By:   Page 52	1 12	_
USCS Soil Type PID Reading (ppm)	Temperature (*C)	Samples collected	Core Run	Recovery Depth, ft bgs	Soil Description  soil type: Munsell color: density (primarily coarse) consistency & plasticity  % sand (include grain size %: fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity roundedness  % fines (silt,clay),	Wel Detai	1
(L) (52.8	314 VA 53 V	- P. Y-JM	137	450	Prosting graded sand 5 brown (9.5 1/2 5/3) loose, SLMC sand = 90%: F:70%  M: 30% trace coarse sand sa-se (arg few, 19th); silt = 10% nonplastic  H58.91  CLAY - yellowish (cd (5 YR 4/b)) med still, med dense, and plasticity  SHONG alot  Clay to 460, 31  SAB @ 462-462.44		
M) 23	2.6 N	P, V	5	462	462-462. 4 5.144 sand - Pale brown (1041 6/3) loose, SLM, sand = 75% - VF = 30% of M=1060 frace course saw - 50-58 (atable 1.14) 1.14 - 154 and 154		
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		well graded sand with silt and gravel - brown (10th \$/3) loose, sint 3And = 65% IF = 50% M=40% C=10% TA-SIR (atyfild 1.14), gravel = 20% up to 11/2" (14hics): silt=10% narplastic; clay = 5% exist as nodules - hank yellowish 6 rown (10th 3/4) Soft, med. plusticity  S.O.  ARCO 462-4674 = sind = 60% up to 2" silt=2.5% narplastic clay=5% 75 9/3  SHA (a) 463-464 trace cobble to 4"  S.O.)		
) 36 v)	N		5	467	165.5'  Sity sand — Grown (7.542 5/3) loose 5LM — Sand = 65% 5:14=25%  SAA & 467 - 467.4 96xel=5% clay 5%  SAA & 464 - 465.5  trace cobble to 3/4"  5.8		
litional Comr	ients:				在一个人,我们就是一个人,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们就是		-
overy: Non				Partia	1 III Complete		_
= Same as A	ove (	tz = quartz		FI	d = feldspar V = Vos		
ples: $V = VO$	s/F.DB;	$P = TPH; \Lambda$	1 = min	erology	B = biologie; W = moisture analysis; C = goetacheled, UV		
ounded, SR	= Subro	unded, SA =	Suban	oular A	= Angular, $VF = Very Fine$ , $F = Fine$ $M = Modium$ $C = C$	luctivity	

		SONIC C	CORING BORING/WELL CONSTRUCTION LOG	***************************************
Project: Kir			Project Number: 62735DM02.1017 Date:	
Boring Well	11).		11 113	0157
USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence	Samples collected Core Run Recovery Depth, ft bgs	Soil Description  soil type: Munsell color: density (primarily coarse) consistency & plasticity  % sand (include grain size %: fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well
	11	1 467	A STATE OF THE PARTY OF THE PAR	Details
35 S S S S S S S S S S S S S S S S S S S	26.0 N	5) 468	SAA. But lest ( Sand = 75% )  Solt graded gravel with squel and clay - brown (7.572 4/2) trose, moist gravel = 50% up to 214" (etz+lith); sand 40%: F: 20% m: 50% C=30% SAA w/trace cobble to 5"  SAA w/trace cobble to 5"	
64 6C)	22.7	7 427	well graded sand with gravel - brown (7.542 4/2) loose Moist sand = 80%; F: 45% M: 30% C= 25% 54.58 (Q+2, tild, 1:th) gravel = 15% up to Z" (Q+2+lith); elay= 5% nonplastic  [5trong odo]	process of the second of the s
7W)		474		June
Additional Con	( P, V		THA Sand = 90% WF=202 F=30% M=26% C=10%  9 Gavel = 5 2 1/2" SiH=52 resplastic  5 AH & 472-473' Sand = 80% P=20% M=50% C=32%  9 Gavel = 15% VI to 1"  5 ilt = 5% 1.P.  4A Sand = 90% : F=50% M=40% C=10%  9 Gavel = 10% UP to 1"  SHORTON	- 1/500
Recovery: No	na.	ts	- Inter-	
$\frac{\text{Recovery: } No}{\text{AA} = \text{Same as}}.$		Partial quartz Flo	Complete	
amples: V = V(	OCs/EDB: P = T	PH: M = minaralage	He feldspar V = Yes N = No/None  R = biologic W = 1	
= Rounded, Sl	R = Subrounder	1. SA = Subangular, A	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond = Angular, VF = Very Fine E = Fine M = M = M = G = G	luctivity

The state of the s			SC	NIC (	CORING BORING/WELL CONSTRUCTION LOG	ATTOMIC STATE OF THE PARTY OF T		
Project: Kirtl: Boring/Well II		<u> -</u>			Project Number: 62735DM02.1017 De	le:		-
Borng weirn	<i>).</i>		-	7-7-	Logged By: Pa	ge 54	of 5-	7
USCS Soil Type PID Reading (ppm)	Temperature (*C)	Samples collected	Core Run	Recovery Depth, ft bgs	Soil Description soil type: Munsell color: density (primarily coarse) consistency & plasticity % sand (include grain size %: fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity roundedness % fines (silt clay)	The state of the s	W	ell
	T	-	TT	1476		-	Det	ails
2572	4.3 Y Y Y Y Y Y Y Y	P, V, B		477 478 479 480 481 482 483				
aditional Comn	ients:	-	1	/	The state of the s	-		
		0	#	1	176 - 488 sent for sampling LNA	57		
		/	4		100 sen for ramping 2 10 At	4		
ecovery: None		(		Partia	Complete 💹			
AA = Same as Al	ove (	Qtz = quartz		Fl	l = feldsnar V - Vac			
imples: V = VOC	s/EDB;	P = TPH; M	= mi	nerology	B = biologie: W = moisture analysis: C = goot about 1 122			
= Rounded, SR :	= Subro	unded, SA = 5	Suba	ngular, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	mal cond	luctivity	

	SONIC CORING BORING/WELL CONSTRUCTION LOG		
Project: Kirtland B Boring/Well ID:	Project Number: 62735DM02.1017 Date:		_
bering wen in:	Logged By: Page 35	of 57	
USCS Soil Type PID Reading (ppm) Temperature (*C)	Soil Description  Soil Description  soil type: Munsell color: density (primarily coarse) consistency & plasticity  sand minerology  sand minerology  sand minerology  sand minerology  angularity roundedness  soil type: Munsell color: density (primarily coarse) consistency & plasticity  sand minerology  angularity roundedness  soil type: Munsell color: density (primarily coarse) consistency & plasticity  sand minerology  signated  sand minerology  signated  sand minerology  signated  sand minerology  signated  sand minerology  signated  sand minerology  signated  sand minerology	Well Details	
1784 1784 N	10   1886   1886 - 1888 - 18		
= Same as Above oples: V = VOCs/EDB	Partial Complete  Qtz = quartz Fld = feldspar Y = Yes N = No/None  ; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal concurred, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel		

			SONIC	CORING BORING/WELL CONSTRUCTION LOG	-
Boring We	rtland BFF			Propert Number (2725)2102 to 2	
Doring we	11 11):		-	Laure III	1
				Soil Description	6 01 57
SCS Soil Type	Temperature (*C)	Samples collected	Core Run Recovery Depth, ft bgs	soil type: Munsell color; density (primarily coarse) consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity roundedness % fines (silt clay)	Well Details
2	1 1		179	344	
50 50 50	38.2 N		10 495	Clayley fand - brown (7.54 5/2) (105e, Moist - 5and = 606: F = 3006 M = 5080 C = 20% sa.5 P (at2, fell, lith); clay = 30% soft, nonplessic; gravel = 10% up to  21/2" (at2+1ith)  well graded sand with clay - brown (7.54 P 5/2) (000e, Moist  sand = 80% F = 40% M = 60% C = 10% SA-SR (at2, fell, lith); clay = 10%  soft, nonplastic; gravel = 10% up to 114" (at2+1ith)	it be
Sisc			1		-VIN
50			497	Claps sand - brown (7.5 yr 5/2) loose, moist: sand= 70%: VF=204 F=60;  M=20% sA-se (atz, fold, lift); clay= 30% sept, non plasfic  SAA: - smaller clay faction sand=80% of 2"  Sand= poorly grades cby=10% no oder  Frand= poorly grades coarse sand  SAA 9/avel=5%  Sand=85%  Clay=10%  Nooder	50
14.3	7.8		501	SAA@ 495-496'  gravel up to 11/2"  no ador	
M ditional Con	mments:	Octobration in the state of the		16 8ds 18 5025 18 502 F = 50% JA-SP (012, FeW, Lith); Silf=15% non physic	
	ne		Partial	⊞ Complete	
overy: No	A L		The state of the s		
1 = Same as .	Above Qtz	= quartz = TPH, M =	Flo	H = feldspar Y = Yes N = No/None  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con  = Angular, VF = Very Fine, F = Fine M = Median G = G	

SONIC CORING BORING/WELL CONSTRUCTION LOG Project: Kirtland BFF
Project: Kirtland BFF  Boring Well ID:  Project Number: 62735DM02.1017  Date:
Logged By: Page 57 of 52
Soil Description  Soil Description  soil type: Munsell color: density (primarily coarse) consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt-clay)  Well
SM Details
503.6  504 SAMO 498-499!  5AM but less clay - Sand = 90B F= 40 M= 60B  4 Face coanse sand  Clay = 5%  AD BOLD  507  508
508 509 2158 TD Sonic Fig @ 510 ft bg 5 @ 1512 on 12-5-18
3 Price school   8 Blank   Native   10/20 Silvea   3/8" Bentonite   Soil   Sand   Sand   Chijos   Chijos   Additional Comments:
Recovery: None Partial Complete SSS
AA = Same as Above Qtz = quartz Fld = feldspar V = V
amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

	<u> </u>			SOI	VIC	CC	RING BORING/	WELL CONSTRUCTIO	N LOG		Investment		
Project	: Kirt	and B	FF					Project Number: 62735DM02	.1017				
Drillin	g Com	pany:	0	ascal	20			Start Time/Date:	16/18				
			ges	Redn	au	53	7	Completion Time/Date:					
Drillin	g Meth	od:	0	Sonic Corir	lg O								
Casing	Diam	eter QI	):					Bit Type and Outer Diameter					
Boring	/Well	D: K	AF	3-106	50		4	Logged By: Lave An	dress	Page 1	of_		
Drillin Casing Boring Boring SOSN - S - S - S - S - S - S - S - S - S -	g Com Priller: g Meth Diam (blue)  Well  W	od:	ZZZZZ W W Inorescence	Sonic Coring Samples collected	5 5 Sept typed 1 2 3 7 15 9 7 8 9 10 11 23 14 5 14 7 20 21 22 21 21	_	soil type; Munsell co % sand (include gra sand minerology % gravel gravel minerology angularity/roundedn % fines (silt/clay)  0-3/5000 0/grav  LUOSE/ J. J.  25 Ft - 5000  Solve 5 Ft  Hydrolyte  Silty Sand  John Sand  Salty Sand	Start Time/Date: Completion Time/Date: Final Depth: Bit Type and Outer Diameter Logged By: Lang An Soil Description slor; density (primarily coarse)/co in size %; fine, medium, coarse, e  ess  Longe Pebbles / Cohom - No coboles Slen - House Logged 8 Littings Logge	dress  mistency & plastic  ford, brans  les up to 6  ooks like  1 5/6  - Optaring  (att) Sent	(7.54P 5/3) Save Save Medun Marines	v	Wellingtain	- 1
SM SM		*	M		23	11/10/10	SAA C 19	- Dense	1				
2'\ 3M		200	N		25	7777	Silly Sand	0Pm [757] 5/6	Pers 1 Stri	202 AL			
M		30.6	N		27	more	SILTY SONO OF PULLY SELECT SILTY SINCE W	1 Clay - bown H	5 ya Y/3)	4 drake		1 1 1 1	
-	1	1	HA		129	1	111 (3000)		101	2.12.1		111	-1-11
Addit	ional (	comme	nts:			1							
-													
						P	:-1 VM	&Complete C					-
Reco	very:	None				Par	tial	COMPICIO	L TIVI	T = th		41-1	
Samp	les: V	= VOC	s/EDB;	P = TPH; M	= mi	nerol	ogy; $B = biologic$ ; $W = r$	noisture analysis; G = geotechnica	u; Uv = ultraviolet	; 1 = thermal co	naue	uvi	y
R = R	ounde	I, SR =	Subro	unded, SA =	Suban	gula	r, A = Angular, VF = Ve	ry Fine, F = Fine, M = Medium,	C = Coarse	1			demonst

		SONIC CORING BORIN	G/WELL CONSTRUCTION LOG			
Project: Kirtland I		: (10	Project Number: 62735DM02.1017	Date:	11/7/18	
Boring/Well ID:	LAFB-10	5652	Logged By: Love Andres	Page 2	of	
USCS Soil Type PID Reading (ppm) Temperature (C)	UV fluorescence Samples collected	% sand (include g sand minerology % gravel gravel minerology angularity/rounde		plasticity (primarily	Well	
20.0	5/ s				Details	-
5M 6.7   0.90   1.8   1.		51 SAA 0 310 SAA 0 310 SAA 0 38 SAA 0 38 VY VI SAA	-brance (7.5 YP H/4) Days  Jun Mist Mass Clay-word  Calula sports up to ZM  - brown (7.5 Yy y/3) 7 more  Clay pive (7.5 Yy y/3) - sugle  Stud will advance coorse smol (15  Supplied as a sour  Egy-Nonflage of 5/5 column  - Shyligh must to Dry  Source (Plage  Smol w/ column coorse smol (10%)  Stand w/ column coorse smol (10%)  Stand w/ column coorse smol (10%)  Stand w/ column coorse smol (10%)  Stand w/ column coorse smol (10%)  From (7.5 Yr 9/3) study of more  1 yy N 30% prolifes ye 1/3) column  Event - Same for smpling	dy flasticy atose slight with mest, brown NSE, Sharry Spots up to Smartor dry to sharry elections there		3
SM V	N	53 (55 35 - Clay w/ 4053, 25 Then	(50) (+5) (125/3) - shahiling (1580 +5) (1780 +5) (1780 +6) (1780	1 copie	0 0 0	0
M 1 M 25	N	57 SAA @ S	3.25		0 0	0
200 X	N	61 0 Stepheny my 62 63 Stepheny my 64 Stepheny my	y send of modern & cody send to met alexander was to the send to the sand to jour 17-5 years 40% C 30% (77%) ve	(4/3) (0051, 40/2, ft)		S 6
Additional Comme	nts:			1 17 110	?	$\dashv$
Recovery: None SAA = Same as Abo Samples: V = VOCs R = Rounded, SR =	ve Qtz = quar /EDB; P = TPH; M =	= minerology; B = biologic; W = m	Complete Y = Yes N = No oisture analysis; G = geotechnical; UV = ultraviol ry Fine , F = Fine, M = Medium, C = Coarse	et; T = thermal condu	ietivity	

Project:	THE REAL PROPERTY.	ad Diz	P	S	ONI	IC CC	DRING BORING/WELL CONSTRUCTION LOG	
Boring/V		Annual Property lies				•	Project Number: 62735DM02.1017 Date: M/	8/18
T T	T I	- 10	MES	-100	7 -	T	Logged By: Land Andress Page 3	of
CONTRACTOR OF THE PARTY OF	PID Reading (ppm)	Temperature ('C)	Samples collected	Core Run	Recovery	pth, ft bgs	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	We Deta
M		TN N			1111111	65	Atte 62,25 to 24,25 the 50 lty sand of trace (lay - reddish boron (5 YR 4/4) Insie to moderately dense - slightly noist - slightly to moderate photour of white property of the 2 mm	0 0
M	8	167		10	MILLE	leb		
N		1 1		1		THE RESERVE TO SERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED	MAR GY'  67 GF SAA C GY'- Loose to Slightly Denix	0 0
		N		**************************************		68		5 6
		N			MIMILIE	9 5	lightly mist-slightly more very fire graves and than previously	6
Pake take	23.0	S. N	- Jan	- 6		10		6 6 6
The Strategical St		N			1111111	1150	religaded UF 20%  - 10% My C30% G trace of to 1/2" SA/SR	8 6 6
		N			Millin	2	Citz fld lithus	0 0
		N			71117	3	reduse, shally neist of white could spite up to 5mm	6
itional	Comm	ents:						
overy:	None				1	Partial	Complete	
The same of the sa	e as Ab	The second second second	tz = quar				= feldspar Y = Yes N = No/None B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	

USCS Soil Type Pio Reading (ppm) Pio Reading (ppm)	ID:	UV fluorescence		covery pth, ft	Project Number: 62735DM02.1017  Logged By: And CS Page  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	) of	
USCS Soil Type PID Reading (ppm)		1		Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	of	
	Temperature (°C)	UV fluorescence Samples collected	Core Run	Recovery Depth, ft	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	+	٠
M				1772			Well Details
	- 1	N		111111111111111111111111111111111111111	SALCTZ	0	000
M	30.	J	18	111111111111111111111111111111111111111	SAA @ 72' to 79.5 this SAA @ 68'	0	0
M	1			76		6 0	0
M		J		17	Sily Sand-Yellows L Ped (5 PR 4/6) - Donse to Medicin her St. Shighary Marst,	0	0
M				38		0	0
N	W. N.	1		79	SAA @ 76	0 0	0
	N N		8/1	80		000	0
				816	SARE The to SP"  181'-Sity Some y clay & gakel-light sown  2.5 years to middle during such Shorter	50	D G
	N			82	125% PL5% M & % C 3% G 50p to 1" Clay ~ 5% Slubby Claster Mostly 1/3-1/2"	0 0	5°
litional Con	nments:				0		
						TO SHARE THE PARTY OF THE PARTY	-
overy: No	CONTRACTOR STORES			Partia			
= Same as		Qtz = quar			l = feldspar Y = Yes N = No/None B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal c		

roiec	t. Kin	tland l	DICIE		SC	IN	CC	ORING BORING/WELL CONSTRUCTION LOG	
	g/Well		DEE	UFB-	-100	-	7	Project Number: 62735DM02.1017 Date: W	The same of the sa
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	775	Core Run	Recovery	bgs	Logged By: Andre S Page Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology	of
nsc	PID	Tem	3	Sam	S	Reco	Dept	angularity/roundedness % fines (silt/clay)	Wel
W		Sc.	N			ullu	83	Listy sand - Reddish & courts y (2 574) - Medium Lense & Loose-Sugarthy moist	0 0
N		\$ \	N		\$		¥¥		
4 K		1	2		1		1	SAA to 85.5ft	
1	10.1	200	N	15 F75 11 12 11 11 11 11 11 11 11 11 11 11 11		1	01.	25 yr 5/3) predim dousy studyty moist, well graded VF20% F(0%) M Cop C10%  SAYSR GTZ Fld Ithrees	0 0
1		N. T.	N				The second	Some Tight Slave (3-5 yet 6/3) Coose, well glated - Sightly	0 0
			N		6		38	VF18/0 F5/0 MZG C 50% G710% of to X' SA/SR 287-51/4 Sand reddish Sand 5/25/4) Lance Shapeth Must to Irya Thin I man harrzanc of what contained Starry ~ 5%	0 0
N						1	4	SAA 0 87 2 88.75 - 90 = SAA W above at 87 m/ increased whose consonate layers & calidu Spots up to zona	0 0
					1	201119	O		
	í	121			1	111111111111111111111111111111111111111		Si ty Sand Brang boun (7.5 Yr \$6)-devise to me culm sinse, shighely wast ~ 5 to caliable spaces & strongers up to 2 min	0 0
ition	nal Con	nment	s:						
over	y: No	one [					Partia	l	
= S	<b>CONTRACTOR STATE</b>	Above OCs/E	Qt	z = quart			F	d = feldspar Y = Yes N = No/None	

Decinet Windle I DEE	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF Boring/Well ID: 1/2 A/- 8	Project Number: 62735DM02.1017 Date:	
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	Logged By:   Low Andres   Page 6	Well Details
SMIN	197 V	
5M N	Rilly Sand - Strong brown (7.578.56) - dwse, shappyy Marst calichne Spots ~ 5 % up to 1/2"  193	
M 202 M	6 94 SAA C 921	
M I'I N	75	
MILM	1 96 Si Chy Sand, light Gran 7.5426/4) Vay Just, Lry W/ NBO% PIAK 7.5428/3 color	
MIN	97	
3° N	297.25-fine sand w/ Silt Horan 7-54R 5/3) Loose, shipshy monst, poorly galed 398 SAA @ 97.25	
		0 0 0
ditional Comments:	Silty Sand-Stant 7:54853) medum divisi stylody wasst ogg. 5-increased fine sand less silt	
covery: None  A = Same as Above Qtz = quanumples: V = VOCs/EDB: P = TPH	Partial Complete  tz Fld = feldspar Y = Yes N = No/None  tM = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	notivity

Project	t: Kirt	1 11	Mana		SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
				FB-10	66	2		Project Number: 62735DM02.1017 Date: 11/	13/18
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	73	Core Run		Depth, ft bgs	Logged By: Low Autres Page Z  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
59			7			11/1/11	101	SAA (999.5 with trace concreture up	
9		1	N		15	111111	luz		
5M		53.7				11/11	03	91 Hysand - braun (7.5 4 R 5/3) moun Denseto Look Glightly Moist, peoply a sales of occasional congretions up to 1-5" - will to sub Randad	
5M			re r			111111	184		
58	15.7	700	8	Pe,	1	- 100	05	Sond - brann (7.5 YR 5/3) was to slightly douse, slightly wast - Poorly gade - very fire game	0 6
R		123.	7	105	4-4	1-Dispurt	ŏ6		0000
Me	nan kanagannya ma	L	オペイス			Mille	UJ	Sond - bran (25 4 R \$ 3) LOOS, shightly Moss well graded - VF 30% F 10% M 50% C 10%	
SW		34.2	24.		10	11111	08		0 0 0
5P		3430	J. S. C.	<b>K</b>		1111111	ac	Footy grades - Fine grains	
Additio			is:			-	D1'	of Hill Convolete	
Recover SAA = S	ame as			tz = quartz P = TPH:	THE REAL PROPERTY.		NAME AND ADDRESS OF	al Complete  Id = feldspar Y = Yes N = No/None NA - Not + 10  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	
								A = Angular, VF = V Pagind, 39 - of in 931 = Medium, C = Coarse, G = Gravel	y

rojec	t: Kir	tland ]	BFF	-	50	141		ORING BORING/WELL CONSTRUCTION LOG		77:
				FB-5	2.		-	Project Number: 62735DM02.1017 Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	13	10
T	- Vandage	T	TT	11-7	Î			Logged By: Lan Andress Page &	of	
- 1	0	1	11		1	1		Soil Description	1	
	PID Reading (ppm)	-		75				soil type; Munsell color; density (primarily coarse)/consistency & plasticity	1	
3	dd)	5	e	te				% sand (include grain size %; fine, medium, coarse, etc.)	1	
7	00	1 0	E E	lec		1	50	sand minerology	1	
	di	1	es	8	-		pgs	% gravel	1	
USCS SOIL LYPE	63	era	0	S	100	5	二	gravel minerology	1	
3 1	N N	du	1	de	le l	0	th.	angularity/roundedness	1	***
3	II.	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth,	% fines (silt/clay)		W
1			+	91	H	1/1	I and			Deta
		Jo			111	1/1	100	544 e 108'	0	0
		1			111	1		PIOG. 5-51/4 Sand Bran (7.5 YR54) Leak to medianderse	9	
M		35	MX		111	11		3 What we moust to Low - take calcelal steering	0	0
1 1		W	N.		111	1/1	Na.	@ 109.5-Silty Smd Bram (7.5 425/4) Lense to medinduse, shiply moust to dry-trace calculationing	0	-
-	-	. 4	-		44	11	100			P
. 1		1				111		51 km San - Mostry 5, 1-1-12 am 7.5 40 5/2)	0	
M			11			10		I NE to the dum duse dialous and dose	0	0
1			1			11	-	Silly Sand - Mostly Silt-(brann 7.5425/3) Live to the dum Juse study moist, trace collule/certainede standy	6	
4			11			1		SANIA STANIA	1	6
1						1	1111		0	
1				-		1	p-Nach-			0
1	1					1/	- 1		0	
	1					10				0
1	- 1		V	-		1			0	
4					11	1	17		0	0
+		And the second	-		1	1	14	The second state of the se	0	11
,					11	11		SAAC 110'	U	0
/					1	11		LA C MA	0	0
			1		101	1/	1		0	
			N	1	10/	13	13		0	0
-	-				1	7	17	O CONTROL OF THE PROPERTY OF T		11
/	- 1	U		1	16	1				0
1			1	1	1	1			0	
4	- 1	2	N	1	1	1				19
		%			1	1	W		2	
-		9			10	11			0	1
		1	1		16	11	-	SAAe 110'	)	0
Y			1	- 1	1.6	11	-	MATE ILO	0	11
	-		N	1		9	ı		,	0
12	00			1		1 1	-		0	11
IN	-					111	)	·		0
,						1				11
1			1		1	W		1	0	0
1		1	1		1	1/2		1		
1	1	11	V		1	3.	,		A	0
1		V			VI	3	61		0	0
T		4	1			V	-	ify sud-mshy sit-brand 7.5 yes/4)-Medium drs., itightly must, It to .25 a discont wend and of colucto for transference rocks from 1" to y" SA to SR- fizzes which		
	1	11			11/	1	1	Jan Jan Dan Land College Land Jahren And	0	0
1		do	11		1	1		warry warst,		30
1		12	V		1	1		1 tto 25 a discont wish and of college to the	0	0
1		10			1	111	7	cemented Rocks from 1" to Y" GA to SR- fizzes Wur!	0	0
1	Time to the last	M	-		1	2	1	AACIG'-no colube		
1		RA		1	11	1	5	AAP 16 - NO COLUN	0	0
1		11:36			.11	V				6
1		M			13	W			)	
Y	1	.4		1		3116	1		0	0
1	12					711	0			Ц
tion	al Cor	nment	s:		-					Water Co.
-		-		-		-			-	distribution (co.
very	Water-Fr	one [	J			F	artia			
= Sa		Above		= quartz	-			d = feldspar Y = Yes N = No/None		
				THE RESERVE AND ADDRESS OF THE PARTY OF THE				; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	-	-

	No.				S	NC	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project	The second name of the local division in which the local division is not as the local division in the local di		-					Decision 1 Company For code	/13/18
Boring	well II	):	KA	EB-1	06	5	-	Logged By: In Indress Page	of
USCS Soil Type	PID Reading (ppm)		UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SM			T		T	1	INS	SAA @ 117	p b b
M		1.10	2		- 21		119	2	
ML		7	J			IIIIIII	120	Plastic, Medymanse, must	0 0 0
		1			不	1	100	GIL bran (7.5 VR 5/11) - base in Melium Lake.	0 0 0
M			N				12/	5/1-bran(7.5 YR 5/4)-Lense to Medium Linse, Blightly moist of race callebre sports of Stoneyes up to 2 mm - clay as about ~ 5%	
SK X		1	1			MILLIA	122		
M	7 Yanasay 2000 100 100 100 100 100 100 100 100 10	0 1	J		6	THINITY.		E123' 6" band of clay notles ~ 30%	
ML		3 1		and the second			24		
M	.2	1						84A@ 120ft @124-5-9A Clayer silt-clay~40%-as above at 119.5'	
a/ml			-	****		11/1	25	@ 124-5-94 Chayey silt-clay~40%-as above at 119-5' @ 5ilty Clay 125-125.5-bran(7-5425/3) JNSL, Blughtly Nodst, Plastic. @ 125-5 51/t ap above at 120/5-	
m	1	1			<b>V</b>		26		
0	5	L L			000	11111111	72	silfy clay as above at 125-125-5	
Additiona	l Com	nents:	oleon		hannele		Mendada		
				1					
			1	-			D .		
Recovery: AA = Sar	PERSONAL PROPERTY.		Oter	- anout			Parti		
Andrew Statement and Park	MANAGEMENT OF THE PARTY NAMED IN	STATE OF THE PERSON NAMED IN	named and had	= quartz = TPH; ]	THE PROPERTY OF	nine	and the Manager of	ld = feldspar Y = Yes N = No/None y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	uctivity
R = Round	led, SR	-ASUb	endi	kфSA:	= Sut	ang	ular,	A = Angular, VF = Very Sige 42 + Shrog = Medium, C = Coarse, G = Gravel	

					SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirtla	-	-					Project Number: 62735DM02.1017 Date: \//	3/18
Boring	/Well II	):	14	FEB-1	06	52		Logged By: Law Andress Page 10	of
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
0			N			111111111111111111111111111111111111111	128	SAR C126'	
j			N				129	Clay of must sitt - boun(7.5 yr 4/3) - dense, dry 4 shaperly mast, plague.	
am		36.	M				130	@129.5'- clay w/silt - 51 H ~ 20% - brown (25 40 5/4) double supply must - Low playering.  @ 130 - 51 H - brown (7:540 5/4) - double to made double	
M	L_	- 35	pd				131	@130.5'- clay w/silt-silt N20%-brown (25 40 5/4) douse such the mount - Low playments  @130'- silt - brown (7.54 8 5/4) - dwse 1 to median doller  ensors - Ctool siltw/ Clay brown (7.54 8.5/4)  denser ~ 10% Low Plasticty, Sheghtly moust	
MY		0	N		100	111111	132		
M			N				133	51 H, bon (7-5 Ya 4/3) dense to me dum dense, Slightly moist, non plastic	
M			N				134		
af	7.7		N	0		11/1/11	135	GILM Smily clay (Vfg) bount7-5 YR 5/3), duse, shighty moust - Chang 80% - plastic C134.25-54A@ 134 but very dense & Dry to shighty mass	
of ph	,	X	N			1111111	136		0 0 0
Additi	onal Co	nmer	its:		skoten				
							70	Complete Complete	
Recov	NAME OF TAXABLE PARTY.	one		Ote		-	Pai	tial Complete  Fld = feldspar Y = Yes N = No/None	
SAA =	Same as	ADO	ve TTT	Qtz = quar	M -	pusi.	erole	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nductivity
R = Ro	unded.	R A	DIDE	ndixe SA	= S	ubar	gula	r, A = Angular, VF = VcRatigec442-ofine(9) = Medium, C = Coarse, G = Gravel	

	ct: Kirt	lan d 1	Dicin		SC	)NI	CC	ORING BORING/WELL CONSTRUCTION LOG		
				FB-16	12	7			13/1	8
20m	J WOII	<u>г</u> .	A	-6-10	07			Logged By: Page	of	lienues.
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		'ell tails
a		1	2		1		136	Clay w/ Si H and v fa send - (bloom 7-5/R 5/3) - molim divise to dense, slightly most, Phostic to moderately plast @137 - callula / calcum colonate Tenses well nderated 3" & calcum staning @137-138' SAAR 136'		
Callella		-	40		-	11	37	@137 - callabe/calcum colonate Leviso-well narroted 3"	0	9 9
a			4			1	45		0	
igy ph			7				39	clay of sitt-brant 15485/2) medium de NSC-shiporty mast-law plasticing ~ 30% si H  1 134.5 - Si If w/ Clay - brand 1.5485/3) dNSE to modum dNSC, stighting moust - NON plastic ~ 30%		
MI		よっと	N		6	MILLE	Yo	Clar	9 0	0
m			1			111111		Sift of moor day-brans (7.3 YR 4/2)-ENSO, slywy moist-now to be plasting - clay-lob e 141' SAA CHO'-very distr - day to slightly moist	0 0	0 0
M			1		X	MILLE	12		0 0	0 0
my			7		The same of the sa	1111111	3	Medum Juse, Elyhty Moist - Clay ~ 30% and to Medum custury	0 0	0000
end		3-99 =	3			11111111	IV		5 0	3
59 1	VA	W	7	•	The second	VIIIIIV >	180	Mtelyz to 144.5 ft - 144.5 ft - sand fire graned brown (7.5 ye \$/2) - 21 ye to medium 200 shiplity Line - poorly 10 ded ~5% silty clay posses - plesty boom 7.3 ye 5/3)	0 0	0 0
Addition	al Com	ments	3:			1	-		. 1/1	-
n			-		Contractor (Contractor)					
Recovery	The second second second	PARTY WATER BOTH		7 = 0110=4-		P	artia	A STATE OF THE STA	1.6	
				z = quartz P = TPH: M		iner		d = feldspar Y = Yes N = No/None Nf - Nof 7 B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	auch de la la la la la la la la la la la la la	
R = Roun	ded, SI	R = Su	bren	plsdD6A =	Suba	angul	ar, A	= Angular, VF = Verp Give 443 Rife 798 = Medium, C = Coarse, G = Gravel		

	7				SC	N	IC (	CORING BORING/WELL CONSTRUCTION LOG	CONTRACTOR OF THE PARTY OF THE
Project								Project Number: 62735DM02.1017 Date: \\/(	3/18
Boring	Well I	D:	CAF	B-10	65	2		Logged By: Lone Andress Page 12	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5P 5P/ CL		66.70	N		3		146	elys-5-54 Ae 144.5 with ~25% clay modes	0 0 0
sila sul	114		7	Notes and Section 1997	1	1 Jau	H-	544-6 146.25 brum (P146.25-5and 47(7.5425/2), cose, shiplyty Moist, will aded (7.5425/2), cose, shiplyty VF-30/ F 10/ M 30/ C 10/ 54	
SN			7	71	===	of case by	148	SALA IVI. 2 CT	
Dn.		27.60	N	4 to 1 to 1 to 1 to 1 to 1 to 1 to 1 to	1/6	-fellow	149	SAA@ 146.25' - withe to No prince	
SN			N			ned cake	,50	3000 w/ gravel - 5 rum (7.54 & 5/2) - 1000, most, woll graded	
sh my			1			-132	151	Sund w/ gravel - b com (7.54 R.5/2) loss, most, wedgraded  F 16/ M 28/ C25/ GHO VP to 211 - SHISE Gtz, fle lothers  PSO & fr - Silt-W/ Clay b rown (7.54 R.54) very lower - Dry +1  Shyrity most - we ally player - Clay - 20%  P15/.75ff - Silt- bown (7.54 R.5/4) lower - Shopoty  wist - New plasere	
in			1		X	11	7)		
M		1					53	eltas above at 151.25 ft -w/ trace chang- Now- plantue e153' - Silt as about at 151.28 ft - No chang	
KL	3	30			5	1111111	54		000000000000000000000000000000000000000
Additiona	i Com	ments	:						
Recovery	the same of the same of	-	Qtz	:= quartz	ı.		Parti F	al Complete N=No/None	
Samples: \	V = VO	Cs/EI	B; P	= TPH; ]	M = r		rolog	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	uetivity
k = Round	led, SR	=ASON	end	SA:	= Sub	ang	ular,	A = Angular, VF = Ve 7 Zipe 414 = Fin 199 = Medium, C = Coarse, G = Gravel	

	SONIC CORING BO	RING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017	Date: W/13/18
Boring/Well ID: VAFB-	10652	Logged By: Low Andress	Page 3 of
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence Samples collected	soil type; Mu % sand (inclu sand minerole % gravel gravel minerole angularity/roi % fines (silt/o	Soil Description unsell color; density (primarily coarse)/consistency & produce grain size %; fine, medium, coarse, etc.) ogy blogy undedness clay)	
lu   h	155		
N Son M	5 156	@ 155.75 5/ H, w/ + race of : brown (7.5 yr 5/3) - buss, sty	
The second		property felt is	
6-1 T N	Sondy Cto Sinse, sh of depth	end))  My W/Silt (20%) - Storn (7.54)  Story moist, plastic decressor  to a sond W/ clay (~50%)  Story  159 5 W/ (506)	5/3) modum
SW N	SAA to clay ~ 30	121.2 declared a 2000 b	M. Cutraco
in N	6159.5 20N31-5W 760% M	- Sond 16 any 7.5 YR 5/3) to Dus Juth moiss to miss - well grade 25% C 10% G 5% up to Yz" SAM	Reterte
N Se N	8 Sand Store	m (7.5 / 2.5/3) - 100%, shy ll g adid M 50% (25% G 20% of to 1.	Sil Ishue o o
	167		
N	SAAe 1	601 to 163	0 0 0
ditional Comments:			
covery: None	Partial 🖽	Complete	
A = Same as Above Qtz = qu	rtz Fld = feldspar	Y = Yes N = No/None	NR - NO RECOVERY

	100000		-		SC	)NI(	CORING BORING/WELL CONSTRUCTION LOG		
		tland					Project Number: 62735DM02.1017 Date: W/I	3/10	_
Boring	well	ID:	KA	下另一	106	25	T IN	of	
USCS Soil Type	PID Reading (ppm)	remperature (°C)	UV fluorescence	Samples collected	Core Run	13	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness		ell'
	Part Common		1	U2	10	E /		Det	ail
Jul July July July July July July July J		Sold	7		8		Post, well graded  F 5% M 40% C 40% Gas by the street of		> 1 .0 .0
N		V	10		W	10	d ·	11	1
100	-131	1	N		7		clay w/sit to ram (75/R5/3)-lowse-shuftly most, are drum playtecty grading to:  165.5'- 91H w/ clay (20%) brown (75/R5/3) lower to reduce deals e, shippyly most, Low playtecty	0 0 0	
V	3		7			1111116	Mist-fine grance (7.5 y 1.5/3) dolse to medium dute - Slightly Pife .75 - sound - brown (7.5/ e 5/3) Loose, Slightly mist.		
7/1	1	-5x. Sc.	N		5	11/16	C167.75-Siltw/Clay (10%) brow (7-5 ye 5/3) aux, Shyling	0 0	
)			1		1111111	11/10/19	they wast vill grace of loose to Mahm tense, to got more of 169-5 to 169.5-5md-ight boung 75/2%), wast, man of sold grade of 15% of the 15% more of 15% of the 15% more of 15% of the 15% more of 15% of the 15%	0 0	
			1			17	e 169.5 - gilty sand of clay. group boun (7.548.5/6), July to medindusc = 40% on 20% C30% (7 10% up to 169/2" 15/mes	0	
			V	and the special property and seed of the s	1	171	For Fly gales - 10% C 10%		
	2	4×1	1		Diane	172		0	
tiona	l Com	ments					3		
									name and
	17			The special section					
very:	The same of the same of	he	]	= quartz	-	Pa			
- 121111						-	Fld = feldspar Y = Yes N = No/None zy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduc		

oject: K	irtland	BEE		SO	NIC	CORING BORING/WELL CONSTRUCTION LOG	
ring/W		- Carlos Company	3-100			Project Number: 62735DM02.1017 Date: V	/13/15
	JA III.	CAT	5-100	7		Logged By: Land Andres Page 13	of
PID Reading (nom)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery Depth, ft bes	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	We
					1 170	- 5and light band 2.5 ye, (0/2) 1 ms. (1) 1.	Det
1		N			2 172	Fio/o M 60% C 30%	000
	ου	N			12757		
	3	N		9	171	Sand-SAAR 172° fining dunwards	6 6
-		/V.		1 mil	PS		0 0
		N			74	New % at 195.5 F 60 / M 30 / C 10 / SAA e 175.5'	0 0
	A		1	1		SAA 0 175 E'	
		1		1111111	177		
3.4	/			1111111		@ 177.5 -sank brann (7.5 YR 5/2) Loose, sharthy Muss, well graded - F 60% M 30% C 10% G trace.	0 0
	,U		6	Milli	179	Smd - light brann 7.5 ye 6/3) Losse, Shy hthy of moist party of model - fine graned in 8%	6 0
	1 1/3			mille	130	grans	0 0
				MIIIII	131	sond thight brann (7.5 YR 6/3) Louse Shybothy morst, poorthy of radio	0 9 0
nal Co	mments:			177	. 011		111
ry: N	lone	1	*****		Dort:	1 H	
-	s Above	Qtz = c	nuartz	-	Partia	d = feldspar Y = Yes N = No/None	
				min	erology	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	- Al-ula

	SONIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02 1017	12 /1 /2
Boring/Well ID:	CAFB-10652	Logged By: Love Logged Sy: Page Vo	of
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)	
A N	V (187		
SR TN	IR.	The control of the co	
SW SV N	- H. 18,	Elynghy must-well grades G 10% up to Lill Total	
SM X N	188	SAA@183.5 - different %'s: F70% M 70% G 10% Gtrace up to	
an In	186	ote fil lyhus genile	
EN Th	187	sand - brim (7.5 yr 5/3) Loose, slylishy moist - well graded F 40% M 40% C15% G ~3% 4 to "	
5N 1.3 N	148	shigher fining dominard 3 14thres, graniter	
in Service	0 180	@ 1894 SAA 186 W different %'s:	0 0
SN N	000000000000000000000000000000000000000	F70% M 30% C 35% G 15% up to 3/4" of 54/5R - Lornes white of 2 16 reality 2	
dditional Comments:			
acovery None	D4	ol Complete	
AA = Same as Above Q	Part Ptz = quartz	al Complete Fld = feldspar Y = Yes N = No	
imples: V = VOCs/EDB;	P = TPH; M = minerolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	activity
= Kounded, SK = Subro	unded, SA = Subangular NdiX D	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	

Project V		DEE		SC	ONI	C	CORING BORING/WELL CONSTRUCTION LOG	
Project: In Boring/W			CD				Project Number: 62735DM02.1017 Date:	113/18
Dornig/ W	en iD:	VA	FB-10	65	4	_	Lagrand Day 6	of of
USCS Soil Type	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
				T		196	Son - Want hom (2,5/26/3) Loose should	Details
3W		N	of America Space		11	19/	Som - tight brown (7.5/26/3) Loose, shightly mast - will graded (7.5/26/3) Loose, shightly past - (91/06/10/10/10/10/10/10/10/10/10/10/10/10/10/	0 0 0
58	1	N			1111111	192	@ 191.3 - Sand - light bon 7.5 yeb/3) loss ore Slightly norst-poorly graded vfg Fld	
	0		A STATE OF THE PARTY OF THE PAR		No.	1 10	SAA@ 191.3 ft	0
58°	3	N		8	11	42		000
	nad the property as you		THE THE PART OF THE SAME	+	1	93		0 0 0
SP	V	N		1	111111111111111111111111111111111111111	94		0 0
	1			Ŷ	11/1		500 M 35% C \$5%	0 0 0
N-		[A	**********		10	95	F60 M35% C 705%	000
an					11111111	96		0 0 0
ZW .	180	1			111111		sand brain (7.5 YR 5/3) LOOSE, 5 lyby mist.	
V				il	1	97	F-70% CU/O C US GTTME OF THE	5 0 0
W 0.3		V .		9	11111	2	F 75 L. M. 190 - Sifferent %'s:	0 0
Sul				11111	16/1/1	8	Mont yell graded 12.5 YR 6/3) Luce, Shefith,	
11:::	111			W	3/9	9	F-10% M15% CISh Gravel-tone 45,00	000
dditional C	omments						GHZ-FIE	
ecovery:	None [	1			D	artia	Complete	
AA = Same	as Above		= quartz			F	d = feldspar $Y = Yes$ $N = No$	
mples: V =	VOCs/EI	B; P =	TPH; M	Sub	iner	logy	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	ctivity
	Ap	pend	хD	NEW PROPERTY.	-		V Ca Page 449/of 7932 Tours d	-

Boring Well D:    Project Number 62735DM02.1017   Date: \$1.5.4.5     Dogged By: An Antres Page IK of Soil Descripting conversely (primarily conversely (pr			n vien		SC	NI	C	CORING BORING/WELL CONSTRUCTION LOG	-
Logged By:   Log   A   A   A   A   A   A   A   A   A			-					Project Number: 62735DM02 1017	
Sol Description  - soil type; Mansell color; density (primarily coarse) (consistency & plasticity (primarily gradient))  - soil type; Mansell color; density (primarily coarse) (consistency & plasticity (primarily gradient))  - soil type; Mansell color; density (primarily coarse) (consistency & plasticity (primarily gradient))  - soil type; Mansell color; density (primarily coarse) (coarse)  Boring/W	ell ID:	K	-A-FB	-10	65	2			
SALE 1981 No grand  SALE 1981 No grand  SALE 1981 No grand  Pyolo M 506 (Uh grand frace SALE With Co SALE With Co SALE With Co SALE With Co SALE With Co SALE With Co SALE With Co SALE With Co SALE With Co SALE WITH CO SALE WIT	USCS Soil Type	Temperature (°C)						Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	
Simples: V = VOC/EDB; P = TPH; M = minerologi; B = biologic; W = moisture y analysis; G = gotechnical; UV = ultraviolet; T = thermal conductivity = Rounded, SR = Subrounded, SR	Sil	MA.	7		- S-		200	SARE 198' No game	3
Simples: V = VOC/EDB; P = TPH; M = minerologi; B = biologic; W = moisture y analysis; G = gotechnical; UV = ultraviolet; T = thermal conductivity = Rounded, SR = Subrounded, SR	Sul		N	en en eromon			201	Pyo/ M 50% Colography	0
Simples: V = VOC/EDB; P = TPH; M = minerologi; B = biologic; W = moisture y analysis; G = gotechnical; UV = ultraviolet; T = thermal conductivity = Rounded, SR = Subrounded, SR	M		N			11/11/12	62	ezol.75-silt-bran (75425/3) duBeto Medin	0
Sind by the same of the grand - brand to the same as Above Qtz = quartz Fid = feldspar Y = Yes Some and sit is grand - brand to the same as Above Qtz = quartz Fid = feldspar Y = Yes Some and sit is grand to the same as Above Qtz = quartz Fid = feldspar Y = Yes Some and sit is grand to the same as Above Qtz = quartz Fid = feldspar Y = Yes Some as Above Qtz = feldspar Y = Yes Some as Above Qtz = feldspar Y = Yes Some as Above Qtz = feldspar Y = Yes Some as Above Qtz = feldspar Y = Yes Some as	M	24.	3	and the party and the	1	11/2	93	graved sand	000
C 2045 - 46 Sand 1/3ilf a gravel - brand 7548  S/3 - Austral - 4 vfg  Smith - 4 v		3	7	er has fari mins yer Azenda Tülker	ا		40		0
ecovery: None Partial Complete  AA = Same as Above Qtz = quartz Fid = feldspar Y = Yes N = No  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	311		N			1111/2	25	c zoy-5-vfg sond w/ solf agravel-brand 7548	0 0
dditional Comments:    Complete   Partial   Complete   Partial   P	SW					7/1/1/1/20	6	Angular - of vifa	0
dditional Comments:    Complete   Partial   Complete	and St	1	N			2	7	F 85% M 15% Crace trace gravel yto	0
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	SN 0-3	Comments	N		48	v	8		000
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse					-	-			
= Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	AA = Same	as Above	and the second second		[= m		F	d = feldspar Y = Yes N = No	
	R = Rounded	I, SR = St	broun	ded, SA =	Sub	angu	lar,	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	

Projec	STATE OF TAXABLE PARTY.	l	) PP		SC	N	IC (	CORING BORING/WELL CONSTRUCTION LOG		
Boring				-B-100		7		Project Number: 62735DM02.1017 Date:	18/19	
BOTH	y Well	iD:	CIE	-100	5	7	T	Logged By: Local Arches Page 14 o	100	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details	
			П		1	13	80	sand-light born (7.5 42(6/3) - Lover, Shighthy worsts o	Details O	)
5W			N			1	209	F80% M 15% C 5%	0 6	0
5W			N				210	e 209.5 - Slight corring durinosds		0
SW		eresed	N		.7			Find-light brown (705 (20/3)- Case, stuffly most well grand	0 0	0
		4	1		8	1	SII	E211- Sand-light brann & 7.5 YR 6/3)-love, slightly, must - poorly & Podes - Fine & Rained	0 0	0
4	· · · · · · · · · · · · · · · · · · ·	30	N				212	0	0	ð
4	notona Habasina o	-	N.				213	a few moderately cemented pieces of sand like gravel - A, up to 1/2 (~5%)		0
3		V	N			11/11	214	11 grove - 12, 5p +6 /2 " (1 5 /2)		0
SN		Po	N		1	11/11/	715	graded F75% M 15% Clop trace Grand-upto @ 214.5-Sand-(brann 7.5 4R 5/3)-Lase Shorland	000	0
9n	N	00	1		2	111111111111111111111111111111111111111	216	F15% M50% CZ5% G10% up to 1" SAISE GET LETHER		0
any a		T X	V		1	11/1/11/11/11/11/11/11/11/11/11/11/11/1	217	5.1+ VClay- bght ban (+5 YEG/3)- LWEP, Shy hory onest-post in front moun plasticity cary ~ 50% ( )	000	2
Addition	nal Cor	nment	s:		-					1
200000	v. NI.	ne T					Partia	al Complete		
Recover SAA = S	ame as	Above	NAME OF TAXABLE PARTY.	z = quartz	-		F	ild = feldspar Y = Yes N = No		Name and Address of the Owner, where
								y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	ctivity	- Contraction
M2040-755-7500				dix D	***************************************	mentod		Page 451 of 793	and the same of th	mi

	Table 1				SC	INC	CC	ORING BORING/WELL CONSTRUCTION LCG		
Project Boring			-	TD .		_	7	Project Number: 62735DM02.1017 Date: 11/6		8
boring	well	ID:	4	FB-1	06	56	7	Logged By: Logged By: Page 20	of_	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	,	Well etails
	1		1		1	1	217	e 217 - 5 me 28 ( com (7.5 / R 5/3) wase, shippyly	0	6 0
SW -	1.3		N				SIR	F80% MO% C 6%	0	0 0
SW	- 2000 by 2000 - 60 Trans		N			1111111	219	T 20% M30% C30% GZON UP 1"  156 SAKE WHICS, GTZ,  CIJ	0.0	0 0 0 0
SW			N			1111111	720		0	
54		0	N	NATIONAL STREET AND COMPANY		11111111	221	SAA 217-2-feer %.	0	0 0
SW			1		10	MILLIN		F10% M30% C60%	0	0 0 0
6W		1	5	nte filmbeledo-scot as par		111111	23	5md u/g grel - 6 mm (7.5 425/3), 1005e, slightly most, well g radie + 10% M20% C/% G3% up to 1/6"	0	0 0
SN				V (2000)		111111111111111111111111111111111111111		) FIL	0 0 0	0 0 0
SW	a gloon as 2 To	1	J.			111111111111111111111111111111111111111	25	F25% M 20% C25% G30% up to 34" Gt2 SAISE. Fld.	0	0 0 0
SW		1	V		V	111111111111111111111111111111111111111	26	5 222'  5 nd W/gravel - as above, offerent %'s:  +25% M 20% C25% G30% up to 34" G42  54/5R. Fld  00000000000000000000000000000000000	0	0 0 0
Addition	al Cor	nments	3:							
THE RESERVE AND PERSONS ASSESSED.	ame as V = V	Above OCs/E	DB; P	Street, Square and Squ	M = 1	mine	rolog	ld = feldspar Y = Yes N = No y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivi	ty
K = Kour	idea, S		brou		- Su	vang	urar,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Page 452 of 793		

	2				so	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project								Project Number: 62735DM02.1017 Date: 11/14/12	
Boring	Well	D:	AP	8-106	5	2		Logged By: Page of	
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Well  Details	
		1	П		1	1	285	5620 - 6 pay (7.3 Y.R 5/3) LOOSE, Shefting Myst, 6 10 10	
SW			N	· Areas and		William.	227	Sant-6 and F-3 12 5/3) Love, Shefting Must, of of one of the sales of the Cloth	
SW-	1.3		N				528 528	227.5- sand of gravel - bran (7.5 YR5/3)  10052, well graded CYO/s G706 up to ht "- SR/SA  + 75% M 20% CYO/s G706 up to ht I Wholes  544 e 227.5'	
SW			N			mm	229		
SW			N	Alba Ting A Ting and Ting Cook Ting Cook Ting Cook	1001		230	EZZEL SAAE 227.5 - Externa %'S - 000 000 000 000 0000 0000 00000 00000 0000	
5W		3	N.			1111111	23	sond u/q savel & Clay - Franc (2.5 Ye 5/3) pose, Slydy o provst well g rates - Clay ~10% of clay Rie cs up to pilly o light branc (2.5 Ye 43) plastic, mass - 5% M 30% C 30% (7.75% up to pill, Inthes clay e 271 5 and constitutions of the con	
SW			N			1111111	282	E271.3 sand form (7.5/18 5/3) was shaplarly most of the sand form (7.5/8 5/3) - was shaplarly most will a sand form (7.5/8 5/3) - was shaplarly most well a sand form (7.5/8 5/3) - was shaplarly most will a sand form (7.5/8 5/8 of 5/8 of 2, this , 6/8 of 3/8 o	
5W			N	o or shows no design		11111111	233	# 10% M 70% C 15% G 5% up to 1/2" lithuss 0 0	
51		V	N		Y	111111111111111111111111111111111111111	23 <sup>1</sup>	1933. For Sand of purple Grand - light (7.5 YR 5/3) 0000 000000 000000000000000000000000	
SN)		2	N		个首	Part Contract	235	POCOR dust thed 234-242' Holon press clayey preces	
Additional Comments:									
Recover	ame a	s Abov		etz = quart			-	Fld = feldspar Y = Yes N = No	
Samples R = Rou	v = V	SR = S	EDB;	r = TPH; unded, SA	v1 = = Su	min	ero101 gular	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse  Page 453 of 793	
THE RESERVE			JUCIT	UIX D	-	-	-	Faut 400 UL (90	

	S				SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG		
Section 2	et: Kirt		3FF					Project Number: 62735DM02.1017 Date: \\/\	4/18	
Borin	g/Well	ID:	K	FB-1	00	5	2	Logged By: And Pecc Page 22	of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	W	
1	jula;	1		V)	H	1	235	6235-5AL 010+ 7341	Det	ails
5W 5W	•		7				236	e235.5-Sand-lylot bran (7.5 Yr 6/3)-lose shippy moist, well grated frace 1 " 52 5/4 Grz F 70% M 70% C 60% G up + /2" Prince Grz 5AA-10 236.5 e 736.5-Sand-bran (7.5 Yr 5/2) Loose, Shippyy Moist, poorly graded - fine grain 2		0
30		6				111111	37	)	0 0	0
SAN -	2.1		N		1		38		0 0	0
58		2	2		50	BEDI	39	sand-bran (7,5 425/2) boose, Slightly mist, powling rades-fruganes	0 0	0
51		30	7			STATOR	eyo.	A production of the state of th	0 0	0
SP	~~~		7	na para Managalan magana at magana		ORE//	14	sand-5AA-e 238 approx 20% Linscepters break easily by fingers for granid	0 0	0
Sl		<b>→</b>	N		<b>√</b>	を打し	<u> 42</u>	GO (are disturbed)  Z34-242 (are barrel &  Fellort of re-retresevo)		0 0 0 0
y	surcom Alberta Ar		N	The made of a secretary with a		-2	13			0 0
S		61.2	N		1	2	44	of sund sond 238 slightly coarses fine		000
Additio	onal Co	mmen	ts:		-				-	
Recove	ery: N	one [					Parti			
SAA =				tz = quartz				Id = feldspar Y = Yes N = No		
								y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	ductivity	
N - NO	anucu,			dix D			,	Page 454 of 793		

				1.0	SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG			
-	t: Kirtl	-						Project Number: 62735DM02.1017 Date: 1/	114,	118	
Boring	/Well	D:	LA	7B-10	65	2		Logged By: Land Ladres S Page 23	of_		
								Soil Description			
	2							soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily			- 1
63	nd	Û	9	pa				% sand (include grain size %; fine, medium, coarse, etc.)			1
yp	(p	. e	me	ect				sand minerology			1
II	Reading (ppm)	fur	fluorescence	llo	-		pgs	% gravel			
Soi	ead	La	ore	Sa	un	Sr.	ft	gravel minerology			ı
S		Jpe	flu	Idi	e B	00	th,	angularity/roundedness	,	Well	- 1
USCS Soil Type	PID	Temperature (°C)	3	Samples collected	Core Run	Recovery	Depth	% fines (silt/clay)		etail	
	June .		-		H	1	244		1	LI	3
						11		5AA@243'		0	0
SP			1			11			0	n	0
0			N			11		@ 2 44 5 - 245 25 20 CON CONTROL 624 ( 54762)	6		6
		1				1	215	COS COM The COS SAME CONTRACTOR	2	0	
5W.		T			1	11		6244-51-245.25 -5mg einkish gray (2541.62)- Loose, Shighting, must well graded gray (2541.62)- F 60% M30% C 10% coars Englands pomices	0		19
		(%)			4	11		1 00/6 - 11/30/0 C 10/6 C 2/11- SE	0	0	0
		•	1		11	11		@245.25-5A+@238'			0
4			N			1		4	0	0	
00		V	•		V	/	246		0	11	0
-		1			A	1		64 ) Wasare (nown (25/2) 1 mse	, I	0	19
	11	1				1		I I wast well a cake	0		0
1			. 1			1/		Slightly word, will g	0	0	
SW			W			11		1 1 - 1 (16) (10) 0115"	-	0	0
0.					11	11	242	=70/ M30/ CY% G1% J75 13	0		0
, (\$100.000) Th. State Co.				readily rily brane top-out the ruley		1.10	6.67	Sand Wy gravel to councy 5/25/3) Loose, sluglarly moist, well g raked [15/3] Loose, F 70% M 30% (40%, Globup to 1.5" SHISR Q12, Lithues	0	0	
1			1	101		110		SA/SIC QTG LUNCS	0		1
SW			Λ			10		617	0	6	0.
MA	3		IA			11,			0		0
	0.0					11	74K	V		0	
Suppose the san		eranderia rajo à vitale		NAME OF TAXABLE PARTY OF TAXABLE PARTY.		1	C. 3.B.	Send Soun (7.54e/5/2) Loose, slightly must, well graded for 10% C 15% G 5% UP to listing - are, flet and 249-3AT AT 218 by lifterent of 5:	0	11	0
						1,		San Standard of Lat of		8	0
100		101/				1%		0/ 10/ 5/5/ 65/04P to sem	0		
gw		a	, f			10		70/0 10% C 10% 9 10thats - 5000 flet	0	0	0
		A.	N			10	249	cong sill			0
4	Artistansi I filosof Mari	3		interpretary . The days have out an inches funder		1		at 249-3AH at 018 of dolferent 705.		19	0
						1		ad/ s/ of chally v	0	8	
SW			M			11		E 10% M 60% C 20% G 10% 49 70 12	0	11	1
700			1		1	10	-	F 10% M 60% C ZO% G 10% small y v SA/SE GRELOTIUS	0	0	0
· · · · · · · · · · · · · · · · · · ·	many make a		and the	1 - drigs \$1.0 to see 1 to see 2 to 400 to	1	1	250	- 1 4 1 - 1 -	D	11	0
					1	10		SAR at 249-590	6	6	0
1					1	9			0	a	10
SW			N			11	1		17	0	0
1		1. 1	•			1			0	0	0
300	some see south					1/2	151	8251.25 5000 perker gray (7.5 \$26/2) 1000, Slughty vist, well grades, F 80% M 10% C 10%	0		8
-						11	1	Slighty roist, well grace,	n	0	
1						10		F X0/ M10% C LU/	-		P
SW			N			1	- 1	- Nam	0	0	0
	- 1					1	252	0351.75-5/144 clay f brown 75 1/25/3) moun Just, stylighty most plastic-sit ~ 30%	0	٨.	6
MCL	ALCOHOLD IN CO.		-			1/2	المادي	LNS Sugarly Most plastic - SIL ~ 30°	0	19	0
			- 1			1	. 1	And the same		Ö	
CL	-		./			11			D		P
		1.	N		1	10				0	0
		W			V	de	25		0		0
Additi	onal Co	mmen	ts:	4.00	-	-			manamhan	moundance	
Additi	Juai Cl	,11111011				-					
		-			-						
Recov	arra N	Jone I	-				Part	ial Complete			
SAA =	_	A COLUMN TOWNS TO THE PARTY OF		Qtz = quart	7	-	-	Fld = feldspar Y = Yes N = No		and the second	
SAA =	oame :	VOC-	EDD	P = TPH.	M =	min		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor	nducti	vity	
D = D	unded	SR = 9	Suhr	ounded SA	= 51	ıbar	gular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Page 455 of 793			-
K-RO	,unueu,	Ap	per	idix D'			0	Page 455 of 793			

	The same of the sa		S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG		
Commonweal Commonweal	Kirtland B	-				Project Number: 62735DM02.1017 Date: U/	14/18	
Boring/W	/ell ID:	KAF	B	100	52		of	
USCS Soil Type	rid Keading (ppm) Temperature (*C)	UV fluorescence		Core Kun	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Detail	1
	1			111	1253	3KHE 357.75	0 0	0
Cl Sp	- Married Marr	Ŋ		The state of the s	254	1253.5 - sond pole bran (Loye G/3) Louse, shightly most, fourly graded - very fine graned	6 0	6 6
SP	23. PC	N .	3		255	SATE 253.5 to 2945 2855 254.5  e 23545 2355 - Clay -bran (7.5 yr.5/4) dws, dy to slythy win - mound plasticity	0 0	0
5M		N			256	cess ff = sifty sond silty sond - brown (7.5 YESA)  dense to dry + mouth to shy lifty moist - wond plastic	0 0 0	0
a		N		1111111	107	clay w/5/f and voy Fre Sand-  what board 7.5 /26/3), presim duse, shiftedly most plastic	0 0	6.0
My a o.	5	N		111111111111111111111111111111111111111	258	CZS7.5-3.1ty Clay = higher brann (7.5 YR 6/B), DWSC Dryto Shigherty mais & Low to medium plasmicity	0 0	6
MY	ne vicini consistent dun sia co	N		Millim	257	SAR @ 257.5'	000	0 0. 0
m	338	N	8	111111111111111111111111111111111111111	265		0 6	0 0
5M		7		11111111	<b>76</b> ]	(7-5 VRJ/3) Den x to morately durse -slightly mist	0 0	0 0
a		N		11111111	262	Lew se - Ling to Shighting Mar Of - Phostic - Looks on little	0 0	0 O
Additional	Comment	s:						
Recovery:	None [				Parti			
SAA = Sam	AND DESCRIPTION OF THE PERSON NAMED IN	A CONTRACTOR OF THE PARTY OF TH	with the second second		THE PARTY NAMED IN	Fld = feldspar , Y = Yes N = No		
						y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con. A = Angular, $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$	auctivity	-
K - Kound	Ap	pendix E	UA - 5	· will	-guiar	Page 456 of 793		

	-				SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	ACCRECATION OF THE PARTY OF THE	
Project			_						14/18	
Boring	Well	ID:		KHTB	-1	00	95		of	
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	W	<sup>/</sup> ell tails
U U & 38 SP		1 44 *	7 2 2		1814	MININI MANANTANINA	263 265	SAND whate (7.5 YRS/1) LOUSE/Slightly Mosst, pooling gradue Medium graved 90% Fire graned 40%		
St W	2.2	51.1	2 2 2		8	11111111111111111111111111111111111111	26.7-	Clay = 5 soun(7-5 YR5/3). Junse -, slightly mist,  Pastic ~ 10% VF sond si H  @ 267 - si Hysond - 6 rom (7,5 YR 5/3) - very fine grained ~ 10% clay - slightly plastic - slightly Most - Medium Just with clasts of Linese mired in (~ 30% Juse clasts of some material)		
SM			7 7 7			13111111111111111111111111111111111111	269	CAGO - Sand - brown (7.5/8.5/3) - Circ grand Signify, most, Loose ~ 10% pieces of sand day up to 1" Myed in - plastic pieces of sand day		
SC	nal Co	mmen	N ts:			Malley	271	Sand-(7.5 YRG/3) light & rown, Loos, Shylifty Moist poolly graded firegrained	0 6	
Recover	y: N	one					Parti	al Complete		
SAA = S	ame a	s Abov		)tz = quart				Fld = feldspar Y = Yes N = No		
Samples	V = 1	/OCs/J	EDB;	P=TPH;	M =	min	erolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivit	у
R = Rou	nded,	SR = S	ubro	unded, SA Idix D	= Su	ban	gular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Page 457 of 793	ness males are a	

Project Viet 1 DVV	SONIC COR	ING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF Boring/Well ID:		Project Number: 62735DM02.1017 Date: W/(Y/(X)	
BOTHING WELL ID.	-10652	Logged By: Law Andress Page 26 of	
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence	pre Run Povery Sus Sus Soil Description  il type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily sand (include grain size %; fine, medium, coarse, etc.)  and minerology gravel  avel minerology gularity/roundedness  fines (silt/clay)	'ell	
	Manage I	ke 276'	tails
SI 51.1 N	8 7772	7	
5W / N	5 mg 9 0	10-6 cam (7.5/2 5/3) 6000, shyldy mist, well of the F 80% M 70% + take gravel	
5h 1	224 C 23	13. 75 - Sand-light brown (7.5 YR G/3) Cool, Stightly	000
88 N	Sun	13. 75 - Sand - Light bran (75 VR 6/3) Lace Slightly of 15th grade of 15	0
SP ANN	8 236	75 No divisi Area)	· 0
BW N	Sandarise	2. Slightly mist, well graded 600 + race graves 600	0 0
9N N Pe 2.9 N Pe 278	238	Grz, I offines	0 0
SW	SA SA	NE 2761	0
HIN	e shy	19- Sand-light brain (7-34RGII)-Losso 0 why mist, powhy graded - very the grand 0	0
dditional Comments:	DA 1-4 PARK	1911	10
ecovery: None	z Fld = feld	Complete  dspar Y = Yes N = No	
= Rounded, SR = Subrounded, SA Appendix D	= Subangular, A = Ang	oiologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity gular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Page 458 of 793	

The local property of the local property of						SO	VIC	CC	ORING BORING/WELL CONSTRUCTION LOG	16/1	9
Soil Description  - soil type; Munsell color; density framely coarsplored; september 19 coarsplored; plasticity (primarily - % and finched grain size %; fine, medium, coarse, etc.)  - % and finched grain size %; fine, medium, coarse, etc.)  - % and minorology  - % gravel minorology  - % fines (sit/clay)  -		-							Project Number. 02755Dividate 1.	THE REAL PROPERTY.	2
Be a comparable of the compara		11	D:	KA	FBY	66	52		20880	-	
A Same as Above Que guartz Be blokets We most rangelysis of goodchirals UV = ultravolet; T = thermal conductivity	USCS Soil Type	eading (ppm)	erature (°C)	orescence	es collected	Run	ery	, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel		
A Same as Above Que guartz Be blokets We most rangelysis of goodchirals UV = ultravolet; T = thermal conductivity	S	OR	ube	P.	ldw	rel	C0V	pth		1	
SAA @ 281 < 36 N & C  SAA @ 282   SAA @ 282   SAA @ 282   SAA @ 282   SAA @ 383   SAA @ 282   SAA @ 383   SAA @ 38	ns	PII	Tel	3	Sal	ပိ	Re	ñ	% fines (silt/clay)	O L	etaus
SAA @ 281 < 36 N & C  SAA @ 282   SAA @ 282   SAA @ 282   SAA @ 282   SAA @ 383   SAA @ 282   SAA @ 383   SAA @ 38	su)			N		· · · · · · · · · · · · · · · · · · ·		281	Food Staum (4.5 4 K 5/3) Coose, Sugaray Most, poolly graded F80% M 15% C 5%  Fining downwords	0	0 0
SAA @ 282'  SAA @ 282'  SAA @ 282'  SAA @ 383'  SAA @	59			N			11/11/11	282		0	0 0
Additional Comments:    Complete   Partial   Complete   Partial   Complete   Partial	43		9.9	M			111111			0	
Additional Comments:    Secovery: None   Partial   Complete     AA = Same as Above   Qtz = quartz     Fild = feldspar   Y = Yes   N = No     Fild = feldspar   Y = Yes   Ye	58	CL MINITED IN		N		6	1111111	_ ov		000	0 0
Additional Comments:    Complete   Partial   Complete   N = No	 5P		Comment of A. )	N			1111111	- VC	5AA e 782'	6	0 0
Additional Comments:    Complete   Partial   Complete   Partial	se			N	andigandings of this nation name of the desired		1111111	il.		0	0 0
Additional Comments:    Complete   Partial   Complete			1			1	Willi		SAA @ 382'	0 0	0 0
Additional Comments:    Complete   Partial   Complete	R	-spinish jigi sebe		2			MIMI	2.81		0	000
Recovery: None Partial Complete  AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  AND SAME AS A SAME A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME A SAME A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME AS A SAME A SAME AS A SAME AS A SAME AS A SAME A SAME A SAME A SAME A SAME A SAME A SAME A SAME A SAME A SAME A SAME A SAME A SAME A SAME A	SP SP		56			4		288	A CONTRACTOR OF THE PARTY OF TH	000	6.0
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  AN = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No	Addi	O.C	Comm	ents:				ZK!		ľo	196
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  AN = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No											
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  N = No  N = No  N = No  N = No  N = No	Reco	very:	None					Par		-	
samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotecnnical; O v = untraviolet; 1 = the mar conductivity	CAA.	Carre	e as Ab	ove	Qtz = qui	rtz				onduc	tivity
	Samp	les: V	= VOC	s/EDI	3; P = TPI	1; M	= mi	nerol	ogy; B = Diologic; vv = moisture analysis; G = geotechnical; O v = dictariote; x = thermal		-

EA				SC	NI	C C	ORING BORING/	WELL C	ONSTR	UCTION LOG		
Project: Kir								Project Num	ber: 6273	5DM02.1017	Date: 11/1	5/18
Boring/Well	ID:		CAPB-	106	57			Logged By:	Lave	Indress/BB	Page 28	
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color % sand (include grain s sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	; density (pr ize %; fine, 1	Descrij marily con medium, c	arse)/consistency & plastic	ity (primarily	Well Details
48	362			7	IIIII	289	SAA @ 2821					
-	V			4	1	290			hi ni			0 0
48				1		29	SAA@ 282'		i A - State of a state		•	
			and the former size can be a size			292					1	
R						43	F. GRAFLS (4)	F109	S M.	85% C5%, T	PAGE	
6.3	199		Management of the same of the	6	111111111111111111111111111111111111111	gy	and the second s	A Committee of the Comm			e anni anni anni anni anni anni anni ann	
SP			,		111111111111111111111111111111111111111	95	SAA @282 F	30%	U 50%	C 20%		
				7	111111111111111111111111111111111111111	96		20 St. 10 Sept. 2000 (200 CONT) 100 A	estimati se sandifulity pia an	THE ENTERTON CO. CONTEST OF THE RESERVENCE CONTEST OF THE CONTEST		
R	7			1	2000	17	SAMO-BROWN, PORNOED, ASS IN SCE. F 109	(572 F-	(13) C C POU 180 C	OUSE, SCT. MODS MDED BANKLS 53	T-Mais 701"	
0.0	35.9			7	Miller	K		10 To 10 To	an and all the set of	to an entire total a section on money and in the section in the section in the section in the section of the se	0	0 0 0
dditional Co	mments	3:			-	4		•			- W	
AA = Same a		-	tz = quartz	-			d = feldspar Y	Complete = Yes		N = N <sub>0</sub>		
= Rounded.	SR = Su	brou	nded. SA =	= Sub	angi	ilar.	; B = Diologic; W = moistur	ne E = Fine	M = Mad	nnical; UV = ultraviolet; T =	= thermal cond	uctivity

The second second	A				SC	INC	CC	CORING BORING/WELL CONSTRUCTION LOG	
	ct: Kirti g/Well		FF					Project Number: 62735DM02 1017	9
borin	g/Well	D:		KAT	B-	100	,5	Logged By: Low Logged By: Page 29 of	)
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
587 5W		珍			1		299	SAA@ 296 SAND-BROWN (54848) (54843) 0 F53 M808 C58 NO GRAFUS, SUT. MOUST	
SW SW		Î			1		0/	SAA@298	0 0
				and the same		111111111111111111111111111111111111111	12	wose	0 0
\$	2	55	-	er same and same same	- S-	111111111111111111111111111111111111111	9	GRANELS-BRANN (5423/4). SLT. MOIST.  FINE TO LUARSE POUNDED TO SUBROUNDED  GRANELS TO 1.6 IN SIZE. F LSO IN 108 C3000  G 45%	
P				and the defendance of a	William I	371	5	SAA 300. STUT UENS 304.0-304.2 BIDD, SOFT O BROWN (STR SIS), MOIST, LOW PRASTICITY	
R	7		-	1		30	6	WEN GRACED SAMD W/F-CONCISE SUBANGULAZ O GRANFILS, QUARTZ AMD CETHOLS AMD FEDSPARS O SAMD-18070; F 20% M 40% C 40% O SUBANG-SUBTONDO SRAVEL-20% QUARTZ AMD LETHERS	
ddition	al Comm	nents:		6		30	40	SAND-180%; F 20% M 40% C 40% SUSANG-SUSTONDO SRAVEL-20% QUARTZ AND LITHICS	0
AA = Samples:	me as Al	oove Cs/EDE	; P = 7	quartz PH; M	= mi	nero	logy;	Complete  = feldspar Y = Yes N = No  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	y
Avuil	ucu, or	- Suut	ounae cendi	1, 5A -	ouda	ngut	ar, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Page 461 of 793	

Project	The state of the s	NAME OF THE OWNER OWNER	SC	NIC	CORING BORING/WELL CONSTRUCTION LOG	
	Kirtland Well ID:				Project Number: 62735DM02.1017 Date: 11/15	olia
ginig	WELL ID:	ICAFT	> 106	5>	Logged By: DC	of
USCS Soil Type	PID Reading (ppm) Temperature (°C)	UV fluorescence	Core Run	Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology	of
sw _	56.1			308	8 WER GRADET SAND, BRUN (5726/2), 958 FINE 58 COARSE TRACE PINE SUBANGULIEZ GRANEUS	Details
0	0.0		3	309	9 SAA @ 307 W/ DAGIL BOWN MOTTLENG	
	400			360		
Placed and top of southwe	3/3/2		6	3H 310	SAND 2003/60% F: 26% M: 40% C:40% GTZ, EXTHUS, P.S. GRAVEL 40% UPTO 2" INSTER SUBANG-SUBROUND, DRO LETHICS, FERROS	0 0 0
				313	POOPLY GRADED SAND, BROWN (57725/3) SLT. MOIST, F. GRADED, 65% FINE POWDED GRADES	0 0
	60.4			314		
			111111	315	SAA @ 3/2	
THE PARTY STATE STATES AND			Tilling	3H	6 8 0	0 0
ditional C	omments:	1	NA		0	6 0
annonai C	onunents:	The Lower Control				
		alest open				
covery: 1				Partial	Complete	
A = Same	as Above	Qtz = quart	z	Fld	d = feldspar V = Vec N = N	
Rounded	VOCs/ED	B; P = TPH;	M = mine	erology;	: B = biologic: W = moisture and built C	tivity
		ppendix D	Suban	guiar, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Page 462 of 793	

Project VS	4 122		SO	NIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kir Boring/Well					Project Number: 62735DM02.1017 Date: W/W5	118
Dornig wei	10:	KAGB	101	12)	Logged By: BR Page # 0	The second second second
USCS Soil Type PID Reading (ppm)	Temperature (°C)		Core Run	Recovery Denth & Lon	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel	Well
	1		1	131		Details
GW 2.1	5638				(STR 3/2), LOUSE, MOIST, GRAVELS: F-C SUBPONDED TO 2", LITHELS  SAND: F-10%, M. 20% C:70%  LOTE (STR 5/2)	
	11.00		111011	319	F.90% M:38 C:7% CITIELS 1	0 0
			111/11/11	320	SAA@ 318	0 0
			111111111111111111111111111111111111111	321	6	0 0
			111111	502	SAMO WINGANELS (REMINISTERS) SITM-R	0 0
	5650			533	SAMO W/GRAVELS / BROWN (5123/2), SUT. M-191, GRAVELS : 90%) SUBR. TO SA, TO 1" INSTRE OFZ, LITH SAMD: 60% FILTON M 20% C!65% QTZ, LITH.	0 0 0
	V		1100		0	0 0
50	3°C	16	MILLE	524	3AA @ 322	0 0 0
lditional Con	ments:		-			
				-		
covery: No	ne 📗			Parti	al Complete	
A = Same as	Above Q	tz = quartz		1	$Y = Yes \qquad N = N_0$	
mples: $V = V($	Cs/EDB;	P = TPH; M =	min	erolog	y; B = biologic; W = moisture analysis; G = geotechnical; $UV$ = ultraviolet; $T$ = thermal conductive	vity
- Rounded, SI	c = Subrot	ended, SA = S	uban	gular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Page 463 of 793	-

Desired.				SC	INC	C	CORING BORING/WELL CONSTRUCTION LOG	
Project:							Project Number: 62735DM02.1017 Date: 11/1	5/19
Boring/\	vell ID:		LAFB	106	27		Logged By: KS Page 35	of
USCS Soil Type	PID Reading (ppm)	UV Auorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well
T		T		10	111	26		Details
	56			-><		36	SAA @ 302	00000
						97		0 0
12.		+-				28	SAA @ 332	.00
					111111111111111111111111111111111111111			
				9	13	29		0 0
and arrange and an arrange and arrange arrange and arrange arrange arrange and arrange			The two the sales we	11111111	3	30	SAA@ 322	0 0
- Interest of the second of the				11100	3	R	5AND - BROWN (577373), SUT. MOIST, FGZ:90% M:5% (:5%	0 0
	1×						F62:90% M:5% (:5%), SIT. MOIST,	0 0
	68.9				55	1 4	AA@3>>	0 0 0
				11/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1	33	3	0	0 0 0
ditional (	Commen	ts:		10	1831		P	0 0 0
								<del></del>
covery:	AND RESIDENCE AN	e Qtz	:= quartz		Pa	rtial Fld	Complete = feldspar Y = Yes N = No	
nples: V =	VOCs/	EDB; P	= TPH; N	1 = mi	nerol ngul	ogv:	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	ectivity
	r de l'Asse	Appe	ndix D				Page 464 of 793	

					SC	NI(	C C	ORING BORING/WELL CONSTRUCTION LOG		
		land E		100.6				Project Number: 62735DM02.1017 Date:		
Borin	g/Well	ID:	14	HB 10	65	1	1	Logged By: SS Page Soil Description 33	of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Wel Deta	43.5
SP				) F		11/11/11	334	SAND WIGHNEL, LOOSE, BWN (542312) SOTM. TO MOIST, GRAVELS - 20% F-CTO 1.5", 52-12, 672, FLD, LETH	0 0	0
				eric a despete som e		111111	33h			000
58				-			334	SAA@ 334	0 0	0
	ist- productive change	68.98		Takkhadi Taka Sanagan kadi Say Say Sa					0 0	0
SP					161	11111111	537	SAND, LOOSE, BWN (5429/2), SUT. M, F:5000 M:2000 C3000	0 0	0
	73			C338		ullin	338	6AA @ 337	0 0	0
arajaga sah germajaysi	gerani ya makili antu-	V				Willing	331	501670	0 0	0
		1	00		1	Villi	30	SAA@337 W/INC. @F-C BRAVELS TOI", RSR, CITH, TR. WEAKLY INDURATED SANDS		0
		574		aper, organization and all complete			34(		0 0	0
					5	111111111111111111111111111111111111111	342	SAA@ 337 W/ DEC. GRAVEL TO 5%	0 0	0
Additio	onal Co	mmen	ts:							D
					_					
Recove	ery: N	Ione [	J				Parti	al Complete		
SAA =	Same a	s Abov		Qtz = quart				Fld = feldspar Y = Yes N = No		
								y; $B = biologic$ ; $W = moisture$ analysis; $G = geotechnical$ ; $UV = ultraviolet$ ; $T = thermal conditions of the condition$	uctivity	
110				ndix D			,	Page 465 of 793		

ojec	: Kirt	land B	FF		-	on the		ORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date: 11/	151	IA	-
ring	/Well	ID:	KAS	B 101	652	-		Logged By: BS Page St	of	0	
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)		We Deta	
-						MILL	zaru.	TO STATE TO STATE TO SEE THE TO S	0	0	0
P		67.8	C		51			SAA @ 33 SAMD WITH GRAVEL, LOOSE, BROWN (51/25/3), MOIST, GRAVEL: 25% F-L TO 1'1 SR-SA, O SAMD: 75% F: 30% M, 20%, C50% OTZ, FLD, CIT	120	CO	HC
P								SAA @ 344, DECREASING GRAVELS AT 345' TO 5-10%	0 0	0	6
2					3		346	SAA @ 345	0	0	
		V		Minima by Pour and Park	<b>Y</b>		347		000	0	
	4.7	4			1			5AA @ 345	0	000	. 0
		54-7	e			11/1/1/1	49		000	0	
							20	SAA@345	0	0	
		V		8	3	Con 111m	K(		0000	0 0 0	0
litio	nal Co	mment	s:		-						
and the latest latest	y: N		I				Partia				
		Above OCs/E		z = quart	Z		F	ld = feldspar Y = Yes N = No			

				SC	IN	CC	ORING BORING/WELL CONSTRUCTION LOG	-	1.0	and in State of
Project: Kir Boring/Wel			-13 1	A/ /				151	18	
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run		Depth, ft bgs	Logged By: Soil Description Soil Descrip		Wel Detai	300
58	54.7	رد	4		MILLE	352	SAA @ 345	0	0 0 0	0
R	341	e C				353	SAA @ 345	0	0	0
S.				31		<b>35</b> °	SAA@ 345	0	0	0
						395		D C	0	0
	1			6		356	SAA @ 345. GRAVELS INCREASE TO 40% W/SOME COBBLES (<3%).	0	6	0
count of allows to	45.3	20	, jyg ap-fin-to pill Sudinio d		MILLIN	367		6	0	0
3.3			an amin'ny mandrina dia pa		VIIII.	348	SAA @ 345, GRANELS TO 1"	0	0	0
and the price of the second and before				8	1111111	357		0 0	0	0
	45:3	oc				360	SAA @ 345. SOME FITABLE DECOMPOSING GRANTE CRAVELS TO 1"	0	0	0
Additional C		ts:				Parti	al Complete			
SAA = Same Samples: V =	as Abov	EDB: P	e = quar = TPH	M =	min	erolog	Fid = feldspar Y = Yes N = No  ty; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor	nduct	ivity	
R = Rounded	, SR =	ubrous	ded, SA	1 = S1	ıban	gular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	-		

				so	NIC	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Ki			7 16 7	-				15/18
Boring/Wel	IID:	CAC	B 106	53			Logged By: 13, 130UCFCH Page 36	of
USCS Soil Type PID Reading (ppm)	1	UV fluorescence	Samples collected	Core Run	1 1 1	Depth, st bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
5r	463	0	•		11		la de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	0 0 0
R				98	111111	362	SAA@ 345	0 0 0
				V		363		0 0 0
3				1		SU	SAA@345	
			,	6		us		0 0 0
98	1			1		344	SAA@345	6 0 0
	Fh.Fs	8				67		0 0 0
8.1				6		68	3AA 8395	
	V				111111111111111111111111111111111111111	69		0 0 0
Additional (	Comment	s:						<del>-</del>
				-				
Recovery:	None T	1		-	-	Parti	l Complete	
SAA = Same		0	tz = quart	z		<b>PRODUCED PRODUCE</b>	Ild = feldspar Y = Yes N = No	
Samples: V=	= VOCs/E	DB;	P = TPH;	M=	mine	rolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal c	onductivity
R = Rounde	d, SR =S	yhrey	nded SA	= Su	bang	ular,	A = Angular, VF = Very Fine F = Fine M = Medium, C = Coarse	

	<b>A</b>				so	NI	CC	ORING BORING/WELL CONSTRUCTION LOG		
Project			-	K 6973	1/6/	75			6/18	
Boring	/Well	ID:	K	AF13	06	5			of	-
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)		/ell tails
		1				1/6	320	SAMD, LOOSE, BROWN (542 3/3) SOT.M-M.	0	0 9
8		45	N	٠	1	1/2		SAMD, 1005E, BROWN (5472 3/3) SOT.M-M. 53 GRANELS F-L TOI" R-SR SAMD 953F, 73M, 32C	0	0
		74	7-		9	1/	371	and the second s	0	0
	-		N						0	0 0
-	- I - Sin alice	V			V	1/2			0	0 0
5P		1			1		37)	SAA@ 370	0	0 0
יל			N						0	0 0
		38.4	8		the same		373		0	0 0
R				akarangahami san pepus apad 644			374	5AA @ 370 TO 375! THOREASING GRANTELS TO 60% F-C TO 1.75" R-512, UITHICS,	0	0 0
			N	مهر جديد المعارض المعا		The state of the s		SAND: F: \$5% M 16% C:80%	0	0 0
GW			N		V		5 <i>1</i> -7		0	0 0
SW	nueros — paridone	1	N	en de la companya de la Companya de	Ā	111111	36	sand-Brown (4-5 YR 5/3)-Loox, well gradect. Shipping Most - Took M 30% C40% G#10% at 2 4 SAKSE TOOK M 30% C40% G#2, FW, lithing	D 0	0 0
0		P				11	3-17	C377'Sam W/different %'s:	0	0 0
Sil		70-1	N					P70% M 20% C 10%	0	0 0
SW	37.1		N			THE PROPERTY	3/8	54te 377	0	0 0
Additio	nal C	ommer	its:	(A) P	to	2	505	elet - No opor		
Recove	ry: 1	None		/	COV.	eli	Part	lel Complete		
SAA =	Same	as Abo	ve (	Otz = quar	z	8		$Fld = feldspar \qquad Y = Yes \qquad N = No$	nductivi	tv
Sample = Ro	s: V = unded	VOCs	EDB:	; P = TPH; unded SA	M = = S1	min ıbar	erolo igular	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor , A = Angular, VF = Very Fine , F = Fine , M = Medium, C = Coarse	.adult vi	

Description  Betting Personal Constitution of the personal of			S	ON	IC C	ORING BORING/WELL CONSTRUCTION LOG			
Soil Description  Soil Descrip		-	00 111		7			4/16	11
and the partial to th	oring/Well ID:	KA	-FB-la	50	7		of_		
10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	USCS Soil Type PID Reading (ppm)	UV fluorescence	Samples collected	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)			
30 34 C 3 F4.25  No 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	W	N			379		0	0	0
338  N 10	jul lu	N			380		0	0	0 0
	514	N		11111111	381	5AAC 379.25	0	0	0 0
	yo.	N	à	1111111	382		0	0	0
Sovery: None Partial Complete  Partial Complete  A = Same as Above Qtz = quartz  Fid = feldspar Y = Yes N = No/None	SW	N		11111111	343	= 5% M 40% C 45% G10/20pto 1.5" SAISE Q+2, Fld, lithies	0	0	0000
Sovery: None Partial Complete  Partial Complete  A = Same as Above Qtz = quartz  Fid = feldspar Y = Yes N = No/None	sw s	N		MINIMIN	384	0383.5 - 373.75-pirkoh gray (7.5 / 6/2) (605), 51 yhry must wiligrade) 6/0/ up to 1.5" 54/58 55% N25% C30% GYO/ up to 1.5" 6+2, 1 or hue? 283.75-544 @ 382' W/6 up to 1/2" only	0	0	0
ditional Comments:    Sovery: None		1		(CUM		3000 - 670m (7.5 9R 5/3)- Coose, Elighty Most,			///
ditional Comments:  Sovery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	W 25	MC	3	1111111	386				///
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	d d	N	V	111111111		34A @ 384' 54A @ 384'			///
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	ditional Comm	ents:			opini leninde				
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None									-
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	novement Man-			-	Dost	ol H Complete			_
	CONTRACTOR STATE	AND DESCRIPTION OF THE PERSON NAMED IN	tz = quartz					_	-
virginia				min			ductiv	ity	

	A				SC	NI	CC	CORING BORING/WELL CONSTRUCTION LOG			nave mette
THE RESERVE OF THE PERSON	t: Kirt	-	-					Project Number: 62735DM02.1017 Date: 11/	16/	18	
Borin	g/Well	ID:	- 10	AFB.	-100	5	2	Logged By: Land Analysis Page 39	of_		
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	1	Wel Deta	
GN.	1	1	1		1	11	387	SAAC384			
SW	T.0		2			11	38	Simply must well grated some black coloring on minerals (but 1 to 100 1/2 40/18 6/18 6/18	1	H	/
500			N					- % fines (silt/clay)  SAAC 384  C387-5-388-Smd w/g tarel brain (7.5 YRYR), lose, Sinham must, well gaded some black coloring on mineral (but 12 Nosd'or - E M C G up-10 12" 42" 42" 42" 42" 42" 42" 42" 42" 42" 4			
						1	389	) lothucs stilse		A	1
SIN			N				290			1	1
GN		100			7	11	Monte	Sand - 6 ram (7.8 4 P 5/3) Loose, slightly wast, will grader.  F 40% M 30% C 30% G + race of to 1"  The first of the state		H	
21		23.0	N		4	1	391	Fyolo M 30% C30% G + race of to obselve file			
en			N			11					1
			+			1	392	SAT @ 390'	-	H	1
50			N				412		1	1	1
an :	100		N	the half providing support for the purposessor.		1	12	(2393 - Sond-Grant 15 YR 5/3) - LOOSE, Shalfy,	1	H	1
	16.9	V			W		394	F75/M25% C5/6			
500		1	N		1	11		well graded - Clay watures - some color 450% of fatal	1	H	1
		515			9	1	95	F15% M20% C15% 40% up +03%	1		
SN			N			11/11	41	e 395.75-Sand-(7.5 / R.5/2) - Loose, She hoply has)			1
Additio	nal Co	mment	s:		I V	1	1 (0)	7-35% classe plastic Sp/SR-	1	1/	1
•		PW	5	nzeel		N	ÒÒ	DOR (75 VR' 5/4) &CW			Philipping and
Recove	rv. M	one	_	3			Pari	ial Complete			
SAA = S	Windows Co.	Arginton Service	(	)tz = quart	Z	-200307100		Fid = feldspar Y = Yes N = No/None			
								y; $B = biologic$ ; $W = moisture analysis$ ; $G = geotechnical$ ; $UV = ultraviolet$ ; $T = thermal conditions of the state $	ductiv	rity	
R = Rou	inded,	RAP	Dieno	dixid, SA	= Sul	ang	ular	A = Angular, VF = VPagen471 = of in931 = Medium, C = Coarse, G = Gravel			

Project: Kirtland BFF  Boring/Well ID:  Logged By:  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology % gravel gravel minerology % fines (silt/clay)  Well Details  AAA @ 395.75 with Clay AA @ 80%  Noduce 5
Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  SAA @ 395.75 with Clay AA @ 80% Noduce 5
soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology % gravel gravel minerology % fines (silt/clay)  Well Details  SAA @ 395.75 with Clay AA @ 80%  Noduce S
(1) 1 1 396 SAA @ 395.75 with Clay AA @ 80% Nodues
2347 - Cand (75 VR 5/2) / and slightly moist
SN Nell graded VF-40% F-20% M-20°C-10% G1-10% C9-12/14/14
Sin   Sat - Sand (7.5 YR 5/3) Loose, slightly moist   Well graded   VF-40% F-20% M-20°C-10% G1-10% Up to 1/2"   Sand of Clay No. 1265 - Brown (7.5 YR 5/3) Loose, slightly moist, well graded. Clay Nodules: Brown (7.5 YR 5/3) Loose, slightly moist, well graded. Clay Nodules: Brown (7.5 YR 5/3) Loose, slightly moist, well graded. Clay Nodules: Brown (7.5 YR 5/3) Loose, slightly moist, well graded. Clay Nodules: Brown (7.5 YR 5/3) Loose, slightly moist. Show (7.5 YR 5/3) Loose, slightly
SW 100 VI-10% M-20% C-10% G There up to 13 SA/SR quartz, Fld, lithic
398' N N N N N N N N N N N N N N N N N N N
SP Sond Brown (7.54R 54) Loose, slightly moist, poorly sold Fine grained 8 % Medium
SR Jalo Ni 17 gysy  Good Rowin (25) P 5/2) Longe State to Month well agreed
5W 38.41 N Sand Brown (7.5 /R 3/4) Loose, stightly moist, well grown (8.5
Additional Comments:  SA/SR Gtz, Fld  lithic
The state of the contract of t
Recovery: None Partial Complete
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None AA = A5 Above
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  R = Rounded, SR Apply neigles, SA = Subangular, A = Angular, VF = V py fixed, 72 - fring 31 = Medium, C = Coarse, G = Gravel

				SC	MI	CC	ORING BORING/WELL CONSTRUCTION LOG		
Project: Ki							Project Number: 62735DM02.1017 Date: \\ /(0	118	
Boring/We	ell ID: 5	2			,		Logged By: Cufts Landers Page 4/1	of	
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	We Deta	
	100	П		T	11	415	(e 105.5 - Sand w/clay Nedules, Redish Brown	77	1
Spa Su	49.6	N		KK	MIIII	406	Ce 105.5 - Sard W/Clay Nodules Redish Brown Slightly most, well graded (54R 4/4)  Gtz, Fld, lithic Dense, Low plasticity F- 35% M=25% C=45% G=0%		
SW		2				142	Sand brown (7.54R 4/3) Loose, Sighty morst, well graded ext, Fid, lithlie F-30% M-30% C-15% G=0%		
5W		N				408			
5W	Ver-	N			11111	109	Sand, light gray (7.5 412 9/1) Loose, slightly Moix/Dry, well graded  E-60% M-15% C-10% G-15%		
SW	133	N		10	1111111	107	Granite, lithic SA/SR UP to 1"		
5W 19.3	5	N				111	SAA @ 409'		
5W		N			11111	12	antishaw V 1.6/2		
5W		N			1111111	13	Sand browns (7.5 YR 8/3) Loose, slightly morst, well graded G-20% Gtz, FU, lithic M-20% C-10% SA/5R		
bill		N		March 1	11/10/11/1	114	Sand brown (7.54R 5/2)  Loose, slightly most, well graded G-15%  Otz, fld, lithic M-20% C-5% salse up to 11		1
dditional (	A PROPERTY OF STREET					and the last			-
	900	M	SUBPL	C	-1	0	022		
ecovery:	The state of the s	I	1			Part			
	e as Abov	0	z = quart	7		- 1	Fid = feldspar Y = Yes N = No/None		

				SC	IN	CC	ORING BORING/WELL CONSTRUCTION LOG			7
Project: Kin Boring/Wel		0		V	,	VA	Project Number: 62735DM02.1017 Date: \\	16/1	8	-
Doring/ wel	: עו וו		are 1	7	+	1	FB-10652 Logged By: Page V2	of		4
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well etails	
Sh	73.3	N		9		44	5000 - 6 pun (7.5 4 R. 5/2) wase, slightly mist, well graded - 15% C 5%			415.
SW	1	N		N.	Millen	Yila	Englably miss - well graded G-trace off 12 lathers			773.
511)		Ŋ				417	50nd-bran (7-5 125/3) loose, Slylithy Mast, will graled F60% M 25% C 10% G 5% up to /2 GTE fly			417
SN	43	N		3		418	ey17.5- sand brown (7.5 YR 5/2), Loose, Shightly most will gradio - F5% M30% Clook 9.5% up to 3/1 street one sand-brown (7.5 YR 5/3), Loose, shightly moust, will graded. F85% M10% (5% trace gravel up to 2/16" 84-144623 Clook 34-144623 Clook, plastic, 51644			
SW	*	N	0419 V19	<u>*</u>		426	CY18.75-Red Changelods up to 3"-curse, plastic, study 5A+++ 419.25-Celent Classin sand-80% Clay closs C. 419.725 Sand -(7.5 4R6/2) Lynt brang Louse, slightly noist-well grades up to 2" stys R T-10% M60% C25% G5% up to 2" grz fld			
5W		N	garance and a second a second and		121	Supply most, well g raded, slyly most, well g raded, charge to Z! SR charge to Z! SR charge to Z! SR charge to Z! SR charge to Z! SR	4			
59	23	N		4	Millill	<u> 22</u>	Foolly graded trace Noburn/coarse grang  SAME YZL'	1.		
5P		N				123	2	, , , , , , , , , , , , , , , , , , ,		
Additional C	ommen	is:								-
SAA = Same	VOCs/I	EDB		M=		erolog	ial Complete  Fid = feldspar Y = Yes N = No/None  gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con  A = A = replace VE = VP = replace A 70 = replace VE = VP = replace A 70 = replace VE = VP = replace A 70 = replace VE = VP = replace A 70 = replace VE = VP = replace A 70 = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = VP = replace VE = repla	ductivi	ity	

SONIC CORING BORING/WELL CONSTRUCTION LOG Project: Kirtland BFF Project: Kirtland BFF Project: Kirtland BFF Project: Number: 62735DM02.1017 Date: U[16/18]																			
THE RESERVE OF THE PERSON NAMED IN	and the same of the same of	-	FF					Project Number: 62735DM02.1017 Date: 1	-	118									
Boring/W	/ell ID	):		CAI	-3	1	06		of_		-								
USCS Soil Type	PID Keading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well Details									
SW	2	13	Ŋ		14	11/1/11/11/11/11/11/11/11/11/11/11/11/1	423 424	Sind Bran (7.5 4 P.5/3) Love, Sightly most will graded F35% MY0% Czo% G5% up+1/2 e+23.5% G72 fill spiss at 2 fill which			The state of the s								
SW		1	N				125	E425.3-5mb of grand-bram(7.5 yr 4/2)											
5W			2				426	e425.3-5and of grand-braun (7.5 yr 4/2) LOOSE, Blynty Moist, well graded  = 30% M 15% C 25% C 30% up to 1" A-SIR  GHZ fild lithurs - medium  Jense clots of Sand/gravel up to 2" w/ white claye  Fond-brountf.5 YR 4/3) Loose, Shyloty Mast, well		A STATE OF THE STA	A 4 4 10 10 4 4 4 6 6								
5h			7	• 1000 (400 (400 (400 (400 (400 (400 (400			127	Sand-brown (7.5424/3) Loose, Shylothy Monst, will graded, M 20% (30% GIBB up to 14 54/08 Pastrice) a wing red lay close ~ 20% - Durin plastrice for the grate flower of the grant of the gr											
44	1	No.	N				458	Sand brawn (7.5 42 5/3) Loose, Slightly moist,											
gw I			א	ersammushin errisbirsin	8		429	P 70% M 20% Clo%  E 429 - SAA of 428' - Sufferent %'S:			100 m								
SW	7		N		Contract of the Contract of th	111111	435	50% M206, C 10% 50% 5% Sand Source (7.5 YR 5/3) Loose, Slightly Miss			4								
SW =			N			11111	43/	FY0% MZ0% C 10% G 30% up to 2" @ 431' SAA @ 430 of G only up to 3/4"	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	\$	4								
Additiona	al Con	nmer	vits:				432	2			3 7								
					-				-										
Recovery	: No	ne	T		are a record		Par	tial Complete											
SAA = Sai	me as	Abov	e (	)tz = quar	tz			Fld = feldspar Y = Yes N = No/None											
Samples: 'R = Round	V = Vo	OCs/	EDB;	P = TPH;	M =	mi ıbaı	nerolo igular	AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Rounded, SR PSO/OLXded, SA = Subangular, A = Angular, VF = Page: AZ, 5 of FIGS M = Medium, C = Coarse, G = Gravel											

					SC	N	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Projec	_							Project Number: 62735DM02.1017 Date:	1/17/12
Boring	Well	ID:	C. P3	FB-	100	05	3	Logged By: Lane Andress Page YV	of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
1		1.	П		1	1	432	Grand w/15 and Jorano (1.5 YR 5/2) Coose, Signaly	
GW/			N			11111	433	GIST WINGING JORONAGES YR 5/2) COOSE, Stylety FL5% MZOGA C30% G55% up to 1.5"SAISR O434, 5000 4 Grand CAZ FILL I HIVES	
5W		42.4	N	210	4		Y3Y	Flo% M50% C 25% G 15% up to 1%"- SALSA Sond- 6 com (7.5 / 25/3) (13, 13this, 55 conglumina)	-
571		1	N				W21	F5% N50% C30% (-15% up to 34" SA/SR	
K	Private promitiva and the		N				17)	# 5% N50% C30% (765% up to 34 " SA/SR @435- sand from (7-5 4R 5/3) Loose, Sighty, Melst, passy graded Fire graned w/ trace (	
-	-	*	· grand	- September 1	K	1	7/7	5AA @ 435'	- 1
SP	n. parent		7			11/11/11	437		
SP		204	N			11/11/11	138	· · · · · · · · · · · · · · · · · · ·	
5W	5.0	12:5	لر	incompany to the second	9/6		434	Fre grand - + race medium grand	
兴			N				446		
WE	45%	المارة والمارة	M	6	5	MENNIN !	441	5000 of gavel-bran(7.5/25/2)-L,5CM, WG \$ 30% M 25% C 25% G20% up to 1.5" 54/52 at 2,1thes, Game, fld	
Addition	nal Cor	nmen	ts:				- P		
-			_	= 10	050	7	-	3LM = Slightly Moist - WG = well g rade	
Recover					4		Part		\$ . //
CONTRACTOR OF THE PARTY OF THE		the same of the sa	NAME AND ADDRESS OF TAXABLE PARTY.	tz = quar P = TPH:	STATE OF THE PERSON NAMED IN	min	Compression for the Parket	I'ld = feldspar $Y = Yes$ $N = No/None$ $Mod \in Mod$ $S$ $S$ $S$ $S$ $S$ $S$ $S$ $S$ $S$ $S$	Inctivity
								A = Angular, VF = VPaRim476-rifi70M = Medium, C = Coarse, G = Gravel	

	SONIC CORING BOR	RING/WELL CONSTRUCTION LOG	Detail 11/12/10
ect: Kirtland BFF		Project Number: 62/35DW102.1017	Page of
ng/Well ID: VAFG -	10652	Logged By: Art ress	rage V
PID Reading (ppm) Temperature ('C) UV fluorescence Samples collected	soil type; Mur % sand (inclu- % gravel gravel minero angularity/rou	ology undedness	Well Details
N 45.5 N	51 51 51 54 A-C	Gravel of Sand - bran (7.5 (2) M5% C 20% G 70% up to Gtz, littles of ld	govito =
N	11/43	bom(7.5485/3) 4,5%,	WG
W Jose W	6 448 sand W/ 5LM, W = 10°	bom(7.5425/3) L, 59, 6 M 20% C20% G30% o Or, FIJ, 107W (gravel-pinksug pay(7.54) 16 M 70% C30% C-40% Atz, FIJ 1	P to 2" SA/SE R 6/2), L P to 2" SA/ whises, Granery
5W N	1447		V 0 5 5 20
go O.F. L. N	Hug yyal Smoth	bran (7.5 18 5/3) - 4 51 M 15% C 10% G 5% C Rt 20% C 10% G 5% C	30% G 40%  M, wg  P + 1/2" SH/SP  Thus
Additional Comments:	7119		
Nama	Partial 🖽	Complete	
Recovery: None		N. N. Mana	
SAA = Same as Above Qtz	= quartz Fld = feldspa		

				SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	Im. hel	
Project: <b>Kir</b> Boring/Wel	NAME AND ADDRESS OF THE OWNER, WHEN PERSON	FF	VAF	0.	_ 1	11		0f	-
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Weli Details	
SW		7				450	e 451'- Sand (brown 75 125/2) L, SLM, WG		6 C C C C C C C C C C C C C C C C C C C
SW		N				452	e 451'- 5and (brown 75 125/2) L, SLM, WG = 50% M 40% C 10% shight H-C oder SAA @ 457 -		6 4 9 8 8
SW	12,2	þ				Y53	J		1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SW		N		6	STURBED	454	en 453.5 State 451 W/ Large gravel up to 142" of runded fine-med grand SS construct F 10% M 20% C 40% G 30% up to 1.5 " SA/SI Sond-6 run (7-5 42 5/3) L, SEM, WG		5
8W	ورړې	i d	· ***		ORE DI	455	E 85% N 10% C 5%		6 dd
SW	1	2		X	011	476	5. 1 (50m #5 425/3) L, SLM, WG		***
500		2	App. Secret. Secretario	2	MILLINE	457	5md - 5com (7.5 Y 25/3) L, SLM, WG F-60% M 30% C 10% G ~5% UP + 1" Cethes &		3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
SW	X.	N		N. A. A. A. A. A. A. A. A. A. A. A. A. A.		YIX	posture clay Nodules 19 to posture pluste clay Nodules 19 to posture pluste 1" SA/12  Petroleum H-C odor  Sund-Drann(7.5 Ye 5/3) L, 5LM, WG  F78/ M 20% C 10% Some Nodum  Juse -0005 Signing  -0005 Signing		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SW	613	N		8	Mallilli	VZ	F70/ M 20% C 10% some moderne -0205 asserts	7,7	
Additional	Comme	nts:		+	1-1	CE	refolen tydreban		
Recovery:	None	ve	Otz = quar	tz			rtial Complete  Fld = feldspar Y = Yes N = No/None		
Camples W	- VOC	/FDF	P = TPH	M=	mi uba	nerole ngula	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor, A = Angular, VF = Pagei47& of M98 M = Medium, C = Coarse, G = Gravel	nductivity	

	3				SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG		
Project	The same of the sa	-	FF						117/1	8
Boring	Well I	D:		KAPP	> -	Loc	,5:		of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	W Det	ell ails
R	22.9		2			Kullelle	459	gradel-Finegrines + race gravel  P to 1/2" SR		
98	V-20-20-44T		7				<b>Y61</b>	5A4@ 459'		
58	ور در در در در در در در در در در در در در		7				Say	dense areas		
58		(1.3	N		2	11111111	<b>463</b>	SAA e usa'		
4			N			mille	464			
25			2			Willell	465	54A @ 459'		
59		V	N		7	Millin	466			
48		The state of the s			1		467	SHK C459'		3 30 3
G	-16	31.9cm			6	Milli	468		3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3
Additio	onal Co	omme	nis:		-			1		
					****					
Recove	OUR PROPERTY OF THE PARTY OF TH	1000					Par			
SAA =	Same a	s Abo	ve	Qtz = quar	Z Z		lane!	Fld = feldspar Y = Yes N = No/None  gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nductivi	ty
Sample R = Ro	s: V =	SRAL	ALDI ALBI	S; P = 1PH;	- SI	mii ubar	gula	gy; B = blologic; W = moisture analysis; G = geotechnical, G V and Artiste, T and		

rojec	t: Kirt	land B	KK					Project Number: 62735DM02.1017 Date:	113	-/18	2
COLUMN TWO IS NOT	Well	and the last of th	-	KATA.	10	6	57	Logged By: Long Andress Page 40	-	-	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		W	ell tails
		1				1	168	Sand-brown (7.5 YR5/3) L, 5LM, WG	a 3	F	000
W		26.0	N	+		11111	49	Sand-Drawn (7.5 YR5/3) L, 5LM, WG + M C G up to 2" SHSR Olar Lither One Ad	2000		1
l	31.7	< 26.0 ×	N		2		470	DNSe- of Low Plasticity ~ 5% clay models	000 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
10					6	MILLEN	V7/	5md-4 roun(7-5 YR 5/3) L, SLM, WG- F-968 M3% C2% G- up to A- 95% M3% C2% G- up to A- 95% SA/5R GAZFIL Herburg	30 30 30 30 30 30 30 30 30 30 30 30 30 3		
		539.3				WILLE	171	oder (	27		7 00 7 30
1	(	不完		B,M V,P, e 474	イン	HILLIA	17= V22	F95% M5% C5% C5%			2 2 2 2 E
		100		V	Ť	Miller	(7.2) (174)	Sud-Gran (7.5 YR5/2) L, SLM, WG, Very Frigrand	1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1		10 10 10 10 10 10 10 10 10 10 10 10 10 1
The state of the s	20.2	12/2/20/2019				MILLINA	117	C 474' SARC 473' fingsand	31 32 3		2 7 3 0
	7100	130			6	111111111111111111111111111111111111111	471	Sond of gravel - (7-5 YR 4/2) L, SLM, WG - Plob M 10% C 90% G, UP & 1.5" SA/SE Hob Lithres grand			2 2 20
						Mulle	4724 472		, 4		00 00 00
tio	nal Co	mmen	ts:				-/-				
					-	-	-				

Project: Kirtland BFF  Drilling Company:  Lead Driller:  Drilling Method:  Casing Diameter OD:  Drilling Diameter OD:  Drilling Diameter OD:  Drilling Diameter OD:  Drilling Method:  Casing Diameter OD:  Drilling Method:  Drilli	
Completion Time/Date:  Lead Driller:  Drilling Method:  Casing Diameter OD:  Completion Time/Date:  Final Depth:  Bit Type and Outer Diameter  Page of	
Lead Driller: Completion Time Date:  Drilling Method: Final Depth:  Casing Diameter OD: Bit Type and Outer Diameter  Page of	
Casing Diameter OD:  Bit Type and Outer Diameter  Page of	
Cashig Diameter OD:	
Powing Well ID: V ACS 10652 Logged By: Log Access Pages of	
Boring/Well ID: LAFS 10652   Logged By: Logged By: Soil Description 49	
Beaging S S S S S S S S S S S S S S S S S S S	Well Details
SW 21 5AA at 4751 -020 1978 @ 4781 - sand - brown (7.5 (R. 5/3)-L, 5M NG-1 NG-1 N 15% C 10% G 5% OF 172"54/5R	
GN 362 3 N From M 10% C 20% G 70% From M 10% C 20% G 70%	
SW Smd (7.5 425/2) L, SLM, WG -  To MISC CSO G + FORCE Start More clariforces:  NO 182 80% SM 50 10 10 10 10 10 10 10 10 10 10 10 10 10	
SW 1 1 10/ M 75° C 15% G US to 1" 54/5R 10% M 75° C 15% G US to 1"	
GUI 1802 N 1884 FTOI, M3N C 50% GLOS - 8-50 1" SAISE C 184 SANE SUFFERENT %'S: LANE	
AN DIN +70% M10% C 1% & 10% upt 2/2"	
SASLB+2 Fld leths	
Additional Comments: SASLG+2 Fld lefts	
Complete	
Recovery: None Partial Complete N=No	
Partial H Complete	luctivity

		_		_		F	BORING/WELL CONSTRUCTION LOG
Project: Kirtle	and BI	FF					Project Number: 62735DM02.1017
Drilling Comp							Start Time/Date: Date 1/12/18
Lead Driller:							Completion Time/Date:
Drilling Meth	od:						Final Depth:
Casing Diame	ter OD						Bit Type and Outer Diameter
Boring/Well I			チラー	10	65	2	Logged By: Lan Andress Page of
							Soil Description 50
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected			Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel
Soil	L'at	ore	Sa	E	ir.	=	gravel minerology
S	ube	=	du	e I	Recovery	oth,	angularity/roundedness Well
OIA	Len	3	San	Core Run	Rec	Del	% fines (silt/clay) Details
SW	1	-			11/11	raz	5 and 5 ram (7.5 425/3) Ly Wet well garled =
700	10	N			11	486	Hand of Grand Seat and Line Hills
1	2				1		e486 - 5000 Gavel (+.5 4 2 3/3) Wet, L, Wg
all		1			1		E5 M15% (78) (7(8) VI + 1 >100 E1
7	V	N		1	1	487	10/0 an Ald lang E
	1				1		of Migor class (+.54 k.4/2) -L, wet, Wg
Si	1	P		10	11	WA W	ISAM 25/6 C 40% G 30% up to 1/2 54/54   =
	54	-	and the district of the first of the	1	1	704	- State with the state of the s
	37	1			1		
SN	1/	1		L	1	449	
portunities for an Aporture desiriors.	*		489-	本	1/2	1.07	
1		1	491		1		
4W 1471		N	sent		1	490	
	26.9		to 642		1		
CIN	1	N	الماطعا		1		36
2	V		of or	4		49/	
	1		49/-				
9	29.0	N	495	10	1		
ノ	1	8	sent	-1-1	1/2	492	
			Tro.		1		
CW	1	1	NA	1	1	1	
U	W	9			1	149	
Additional C	omme	nts:					
	•	_					
Recovery:							rtial Complete  Fld = feldspar Y = Yes N = No
SAA = Same			Qtz = quar	3.5			Fig. 1. biologic: W = moisture analysis: G = geotechnical; UV = ultraviolet; T = thermal conductivity
Samples: V =	L SR =	Sub	rounded, SA	IVI	- m	ngula	ar, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = gravel

						В	ORING/WELL CONSTRUCTION LOG	
oject: Kirtla	and BF	F					Project Number: 62735DM02.1017	
rilling Comp							Start Time/Date:	
ead Driller:							Completion Time/Date:	
rilling Meth	od.						Final Depth:	
asing Diame							Bit Type and Outer Diameter	
oring/Well I	D: 1/	. A .	FB-L	01	2	2	Logged By: Land Andress Page 1 0	
J. III S II CII I		-			1	T	Soil Description 5/	
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	Well Details
3826	251	٠. لر	495 N C98 N			494	5000 of gravel -5 rave (7.5 /2 4/3) 4 wet, well graved -5 rave (7.5 /2 4/3) 4 wet, well graved -5 rave (7.5 /2 4/3) 4 wet, and graved -	
w l	Y	٨.	for exts		mille	495		
SW	50	N			Mulle	496	544 C 493' moor clay coating grant  C496 544 Inferent %'s:	
EW_	10	N	40)	10	11111111	497	e496 5AA Inferent %'s: = 10% M 20% (60% G 10% up to 1" clays" (1) ws 1612, 5H/SR GAZ e497 - Sand - 4 form 7 5 420 very desk gay	
5W ·	218	N			11/11/11	498	(7.5423/1) 4 Wet, well golded 3/4 SASE + 5% M 15% C 60% G 20% UP to Ste lothings	
500	1	N	6,499	8	111111	499	Flok M80% C 10% face gravel up toke	
SW	25	N		4	Willing.	500	Well g rated median dense 9/1 47	
5w	24.4		*		1111111	30	7	
Additional (	Comme	nts:		-	100 =	, ,	101 . 1101 - 1192 = mold not 1192-1196	
	12.1			4	Z	26	191 + 491-49,5 3ampled 1001 715-715	
Recovery:	None	Г	1		-	Pa	rtial H Complete	
			Otz = qua	ety			Fid = feldspar $Y = Yes$ $N = No$ logy; $B = biologic$ ; $W = moisture analysis$ ; $G = geotechnical$ ; $UV = ultraviolet$ ; $T = thermal coulogy; W = Vory Fine, E = Fine, M = Medium, C = Coarse, G = gravel$	
	a ac Ah	ave	IIIX = 000					

Start Time/Date:   Date:						BORING/WELL CONSTRUCTION LOG
Hing Company:   Sign   Immediate:   Completion Time Date:	ject: Kirtla	nd BFF				Project Number: 62735DM02.1017
Additional Comments:    Complete   Immodale						
Hinto Method:    Sint Type and Outer Diameter   Logged By:   And	ad Driller:					
Sing Dismeter OD:    Sing Dismeter OD:   Single Sin		od:				Final Depth:
Soil Description  Soil Descrip	sing Diamet	er OD:				
and interdogy and interdog and interdogy and	ring/Well II	D: KAP	B-10	65	2	Logged By.
Additional Comments:  Sand J/ Clay (306) 5 (200, (7.5) (2.5/2), 5 Note of the state					Pres.	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness  Well Details
Sup - Sold Cay Glob of the state of the stat	W.	24.4			111111111111111111111111111111111111111	
30   130.1   110	2W	328 1			William S	3 F 20% No clay C20% G 10% up to 144.  T-20% M 50% C 20% G 10% up to 144.
Percovery: None Partial H Complete	30.1	1000	, , , , , , , , , , , , , , , , , , ,		Mill William	Walgrades  11 F5% MYS% CUS% G 10% entrumies  11 SAA C SOY' Jufferent 8's:  11 SAA C SOY' Jufferent 8's:
Percovery: None Partial H Complete	50	* 1	5			5md - Love g cay (4.5 y R y/1) Medun dwee wet, well g radio 3% C7 up 10 73 F 40% M 10% C3% C7 up 10 73 34/58 Qtz fld
Percovery: None Partial H Complete	SW =	N.X.P	90 030 V, P	F	Mendill	Sand - Lovegray (7.5 YR 4/1) med in duse, wet, well graded - Silty sand Clumps - 1/1/1 wet, well graded - Silty sand Clumps - 1/1/2 to to clay
Perovery: None	Additional (	Comments:				Whis
Perovery: None						75/40
	Dagovany	None [				I di titi
C. A Nome of a povr LILE - quality		TYONG	04	artz		

	8.						E	ORING/WELL CONSTRUCTION LOG	
		and BF	F					Project Number: 62735DM02.1017	
	Comp							Start Time/Date:	
	iller:							Completion Time/Date:	
	Meth	od:						Final Depth:	
		ter OD	:					Bit Type and Outer Diameter  Logged By: Page 1	of
	Well I	D: \	A	FB-1	01	65	2	Logged by.	01
1		В	3					Soil Description 53	
	=							- soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily	
.	ude	0	9	ted			- 1	- % sand (include grain size %; fine, medium, coarse, etc.)	
5	) B	) e	enc	Jec			50	- sand minerology	
oses son rabe	din	3	ose.	col	=	2	t be	- % gravel	
2	lea	erz	fluorescence	les	Ru	ver	h, f	gravel minerology	Well
3	PID Reading (ppm)	Temperature (°C)	5	Samples collected	Core Run	Recovery	Depth, ft bgs	- angularity/roundedness	Details
3	Ы	Te	3	Sa	Q		-	- % fines (silt/clay)	VVV
1			,	10	1	1/1	509	SAAR 508' cm, cobble - SR-I when up to	MM
11		2110	//	111	119	11		3"	KMM
N		44.0	N	A AL	90	1/1			XX
			0	C 510	1	11	CIF		XXX
	-	Y.	NORTH BEAT		1	The	215	TD = 510 ft bgo.	
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						1			IFIL
- 1								2" dissolat 46/1 Steen	LEII
								MOMER CO.	
	-1 W-10/21 4 5 1-10/21/21			**				3" diameter well screen— Sch. 80 0.010" slot	1
								all I and a wall	
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								SUMP ZH WITH S	
aa 30-03 000 -				Anti-Carmentella Consequent	-			3"diameter well  Sump 2 ff with 3"  Solid flat end cap	
								Filter Pack:  10/20 Pioneer  Silica Sand	1 1 11 1
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Appell metroset)					and the same			Bentonite Seal: Halliburton 3/8" HOLE PLUG	1 1 11
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								Cement: Native Soil/Slough	
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ddi	tional	Comm	ents:				-		
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		e as Ab		Qtz = qu	arty			Fld = feldspar Y = Yes IV - No  logy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal	

Details  O'-8' Poerly graded sand — brown, Hace fine gravel  slightly moist  8  Silf with sand — strong brown (75 1/2 5/6) sett, dry  Silf 90% nonplastic; sand 10%: VF = 20% F = 60%  M=20% sh-5P (otz, feeld, lithic)  SAAR @ 10' yellowish red (59R 4/6)	EA						BORING/WELL CONSTRUCTION LOG
ad Driller  Mark Green / Forest Chaffin  Completion Time Date: 16-12 11-24-76  Final Depth:  Sing Diameter OD: 1134" + 72/5"  Bit Type and Outer Diameter 101/2" Ken Claw 81/2 mill both 1/10  Nate B-10653  Soil Description  Soil Operation				10			
Tilling Method:  ARCH  Final Depth  Final De					1E	m. +	10 10 10
Sing Diameter OD. 1134 + 725 8 Bit Type and Outer Diameter 101/2" Ken Claw 31/2 milt both 47/0 logged By: Dichock Messenger Page 1 of Soil Description  Soil Description  - soil type, Munsell color, density (primarily coarse) consistency & plasticity (primarily sand (include grain size %; fine, medium, coarse, etc.)  - soil and include grain size %; fine, medium, coarse, etc.)  - soil and include grain size %; fine, medium, coarse, etc.)  - soil and include grain size %; fine, medium, coarse, etc.)  - soil and include grain size %; fine, medium, coarse, etc.)  - soil and include grain size %; fine, medium, coarse, etc.)  - soil and include grain size %; fine, medium, coarse, etc.)  - sand include grain s			Mar	N Gleen	110	16257	
Compared ID:   KAFB-10653   Logged By:   Joshu: Messewyer   Page 1 of Soil Description					951	811	
Soil Description  - soil type, Munsell color, density (primarily coarse) consistency & plasticity (primarily sand finctude grain size %; fine, medium, coarse, etc.)  - soil type, Munsell color, density (primarily coarse) consistency & plasticity (primarily sand minerology  - san							Logged Ry: Tally's Markage Page 1
- soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily coarse)/coarse, etc.)  - soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily coarse)/coarse, etc.)  - soil type; Munsell color, density (primarily coarse)/coarse, etc.)  - soil type; Munsell color, density (primarily coarse)/coarse, etc.)  - soil type; Munsell color, density (primarily coarse)/coarse, etc.)  - sand minerology  - sgravel  - gravel  -				711 9 11	0.3		Soil Description
Slightly moist		Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
10   Silf with sand - strong brown (7.5 4/2 5/6) soft; dry silt 90% nonplastic; sand 10% v = 20% F = 60%   M = 20% sh - 5P. (at , feed, lithic)     5/AA @ 10' yellowish sed (59/2 4/6)     5/AA @ 15'   SAA @ 15'!	\$ 1 P					re e	0'-8' Poorly graded sand - brown, trace fine gravel + + + + + + + + + + + + + + + + + + +
10   Silf with sand - strong brown (754R 5/6) soft, dry   51H 90% nonplastic; sand 10% vF = 20% F = 60%   M = 20% 5h - 5R (otr, feed, lithic)     5AA @ 10' yellow: L. Fed (54R 4/6)     6B.0   P 20   SAA @ 15'	HOROKA			n: 10 10 2015	5		
Siff with sand = strong brown (15 9 8 5/6) soft, dry   Silt 90% nonplastic; sand 10% vr = 20% r = 60%   M = 20% sh - SR (are, feed, lithics)   SAAR @ 10' yellowish sed (58 R 4/6)     8.0   P   20 SAAR@ 15'	4				8		
5AA @ 10' yellowid red (58R 4/6)  38.0  P  20  SAA @ 15'	5.5	e wee a			10		Silf with sand — strong brown (754R 5/6) soft, dry 5ilt 90% nonplastic; sand 10%: VF = 20% F = 60% M=20% sh-sr (otz, feed, lithics)
		Service Service			15		5AA @ 10' yellowish red (58R 4/6)
25 Sitty sand with trace garrel - strang brown (7542 5/6) loose, moist - sand 80%: F=30% M=40% C=30% 5A-5F (G+2, feld, lithics) - trace gravel up to 3/8"	1) 8.0			<b>D</b>	20	n og g	SAA@ 151
25   sitty sand with trace garrel - strong brown (751/2 5/6)   loose, moist - sand 80% F = 30% M = 40% C = 30%   SA-5F (C+2, feld, lithics) - trace gravel up to 3/8"		eje jantaron					
(414, 10this) Silt doin numplestic	w)				25	mink()	sitty sand with trace garrel - strong brown (7542 5/6)  loose, moist - sound 80%: F=30% M=40% C=30%  SA-5P (Q+2, feld, lithics) - trace gravel up to 3/8"  (Q+2, lithics) silt 20% ramplestic
130					30	$\perp$	<u> </u>
itional Comments:	ditional Co	mments	3:				
222 Complete					F	artial	Complete
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No							Fld = feldspar   Y = Yes   N = No
ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity				TPH; M = r	ninero		

Details  Start @ 30'   Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start glown (1542 44)   Start granded Seed of Start granded Seed		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Soil Description  soil type, Munsell color, density (primarily conserve) consistency & plasticity (primarily conserve)  sand (include grain size % fine, medium, course, etc.)  sand minerology  sand minerology  sand minerology  and minerology  and minerology  and minerology  and minerology  sand minerology  well  Details  5th 90% non-flasht; sand 10% vt - 50% f - 50% f - 50%  shr 90% non-flasht; sand 10% f - 40% f - 50% M - 10%  that a conserve sand  note: contains nadules of pad organic contains sand  note: contains nadules of pad organic contains sand  note: contains nadules of pad organic contains sand  note: contains nadules of pad organic contains sand  sand minerology  shr 40% fight yellow sh brown (10% 94) soft of the 940  sond got yellow ship of the yellow sh brown (10% 94)  sond got yellow ship of the yellow sh brown (10% 94)  sond got yellow ship of the yellow ship of	oject: Kirtland BFF	10163		
1	ing/Well ID: KAFB	-10653		of
1.4   50   Sitty sand   13ht yellowish liven (10th 94) soft day   sitt 90% annilashi: sand 10%: vf: 50% f: 50%   soft day   shi 90% annilashi: sand 10%: vf: 50% f: 50%   soft day   shi 90%   13ht bievn (7.5 th 64)   sand 20% vf: 46% f: 50%   soft day   shi 60%   vf: 46% f: 50%   soft day   shi 60%	PID Reading (ppm) Temperature ('C) UV fluorescence	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	
35   SAA @ 30'   13ht biewn (2,5 ! P. 6/4)   Mend 20 to VF = 46% F = 50 % M = 10 %     Mace   Coarse   grained   Sand     Note: Contains, nodales   the ped ogenie   contains     SAA @ 35'   Celdish   Gizwa (5 ! P. 5/4)   no canbonate     SAA @ 35'   Celdish   Gizwa (5 ! P. 5/4)   no canbonate     SAA @ 35'   Celdish   Gizwa (5 ! P. 5/2)     SAA @ 35'   Celdish   Gizwa (5 ! P. 50% M = 10%     SAA @ 45'   Sand   Jith gravel   Light   Light   Light     SAA @ 45'   Sand   Jith gravel   Light   Light   Light     SAA @ 45'   Sand   Light   Light   Light   Light     SAA @ 55'   Light   Light   Light   Light   Light   Light     SAA @ 55'   Light   Light   Light   Light   Light   Light   Light     SAA @ 55'   Light   Light   Light   Light   Light   Light   Light   Light     SAA @ 55'   Light			61 14 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Details
3.1	4.0	35	PRINCE OF STANDARD COLORS OF STANDARD CONTRACT C	
3.1			trace course grained sand	1
3.1   SAA & 40' light yellow.ish brown (10 if 44)  50   SAA & 45'    51ty sand with gravel — light yellow.ish brown (10 if 44)  50   SAA & 45'    51ty sand with gravel — light yellow.ish brown (10 if 44)  50   SAA & 45'    50   SAA & 45'    51ty sand with gravel — light yellow.ish brown (10 if 44)  1005e, dig — sand 60% if 30% M-40% C=30%  5A SA (exceld liftis); with 35% nonplashin; gravel 15% in the pression of 15% in			note: contains nodules of pedogenic contonate	
SAA & 45'   Sand with gravel — light yellowish brown (10'12 5/4)   SAA & 45'   Sand with gravel — light yellowish brown (10'12 5/4)   SAA & 45'   Sand with gravel — light yellowish brown (10'12 5/4)   SAA & 45'   Sand & 60'   E = 30' & 10'   SA' & 60'   SA	) 2.1	170	SAA (d) 35' reddish Grown (542 5/4) no carbonate	
SAA & 45'   Sand with gravel — light yellowish brown (10'12 5/4)   SAA & 45'   Sand with gravel — light yellowish brown (10'12 5/4)   SAA & 45'   Sand with gravel — light yellowish brown (10'12 5/4)   SAA & 45'   Sand & 60'   E = 30' & 10'   SA' & 60'   SA			remove subsections and according to the according to the state of the	
SAFT & 45   Silty sand with gravel — light yellowish brown (10th 44)   3   3   3   3   3   3   3   3   3		45	SAA (2 40' light yellow. In brown (10 il 6/4)  sand 20% VF = 40% F = 50% M=10%  Male Course sand	000
Silty sand with gravel — light yellowish brown (10th 4/4)   3   1005e, dry — sand 60% = E = 30% M - 40% C = 30%   5A-5A (&tr. Feld, lithius); silt 25% nonplastic; gravel 15%   3   3   4   55% nonplastic; gravel 15%   3   3   4   55% gravel observed in hoffer up to 1.5"   well graded sound with gravel — brown (7547 5/4) loose 0   Moist — sand 85% F = 15% M = 50% C = 35% 54-54 0 (&tr. Feld, lithius) — gravel 15% up to 3/8" (&tr. tithius) = 3   3   3   3   3   3   3   3   3   3	) 1.4	- 50	SAA @ 45"	000
Silty sand with gravel — light yellowish brown (10th 4/4)   3   1005e, dry — sand 60% = E = 30% M - 40% C = 30%   5A-5A (&tr. Feld, lithius); silt 25% nonplastic; gravel 15%   3   3   4   55% nonplastic; gravel 15%   3   3   4   55% gravel observed in hoffer up to 1.5"   well graded sound with gravel — brown (7547 5/4) loose 0   Moist — sand 85% F = 15% M = 50% C = 35% 54-54 0 (&tr. Feld, lithius) — gravel 15% up to 3/8" (&tr. tithius) = 3   3   3   3   3   3   3   3   3   3			ar interspecies. The enteres will be some a substantial and a factor of the solid in the substantial content of the solid in the solid interest of the sol	0 0
Silty sand with gravel — light yellowish brown (10th 44)   00   1005e, dry — sand 60%; F = 30% M=40% C=30%   5A-5K (Atz feld, lithius); silt 35% nonplashic; gravel 15%   0   0   2" (Qtz + lithius)   0   0   0   0   0   0   0   0   0				0 0
2.8		<b></b>  55	loose, dry - sand 60%: F= 30% M=40% C= 30%	
2.8			up to 12 (012 + lithics)	0 0 0
itional Comments:  Divery: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No	2.8	- 60	Well graded sand with grave = brown (7.542 5/4) loose,	0 0 0
itional Comments:  Divery: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No		a	Moist - Sand 85% F= 15% M= 50% C= 35% SA-5A	0 6
overy: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No	and the second second	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	[w. o. 15 (1) [ 10 (2) ] [ well (2 6 4 10 1) (012 + 11 1025)	0 0 5
overy: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No	litional Comments:	65		
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No	antonai Comments.			
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No				
	covery: None	Parti	al Complete	
place V = VOCa/FDD, D = TDU, M = mineralogue D = biologics W = majeture analysis C = gootschrigely IIV = ultraviolety T = the majeture				
Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse			; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	activity

roject	: Kirtl	and B	FF	S		_	Project Number: 62735DM02.1017 Date:		
	/Well I		. 1	-	5	5	Logged By: ). Me 556961 Page 3	of	
oring	/ weii i	D.				ر	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily	01	
USCS Soil Type	PID Reading (ppm)	Femperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	% sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	We	ell
5	PI	Te	5	Sa		Re	% fines (silt/clay)	Deta	ils
11)	9 - 3 X - 30 X	3) = *		196   135 196   135 197	8.5	19. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14	silt with sand - reddish yellow (7.5 YR 6/6) soft, Moist silt 85% nonplastic; sand 15%: VF=40% F=50% M=10% SA-SA (Qtc, feld, lithics)	000	
学	4.5	yl (1)		1 1	70		669 dill chatter silty sand with gravel - reddish brown (548 9/4) loase, moist sund 80%: F=406 M=40% C=202 SA-SR (Atz, feld,	3 6	
25							lithius); silt 10% nonplastic; gravel 10% up to 3/8" (Ote + 1.4hics)	000	,
W)				is the same will	75	4 4 1414- 44	well graded sand w/gravel - reddish Grawn (548 5/4) /0058, moist - sand 60% + F= 10% M= 50% C=40% 50-58 (atz, fell, lithius); gravel 40% up to 1/2" (atz-lithius)	0 0	7
	**************************************			100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			(atz, fell, lithius); gravel 40% up to 1/2" (otz-lithius)	0	,
P	5,9		Letter 1	en a na en sa	80	400 00 <b>-</b>	poorly graded sand W/Wace gravel - light yellowish brown (10 YR 6/4) loose, dry - sand \$100%: F=15% M=85% SA-SR (Qtz, 618, 11thics) - trace travel to 3/8" (Qtz, hithies)	0	9
		policina di s					(atz, feld, lithius) - trace travel to 3/8" (Otz. hithics)  sand has trace course grained in it	0	,
M)		Section (4.2)	on or i	1,100,000	85		silty sand - light brown (7.5 YR 94) loose, dry - sand 60% VF = 30% F= 60% M=10% sar-sa (atrified, lithics); silt	0 0	,
							40% ponplastic	0	2
119	1.4			encent that to	90	en e	5.11 with clay, sand, and face gravel - reddish blown (542 5/4) 50ft, moist - 5ilt 75% peopleshie; clay 15% slightly	00	
56 E		ую ж)	Mar. 1 (111)	man - yer		-	plastic exist as nadules, sand 106 - VF = 306 F=50% M=10% C=10% sr-st (oto fell lithics); gavel up to	00	,
NL)					95		1/2" (lithics)  5:1f with sand and trace gravel—light yellowish brown  (10 YR 44) 50th, moist—5:1t 65% conplustic; sand 35%  VF=15% F=30% M=40% C=15% 5A-5R (Qtr, Eld,  1ithics); gravel up to 42" (lithics)	6 000	2
dditi	onal C	ommer	nts:		100	10-11-0	lithics); gravel up to 42" (lithics)	0	2
			-17.						
							. 970		
ecov	ery: 1	None				Parti	al Complete		

				S	ONI	CC	ORING BORING/WELL CONSTRUCTION LOG			
	t: Kirt		FF		2		Project Number: 62735DM02.1017 Date:			
Boring	/Well	D:		0	2		Logged By: J. Messerge Page 4	of_		
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	1	Well Details	
SPI	5,9				100		Doorly graded sand with sit - light walladish brown (1648 64)	0	0	D
5P/ 5M					105	- , .	Poorly graded sand with silt - light yellowish Grown (1088 44) loose, moist - sand 90% F 60% M=40% SA-SR (ata fell, lithics); silt 10% monplastic	0000		000000
3P)	or i					e e ce	5AA @ 100 sand 95% silt 5%	00	4	60
ML)	5.0				110	10 10 10 10 10 10 10 10 10 10 10 10 10 1	silt with trace sand - brown (7.5 YR 5/4) soft, moist	0	0	000
				)		4:3 (** 6* (**)**	5ilt with trace sand — brown (7.542 5/4) soft, woist 5ilt 95% nonprastic; sand 5%: VF=65% F=20% M=15% 5A-SR (Qtr., feid, lithics)	0	0	0000
my					115		SM @ 1101	0 000	Ó	00000
ML)	5.6				120		SAA @ U51	5 6 5	0	000
M.	() (**** *** *** *** *** *** *** *** ***				125	· · · · · · · · · · · · · · · · · · ·	CM D al als I - I VA 3/	000	6	000
							SAA (2 1201 Strong Grown (7.58h 3/6)	000	0	000
ML	4.5	100 mg mg mg mg mg mg mg mg mg mg mg mg mg		and the second	130		SAA @ 125 gilf 90% sand 10% trace gravel up to 1" (ithics)	0000	0	000
	grad di Language din pro-	(00144) A	6.0 (0.0) 6.0 (0.0) 6.0 (0.0)			ajajaj	trace gravel up to 1" (14hics)	000	0	0
A d d i + :	onal C	mmer	ter		135			0		0
Additi	onal C	mmer	us:							_
Recov	ery: 1	Vone				Parti	al Complete			
_	Same			Qtz = quart			Fld = feldspar $Y = Yes$ $N = No$			
-							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular VF = Very Fine E = Fine M = Medium C = Coarse	uctivit	у	

	0			S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG			
	t: Kirtl		FF	-	3	2	Project Number: 62735DM02.1017 Date:	-		
Boring	/Well I	D:			2-	2	Logged By: ), Messenger Page 5	of_		_
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	D	Well Detail	30 U
601					135		parcha acaded send with trosa sitt mad acaded - pola house	0	0	0
(E)	6.0		. 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10		- /40		goorly graded sand with trace sitt and gravel — pale brown (1048 43) loose, dry — sand & 100%: F= 25% M=75% trace coarse grave sa-sp (atz, feld, lithics); silt trace, non phostic glavel trace up to 3/8" (lithics)  Silt with trace sand and gravel — strong brown (7.548 46)  Soft, moist — silt ≈ 100% norplastic; sand F=95% M=5% (atz, feld, lithics) sa-sp; gravel up to 3/8" (lithics)	000000000000000000000000000000000000000	0000000	0000000
~					2/10			0	0	6
(RL)	- 4412   1 T	10 - 100000 14 14 15 15 4			145		SAA@140' strong brown (7.5 YR 9/6); no trace gravel	00000	0	0000
7	tour sur to	340000000		400-201111111	- 150			60	9	0
ML)	5.6	14730 (+) (1)					SAA C 1451	000	0	60 000
		**** **** ****	entranter on	and transition as some to the			and many in the first of the first of the second of the se	0	0	0
MZ)		( )	Accessor	r de demonster Personal de demos	- 155		SAA @ 150°	000000000000000000000000000000000000000	0	0000
-		10.00			160			0	8	0
SW)	10.2			P		- 1 - 1	Well graded sand with gravel - yellowish Grown (104 & 5/4) loose most - sand 90% F 50% M=30% C=20% SA-SE (R+z, feld, lithics); gravel 10% up to 42" (Q+z, lithics)	000000	0 0 0	0000
			-	-	- 165		CAA A II A COLL IAND SO OCITAL	00		é
SW					1 David (		SAA@ 160' sand 100%; no grave!	0000	0	0
(-		Partition of	re-progression	Search St.	170		The state of the s	0	6	4
Additi	ional C	ommer	ats:		- 70			-	-	-
Recov		None		0		Part				
	Same			Qtz = quar P = TPH: M		erolog	Fld = feldspar $Y = Yes$ $N = No$ gy; $B = biologic$ ; $W = moisture$ analysis; $G = geotechnical$ ; $UV = ultraviolet$ ; $T = thermal$ cond	ductivi	itv	_
							A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse			

Project	: Kirtl	and R	FF	S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG    Project Number: 62735DM02.1017   Date:	
-	/Well I			5.	2		Logged By: J. Messerger Page 6	of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	ery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology	
		Тетр	UV flu	Sampl	Depth	Recovery	angularity/roundedness % fines (silt/clay)	Wel Detai
53 M	8.3				175		well graded sand with silt and trace gravel -tight on yellowish brown (1048-5/4); sand 90%: F: 50% M=35% C=15% sa-se (Gtz, feld, lithics, caliche); silt 10% noriphastic	00000
						4 (2 (3) (2 4)4 (3) (2 4)4 (3) (4 4) (4 (4)	poorly gooded sand with silt - yellowish Crown (1088 5/4) losse, moist - Sand 95% & = 40% M=60% SA-58 (Qt2, feld, lithics, caliche); silt 5% nonplastic	0 0 0
(E)	8.0	CONTRACTOR OF			180		well graded sand - light yellowish brown (10 PP 6/4) loose moist - sand 100 %: F= 15% M=60% C=25% SA-SP (Otz, feld, lithius, calide)	000
2000	)				105		footly graded sand without silt-yellowish brown (1048-94) loose, moist - sand \$90%: F= 70% M=30% SA-SR (Qtz, feld, lithius, caliche); silt 10% nonplastic	000
P)	8.2				190		SAA@ 185' sand 100%; no silt	0 0
	1 = 1 H m= - 1 H = 1 + 1				195		poorly guided sand with sit - brown (7.54P 5/4) loose, moist sand 95% VF=15% F= 70% M=15% SA-SR (Qx2, feld, lithics); silt 5% nouplastic	0 0 0 0
(N)	5,6	ester s	and de-	W-1-11-11	200	1 - 1m 1 - 1m 1	SAA@ 195' sand 90%, silt 10%	00000
dditi	onal Co	mmer	ıts:		205			0 0
lecov	ery: N	Vone				Parti	al Complete	
	Same a			Qtz = quart	_	volos	Fld = feldspar Y = Yes N = No  Y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	wasteds.

E				S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirt			FB - 10	/ 5	2	Project Number: 62735DM02.1017 Date: //-	4-18
Boring	z/Well	ID;	4.1	17B-10	65	2	Logged By: ), Wessenge Page to Fof	
ySCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SP					205		Poorly graded sand - yellowish brown (10:12 54) love, Po	0 0
		0 ( 18 1 (18 12 1			210	(	(atz, feld, lithics, formices)	0
58)	)6,0	(0000000000000000000000000000000000000					SAA @ 205 sand with trace sitt:  SAND: F = 80% M= 20%	000
A					215			00
Sin		1000,000 					well graded sand w/ trace silt - yellowish Grown (1078 5/4) 0 1005e, moist - SAND ≈100%: F= 20% M= 6525 7020 C=102 SA-SP (Oxz, feld, lithics)	0 0
					120			0 00
(2M)	7.9	2888 3 810 -			200		S'ANA @ ZIS' - dark yellowish Grown (10 YR 4/4)	3 0
· 0				or women repet			2 2	0 0
5W				*()+(++(*)-(+)(**(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*)*(*	225	er ( in)	The state of the s	3 00
5M			**************************************			2 1	Well graded sand with gravel and silt - dash yellowish 6 rown (104R 3/4) loose, moist - sand 60%; F= 15% M=60% C=15% SH-SR-(Otz, fill, lithics); gravel 30% of to 144" (Qtz, lithics); silt 10% nonplashic	0 0
SW	8.3				230			0
						ii ii jesa	well gooded gard with trace gravel and sitt - dorth yellowing brown (1048 4/4) louse, moist - sand > 95%: F=15% M = 70% C=15% SA-SR (otr, feld, lithics); gravel up to 3/8" (1thics); sitt nonplastic	0 0
SW SM	)		a. (1)	William Control	235	- 1- 1	well graded sand with filt - dark yellowish Grown (1044 ) 100%, moist - sand 90%: F=20% M=60% C=20% of SA-SA- (Qxx, feld, 1. thics); silt 10% nonplastic	0 0
18	68 W 70	14, 44, 44 P			240	a va j	@ 237 dr. 11 chatter - gravel observed up to 14" 0	0 0
Additi	onal Co	ommen	its:			_	· · · · · · · · · · · · · · · · · · ·	
Recov		None		0		Parti		
	Same a			Qtz = quartz = TPH: M =		rology	Fld = feldspar Y = Yes N = No y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductiv	ity
							A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	пу

E				S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirt		FF	02			Project Number: 62735DM02.1017 Date:	
Boring	/Well	ID:		00			Logged By: ). Messergel Page 8	of
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description  soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SM	8.4			P	240		film cond - wellowish form (1042 5/4) last march	0 0
10-142 sc	e di				245		silty sand - yellowish Grown (1048-54) losse, moist Sand 85% F = 30% M - 45% C = 25% SA-SR (atz, feld, lithics, caliche); silt 15% nonplastic  NO CUTTINGS PETURNED	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
- 50 4					A.m		es a 1300 m s dan mai ma sanct e la lle la 111 m mindrata. A s septimbra manda a caracter a se deserva e e s s	0
(SM)	4.8				250	error	silty sand with trace giavel - yellowish brown (1048 54) 1005e, moist - Sand 80%: VF=10% F=50% M=25% C-15% SA-SR (Qtz, feld, lithics); silt 20% nonplastic - trace gravel up to 3/4" (lithics+Qtz)	0 0
100		_			255	» ··	and act 1 and 1 24 km at 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
5r)	3.8				260		FOOTING graded sond with trace silf - yellowish Grown (10 YR 5/4) losse, weist - sand > 95%: VF = 10% F = 10% M = 80% trace coarse grained sand - 5A-512 (Otz. feld, lithics);  Clayer sand with trace gravel - brown (7.5 YR 4/3) Loose, soft, moist - sand 65%: VF = 30% F = 30%	0 0
		* 30 11					Clayer sand with frace gravel — brown (7.5 YR 4/3) loose, soft, moist — sand 65%: VF=30% F=30% M=30% C=10% 54-5p (Orc., Gld, 1.7 Lics); clay 35% Soft, slightly plastic; trace gravel up to 1" (1.1 Lics)	0
5W)					263	300 00 00 00 00 00 00 00 00 00 00 00 00	5and with clay and frace gravel - yellowish brown (104R 5/4) loose, moist - 5and 90% F=15% M=60% C=25% 5A-5R (Q+z, feld, caliche); clay 10% nonplass for trace gravel up to 1/2" (lithics)	
3°	4,0		i : : : : : : : : : : : : : : : : : : :	4-10-11-1	270		SAA @ 260'	0 0
		ec-194		ander com				0 0
1 111					275			0 0
Additi	onal Co	ommer	its:		- 17			
	Same a			Qtz = quart		Parti	Fld = feldspar $Y = Yes$ $N = No$	
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine . F = Fine. M = Medium. C = Coarse	uctivity

				S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirt		FF				Project Number: 62735DM02.1017 Date:	
Boring	/Well	ID:			_		Logged By: Page 4	of
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
CLI					2.75		Clay with trace sound - 5 cown (7.542 5/4) medium	0 0
	er se	ra e					Clay with trace sand - brown (7.582 5/4) medium dense, medium still slightly plastic trace sand VF = 80% F = 30% (Otz, Feld)	0 6 0 - U
CL	3.5				280		SAA @ 275'	0 0
							a SCHOOL CONTROL OF STREET STREET OF THE CONTROL OF THE CONTROL OF	
) -se	4 4 1144							0
ALIP	-				285	-	1 4 1 - 1 - 1 - 125 VR VI VI	0
(M)		Carevet	**************************************	pl (444,74)* 24.4		1978 (1981)	silt with trace sand - brown (7.54R 4/4) soft, Moist, nonplastic - trace sand: VF = 60% F= 30% M=10% SH-SIZ (OFZ, feld)	6 0
(11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ec or to		er determin	Track of trades - 14 July	4. 4.95%		1. 20% 11 = 10 % SIE-31= (QF2, Tela)	0 0
Various de	on and	># mu( n		4,407,000,000	er de sym		The state of the s	
ML	3.4				290		SAA@ 285' sift with clay and track sand	0 0
9,21 C 3	***** ***	(encease :	e accellera			pare tan	SAA@ J85' silt with clay and track sand	0
1111 (	TARRESTON O	elit met e te		e a sui resumbre e		i de la constantina	ne pometricità de la termina como como como constituida de la como de la como como como como como como como com	0 1 9
MU				+1 * 0" 474	295		SAR@ 2901	0 0
11-15	190 - 194 - 19 194 - 196		entina			200 - 200 200 - 200 200 - 200	@297 drill chatter	0 0
	5.5				300			0 0
50°	)						well graded sand with clay - brown (1042-513) (0050, dry - sand 90% &= 25% M= 60% C=15% 5A-52 (atz, feld, lithics); clay 10% slightly plastic soft -exists as nodules	
(3P)				-	305		and with sit and there she - wallowed I am MOND this	0
5M 5M	F		- 12-5 - 12-12-12 - 12-12-12-12-12-12-12-12-12-12-12-12-12-1				Sand with silt and Horse clay - yellowish brown (OYR 5/4) logse, proist - sand 90% F = 60% M = 40% 5A-5R (Otr, feld, lithics); silt 10% nonplastic - trace clay exists as nodules - slightly plastic, soft	
Additi	onal Co	ommen	its:			إليط		
Addit	onai Ci	OHIHICH						
Penn	orn 1	None				Parti	al Complete	
SAA =	Same a	None as Abov	re	Qtz = quartz	Z	Partia	Complete	
Sampl	es: V =	VOCs/	EDB; P	= TPH; M =	mine		; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	uctivity
R = R	nunded.	SR = S	ubrour	ded. SA = Su	ihangi	ular. A	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	

E				S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirtl		FF		-		Project Number: 62735DM02.1017 Date:	
Boring	/Well l	D:		5	2		The state of the s	of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SW)	15.7		-1		210		112 / acaded Sound with a rovel - nellowish Grown (108R	
5N)					3JS		Well graded Sand with gravel - yellowish Grown (104R 5/4) - Sand 90%: F=10% M=60% C=30% SA-SR (atz, feld, lithics); gravel 10% up to 78" (Qtz +[ithics)  SAA @ 310' Sand with gravel Sand: F= 25% M=60% C=15% gravel 10% up to 1/2"	
(	e de decriron	urranama l	om sees i	The Salling State	20		The state of the s	
(5W)	)5,0				320	ionen-	well graded sand with gravel - yellowish brown (109 R 5/4) loose, moist - sand 90% F= 30% M= 40% C=30% SA-SR (Qtz feld, lithics); gravel 10% of to 42" (Qtz+ lithius)	
GW	)				325		(2 323 duill chatter  well graded gravel with said - yellowish Grown (1012  5/4) loose moist - gravel 65% up to 1" (ata-lithics)  ; sand 35% & F = 15% M = 60% C = 25% SA-SR  (ata fald, lithics)	
51)	4,7			1.1	330		5AA @ 320' gand 75h gravel 25% pale 610Wn (104R 6/3) — dry	
							@ 333 dill chates	
(33)	4040 V				335		SAA @ 3301	
6w)	3,6	**************************************			340		well graded gravel with sand - brown (10th 4/3) lose, moist - gravel 70 % up to 1" (42+lithics) Sand 30h: F=10% M=60% (=30% SA-SR (4+z) feld,	
	<del></del>	-consider	1919(	THE STATE OF THE S	- 11		lithics)	
Additi	onal Co	mmen	ts:		345	-		
	ery: N		e	Qtz = quartz	L	Partia	al Complete Fid = feldspar Y = Yes N = No	
Sampl	es: V = '	VOCs/I	EDB; P	= TPH; M =	mine		; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	etivity
K = Rc	ounded.	SK = S	upround	1eq. SA = St	ipangi	Har. A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	

				S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirt		FF	6	20		Project Number: 62735DM02.1017 Date:	
Boring	/Well	D:			2			of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5W					345		well would and with arrest - willowith how a livel	Details
710					20		Well graded sand with gravel - gellowish brown (10 TR 5/4) loose, moist - sand 90%: F=15% M=70%  C=15% SA-SR (atz, feld, lithics); gravel 10% up to 1/2" (atz, lithics)	
5W)	5.8				350		SAA @ 345' sand 65% gravel 35% up to	
	-010110-30	un denn an	1440	1111			media in the second of the sec	
~		ėra (si reies	11156-	Aires senson			Constitution of the second of	
(SW)					355		Wall graded sand with three gravel — yellowish brown (10 4R 5/4) 10058, moist - 5 and > 95%: F= 40% M = 50% C= 10% 58-58 (0+z, feld, lithius); gravel 45% up to 1.5" (1thius)	
Ser	)6.9			P	360		poorly graded sand with silt and frace gravel - light yellowish brown (104R 614) - loose, muist - sand 90%; VF: 40% F: 55% M=5% FA-58 (Atz, feld, lithics) Silt 10% nonplastic - trace gravel to 1" (lithics)	
50) 51)	)				365		well graded sand with silt and gravel - dark yellowish Grown (104R 414) loose, moist - sand 80%: F: 35% M=50% C=15% sarsh (atz, fold, 1. thics); silt 10% nonplastic; gravel 10% up to 144" (1. thics + Qtz)	
58°)	6.5		1 ( 11) 1 ( 11)		370	50 S	SAA @ 360'	
				konstranska.	345		511 Call Call 4 call 1 ch - 1 4 4 1 - 51	
GM)	-1	1 (n) (n+ n) (n) (n) (n) (n) (n) (n) (n) (n) (n)				,	well graded gravel with sand and silt - dayk yellowish brown (10 TR 9/4) loose, moist - gravel 60 to up to 1" (Qtz + lithics); sand 30%; F= 20% M= 20% C= 60% SA-SK (Qru feld, lithics); silt 10% nonplastic	
Additio	onal Co	mmen	its:		35			
Recove	ery. N	Vone				Porti.	al Complete	
Recove	Same a	_	re	Qtz = quart	z	Parti	al Complete Fld = feldspar Y = Yes N = No	
						rology	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduc	ctivity
							A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	-

E				S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirtl		FF	~	2		Project Number: 62735DM02.1017 Date:	
Boring	/Well	D:			2	>		of
VSCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
5W	6.0				380		Alell As Is I cook the screet - 1 / 54 / 6544 (1870 5/4)	Details
	1000 H 40	1 - 46 -162 -0 3		1	201	oran o	Well graded sand with gravel - yellowish Grown (108R 5/4) losse, moist - sand 752 : F = 30% M = 30% C = 40% SA-SR (Qtz, feld, lithius); gravel 25% up to 1" (Qtz + lithius)	
3P)	6 cor ( ) () () () () () () () () () () () ()	e de la como			385		foorly graded sand - pale brown (1042 6/3) loose, dry sand 108% = F= 15% M= 85% trace coarse grained sand - st-sic (at 2, feld, lithics)	
(SW)	6.4		10.51 100.14		390		Well graded sand with gravel - yellowish Grown (101f-5/4) loose, moist - sand 90%: F=25% M=60% C=15% SA-SR (Qtz, feld, lithics); gravel 10% up to 1/2" (Qtz+ lithics)	
(SW)				en issue v	395	194 - 194 - 1944 - 1944 2044 - 1944	SMA @ 390 1	
(Q)	2.3				400		DINGLY Global Cond with mayol - wallowish house (wit 5/4)	
	W.14						poorly graded sand with gravel - yellowish Grown (1088-5/4) loose, moist - sand 90% + 65% M=35% trace Coarse grained sand SA-SR (aty feld, lithics); gravel 10% up to 1.5" (Qtz+1ithics)	
	a site) a		( 2 4 A) 44		405		-ARCH rig 7D=408 & bgs	
	F 6 8 - 1 Y	000 1404 008 040		24 14 (4) (4) (4)	410			-
* * (*)	esse es	entions.	01/4/ 10	** (1) * ( a = 1 * ) * 1	en (min		es service encourage encourage of the contract	
1		e oper	or pat pro-	CHILDRY CONTRACT			er for from the common market for the state of the state of the common o	
			1 5.14074		415		The second state of the second	
Additi	onal Co	mmen	ts:		114			
Recov		lone				Partia	222	
	Same a			Qtz = quartz		ual	Fld = feldspar Y = Yes N = No	
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condi A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	ictivity

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	t: Kirt			A 14				Delicitati 1 Companyano doda	8-18
Boring	Well	ID:	-4+	B-10	00	5:	2		f 25
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	1,7	个			个	1	400	sand-brown (7.5 YR 5/3), LISLMY WG -	VIV
W W			<b>N</b>			allelle	યુલ	50nd-brown (7.5 YR 5/3), L, SLM, WG - F75% M 15% C 5% G 5% up to 1/2" 5HSR-Q+2, 14hues, Ald Line Stone e401.5- Sand, 6rown (7.5 YR 5/3) L, SLM, WG	
SW			N.			mi	Yoz	F6%M 15% CZ0% No gravel	
54Y 5P			N			nill		F90% M/0% CHACL 0+2, Fld	
SW	nd yrgapathic haids			ng tinung may may may may may may may		non	403	E403'-Sand (light Draw (7.5426/3) 4, SLM. F55% M 25% C 20% G +race up + 1/2 Q+2, fld, laptines	
		1	/v  -			11111	404	Q+2, fld, lothes	
SW		1	<b>N</b>	tae tha het mille gan systemhae	9	HIIII	<b>Y</b> 65	Tolo M 10% C 10% G frace-SR VF 60% of to 10% Gtz	
SW			N			collect	46		
ng rad offices on		1000 1000	N	Company of the second		MIMILI	401	Sand-light brown (7-54R9/3)45LM+0DM, WG1-96 M2% C10%.	
a			N	a meet on se despe		Millell	(bol)	CYOF. 75 - LENSI OF CLAY W SOND - tight from (7-54/2 1/3) Densi, SIMtodry, Will graded - Low to median plasticity - + CLAY 160/2	
	agrang alleren est	<b>V</b>	N			Muller	409	Sand-half gray 17-5 y R 6/3) - L, Dry to 5LM well graded = 80gm 10% C 10% - weakly another eyos. 5-5AA W/ NO Cementation convit-fizzes w/ HC/	
Additio	onal Co	mmen	ts:						
	Same a			z = quart	z			Fld = feldspar   Y = Yes   N = No	5
								gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu , A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	ictivity

	1				SON	II	CC	ORING BORING/WELL CONSTRUCTION LOG		District Comments	7
Projec								Project Number: 62735DM02.1017 Date:	-19-1	8	
Boring	g/Well	ID:	LAF	8-166	53			Logged By: Page 14	of 2	5	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	V	Vell etails	
SW	6.4	1	N			Mulle	409	F 60 M 70% C 60% G - + + 1 No grave 1 e /00 m 20% C 60% G - + + 1 No grave 1 e /00 m down down a w/ a mentadom	11111	1111	
5W		3	7			Man Man	411	-% fines (silt/clay)  Sand - bran (7-5 (R5/2)-L, Dy & SLM, WG e 400  F 60 N 30% C 60% G - p to 1 No gravel e 400  Increasing densety to L + median dure of a transform  - breaks apon of throws - does not fizz of HC 1 & up to 5  Early of a rel, brann (7.5 42 5/2), L - Dry to SLM  WG F 10% M 30% C 40% (20% p to 3/2-54/5R  WHI g moded -  F 10% M 30% C 50% G 10% up to  M 5% is weakly to modifiedly Lover M Clay woodles up to 2 1/2  Sand - 5 mm (7-5 1/25/3) what Ly Dryto SLM wG  F 10% M 20% C 50% (20% p to 1/2 5A/SR  Qt 2 fld 1 Hhres	11111		
5W		<b>70 10 10</b>	7			11/11/11/11/11/11/11/11	۲۱۲	Why moded - F 10% M 30% C 50% G 10% up to M. M 5% K weakly to moderately Lower Clay woodies up to 2"	11111		
9W	12 11d 1987am.	600	72		7		413	F10% M20% C50% C20% pto 1/2" SA/SR Q+2 fld lithues	111		41.
FC SC	San: 342	V. Majjara wa ka	7			Milling	4/4	duse-9LM, WG - sclay ~ 80% - 20% is sand * g avel as above 412' - Live,			
cı	Andrew Control	Zakota teknologia (1820)	Ŋ	to the manufact and a second		Mille	415	ccay (boun 7.5 42 5/3)-very dose, moist,	7		4
a sw		V	4	and the street	111111111111111111111111111111111111111	11/11/11	416	e415.5'-sond-brown (7-5 425/3)-LISLMING F30% MO% CBOOK trace gravel up to 1/2" 5A cothes NO Recovery - Not caught in bag - fell in hopper			
NP.			h	,	1	aversy	417	No Recovery - Not caught in bage - fell in hopper			
No.		N	N		7	NO REC	418		111111		
Additio	onal Co	ommen	its:				the state of the s	NR= NO Recovery			
Recove	ery: N	-		tz = quart	SLI	M	= 5 Part	al Complete  Fld = feldspar Y = Yes N = No			
Sample	s: V =	VOCs/	EDB;	P = TPH;	M = n		erolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nductivi	ity	
								A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse		-	

					SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG			
Project:				0 14	, ,	*		Project Number: 62735DM02.1017 Date:	19	-19	3
Boring/	Well	D: N	1	FB-166	95	3			of	25	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		W. Det	ell tails
		1	F	-	T	1	418	sand-bran (7-5425/2)-L, SLM, WG	, 3	-	
SW			2	_		KIIIIIIIIIII	419	50/ MYO% C30% Glof up to 1" SA/SR E 50/ MYO% C30% Glof up to 1" SA/SR ext fld lithes ext fld lithes ext fld lithes ext fld lithes ext fld lithes ext fld lithes ext fld lithes			
1	:.7		•			111	24-4	165% 100 Jan 100 100 100 100 100 100 100 100 100 10			
SW		-78/c	N		7	Milling	420 . Yel	5AAeyiq'			
SP SW			2			MII III III	Ya	e421-421.5-5md w/silt-entry gray (7.5 426/2) Lista poorly graded-very fine ground e421.5-5md -pinkesh gray (7.5426/2) -LISTA e421.5-5md -pinkesh gray (7.5			
SM		V	N		7	11111111111	423	Silty sand-pintushgray (7-542 9/2)-Light poorty graded-VFG		1 1 1 1 1	
58		10->	N	c424 V1P		MIIII	YSY	Sand - pinkula gray (7.54e 6/2) - LiSLM, poorly graded  Very fine graned - trace C & M  grans			
SP 2	0.4	K-19.	N			1111111	Yes				
5l/ 5W		.8° >	2		6	11/1/1/1	426	Sand-light brain (7-5 4R6/3), LISLM poorly graded  VF- 90% F-5% M-5% C-tree			
5P/ SW		12	2		0	WI WIN	YZ			1111	
Addition	nal Co	mmen	ts:								
									_		
Recover	ry: N	lone				_	Par	tial Complete	_		
SAA = Si	ame as	s Abov	-	Qtz = quart				Fld = feldspar   Y = Yes   N = No/None			
								gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con A = Angular, $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$ , $G = Grayel$	duc	tivit	у

Determined ID: (APP)   66 5 3    Logged By: Low Andres   Date:   1-9-1     Logged By: Low Andres   Date:   D	Project: Kirtland	SON	VIC CORING BORING/WELL CONSTRUCTION LOG	
Soil Description   Soil Descri	NAME AND ADDRESS OF THE OWNER, WHEN PERSON NAMED IN	Name and Address of the Owner, when the Owner, which		-19-18
soil type; Mansell color, density (orimanity coanse) coansistency & plasticity  "s soil (finished grain size %; fine, medium, coarse, etc.)  "s soil (finishe grain size %; fine, medium, coarse, etc.)  "s soil (finishe grain size %; fine, medium,	Boring wen in.	CATA-1062	Logged By: Lane Andress Page 16 0	f 25
W THE Send light brown (7.5 1/2 5/2) L, SLM, WG STATE AND SEND AND	USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected Core Run	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (citt(alay))	Well
Sond - brand (7.5 YR 5/3) - L, SLM, Really graded  F = 90% M 10% C + acc  C + 30.5 - No cooke factors M only 8%  F = 90% M 10% C + acc  R = 90% M 10%  Sond - brand (7.5 YR 5/2) L, Dey, poorly  F = 90% M 10%  Sond - brand (7.5 YR 5/2) L, Dey, poorly  F = 90% M 10%  F & 55% M 10% C 5% + true grand up to/2  Sond - brand (7.5 YR 5/2) L, Dey  Sond - brand (7.5 YR 5/2) L, Dey  F = 50% F = 50%  Sond - brand (7.5 YR 5/2) L, Dey  F = 50%  Sond - brand (7.5 YR	1		174 5mg - light locar 17.5 VR 6/2 11 CIM. W.C	Details
Sond - brand (7.5 YR 5/3) - L, SLM, Really graded  F = 90% M 10% C + acc  C + 30.5 - No cooke factors M only 8%  F = 90% M 10% C + acc  R = 90% M 10%  Sond - brand (7.5 YR 5/2) L, Dey, poorly  F = 90% M 10%  Sond - brand (7.5 YR 5/2) L, Dey, poorly  F = 90% M 10%  F & 55% M 10% C 5% + true grand up to/2  Sond - brand (7.5 YR 5/2) L, Dey  Sond - brand (7.5 YR 5/2) L, Dey  F = 50% F = 50%  Sond - brand (7.5 YR 5/2) L, Dey  F = 50%  Sond - brand (7.5 YR	1/6		THE 427.75 - SAA CH Sand - light brown (2.5 yr. 6/3)	
C 130.5 - No coole factors M only 8%  South Start Most with the start of the start	V	N	Way I was a second of the seco	
C 130.5 - No coole factors M only 8%  South Start Most with the start of the start	8/		Sono - viam (To The 5/3) - LISCH, Really graded	-
Sand-bram (7.5 / 2.5 / 2.) L. Dey, poorly F-90% Mulo/6  Sand-bram (7.5 / 2.5 / 2.) L. Dey F-85% M lo/ C.5% + trace gravel upto/3 JSA-JSR-JSR Lythus, are All Dry - poorly graved VFG  Sand-Gray (7.5 / 2.5 / 2.) L. Dry Foorly Graded - moor Silt VFG  N=Sand-Gray (7.5 / 2.5 / 2.) L. Dry Foorly Fraction - moor Silt VFG  N=Nor/None Desir V = VOC/SEDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = gootechnical; UV = ultraviolet; T = thermal conductivity Nonuded, SR = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Subrounded, SA = Gravel	29	N I	130 F-90% M 10% C+mce	
Sand - Scar (7.5 (a s/2) L, Dry - Face gravel up to/s Listing are flowed as a bove of the same as above of the same as above of the same as a solve of the same	34		2	
F 85% M LOK C 5% + take grand of the state o	W T	7	432 F-90% M~10%	
itional Comments:    Sand - Gray (7.5 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	510	7	5and-brown (7.5 4 R 5/2) L, Dry - F 85% M 10% C.5% + roce growel up to 1/2 433 Cyllics, GHZ (1)	
itional Comments:    Partial   Complete	32.3	N ( 5 )	Dry-poorly graded VFG	
itional Comments:    Complete   C	R 1.2	7	gradio - minor silt VFG	
overy: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	R		436	
overy: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  oles: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ditional Commen			
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel		Lalose	SLM & Shality moist WG = well gradual	
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	OVerus None		Partial III	
oles: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	The state of the s	e Otz = quartz		
Counded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ples: V = VOCs/E	EDB; P = TPH; M = min	erology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduc	tivity
	Rounded, SR = St	ubrounded, SA = Suban	gular, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	TATES

Project: Kirtland BFF	SONIC CORING	BORING/WELL CONST	TRUCTION LOG	19
NAME AND ADDRESS OF THE OWNER, WHEN PERSON ADDRESS OF THE OWNER, WHEN PERSON AND ADDRESS OF THE OWNER, WHEN PERSON AND ADDRESS OF THE OWNER, WHEN PERSON AND ADDRESS OF THE OWNER, WHEN PERSON AND ADDRESS OF THE OWNER, WHEN PERSON AND ADDRESS OF THE OWNER, WHEN PERSON AND ADDRESS OF THE OWNER, WHEN		Project Number: 62	2735DM02.1017	Date: 178-18
Boring/Well ID:	B-10653	Logged By:		Page 7 of 25
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	Samples collected with the pass of the collected with the pass of the collected with the pass of the collected with the pass of the collected with the pass of the collected with the pass of the collected with the pass of the collected with t	nerology //roundedness silt/clay)	v coarse)/consistency & plas n, coarse, etc.)	Well Details
5W W. W	1 10 10 10 10 1	5% M40% C) A-5and-5com(7. 1, M30% C30%	J (25/2) 454M-	W.G.
N WE	Party W	graded-pinkushg	30% G+00C	)-49M St 48 to t with
2.7 N	140 5000 -8	10% M10% CI 10% M15% CI	13% G 35% up to 14 kes, Ad, 15 LM, WG	2/2 grands
	THY FG5	% M 15% Cu	5A/SR Qtz Ithus	to 34" fly
7 23.30	Gr F 10%	Favel -5000 (7-5) , M25% CY	(RY/2) LI SLINH 0% G 25% up - SAISR Q+2 LYMCS	Dry-WG 134" +0134"
1.6 1	Sand w/s	Gravel \$ 511+ (~5%)	14mcs	12) 4
ditional Comments:	F 20%	MIST C35% C SAL	36% up to 21 SR Grzfle Har	his ded
		1 401	- S = WEIL ALW	DE C
covery: None	Partial 🖽	Complete		
A = Same as Above Qtz =		Y = Yes	N = No/None	
npies: V = VOCs/EDB; P = 7	PH; M = minerology; B = biologic	; W = moisture analysis; G = geot	echnical; UV = ultraviolet; T	= thermal conductivity
Appendix	i, SA = Subangular, A = Angular,	VF = Very Fine, $F = Fine$ , $M = Me$ Page 502 of 793	edium, C = Coarse, G = Grav	el

SA I I I I I I I I I I I I I I I I I I I	SONIC CORING	BORING/WELL CONSTRUCTION LOG	
oject: Kirtland BFF		Project Number: 62735DM02.1017	Date: 142-18
oring/Well ID:	FB-10653	Logged By: Lan Andress	
PID Reading (ppm) Temperature (°C) UV fluorescence	Samples collected by the part of the part	Soil Description  c; Munsell color; density (primarily coarse)/consistency & plasti (include grain size %; fine, medium, coarse, etc.) nerology l inerology (y/roundedness (silt/clay)	Page 18 of 3-5
1 4 4	La Marca	(9 (avel - 1- man 12.5 VD 4/1) : 11	
N John	2 mg	19 (avel - 6 own (7.5 YR 41/2) ensl ac M 20% (30% G 50% v) of 5AISR Qre, FI	oto 23/4" 1d, 17his
N N	THE CLAY-	- Gray (7.5 YRG/DVERY DENSE, DRY to W Black mottling (~30%) plastic writted	SLM, when worked
1.2	e yya'	SAJ No matting - specks of blas sociasurally white up to 3 mm.	ck, fluck
	7 451	1949 Grange & black specks of to 1 cm x 2-3 mm	P
[	e451.7. 452 WG -	5-Sand (7.5 YR 5/2) - Loose, 5L Frof M20% (30% (30%) 43" SAN 4453'	M Flores
		5and-brance 7-5 yr 5/3)-L, SLM, 1/8 M10% C-trace	
	Y54 6453.75	5-CLAY-Lightyplanshbram-(2.5) ise, SLM, plane when wested.	(6/3)
onal Comments:			
	Dartial III		
ery: None	Partial Partial Fld = feldspar	Complete V = Vos	
ery: None	= quartz Fld = feldspar	Complete  Y = Yes  N = No/None  W = moisture analysis; G = geotechnical; UV = ultraviolet; T = t  F = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

Project: Kirtland	SC	ONIC CO	ORING BORING/WELL CONSTRUCTION LOG		
Boring/Well ID:			Project Number: 62735DM02.1017 Date:	-19-1	18
Bornig Well IID.	CAFB-16653	1 1	Logged By: Page 19	of 2	5
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence Samples collected Core Run	80	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity - % sand (include grain size %; fine, medium, coarse, etc.) - sand minerology - % gravel - gravel minerology - angularity/roundedness	We	ell
2 4 7	12 0	THE RESERVE OF THE PARTY NAMED IN	- % fines (silt/clay)	Deta	ails
CL 15.6 1/2 824	N #	111111111111111111111111111111111111111	SAAR Y53.75'		111111
a f	4	156	cuty as above at 453.75 W/ ~ 10% black speck.  Mottling-specs up to 2 mm - Dinse [ Not very dinse)  B 456-Clay W/ 91H-Bram (2165 ye 5/3), Jense  To Medium sense-5LM- plastic		11111111
CO/ SM Chil	N I	W57 C	do Noe, medum Plasticity  3ilty Sand Job ram (10 ye 5/3) - medum douse		11111
5M	4	NSA S	silfy sond to ram (10 yes/3) - medum dense to Loose, status, SLM - N10%, day - non plastic IF 10% M trace ( + race		
5M	N	¥(q			
5N 19.6	N V1P	1460	no brain (7.5 YR 5/3) Ly SCM, WG-		
SW 6.7 1	7	17 VG1	FGO% M 20% C 15% G5% upt 2.3"  SAISR QZ, FIL (ithus)		
SW 15.22.0	7	11/1/2	Faintleum H-Coder		
5w 26.5		163 St.	TYP, Ntot. CFO/ 13 A/SR atz fld Luthies		
Additional Commen	IS:				
			H-C= hydrocarbon		
Recovery: None		Partial	Complete		
AA = Same as Above		Fld	= feldspar Y = Yes N = No/None	-	
amples: V = VOCs/E	EDB; P = TPH; M = m	inerology;	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con-	ductivity	
Ap	ppendix D	angular, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel Page 504 of 793		

				SC	IN	CC	ORING BORING/WELL CONSTRUCTION LOG	-		_
Project: Ki	THE RESERVE AND ADDRESS OF THE PERSON NAMED IN	-						- 9	10-	10:
Boring/Wei	I ID:	KAI	B-106	5	3		Logged By: Lane Andress Page 20	of	22	0
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		We	
		1	92	H	1	163			Deta	ils
5W 9.4	26.5	2 2		54	Melle	464	5AA@ 462' Sond-Bram (7.5 YR 5/3) LISLMING- H. faint F75% M 20% C 5%	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
5W		2			minni	166	5AK @ 464'			
GW GW	100	<i>N</i>		0-1	min	67	e 466.5 - Gravel w/sand - bram (7.5 Ye 5/2) L, 5LM, WG  T=5% M 20% C 20% Glody up to 3" - 5R  2 55% Grz Fld Lithius			
sul		N -			The state of the s	. 8	THE 464.			
GW	V V	1			77777	10	2469 SAA @ 466.5'			
AL 7-3	7 40	1		4.000	100000	4 5	1-C odar (+.5 (1C5/2) - L, Most, Wg - Shaper F70% M 20% C5% G 5/40 1" SHSR OTZ Lithus, fld and - Gran (7-5 42 5/2) L, Mast - powly g caded F 92% M 5% C 3%			
Additional Con	mments			1	2 Y 3	2	F 92% M 5% C 3%  470-474 disturbed - fell at at one beare 5 was reconstruct time	2 3	1111	
Recovery: N	one	7		-	T	net'-				
AA = Same as	The second second	Ota	= quartz		P	artia				
				= m	inero	logy	= feldspar $Y=Yes$ $N=No/None$ $B=$ biologic; $W=$ moisture analysis; $G=$ geotechnical; $UV=$ ultraviolet; $T=$ thermal cond	- A *	14.	-
R = Rounded, S	R = Sul	roun	ded, SA =	Suba	ngul	ar, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	uctiv	ity	
	Apr	end	ix D				Page 505 of 793		-	

Bottin Well ID. VAFB. 10653  Bottin Well ID. VAFB. 10653  Logged By: Lear Andrews Page 81 of 31  Logged By: Logged By: Lear Andrews Page 81 of 31  Logged By: Logged By: Logge	Project Virtle 1 DEV	SONIC CORING BO	ORING/WELL CONSTRU	CTION LOG	
Logaced By: Low Andrews Page 81 of 3  Soil Description			Project Number: 62735D	M02.1017 Date	: 11/20/1
Soil Description  - soil type; Munsell color, density frimainty coarse/consistency & plasticity  - sond (include grain size %; fine, medium, coarse, etc.)  - soil type; Munsell color, density frimainty coarse/consistency & plasticity  - sond (include grain size %; fine, medium, coarse, etc.)  - sond (include grain size %; fine, mediu	Soring well in: VAFB	- 10653	Logged By: Lave A	Page Page	11/20/10
13 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PID Reading (ppm)  Temperature (°C)  UV fluorescence	Solution of the control of the contr	Soil Descriptions and the color; density (primarily coars lude grain size %; fine, medium, coard logy rology bundedness /clay)	se/consistency & plasticity	Well Details
13 33 N  13 33 N  1475 - MERY WET - Standing Worter in core long  5 and 5 and 17 - 5 4 R 1/2 Loose WET, well  9 and 5 and - 5	1 2.7	173 2473 : 7.542 F 5% Silty (	- gravel in a clayer 1/25, - Louse, must, in M15% C 5% G6 clay-non-fo weakly pl	9 Silt Metrix - by  5 G  0% up to 2.5 LHI  2+2, fld  astic ~ 13% 15 Ma	rom 15e ny
N 80% C 10% Grace 1 SA SE SAA @ 476 - Interest %5:  129 e 479 - 544 at 476 - Interest %5:  120% N 36% C 15% G 5%  120% N 36% C 15% G 5%  120% N 36% C 15% G 5%  120% N 36% C 15% G 5%  120% N 15% C 50% G 25% up to 1% 54 158 point  120% N 15% C 50% G 25% up to 1% 54 158 point  120% N 15% C 50% G 25% up to 1% 54 158 point  120% N 15% C 50% G 25% up to 1% 54 158 point  120% N 15% C 50% G 25% up to 1% 54 158 point  120% N 15% C 50% G 25% up to 1% 14 14 14 14 14 14 14 14 14 14 14 14 14	1	175 - WERY W sund - S graced	ET-Standing water in From (7.5 YR Y/Z)	core long Loose WET, well	
129 e 479 - 54A at 476 - Liferent %5:  129 e 479 - 54A at 476 - Liferent %5:  129 e 479 - 54A at 476 - Liferent %5:  120	W T N CYTT	- I I I I I I I I I I I I I I I I I I I	1/2 W 80% C 10%	GHOLE WG	I'mhie
129 e 479-544 at 476 - Litherent %:  1296 N Fell (15% G5% G5% G25% pto 1/4 54 15R 158 158 158 158 158 158 158 158 158 158	N & N	MAS SAA C	476	· ·	
ditional Comments:  180  180  180  180  180  180  180  18		179 6479-	544 at 476 - Life	rent %s:	
covery: None Partial Complete	N 285 X	480 48 Sand 3 150 48 Sand 3 150 Medium de 150 Medium de	15% C50% G25 up to	37R 4/2) Loose to Lay - non plusticing	4
	covery: None Qtz = qua	artz Fld = feldspar	Complete N =	-fell at al a	ove home
Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	Rounded, SR = Subrounded, S	$\frac{1}{A}$ : M = minerology; B = biologic; W A = Subangular, A = Angular, VF	V = moisture analysis; G = geotechnica = Very Fine, F = Fine, M = Medium.	al; UV = ultraviolet; T = therma C = Coarse, G = Gravel	al conductivity

	SONIC (	CORING BORING/WELL CONSTRUCTION LOG	-
Project: Kirtland BFF		Project Number: 62735DM02 1017	10-18
Boring/Well ID: K	FB-10653	Logged By: Law Andress Page 22	of 25
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Sam Cor Dep	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	146	SARE 480'	Details
3W 23 N	4 20 412	3000 W/ 60 W/ - B C W/ 5 VO Y/6 V	
5W 2.3 N	Not state	Sand W/g favel-Brown (7.5 YR 4/2) L, not well graded and 20% Cyo/6 g rand up to 1/2 11 Clay in mentrax ~ 70% saysh ate fld lother Non pastic )	
SN JA			
335 2\17 N	485	Sond-brand (7.5 /R 1/2) - medium tense wet.  WG-~10% clay in fines / matrix - new  Plaster— F 70% M 15% C 10% G-Jpto /2  Sond-brown 7.5 /R 5/2-medium tense, wet  Poorly gaded-fine grained - trace  med recersing rains	
S N	486	700/14 gadid-fine grained - trace med recorse grains	
S DO N	5 987		
5P 311 N	I Baye	5AA C 485 to 487.25 C487.25'- sand braun (7.5 YR 5/3) moun JoNse, wet, well graded	
NS 01 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	948 V19, BM	F50% N 15% C70% G15% up to 1" SA/SR-Lothies, QTZ, L12	
Additional Comments:		F 25% MYO/ C 20% G 15% up + 1.5 se with as at & fld	
	NS= NAT CAM	value 480-483' Distribud	
	THE DAY	To to Dinie	
Recovery: None	Partia	Complete	
	tz = quartz Fl	d = feldspar Y = Yes N = No/None	
R = Rounded, SR = Subron	r - 1 r 1; M = minerology	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu a = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ctivity
Apper	ndiv D	Page 507 of 793	

Page 33 of 35  Soll Description  - soil type; Mansell color; density (primarily coarse) consistency & plasticity  - sond (include grain size %, fine, medium, coarse, etc.)  - sond minorloogy  - sond mino	Project Number: 62735DM02.1017  Date:    Logged By:   Log	-21-1 of 25
Description  Soil Description	Logged By:  Logged By:  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel	of 25
The state of the s	Soil Description  Soil Description  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  solution	0100
He sand - SALE 489 - gravel up + 3"  While san		Well
W N N 1997  CITE bag INT opend -UV sharts NAQL someoning toppers can feel dense clay through core bag  W 1994  COTE bay out opened -UV sharts NAQL someoning toppers  Can feel dense clay through core bag  W 1994  COTE bay out opened -UV sharts NAQL someoning toppers  Can feel dense clay through core bag  W 1994  COTE bay out opened -UV sharts NAQL someoning toppers  Can feel dense clay through core bag  W 1995  Sand John (5% 5% 5% uptol"  Opened -UV sharts of modure  AND  W 1996  Sand - John (5% 5% 5% uptol"  Opened - John (5% 65% 65% uptol"  Janse 1 with shart of modure  Janse 1 with shart of modure  Janse 1 with shart of modure  Janse 1 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 2 with shart of modure  Janse 3 with shart of modure  Janse 2 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of modure  Janse 3 with shart of with shart of modure  Janse 3 with shart of	468 T 1 190 5m - SAA @ 489 - gravel op # 3"	Detai
Core bay and opened - UV shows NAPL somering  Exports  con feel dense clay through core bay  1 494  1 494  1 494  1 496  1 496  1 497  1 5/0 M 5/0 5/0 45/0 45/0 45/0 45/0 45/0 45/0 4		
Core bay not opened -UV shows Nfl spots  Con feel duse clay shows nfl spots  Con feel duse clay shows formation duse  Well spots  Core bay not opened -UV shows Nfl spots  Con feel duse clay shows formation duse  Well spots	V SIP Core bag art opened - UV shows NARL someoney 45 pots can feel dense clay through core bag	
Hay 196 Core Hay Sand gray (7.5 yr 5/1) Just for motion Just 196 Solo Solo Solo Solo Ptoling 198 Jand Jang 198	1 / 494 Jan	
Deery: None  Partial  Complete  Same as Above  Qtz = quartz  Fid = feldspar  Y = Yes  N = No/None  Ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis: G = geotechnical: IIV = ultraviolet; T = through a finite in the property of the property	1211 44- 110	
Distributional Comments:    Partial		
Sand—dole gray (7-5 / R Y/1)—dole for modum  Jen's , wet — whele graded — H'C oder , salse  itional Comments:  Divery: None — Partial — Complete  = Same as Above Qtz = quartz — Fid = feldspar — Y = Yes — N = No/None  ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = gentechnical; IIV = ultraviolet; T = the modern of the control	10 No West 175% No 15% e5% 65% uptol"	
itional Comments:  Overy: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; LIV = ultraviolet; T = the conditions of the condit	JA/SR	
overy: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = gentechnical; UV = ultraviolet; T = though to the control of the	The letters	
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; IV = ultraviolet; T = the analysis; C = geotechnical; T = the analysis; T = the a		
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; IV = ultraviolet; T = the analysis; C = geotechnical; T = the analysis; T = the a	very: None Partial H Complete	
ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; IIV = ultraviolet; T = thousand a second control of the second control of th	Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	
Down 1 1 CD C 1 1 1 CL C 1 CONDUCTIVITY	les: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduction ounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	tivity

		SONIC	CORING BORING/WELL CONSTRUCTION LOG	-
Project: Kirtlan	The same of the sa		Project Number: 62735DM02.1017 Date: \[ \]	21-12
Boring/Well ID:	KAFB-	10653	7 1 7	of 25
USCS Soil Type PID Reading (ppm)	-	Core Ru Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SW R3.	, ~	9	· Po	Details
SW 260 7	<i>y y y y y y y y y y</i>	50	F80% M 15% C5% Grant organic/sewage  F80% M 15% C5% Grace  Up to yz" SA/SR  QTZ, Fld lothnes	
Sw 24.8	<b>N</b>	56. 11. SON	Band w/ clay - 6 pm (75 YRY/2) donge - wet will graded - H-Codor - as mall orange	
Sw/01 175 1 Sw/01 175 1	N	-598	54 fe 502 to 504. 25' e 504.25 - Sand braun (7.5 YR 5/2) - DWSE  Wet - WG - Frace clay in Modrix 15%  F 5% N 40% C 40% G up to 3"  + race Cobbals up to  3.5" - SA/SR Hthus	
SW	N	200	1 .// 4 5 16	
5W 39 5W 53W	N	504		
Additional Commen	nts:	SW	Clay in mourry As above at 502 ft 15% Clay in mourry As above at 502 ft 15% 1 10% M 30% C 25% Glue + 1 5A/S	2
			Clay = 20% Lithias, fl2, ate	
Recovery: None		Par	tial H Complete	
SAA = Same as Abov		tz	$Fld = feldspar \qquad Y = Yes \qquad N = No/None$	
Samples: V = VOCs/	EDB; P = TPH;	M = minerolo	gy; B = biologic; W = moisture analysis; G = geotechnical; IIV = ultraviolet; T = 41, 1	ctivity
i resultatu, bit - 5	pnendix D	= Subangula	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

roject: Kirtland BFF	SOME COKING BURIN	G/WELL CONSTRUCTION LOG	1
CONTRACTOR OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO		Project Number: 62735DM02.1017	Date: 5 11-3
oring/Well ID: KAF8 40	053	Logged By: Land Andres	Page of 25
PID Reading (ppm) Temperature ('C) UV fluorescence Samples collected	Solution of the state of the st		Well
7 35! 7 7 7 7 7 7 7 7 7 8 7 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	16 SID BOWN 5000 JCT. 5 F 70% N  16 1511 PANEM 3  TO  Key	Hues SR/S  Occasional 18  2.5"  PR 4/2) - DeNSe, wet, well  A 30%  Sond 19/20 Silien sand Pinces  Pioneer  Isterly 3/8" chips  2.5"  Swill 6/207  Cosmy  Screen  Screen  Screen	A - OTZ  2 up to  SR  g Paded  NSI, west  cle gradie  R  NE  NE  NE  O 0010 524
tional Comments:  very: None   Same as Above Qtz = quartz	Partial ###	Complete  Y = Yes  N = No/None	ch 80 tvc

EA						BORING/WELL CONSTRUCTION LOG	
Project: Ki Drilling Co			,			Project Number: 62735DM02.1017	
ead Drille			Cascade ark Gree	2	_	Start Time/Date: 10 -	
Prilling Me			ARCH	-/1	-	Completion Time/Date: Final Depth:	
asing Dia	meter (	D: /	13/4"	1,6			the tricone 8
oring/Wel	II ID:		KAFB-1	065	4	Bit Type and Outer Diameter Ken Claw 1012" Militaria  Logged By: Joshva Messenger Page 1	of
E USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clav)	Well Details
_			1			0-4" Coarse sand and gravel	Details
17) X,100,0			TAKEN -	5		0-4" Coarse sand and gravel 4"-8' silty clay with sand - brown (75% 4/3), dense, Mederately plastic - sand m to C	
多多			- non-			@ 6' 1/2' tree outs visible @ 7' 1/4" tree roots visible	
3.6				10		Silt with sand - reddish brown (SYR 9/4) loose dry Silt 80% non plastic - sand 20% VF = 70% F=20% M = 5% C= 5% SH-SR (Gtz, feld, lithics)	
523				20		SAA @ 10' with 5% gravel up to 1" (i.ki.us)  silt 80%  sand 15% SAA	
				25		silty sand with grave 1 - brown (7.54R 5/4), loose, dry - silter sand 60%: F= 20% M=40% C=40% SA-SR (Gtz feld, lithics); silt 30% nonplastic; gravel 10% up to 1/2" (Gtz, lithics)	
			4.00.			5ilt with sand - brown (7.5 1/4 1/4), loose dry denplaying 5ilt 90%; sand 10% UF = 80% F= 15% (2.5% SA-SE (Qtz, fell, lithius)	
litional Co	mment						
iuonai Co	imment	5.					-
	ant I	1				White the second	
-	one _			Pa	artial	Complete	
	s Above	Ç	tz = quartz		F	ld = feldspar Y = Yes N = No B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conducti	

Droingty I		JDE	T	2	SON	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: I Boring/W	-		F	VAER	101	CI		-16-18
Joining W	V CH ID	1		KAFB-	100	734	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	of
		Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
11 2	.5		-		30		5'H .: H sadd of 1 - 15 - G-40 61 1 - 1	Details
							5.14 with sand and gravel - brown (75 48 94) loose, dry 4.14 70% norphastic - rand 20% x=30% M=40% C=30% SA-5R (On fald, lithies) - gravel 10% up to 3/8" (472, lithics)	
L)					35		sitt w/sand and gravel - leddish brown (54R 4H)	0 0 0
							silt wished and grave 1 - leddish brown (54R 4M)  1065e, dry - silt 65% nonplastic - sand 20% F= 30%  M = 40% C = 30% SH SF (atz, feld, lithius)	0 0
M) 5.	0			ρ	40		914 vet 13 % ip to 18 (att, 176145)	0 0
M)5,				. <b></b>			Silty fand with giave   - light bown (7.5 42 6/4) losse, dry - sand 702 for for M = 40% C. 31% SA-SR (atz, feld, lithics) silt 20% nonplastic - gravel 10% up to	0 0 0
พ้					45		42" (4+2, 11+6125) SAA (2 404 - brown (7.5 YR 5/4)	0 0
							Sand 22 silt 30% gravel 102	0 0
1.8	8				50		SAA & 45' - light brown (7.5 YR 6/4) SAND 60'B	
							5:14 30 % giave 10%	9 0 0
1).			-		55		silt with sand and gravel ish Grown (5 PR 4/4) lease dry. Silt 80% nonplastic; sand 15% F= 40% M=40%	2 0 0
							Silt 80% non plastic; sand 15% F: 40% M=40% C: 20% (At, feld, lithius) SA-SE; grave 1 5% up to 1" (lithius)	0 0 0
0.0	6		2 11 3		60.		SAA @ 55' - brown (7.5 YR 5/4)	000
1								0 0
	-	-						0 0 0
ditional	Comn	nents:						
covery:					_	Partial	1111	
A = Sam				tz = quartz			$V = Ves \qquad \qquad V = Vo$	

					SON	IC C	CORING BORING/WELL CONSTRUCTION LOG	_	
	et: Kir g/Well	tland B	FF				Project Number: 62735DM02.1017 Date:		
Borin	S WCII	ID.		KAFB	-10	63	Tage	of_	1 - 1
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	1	Well
ME					65		4 6 1	0	etails
(E)	3,1	- m			70		Sand 20% gravel 10%  SAA 665 51+ 85% Sand 15%	0	
			are simi				trace gravel up to 5/8"	0	
(AL)					75		5PA @ 701	0 0 0	
0					80		e seute sicie come seusciane e conserva e e exercia dell'eran dell'eran dell'eran e come delle conservation de	0	00
ML	3.8						SHA@ 75' silt 80% Sand 15% gravel 5% up h 985m 1"	0	0 0
SP)	,				85		goarly graded sand - yellowish Grown (1018 5/4) losse dry - sand 100% F= 60% M=40% SA-5R (ext = Gold, lithics)	0	
5P)	0.2				90		SAA @ 851 with frace grave 1 up to 3/8" (lithics)	0	
ŚW					95		well graded sund w/gravel - yellowish brown(104R 5/4) lowe, dry - sand 90% F- 40% M=40% C=20% SH-SR (Q12, felly 1. thics) - gravel 10% y to 1/2" (1. thics)	0	
Addition	nal Cor	nments							
Recover AA = S amples:	ame as : V = V	Above OCs/EE	B; P =	tz = quartz TPH; M = 1	miner	ology;	Complete  Ild = feldspar Y = Yes N = No  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct  Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	livity	

E					SON	IC C	CORING BORING/WELL CONSTRUCTION LOG	
	g/Well	tland E	BFF	1700	71 /		Project Number: 62735DM02.1017 Date:	
Bonn	g well	ID:		KAF	B-1	065	Tugo T	of
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
MU	0,3			- 01	100	14	11 1 5 1 - de la la la la la la la la la la la la la	Details
ML)					105		silt with Sand - strong blown (7.542 46) losse, dry  silt - 852 non plastic - sand 152 F = 6026  M = 402 SA-SE (Rtz, Feld, lithius)  SIAA@ 100 brown (7.512 5/4)  SILT EASTE	
				and the land of			Sand 15%	90
$\bigcirc$		man ma			- 110		silt Ella sand 15% gravel 5% up to 42" (lithics)	000
ML	2.6			- F	-		SAA @ 105' - strong Grown (7.512 5/6)	
								9 9 9
******				****** ******* •		;	,	0 0 0
SM)			· · · · ·	<b>4</b> - 5	115		goosly graded sand with silt - strong Grown (7542 5/2) of loose, dry - sand 70% F: 80% M = 2002 sA-st (exte, fell, lithics); 5ilt 30% numplastic	
ML)	0.0		343	· · · ·	120		silt with sand and clay - Strong brown 75 1/2 4/6) losse, dry - silt to 80 nonplastic - sand 20% F: 80% M: 20% SA-SA (ary fell, lithius); clay 20% slightly plastic - exist as natules	
a)					125		Clay - brown (7.5 TR 4/4) slightly plastic, exists as	0 0 0
				'A'				00
				pi	130		NO CUTTINGS RETURNED	0 0 0
Addis	nol C							0 0
aditio	nai Coi	mments	5:					
Recove		one [			I	artial	Complete	
		Above	-	tz = quartz			Id = feldspar Y = Yes N = No	
amples	v = V inded, S	R = Su	DB; P = bround	ed, SA = Su	minero bangul	ology;	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conducti = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	vity

					SON	IC C	CORING BORING/WELL CONSTRUCTION LOG
-	ect: Kin	tland	BFF	VACA		10	Project Number: 62735DM02.1017 Date:
BOIL	Ig/ wei	TID:	_	KAFB	-10	65	Tage 5 of
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well
SP					135		
					140		Poorly ginded sand with clay - brown (1042 5/3) losse of clay - sand 95% F: 70% M=30% SH-SP (Rte, Gld, lithics) - clay 50% slightly plastic, soft exists as nedules
ZM)	0.0					tan 10	well graded sand - brown (104R 5/3) loose, dry o sand 100%: F = 30% M = 60% C= 20% SA-SR o (atz, feld, lithics)
					145		
5M 5M	)						well graded sand with silt - light ye llowish brown 107R 94) o loose, dry - sand 90%: F: 30% M = 55% (=15% o SA-SR (atz, Ed, lithius); silt 10% nenglastic
58)	0.1				/50		poorly graded sand - yellowish Grown (1042 5/4)  10050, dry - sand 1002 : F = 502 M= 502 SH-SR  (Lite, feld, lithics)
(SW)					156		Well graded sand with gravel - light yellowish brown of COYR 64) loose, dry - sand 90%: F=20% of F=60% C=26% SA-SP (ate, feed, lithics); gravel 10% of the feed, lithics);
SW	0.0				160		SAA (2 155 grave   up to 5/8"
)	**************************************						Jessel of 10 75
SW)					165		SAA @ 160 gravel up to 11/4" 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		paper and				(14 - 1 - 1 (14 - 1) - 1	
Additio	nal Co	mment	s:				
Recove		one L		Qtz = quartz		Partial	Complete  Id = feldspar Y = Yes N = No
amples	s: V = 1	OCs/E	DB; P	= TPH; M =	minero	ology;	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
c = Rou	ınded, S	SR = Su	bround	led, SA = Su	bangul	ar. A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse

(10 14 5/4) losse, dry - sand 90%: F=30%  M=50% C=20% 5/4-5/6(1) lithics)+caliche  grave 1 16% yr to 48" (Gtz+lithics)+caliche  300 color of the sand of the sand of the sand of the color of the sand of the color of the sand  180 sand 180 sand of the sand of the color of the color of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the sand of the color of the c	Waster Street					SON	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Soil Description					1-0	10/	0.7		
Sold Street   Sold Street	Bonn	g/ Well	T):	T	ITFB-	106	54		of
Well gladed Sand with sit and gravel - light yellowish   Crown (10 ft Gyl) ploose, dry - Sand B & F - 25%   M - 55% (-55% SH-56)   M - 56% (-55% SH-56)   M -	USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected		-	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Datatla
CERCIA (CEPE 9/4) losse, dry - Sand BSX: F=25%     M: 55 & C=252 SH-5P (dry field likeling) 9/14 1050     mapplashic; gravel 5% up to Shim (Res) 9/14 1050     mapplashic; gravel 5% up to Shim (Res) 1/14 1050     Leavin (1012 5/4) losse dry - Sand 90%: F=35%     M: 50 & C=26% SH-5P (dry field likeling) 7/15 caliche     gravel 16% up to 3/16 (dry field likeling) 7/16 caliche     gravel 16% up to 3/16 (dry field likeling) 7/16 (dry	Sil-	10.0				170		well exacted sand with sit and movel - last which	Ø
	511					135		Grash (104R 6/4) loose, dry - sand 85%: F=25% M=50 C=25% SA-SR (Gtz, feld, lifting) & sit 10% nonplastic; gravel 5% up to 86% (Gtz, 1.thizs)	
180   180   180   185   180	Kw)							well graded sand with gravel - light yellowish Grave (1018 54) losse, dry - sand 90%: F=30% M=50% C=20% 54-58/Atz. Feld. lithics)+caliche)	000
185   SAA @ 180   SAA @ 185   Sand 80%   F = 35%   M= 10% C = 35%     186   SAA @ 180   SAA @ 185   Sand 80%   F = 35%   M= 56%   C=20%     190   SAA @ 185   Sand 80%   F = 35%   M= 56%   C=20%     190   SAA @ 185   Sand 80%   F = 35%   M= 56%   C=20%     190   SAA @ 185   Sand 80%   F = 35%   M= 56%   C=20%     190   SAA @ 185   Sand 80%   F = 80%   M= 20%     190   SAA & Sand & Sa		2.0	20. 20. 20.0			180			0 0
SATH &   880	(SW)	0.0			to the source comme			The state of the s	0 0 0
196   SAM & 185   Sand BO & F - 30	Shill				2 4000 X 20 Y 20 410	185		SAA (2) 1801	0 0
Signal Color F - 30% M - 50% C-20%  Graded Zolo up to 1" (Gtz + 11thics)  No caliche in sand  194  194  194  194  194  194  194  19			eren e e e				* n + n		0 0 0
Covery: None Partial Complete  AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologle; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	SW	0.0				/90		gravel ZoTo up to 1" (Rtz + lithics)	0 0 0
POOD Poorly gladed sand with 5:14 - Graph (10 1/2 1/3) loose dry 50 moist - Sand 90% 1/4 into 1/4 - 1/4 into 1/4 - 1/4 into 1/4 - 1/4 into	(P)					195	. J	(1048 6/4) losse, dry - Sand 80%: F=80% M=20% 5A-5R (atz, feld, lithics) Starm = gravel 20% up to 1/2"	
dditional Comments:    SA-5f. (6/2, feld, lithics); gilt low non plastic   SA-5f. (6/2, feld, lithics); gilt low non plastic   Complete   SA-5me as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No     Complete   SA-5me as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No     Complete   SA-5me as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No     Complete   SA-5f. (6/2, feld, lithics); gilt low non plastic	-0-	0.0				200		- poorly graded sand	9 0 1
ecovery: None Partial Complete  AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	5M	V! C			W	19.154e);		moist - sand 90%: YF = 15% F = 60% M = 25% SA-SL (ato, feld, lithics); silt 10% non plastic	0 0 0
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Additio	onal Co	mmen	is:		7359		on the same of a material size (size). The answer of the same size of the size of the size of the same	
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	0								
amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	SAA = S	Same a	s Abov			4	1	Fid = feldspar Y = Yes N = No	
	Sample	s: V = V	VOCs/E	DB; P	= TPH; M =	miner	ology;	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduc	tivity

Project		land B	FF	S	ON	IC C	CORING BORING/WELL CONSTRUCTION LOG
	/Well		T.F	KAFB	~IA	1.50	Project Number: 62735DM02.1017 Date:
JISCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well
(SW)	1.8				215		Well graded sand upgravel - light yellowish brown  (10 12 6/4) losse dry - sand 85 2: F: 352  01 - 45% C= 36% SA-SR (Grz. feld, 1. thics); grave 1 15%  up to 1/2" (Gtz, 1. thics)  SAA @ 205' sand 95% F: 15% M= 70%  C: 15% gravel 5% up to 1/2"
SW)					215		5AA @ 210' sand 90% F = 102 M = 602 (= 302 0 0 gravel 1020 up to 3/8"  yellowish 6000 (1048 5/4)
SW	0.7	~ ***	*****		220		SAA @ 215 1 gravel up to 1/2"
(N)					225		Sith @ 220' sand 85%: F:306 M: 40% C=30% 0 3 Tavel 10% silt 5% renplustic
PO	1.8				230		Poetly graded sand with gravel - yellowish brown (10 12 5/4)  leave, moist - sand 95% F=10% M=80% 50+5R  (Gtz, feld, lithic, caliche); gravel 5% up to 5/8"  (Gtz, lithic, caliche) — sand has trace coase grained
(1)					50 6234		SAA @ 230' brown (7.5'/R 5/4) - no grave 1 0 0
ddition	al Con	nments	:				238 Well graded grave with sand - gravel 752 up to 1"
ecovery AA = Sa amples:	me as V = V	Above OCs/EI	)B; P =	etz = quartz TPH; M = n	ninero	logy;	Complete  Fid = feldspar Y = Yes N = No  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse

			-		SON	IC C	CORING BORING/WELL CONSTRUCTION LOG	
_		tland B					Project Number: 62735DM02.1017 Date:	
Bonn	g/Well	ID:	F	AFB-1	065	>4	The state of the s	of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
5P)	0.7				240			Details
(3) (M)					245		Poolly gluded sund w/glavel - pale blown (1048 6/3)  loose, dry - sand 80%: F: 90% M: 10%, trace  Comse grain - sa-sh (atz, feld, lithics)  gravel John up to Ye" (atz + lithics)  @243' - Well graded gravel up to 1.511  5: Hy sand - brown (10 if 5/3) loose, moist  sand 65%: VF: 20% F: 35% M: 55% sa-se  (atz, feld, lithics); silt 35% non plashie	
		- market		(m - m - m - m		T 100 (100)	(410, 1010 + 101010 ), 3114 33 6 1101 Plaste	
(F) (S) (S)	0.5				255 255 260 265		Silt with sand and trace gravel — dark yellowish  Siown (1042 416) soft, moist - silt 85% nonplastic  Sand 15% iv 70% F= 30% SH-SR (4+2, feld, lithic)  Have gravel yo to 1/4" (lithics)  SHA 6 250 — I'm smoothy sand with gravel - yellowish  brown (1042 514) foose, winst - sand 85% vr=  20% F= 50% M= 25% C=5% sh-sR (4+2, feld, lithics,  culiche); silt 10% nonplastic; gravel 5% up to 1/2"  (lithics + culiche)  Silt with sand and trace gravel - dark yellowish Gravn  (1048 the) soft, moist - silt 90% nonplastic  sand 10% if 95% M=5% sh-sp (4+2 + lithics)  Hace gravel to 38" (lithics)	
~							5/4) lose, dry - sand 100%: 100% fine -trace	0 0
				70-1 00 00 00 00			well grasm poorly graded sand - yellowish brown (1042 of 5/4) losse, dry - sand 100%: 100% fine -trace medium - SA-SR (G+z, feld, lithics)	0 0
3	A /				276		SHA @ JUS'	0
1	0.6						>4A @ 265	0
- 1								0 0
				20 DE N			and the second of the second and the second of the second	0 0
dditio	nal Co	mments	: '					
							. 777	
AA = S		Above		Qtz = quartz		Partia		
						ology:	Fld = feldspar Y = Yes N = No  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductive	vity
= Rou	nded, S	R = Su	bround	led, SA = Su	bangu	lar, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	vity

	- Name		\n=	S	ON	C (	CORING BORING/WELL CONSTRUCTION LOG	
Project Boring			BFF				Project Number: 62735DM02.1017 Date:	
Boring	wen	ID:	_		1	_	Logged By: Page 9	of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
50					275			Details
					280	+ - 10 + 1+ 2	clayey sand - dork yellowish brown (1072 3/2) soft, Muist - sand 65% F = 70% M=30% SA-SR (Grz, felk, lithics) - clay 35% slightly plastic - clay coats sand grains	0 0
5c)	1.1		Periodo de la composição de la composição de la composição de la composição de la composição de la composição		(in-		SHA @ 275   Sand 70% clay 30%	0 0
	*5101.4.00		rome Garie				ental menanger and the same of the management of distance with the same and the same	0
5p 5M					265	· · · · · · · · · · · · · · · · · · ·	Poorly @284' doll chatter forth graded sand with silt - brown (1048 4/3) loose, moist - sand 90% F = 95% NI = 5% SA-SE (Gtz, feld, lithics) - silt 10% non plastic	
SW) (	2.8				290		Well graded sand w/gravel - yellowish brown (1072 5/4) 1005e, novist - sand 85 2 : F : 40% M = 40% C= 10% SH St (42 feld, lithics) - gravel 15% up to 3/4" (Qtz + lithics)	
M)		erii eri			295		SAA @ 290' Sand 35% F = 20% N = 40% C=40% gravel 15% up to 1"	000
1) 2	.1			P	300		well graded sand upgravel - light yellowish brown (1072 614) losse, dry - sand 60%: F = 10% M=40% C=50% SA-512 (are, feld, lithics); gravel 35% up to	0 0 0
(2)	- 4 1 7 4			3	105		Well graded gravel w/sand - light yellowish brown (10%)	0 0 0
							(ithics) - sand 206 : F: 30% M= 35% C= 35% SA-SA (Q+2, feld, lithics)	000
lditiona	al Con	ments	:			_		0
covery					Pa	artial	22.	
A = Sar mples:				tz = quartz TPH; M = m	inerol	ogv:	Cld = feldspar $Y = Yes$ $N = No$ $B = biologic;$ $W = moisture analysis;$ $G = geotechnical;$ $UV = ultraviolet;$ $T = thermal conductions and the second secon$	
Round	ded, SI	R = Sul	rounde	d, SA = Suba	ingula	r. A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	nvity

		land D	EE		ON	IC C	ORING BORING/WELL CONSTRUCTION LOG	
-	t: Kirt		FF			-	Project Number: 62735DM02.1017 Date:  Logged By: Page	-6
WSCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Logged By: Page /C  Soil Description  soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	of
EW	0.7				310			Details
(3) (3) (3) (3)	0.7				-315 -325 -325 -336 -335		SAA @ 305' gravel up to 2"  SAA @ 310' gravel + 10%  Sand 30%  [10   2   1/4) loose, subject - dusts yellowish brown  (10   2   1/4) loose, subject - sand 90% F - 60%  IN = 25% C = 15% SA - 5P (etz, felb, lithics)  Javel 10% Vp to 2" (lithics + Gtz)  Poorly graded sand with gravel - yellowish Grown (10 YF 5/4) loose, moist - sand 95% - F - 80% M - 20%  Home coare sand - 5A 36 (etz, feld, lithics)  gravel 5% up to 1" (Qtz + lithics)  Jul! graded gravel w/sand - yellowish brown (10 YF 5/4)  [buse, moist - gravel & 60% Vp to 5/5" (dtz + 1/thics)  Sand 40% F - 25% M - 35% C - 40% SA-5P  (Gtz, feld, lithics)  SAA @ 335' gravel 55%  Sand 45%  SAA @ 335' gravel 55%  Sand 45%  Sand 45%	
						4 0100	ARCH 10=3401	0 0 0
							and the second to the second function of the second of the second of the second of the second of the second of	0 0 0
	onal Co		ts:			_		
	ery: N		•	Ota = anart		Partia	· · · · · · · · · · · · · · · · · · ·	
	Same a			Qtz = quartz			Fld = feldspar Y = Yes N = No B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	a thultan

				SO	NIC	CORING BORING/WELL CONSTRUCTION LOG Date: 1/4	118
oject: Kirt	land BF	F				Project Number: 6276	of
			D.Ma		IVA	Logged By: Low ANDRES	
USCS Soil Type PID Reading (ppm)		UV fluorescence	Samples collected			soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)	
II Jing	T I	esc	Coll		ry	- % gravel	Well
Sea	era	non	oles	Ru	Recovery		T 4-110
DI DI	I E I	5	i i	ore	eco	- % fines (silt/clay)	S I I I
5 5	H	2	Ś	12	7 2	(500) W/9 (avrl, 6 (avr) 7.5 4 P. 5/3) 1005e, Stighty Mist,	
					1/1/2	will gaded - 13/11 occasional	0
11/301		(			11	angularity/roundedness % fines (silt/clay)  5 and w/g rawl, brown 7.5 ye 5/3 ) 2005e, slighty must, will geoded  F 10% M 60% C 20% Glob up to 13/4", occasional cobyles up to 4" - 5 A/SR  att, FII, 1 Hhus, g rawite	1.91
301	10	N		W I	111	1 10/0 cobses up to 9 - SHISK	7 0
	n	-		$\mathbb{H}$	31	att. CIL, 1 Hhus, 9 anto	0
.11.	25.9	,		W	1	)	0
W	12, 1	11			1		
	.0			$\  \ $	1/	V corsening downwards	00
		+		111	134		9 11 1
				$\Pi$	1	SAA @ 340' W/ trace Silt	0 0
		1		Ш	1	FIND M30% C 40% G70% UP to 2"-SA/SR provide grand of the fld, lithan Grows grand	
W	11	M	4	Ш	W	Flop M 50/0 1/0 /00 atzitle, lithaustrumpter	0 0
	1			Ш	131	s the second sec	
	10	_			1	CAACOSTO 10 - SO +0/2 (No CODDED)	0
W	27,	1		de	11	0343 SAA C 340 Smaller of to 1/2" No cobsels	0
	18	N		10	1/20	6343-51200 M 40% C30% GUB up to 1/2 SAISE  B F 10% M 40% C30% GUB up to 1/2 SAISE	0
					13	3 FID 10 10 10 1 atz fle lith	
	-	+-		1	1	SAAR 340'-+ race Silt	001
		1		11		DARE SUCAKE	, 1 11 1
1	. 1/	VI.			1/1	F10% MYOBCZ5% GZ5% ofZfld, lith	0
N	00/				134	100 csp rom atz, fle, lith	0
	18	- -		+	100	Contracting the second	0
W	1.	1				l /	
W	20/1	V	1	11		1 .(/	0 0
	1		- 1	VI.	124	<u> </u>	
_		-		*	120	CIN 168 (7540 G/Z) Long very Shally Mover	0
		1		11	14	Sund 16 run (7.5 yr 6/3), Loose, very shightly monor	0
		1	- 1	11	1	too of glades - time of tallies	0
	6/	4		10	Init		
	Mo-			10	24	- Whom I amallower I come com	0 0
1	W.	1		18		2347 -Swo , your on bloom to 1294) Common of	111
11 - 1	MIN	1	- 1	10		Supering moist, well grades of 70% of SAICR	
N	N		- 1	1	8	F700 M206 C406 GUP to 2 -3101	0
				N	34	e 347-smd, yellowh born (loyR54) cose very shylowy must, well graded G206 G206 to 2"-SALSR P206 M206 C406 G206 G206 to 2"-SALSR	
1	13		V	0/	1	sond-gale ground (10/86/8) vay shightly most,	
V	6			111		Loose, will gradies	0 0
14	30 N			1	4	50/ N-0/ -119 030/0 -1101/00	
	m	0		1	1849	Frolo Mzolo CYOB G30/6 to 311 5Alse	a
ditional Cor	nments:				1		
				_			74
overy: No	ne 🔲		Carr	plit	Par	ent H	
= Same as						Old = feldspar Y = Yes N = No Mod = Modesate y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	

EA		_						
roject: Ki	rtland	BFF		SO	NIC	CORING BORING/WELL CONSTRUCTION LOG		
oring/We	ll ID:	SUM	4 - KA	14.5		Project Number: 62735DM02.1017 Date: \\/\	118	_
	T	77	IC - KA	FFB	-160	654 Logged By: Love Andress Page 2	of	
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery Depth, ft bgs	— soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  — % sand (include grain size %; fine, medium, coarse, etc.)	Wel Detai	
- \	100	11		111		SAA @ 348'	10	
W	11	1.1			11		0	
3.8	N.	M		111	1/4		1.19	
-		H			135	(11) 201		
1			:-		11	SAA e 348 -351	0	
W	U	1			11.			
	100	N		111	150			
7657	37.78	N			352	0351-3515-Gravel w/sility sand fright bran 7542 Loose, well a man supplietly must silit winds to up to 4" (6/3) FIND M Sh CISB Globup to 3", coloples to to up to 4" (6/3) PAST ST SILITUM SUND (further must) a must consider to up to 4" (6/3)	0	A 10 10 10 10 10 10 10 10 10 10 10 10 10
	UFU			T		352-353,5-9 and w/Sand-61004,4-372313)1	0	
1.1	36				1	17.54 (24/3) de sa/strady mast 5.00 formy (1-54/25/3), 352-353:5-9 and W/Sand-brown (1-54/25/3), Loose, slightly moist, well graded FK5% M70% C15% G60% up to 3" SAISR atz, lithus Ald	7	
W	M	N			1	PS/6 MCCG C15/6 Stables fld	0	
	No			1,	352			
Lu	38	7		10		e 353,5 - Sand wy grown - brann (7-5 yr 5/3) lose, sugnitive most, well graded - Fetrace Mos (50% C3% up to 2"- SMSR at 2, fld, 1 Hhues, clayles sand of graded brann (7-5 yr 6/3), loose, shalify most, well graded brann (7-5 yr 6/3), loose, shalify most, well graded	0 0	
n	Li			18	10	(39/6 JP 40 2 - ) NISIC CONTROL (19/1/14 ) / NOWER		
				1	0	Eng of description points propositions signif	00	
\			- 4	1	0	most, will grade		
7	Vo	N			1	F 20/6 M 25% CYO% G715% up to 1" SA/SR	10	
	1			1	100	of oft, tothes, fld	111	
11	oi			1	2	)	0	
1	W	11		1			0	
		1			354	V	0	
	, , , , ,	+		1	-	core bag not good soved for potential supplies		
			1	M		C 7 (10C of	0	
	80	M		11			^	
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	·0-			+14	12.1	materials for the figure and the figure from the first t		
	2		1	1		0	19	
	1			11			0	
	Y	•	V	3/1/2	358		0	_
1 10	mmento			140				-
itional Co	minents	-						-
				. ,	-	Complete Set		
very: N	one [		Con	pub	Partia			
C	Above	Qtz	= quartz		arolom	id = feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes   N = No   Feldspar   WY = Yes	uctivity	_
es: V = V	OCs/ED	B; P	ded, SA = S	Subar	gular,	He angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse Fage 522 of 793		-
unded	penell	(April)	ucu, Dri	-	- Contract of the Contract of	Page 522 of 793		

EA	SONIC COR	RING BORING/WELL CONSTRUCTION LO	OG n
Project: Kirtland BFF		Project Number: 62735DM02.1017	Date: 0 11/1/18
Boring/Well ID:	B-10654	Logged By: Lave Andress	Page 3 of
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	amples collected  Ore Run  cecovery epth, ft bgs	Soil Description  il type; Munsell color; density (primarily coarse)/consistency sand (include grain size %; fine, medium, coarse, etc.)  nd minerology gravel avel minerology gularity/roundedness fines (silt/clay)	Well
	1 358 90	wel wisand-brandloves/3) Loose	slightly of di
QN 21 22 N	240	will will gaded bran (loyes/3) Loose, will gaded CZS/6 GG/6 to Z Lothucs, QtZ, f	SA/SE O
GN SN N	367 Less	A-different %55:  So M5% C 15% Gup to 2:5  Cother of Nother wy organics ( of charge of Nother by 2"  fines up depth	blackt Red >
W 2002 N	363 @ 36 Loose, 364 @ 363,	te 360'  Swhely must, Poolly graded - fr  sond as a bac upll graded wy  solo M706 C 106 G take up to 1"-5415	county 5 V/ o o o o o o o o o o o o o o o o o o
SW N Pe, 366	265 @ 364 265 will a 7189	1 Notes - Will gradient - Grann (7.5 1/2 5/ 1 Notes - Will gradient - Grann (7.5 1/2 5/2) Cose, show (7.5 1/2 5/2) Cose, show (7.5 1/2 5/2) Cose, show (8.5 ) Cose (5.5 ) Cos	dely mast,
Additional Comments:	10 2 367 Fagg	-/ gravel - brown (7.542 5/3) -10 will graded (4% GM/0% UP to) M45% (4% GM/0% UP to)	" at 2 0 0
Recovery: None	Partial ///	- Complete	
AA = Same as Above Qtz = quartz	Fld = feldspar	Y = Yes N = No	
amples: V = VOCs/EDB; P = TPH; M	( = minerology; B = biologic Subangular, A = Angular	c; $W = m\tilde{b}$ isture analysis; $G = geotechnical$ ; $UV = ultraviolet$ ; $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$	T = thermal conductivity
- Availaci, SA - Subrounded, SA -	out angular, A - Angular,	vr - very rine, r = rine, M = Medium, C = Coarse	

SONIC CORING BORING/WELL CONSTRUCTION LOG										
oject: Kirtland BFF	Project Number: 62725 DM02 1017									
ring/Well ID: KATB-10654 Logged By: Love Andress Page 14 of										
PID Reading (ppm) Temperature (*C) UV fluorescence	Soil Description  - soil type; Munsell color; density (primarily coarse)/con  - % sand (include grain size %; fine, medium, coarse, etc  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	nsistency & plasticity (primarily c.)  Well								
N 6.8 5° N	6 Sughty mast, party graded - 1	Up-to 2.75" 54/SR 6 0								
P JUN	6 sughtly mast, porty graded - 1	to matrabely dube.								
P 5.7 60 N	(370)									
50 5 N	5 and-light bran (7.54e4/3)-Loose, 9 will graded W/0% Clay G15 844 - Liffus: Q+2	Shightly Moust,								
SW N										
7 20	372 FZO% M 80% CZO% G+GA 5 372 FZO% M 80% CZO% G+GA 5 372 FZOM Graded Fine G 2737 272.75 H- Sand, what be	paved trausit 0 0								
N & L	1324 F 40% M40% C. 70%.	adoc tra silt								
SW WN	5 5 Gradie - FW/ MZO/ (7.5) Loose of Stadies - FW/ MZO/ (7.0)	Grace up to 1/2" A/SA 14thics								
SN SN	F15% M 25% CHA G 70%	CIDITOTICS								
Additional Comments:	,	37.								
Recovery: None SAA = Same as Above Qtz	Partial Complete  quartz Fid = feldspar Y = Yes N=No									
Samples: V = YOCs/EDB; P = R = Rounded, SR = Subround	TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; U ed, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C =	V = ultraviolet; T = thermal conductivity  Coarse								

							Date:\\/\/\/	8	
			-		SO	NIC	CORING BURITOR Page T	f	
			OFF				Ir agged By: I and Article		
rojec	t: Kirt	land ]	I/ A	FB.	-100	054	Soil Description  Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily coarse)  - soil type; Munsell color; density (primarily coarse, etc.)		
Boring	/Well	ID:	1-1		T		Hame: Munsell color; density (primarily coarse etc.)		
							- soil type; Munsell color; density (primarry coarse, etc.) - % sand (include grain size %; fine, medium, coarse, etc.)		
	Î	0		ed		11	- sand minerology		1
pe	(b)	5	en	llect		1 20	- % gravel	We	
USCS Soil Type	PID Reading (ppm)	emperature (°C)	UV fluorescence	Samples collected	un	Recovery Denth 6th	gravel minerology	Deta	ils
Soi	Kea	pers	lion	ple	Core Run	Recover	- angularity/roundedness - % fines (silt/clay)  6 Sund, 6 round (7.5 YR 5/25) - Louse, 5 luply Must,  With gradu  F 70/6 M 70/6 C 40% G 70% up to 15 SA/SR  Qtz tithres fit yettar  Some gravel are reds is retained  Nudsley up to 1"  Sunday	Ir	Ir
SCS	9	eml	3	San	ő	Rec	-% fines (silvclay) - Louse, Slawer 10151/	11	V
Ď.	A.	F	+=+		M	137	6 Sund, 6 range 7. It was a state of the		
, 1					11	7/4	will grade 1 541/ 6-75% yeto 15 54/51	11	IV
52		١.	11		11	11	F 20% M ZO/0 C 1015 MIL LANGE TELLAND	را ا	LL,
1		No	M		11	137	7 (0) call is retained	1 1	IY
		75			-	7	Some grave up to !" surely	1 11	1
1		1.6			111	11	/ //	$\Gamma$	r
M		21.6	M		111	11		1 11	V
			1"			10	Sand to ray (7.54 \$ 5/3 )-Loose, Slightly Must well gooded - very coase well gooded - very coase		
			-		=++	1 21	Emon 6 ray (7.3465/3)	1 11	V
					111	//	well gooded - very coase	Ш	1
						W	1 20 50 1.5 SAISK	ΙN	Y
W		. 1	1		111	Man	F10% M 20% C 50% G 20% pto 1.5" SAISR sandyclay precess to 1: 5 12 Shyloly	111	1
	_	9	1		-1-1	151	Carlacton been op to 1.	111	r
		4.10				1	Sweet Tracks Look Shyloly	ΙИ	V
N	-	a				11	0779,5-500 brun (7.5) (65/6) 20% to 120 wabare		
7	12	D	M		LA	W	Must with e cales F756 M. W/o (7 501 1.2)	IM	V
M	6.7		<u> </u>		12	20	must well graded From (7.5 485/2) - Look, Shyloty  Must well graded From Mylo (20% Groto 1.25' as above  Sind as above different %.		1/
7					111	11	Fyo% M 75% CZ0% GUSTO 1.5' - SA/SR	111	1
W	- 1		1			V	( ) NA 76% (20% GUETO 1.5 - SAISE	И	1
0	- 1	2	M		111	No d	F10/0 10 (3/0 CC 10 WE This, Fld		
		D			-1-1-6	120		И	V
		m			111	1			1
W	- 1	N			111	1		M	Y
W			M		111	2/2	core bay not opered - swed for Potential suply		1/
			1		4+1-	300	- all so Art sound - Swid for Potential supply	rı	Y
					118		CONG 12 MG OFE	И	V
1	- 1		1		118	1	YI		
		N	M		118	72/7		И	V
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		m		•				И	Y
		8	.[]		113	1		11	1/
	- 1	1	4		113		· /	ri.	r
			_		1-11-2	301	- 11 1 1 0 0 7 7 5 4 8 5/3 \ Lange & lunch	N.	/
1/		Vo			13	9	Gravely sand-branch s he is just supply	[]	
1		0	1			9 1	mist weight	И	
11	1.	25.0	V		113	12VA	Gravelly sand-6 ran (7.5 yr 5/3) loss, stuppy / must will rate (7.5 yr 50% up to 1.75" SA/SR (42, fld, 14hics, Grante		1
1						(150)	Qtz, Flc, 14mcs, Granic	14	V
lition	al Cor	nments	s:						
					_			_	-
over	: No	ne I	1		Saplit	Part	Complete 24		_
		Above	Qtz	= quart	-		Id = feldspar Y = Yes N = No/None Mad = Me directe		-
ples:	V = V	OCs/El	DB; P	= TPH; l	M = mi	nerolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conducti	ivity	-
Roun	ded, S	R =Ap	pend	fixt, SA	= Suba	ngular,	A = Angular, VF = Very Fipage 525, of 790 dium, C = Coarse 6 = 4(4)	-	$\neg$

Project Number 627350002.1017   Ditect 1/1/18	EA	SONIC CORING BORING/WELL CONSTRUCTION LO	OG .
Soil Description  - soil type: Munsell color; density (primarily conso)consistency & plasticity (primarily consolor) consistency & plasticity (primarily consolor) consolor) consolor con	Project: Kirtland BFF	0 10(0)	
See See See See See See See See See See	Boring wen iD: 1/A-		Page Ce of
SAA & 380 to 380 start brun (1.5 ye 5/2) loose, shuggly hoster with grade brun (1.5 ye 5/2) loose, shuggly hoster with grade brun (1.5 ye 5/2) loose, shuggly hoster with grade brun (1.5 ye 5/2) loose, shuggly hoster with grade brun (1.5 ye 5/2) loose, shuggly hoster with grade brun (1.5 ye 5/2) loose, shuggly hoster with grade brun (1.5 ye 5/2) loose, shuggly hoster, most, pooling graded from from (1.5 ye 5/2) loose, shuggly hoster, most, pooling graded from grane and the start of	USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	- soil type; Munsell color; density (primarily coarse)/consistency of sand (include grain size %; fine, medium, coarse, etc.) - sand minerology - % grayel	Well
She was to the grade to the first of the sold for the sol			Details VIVI
FIG. M. 25% ( 40% G. 36% pt.) Loser SA/SE att, lithus, fill, gamille att, lithus, fill, gamille att, lithus, fill, gamille att, lithus, fill, gamille att, lithus, fill, gamille att, lithus, fill, gamille att, loser, swilling and fing and fing and fing and to 389, 51 to 389, 51 to 389, 51 to 389, 51 to 389, 51 to 389, 55 to a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and to and transfel loger for a deaper and transfel loger fo	5W 1 15 M	5   6385.5 - sond of garel-bround 1.5 yes Shipty mist well graded-1-20% Mis% 6 ye to 1" SA/SE arz fill 1. 5 ml of Gravel broun (7.5 ye 5/2)	13) Loss, 6, 10% 145% G 10% 14665 1098, Shuldhy
SAAC 386 to 380.5 then swd gayish bloom (1044.5/2)  Losse, shipty moist, poolly gacled fingtoned  of 389.5 the swd of gard (bloom 7.5 1/2 1/3 bose)  shipty moist, bulled, moist, poolly gacled fingtoned  of 389.5 the swd of garden to 1.5 "SA/Se are interestly  Fish M 20% 559 (720/6 wt to 1.5 "SA/Se are interestly  Fish M 20% 559 (720/6 wt to 1.5 "SA/Se are interestly  SAA to 250 5 then a leave of moist will industrial  sound of the wall industrial  sound of the wall industrial  sound of the same of the swall industrial  sound of the swall industrial  so	5W 5U N	15% M 25% C 40% G30/9 atz, lithus,	to Z" SA/Se II, Granito
A A AS 391.75 - 393  Who I Described the sure of the s	1 6 N	388	
SAN + 1290 Stuperty noist; will grade of 1.5 "SAKE are littles fill Fig." M 205" (55) (720) of 10 1.5 "SAKE are littles fill Escaration of SAN + 1290 Company of Market Compan			an(10445/2) ugsaner
SAA to 1290.5 then a lease a maje to write individual and section of a constraint of the county of t		10 390 Shiptry noist well graved - (braun 7.5 5/50) G70% us to 1.5 "SA/SE 9	YRY/3 Juase
232 Most, parly gaded - Free Grand  232 Most, parly gaded - Free Grand  232 Most, parly gaded - Free Grand  243 a 393 - Sand, coarse - b com (10 42 5/3), coose  Shapetly norst - will graded -  244 T20/0 M 10% C 40% G 30% of the 1" SA/Se  When are as Above Qtz = quartz  When are as Above Qtz = quartz  Fld = feldspar Y = Yes  V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	1 2 N	SAA to 1390.5 then a lease of multiple of 19 19 19 19 19 19 19 19 19 19 19 19 19	de indivited
y: None Partial Complete  ame as Above Qtz = quartz Fld = feldspar Y = Yes N = No  V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity			
nal Comments:  y: None   Partial   Complete  ame as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No  V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	2 h		
y: None Partial Complete  ame as Above Qtz = quartz Fld = feldspar Y = Yes N = No  V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity		Shyldynoist-well gradie - 244 F-20% M 10% CYO% G 30/20 pte 1" Si str fill other	A/SR Lineston
ame as Above Qtz = quartz Fld = feldspar Y = Yes N = No  V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	nal Comments:		
ame as Above Qtz = quartz Fld = feldspar Y = Yes N = No  V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	č.		
ame as Above Qtz = quartz Fld = feldspar Y = Yes N = No  V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	v. None	Partial Complete	
V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity			
	V = VOCs/EDB; P = TPH	M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviole	t; T = thermal conductivity

Solvet: Kirtland BFF  Dring/Well ID: CAFB-10654  Soil Description								TODAY ON THE CONSTRUCTION LOG
Details  Soli Description  Soil Description  Soi					SC	)N	IC (	CORING BORING/WELL CONSTRUCTION    Project Number: 62735DM02,1017   Date: 11/2/18
Soil Description		and B	FF	- 0-				Logged By: Long Andres Page 10
Sold type; Munsell color; density (primarily coarse) (consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - % sand (incl			ILA	FB-	100	04	,4	C II Description
Sind Scom 7-5 yr 3/3)—two stupting met of such and graded 95 km 5% modern that convergency poorling graded 95 km 5% modern that convergency of sonder of such as sondered on your consonant storing on sond your form on sond of good of the such and works, and sondered on sond of such and sondered on sond of such and sondered on son			fluorescence			Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness  Well Details
Sind Scom 7-5 yr 3/3)—two stupting met of such and graded 95 km 5% modern that convergency poorling graded 95 km 5% modern that convergency of sonder of such as sondered on your consonant storing on sond your form on sond of good of the such and works, and sondered on sond of such and sondered on sond of such and sondered on son	X				11		107	bay while trying to fill.
Porting graded 95% fine 5% modern thate consequents  Porting graded 95% fine 5% modern thate consequents  Porting graded 95% fine 5% modern thate consequents  Porting graded 95% fine 5% modern at 345-25-(No  Porting graded 95% fine 5	3 -	_	-	_	$\parallel$		J.	
Who will grand to sandy clay and clay and with your sandy of the sandy clay areas - donse to t	120						404	1 (5 78 5/3) - (cosy styling mist
Wyork grade Constantial of Carbonate storing on sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand Storing on Sand of Sand o		C	N		101	(KEN)	WIZ	
you F55% M 30% C 15% Have gavel up to 43  SATSR- at 2 to this feld sport  son plante  well graded  son plante  well graded  to row plante  well graded  well graded  C 30% G 66% up to 1" SALSR  Hay Frace M 60% C 30% G 66% up to 1" SALSR  Well graded  To a M 60% C 30% G 66% up to 1" SALSR  Well graded  To a M 60% C 30% G 66% up to 1" SALSR  Well graded  To a M 60% C 30% G 66% up to 1" SALSR  To a M 60% C 30% C 30% C 66% up to 1" SALSR  To a M 60% C 30% C 66% up to 1" SALSR  To a M 60% C 66% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10%		W			T	Z		1 345-25-(NO
you F55% M 30% C 15% Have gavel up to 43  SATSR- at 2 to this feld sport  son plante  well graded  son plante  well graded  to row plante  well graded  well graded  C 30% G 66% up to 1" SALSR  Hay Frace M 60% C 30% G 66% up to 1" SALSR  Well graded  To a M 60% C 30% G 66% up to 1" SALSR  Well graded  To a M 60% C 30% G 66% up to 1" SALSR  Well graded  To a M 60% C 30% G 66% up to 1" SALSR  To a M 60% C 30% C 30% C 66% up to 1" SALSR  To a M 60% C 30% C 66% up to 1" SALSR  To a M 60% C 66% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10% up to 10%	1/4	200	N			なるな	406	e 45.25 clay clos as above storing on sand/ sandstane/conglamatol) w/ cas bowate storing on sand/
Will graded (brown 7-57R 573) Lose, Shight Must will graded the C30% Globby to 1" SALSAN		-	-		1	7	-	( 1 - 6 am ( 7.5 / 2.5/3 ) 6050 ( Shipting 1000)
J 15	N A A	2005	N		1	MINNIN	407 406	ENOT 75 Sandy Clay Standy Clay press - Lense  evol 75 Sandy Clay 2016  EVOL 75 Sandy Clay 2016
40 @ 409-75 Sandy Elay Reddish brown to 485/4)	THE STATE OF THE S	7.7	h			11/1/1	t09	well gradid- trace Mich C30% G60% of to 1" 54/54
AM COLO 7/2 LOAN - 100X, CUIN, WY MAIN	W 6.8	56	N			11111	410	@409-75 Sandy Elay Elay Elay stight most, dense-weak plastery
Dound games mostly fine to very fine	الر	aU l	J		7	02	11/	well graded mostly fine to very five
6-9   5 4/2	6.9		J		5 2	District	4/2	VF .4010 F 5010 FV. 510
litional Comments:	ditional Com	nments	:			_		
		_	_			_		
overy: None Partial Complete	covery: No	ne T	T				Partia	al Complete
= Same as Above Otz = quartz Fld = feldspar Y = Yes N = No/None	= Same as A	Above	Qtz	= quartz			F	ld = feldspar Y = Yes N = No/None
ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	nles V = VC	Cs/ET	)B: P=	= TPH; M	1 = m	iner	ology	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

	5			so	NI	C C	ORING BORING/WELL CONSTRUCTION LOG		]
Project:	to the same of the			- /				0f	-
Boring/\	Well ID	: 4	4-B-10	65	4		Logged By: Lan Andress Page 19 Soil Description	01	-
USCS Soil Type	PID Reading (ppm)	Temperature (*C)	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology	Well Details	411
5P 5W		J.			RACIO	413	- angularly/roundedness % fines (silt/clay)  Sound to sour (7.5 / R 5/2) ship hy moust poortry  graded Fine grained track took sources ship must  e 412,5 - soud, brown (7.5 / R 5/2) loose styles must  will graded -		
SW.	i	18	J	5	DISTU	414	F30/0 M 70% C20% G20 402.5" S4/SR		
SW		28.70	J		1111111	415	End - a taylow from (10 12 5/2) 1000, 54 pt 1" Q+2, rell gladell- F 10% M 40% C 40% G 15% " 1th, feldpors		2
Siy		5°	1 V,P	7	MILLINI	416	Sand of garel, bram (7.5425/3) Louse, stylidly most will graded  FISO M 30/0 C (0) G 15/0 yets 1.5"  Stise Az ithics fild you		
all		M	٧			417			
20)		U/	J	5	The state of the s	418	From (60% C 20%		
SW		260	N			419		100000	
W.		35.2%	N	,		42	sand - boun (7.5 / 25/2) Loss, shightly must will garden - F30% M 40% (30%)		
		49.6°C		1	T Dick I	12		17/20	1711111
	nal Cor		s: Distri			Corr	e-fell out of care barrel on retrewal from bare of care flood fill from a care barrel	hole t	Way
Recover	-	-	J			Pa	rtial Complete		
SAA = S							Fld = feldspar Y = Yes N = No/None	-feldgen	~
Samples D = D-	: V = V	OCs/E	DB; P = TPF	1; M	= m	inero	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = therm	ial conductivit	у
- rou	nucu, 5	r - 20	orounaea, S	4 = 5	ouna	ngula	r, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel		

	2				so	NIC C	CORING BORING/WELL CONSTRUCTION LOG	
Project:	Kirtla	nd B	FF				Project Number: 62735DM02.1017 Date: 11 / 3/18	,
Boring/	Well II	): (	AFB	-106	54		Logged By: Love Andress Pages of	
USCS Soil Type	PID Reading (ppm)	Temperature (*C)	UV fluorescence	Samples collected	Core Run	Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well etails
3 3 3		2966	1			421   427	921-421.25 a claylense-brant. 5 18173 Platic  1421.25-422-5and, brown (7.5 426/2) Losse Studyty  Mast-will graded Pintusher F. M30/ 356/3 frace 114  Sund brown (7.5 426/2) Stupethy wist, Loss, will	2 C C C C C C C C C C C C C C C C C C C
5W 5W		53.6°C	7		6	Y23	Mass-willy paled pinlisher F. M30 & 65 frace His Sund based 7.5 yr 6/2) shightly wist, Loose, will gray - Loose, shightly mist, 5AAB 421.25 to 422.25 C422, 25 - Sund Span (7.5 42 5/2) - Loose Shightly Must Well Grand F 10 Hary 40 C 45/6 grant 5 fee - as above 8 122,25 424 - Sand of Skill Child	
56		69.20	2 2			124 ASS 250 ASS	50ml - 5 cm (7-5 4 8 5/2), 600 s, stuytony, mas, well gentles M25% C50% Glob up to 1.5"  NF-16/F-5% M25% C50% Glob up to 1.5"  SA/SR are flet liping.	
542	-01/19	2,000	2 2	1		427	Sind gayist brain tosy (10/RS/2). Lase, Shighely wist well gaded  VISO F 206 M 206 C 20/6  1977. 25-San of a givel (brain 7.5 4/K 5/2) close Slything mist well gaded  Frace M 70/ C50/ (50/ 50/5R 9/2 fill)	
W4.8	37.70	U e M				430	5 and of gavel - 5 pmn (7.5 485/2)-Loose, Shighry Moist - well gealed 12)-Loose, F5/6 M20/6 C50/6 G 25/6 JP to 2" SMISIE OTZ, Fld 11thing GRAIT	
ditional	Comm	ents:				-	210	0 th
covery: A = Same iples: V =	= VOC	/EDB	Qtz = 0	PH; M =	min	erology;	d = feldspar Y = Yes N = No/None  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condució	y
Rounded	1, 3K =	Subr	unded	, 5A = 5U	ivan	guiar, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

oject	: Kirtl	and R	FF				_	ORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date: 11	13/18
				-8-101	60	54		Logged By: Love And ress Page 21	of_
USCS Soil Type	Reading (ppm)	Temperature ('C)	fluorescence	Samples collected			bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel	
SS	Rea	ıper		ples	Core Run	Recovery	Depth, ft	gravel minerology angularity/roundedness	Well
nsc	PID	Ten	3	San	Co	Rec	Dep	% fines (silt/clay)	Details
W		7.5%	7		1		436 431	Sind of grand & Globles - bran (75/25/2) lose shightly hoist well graded (15% G 30%	
M		3/	4				奴	SAA to 433	
SN		oU N	7				433	SAA to (33)	
GW		38,	4		6	11111111	434	Sharry most well graded on saving clay change grows to your to you sharry with the sharry with	
GW GW		UoU	7			MININI		5AA @ 433 0 433.5 - gard of Sand-parkethyray (75/86/1) lose shouthy moust, will graded F5/6 Mb/6 C 25/6 (glop to 2th SA/SR SA/SR Qtz fld inthis grancer and surreveally coverted charps	
FU		4613	N		   	MIIIIII	436	and you tish my that	
a		44	N	-		11111111	43. <del>7</del>	Spors - Lense plastic shighty must up most	
's		65%	لر		10	111111111111111111111111111111111111111	138	200 11/2 01 200 456-456.25	1 1 1000
1		Ser Ch	N			WIIIII.	139	SAA C436,25	
dditio	nal Co	mmen	ts:				1		
					_	-	_		
ecover		one [	J				Parti	800	
	ame as			tz = quartz			F	Id = feldspar Y = Yes N = No/None  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	

			SC	N	IIC C	ORING BORING/WELL CONSTRUCTION LOG	-
ject: Kirt ring/Well				_	0.11		3/18
I IIIg/ Well	10: 1	AFR	1-100	0	54	THE THE TENT OF TH	of
USCS Soil Type PID Reading (ppm)	Ten	UV iluorescence	Samples concern	Core wan	Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
K	16.5%	1		The state of the s	139	trace very five sand in the Clay	
34	200	И			JIII WYI	DAA @939.5 to 44, 25 other CLAY Tight on Diam (7.5 426/3) - Live we soft Levises, slightly plastic Lenses, blusciay mod	
54	Z.	N			J. YYZ	600 - 2000 (7 t/a 5/2) / 10 ld	
W SN	3	N			1113	Sand - Samn (754e5/3), Loose, Shylwy mast, well garded - Fish M5% C3% G5% of to you sake Receipt of the Sand & trace clay fill strain (7.54e6/3) revy sense, merst, weakly plastic.	
SM	12 W	N		10	11/1/19	(7.5 /26/3) rery Lewise, merst, weakly plastic-	
SM	25	4			11/1/42	SAX @ 443,5 ft - w/ LENSES of increased clay(<5%)	
SU	39	N			11/1/46		
al	300	M			12 V V V V V V V V V V V V V V V V V V V	shiplarly moist well grades gravel up to 3" cobbles  shiplarly moist well grades gravel up to 3" cobbles  some to 3.5 5A (SR cate, laying, fld %) 5	
37)	- 10	N		7	VERY DIS.	VEZOL FYO/O MEO/CN/O G LOCA CABOLS HORCE	
Additional		10	77	_	Con	Run from 446-453 was very 115 xvibed - 11/1	
	+ Cer	1	p-1+	1	1104	of cole buttel served fines before it was success	FULL
Recovery:		OCO.		_	Par	tial Complete	1
SAA = Sam	e as Abov		quartz			Fld = feldspar V = Vae N = N = N = N = N = N = N = N = N = N	
	= VOCs/	EDB: P =	TPH; M	= 1	minerolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	
Samples: V	a co		10:	_		A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ctivity

E	2				so	NIC	CC	ORING BORING/WELL CONSTRUCTION LOG			
Project								Project Number: 62735DM02.1017 Date: \\/	3/	18	
Boring	/Well I	D: K	At	-B-10	60	34		Logged By: Lave And Ress Page 23	of		
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)			'ell tails
Q		7	200			1	444	footly graded	小小 ちゃ		
58		Noc	46			CORG- CA	450	engyge 5/10 agrand trace for in charps	10000	1111111	
R	=	15	2,00		1, 1	BED	451	SHA at 449.5 ft - SILTY churps up to 4"- Mad dense to dense occasional gravel up to 1" SR withins	A 2 2 2 20		
S		1/2	63,			1 DIST	452	2	F 51 171		
SP		NON	71.36			-VERY	453	SAA @ 450' w/ greater don't ity/underater can still break agent u/ fingers u/pstrong pression	2 2 12 20		
SH SF		NOW	26.7°C		1		ltil	Lense, will graded UF YO'S M 20% C 10%	× 24 7 7 1		
80		10	S			るの数	55	Sund-talk grafish brown (10 Y RY) TWEFF- LENSE to very tweet graded VF F M C	7 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
SA CL		No	23.6		7	DISTUR	156	e M55.5 silty clay pobles up to 4" ~ 10% more brown work (13) & 1" stringers of last my Line weakly plastic Yethylor	10000		
guy Ci	1	72.0	27.7.2			VERY	GH CH	SAAR 45T.5 - Clay Nudvies have black spe pieces	1 1 1 1 1 1 1 1		
Addition	al Com	ment	s: , 7	W7.	4	Col	e.	run from 446-453 was very disturbed se	e	0.2	2,00
		1	XX	776	- 6	Ci	R	un has distirbed core from 453 to 457 -			
			_	Cris	ef	TOV	h Desi	Complete	_		
Recovery							Parti	V = Ves $N = No/None$			
AA = Sa				z = quartz		iner	-1	D = biologie: W = moisture analysis: G = geotechnical; UV = ultraviolet; T = thermal cor	idu	ctivit	у
amples:	V = VU	- C	broun	ded. SA =	= Sub	angu	lar.	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel			
= Round	ieu, sk	- 50	DI OUI	dent of t	- 13.0	64	,				

EA	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date: \(\text{1/4}\)	
Boring/Well ID: KAFB -	0654 Logged By: Low Andres S Page 24	of
(u	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
24.48	1 457 - Sandy Clay Larry (1048 5/3) - Juse, Moust, port grastic, 1	
OL SIN	1 458-458.5 - Dense Clay bran (7-5/R5/3) Norst-very Ensir postic Clay bran (7-5/R5/3) 458.5 - Sandy Clay as above at 457'	
9 18 18	460	
58 20 1	Sind brann (7.5 YR 5/2) Sturbetly Livse, wist, poorly graded - ~ 20% Lenser Silty / clayey Nodlas up to 2"  461 eyel - Sand as a bare	
587 CV N	VF70% F 20% M5% C 5% Gracuptol" SAAR 461'	
SW SV N	4/463 @ 462.5 - g andly sand, brown (7.5 /2.5/3), most Loose to Shafatia de NS, well graded	
GW III	1 5AA NO OZOT GOTETISTUS FLO	
37 67	463.5	
Additional Comments:	466	
Recovery: None  GAA = Same as Above Qtz = Gamples: V = VOCs/EDB; P = T  R = Rounded, SR = Subrounded	Partial Complete  Juartz Fld = feldspar Y = Yes N = No/None  PH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conc.  SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	luctivity

E	3			SC	NI	C C	ORING BORING/WELL CONSTRUCTION LOG
Project:	Kirtland Well ID:	BFF	150 -	10	7.5	(I	Project Number: 62735DM02.1017 Date: \\/\9/18
Boring	Well ID:	16	APB-	101	6.5	4	Logged By: Lan Andres Page 25 of Soil Description
USCS Soil Type	ID Reading (ppm) emperature ('C)	fluorescence	Samples collected	n	4	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel
SSC	Rea	luor	ples	Ru	very	h, ft	gravel minerology
SC	em lem	UV	m m	Core Run	Recovery	ept	angularity/roundedness Well % fines (silt/clay) Details
-	-1.	+-	9,	X		166	
37	5.6	1	1.0	1	1	100	Fyof Mgg/ C 30/ 4 trac 4 to 14 SA/SR
-	10	1	16	1	1	467	1406, 120% - 20% of the 20 to 1, 24/24 B
an	3		aylot	5	1/2		H-C ober 466-468
70	3	N	CLET		1111	/	C467.5 SAA W/ 84+ % 00/ 515 SKISE   FILL
1	12	+		H	1	68	3000 W Gravel - brown 7 5 yr \$3) + 050, must well upder
SIN	3.5.6	N					E-20/ M 25/ (25/) (7 up to 2.75 ctr. 1 strice)  F-20/ M 25/ (25/) (7 up to 2.75 ctr. 1 string)  5/10/ M30/5/40/ (70/) 62/ to 3" time colvers of to 4"-string  One, 1 times, fleigen in
3	W.H.W			W	1.	469	From My Cylo City to 2"
AN	2	,		1	J.B		ours sake 468'- No colores course 70's - H-C olor  sun of the cylor cross to 21's - H-C olor  well graded the olor 120's 184/3) - losse [well  well graded the olor
5	2.8	İN			Dist	470	F 5% M 25% CY0% C7 UP to 1.5" SA/Se Gtz, 14thus, 612-chay pross- habity of graded - true grand strace M/C H-codor
5P					1111		good - true grand + trace M/C +- codor poorly
51	12	N			11	471	131-1351
1	N	1		1	11111	4-14-	well galed - H-C oder
50	C	N			11111	477	F20% M 70% C 10% + rate clay pieces up to 1/3"  F20% M 70% C 10% + rate clay pieces up to 1/3"  Gravel w/ Sind Srayn (7-578 5/2)-Loose to Medium
1		T		1	1111	11-	Gravel w/ Sand Brayn (7.5/25/2)-Loose to Medium
500	1-1	1 1		1	1111	112-	2060) 30% 01 (60)
700	20	1		1	11	1/2	1-30 Moto C292 GOTOND to 2" SAISE F
NI	N			11	111		are the latines, grante -
GU	in	N		11	111		
W		1			111	474	
	3				11/11		gravel w/ Sond - dam (+.5 /2 5/2) - Loose - wet =
GW	5.92	M			MILL	475	F5% M5% C308A/Sel-of-2017 (1907) " x 5"
Additiona	al Commo	nts:	(DD)	1	16	ed.	by box getting saitle from care bornes
	11		Petrole	d pr	~	1	
Recovery	: None	=	MADERICA	10	000	Par	tial Complete
CAL-EN	me as Abe	ive	Qtz = quart	z			Fld = feldspar Y = Yes N = No/None
	V-VOC	FD	B; P = TPH;	M=	min	erole	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
R = Round	ded, SR =	Sub	rounded, SA	= S	uban	gula	, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel

			_					BORING/WELL CONSTRUCTION LOG
	ect: Ki				_	_		Project Number: 62735DM02.1017
		mpany	: (	ascal	_		7	Start Time/Date: 11/4/18 3 145/18
_	Drille	1: 2	000	5 Pas	19	ure	-	Completion Time/Daté:
-	ing Me		_	UNIL	-	_		Final Depth:
	ig Diar			-0 10	/	7		Bit Type and Outer Diameter
Borir	g/Well	ID:	KA	FB-10	9	74	-	Logged By: Love And Riss Page 126 of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, st bgs	Soil Description soil type: Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium. coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
1		0	1		1	1/2	MY	and v/ a cavel-brann(7 Give)-wet, Loose, well -
Sul		05.5%	Ν		174	MIIII	476	- % fines (sit/clay)  Sind v/G ravel - brown(75:4e) - wet, Loose, well  graded - H-Codor  F W/O M 15% C35% G40% op to 15" SAKE  core by Not opened - UV flevrosunce on Sheen  In water in bag - 36it to PTS for ENARL  transmissivity
		21,28	Y	GUV			477	in water in bag- sent to PTS for ENARL transmissivity
ZW		Vo.	1				478	Gravel w/Sand brown (7.5425/2) metern duse with
4	N32	7	N			WIII	479	Gravel w/Sand brown (7.5/25/2) metern duse with will graved H-Codor F 5% M 6% CZOB G GSB up to 24 SALSE
SW	74.4	Vo 10	N			1111111	чхо	F 5% M 25% C38/ Gyolo to 2.54 SAISE
SN)		2/.	N		10,0	MIMI	481	e480.5- SAA-different %50, H-codor = 10% MAO) (30% 20 1" SA/SR
51		22.7°C	2 2			11111111111111111111111111111111111111	485	Surful gavel - 12 - 12 - 12 - 12 - 12 - 12 - 12 - 1
					$\bigvee$	1	443	6/65: \$15% MIG. CY5/6 C/30/6/19 to 2" as above =
Additio	nal Co	mmen	ts:					
		11	,		1		1	
		H-	C ,	= plan	. Ve	5		ny dro carbon
Recove							Parti	al Complete
AA = 9				Qtz = quart				Fld = feldspar Y = Yes N = No And A A A A A
amples	: V = 1	OCs/	EDB;	P = TPH;	M=	min	erolog	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
= Pou	nded	SR = S	uhra	unded SA	- 50	bane	aular	A - London VE - V. S. S. S. S. S. S. S. S. S. S. S. S. S.
1401	ucu,	- is - i	4010	anucu, 3/1	ou	oall	sular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = gravel

Lead Driller:    Drilling Method:   Casing Diameter OD:     Boring/Well ID:   V   F   B   -   0   G   S     Boring/Well ID:   W   B   S   S   S   S   S   S   S   S   S	Project Number: 62735DM02.1017  # Start Fime/Date: 1/5/16 Completion Time/Date: Final Depth: Bit Type and Outer Diameter Logged By: A Page 27 of Soil Description or; density (primarily coarse)/consistency & plasticity (primarily size %; fine, medium, coarse, etc.)
Lead Driller:  Drilling Method:  Casing Diameter OD:  Boring/Well ID: VAFB - 10654  soil type: Munsell column of the column o	Completion Time/Date:  Final Depth:  Bit Type and Outer Diameter  Logged By: Low Andres Page 27 of  Soil Description  or; density (primarily coarse)/consistency & plasticity (primarily
Drilling Method: Casing Diameter OD: Boring/Well ID: VARB - 10654  soil type: Munsell column of the column of t	Final Depth:  Bit Type and Outer Diameter  Logged By: Low Andres Page 27 of  Soil Description  or; density (primarily coarse)/consistency & plasticity (primarily
Casing Diameter OD:  Boring/Well ID: VAFB - 10654  soil type: Munsell column of the	Bit Type and Outer Diameter  Logged By: Lac Artes Page 27 of  Soil Description  or; density (primarily coarse)/consistency & plasticity (primarily
Boring/Well ID: VAFB -10654  soil type: Munsell colors and (include grain sand minerology)	Logged By: Lac Andres Page 127 of  Soil Description or; density (primarily coarse)/consistency & plasticity (primarily
add (and but of the color of th	Soil Description or; density (primarily coarse)/consistency & plasticity (primarily
add) au on one of the control of the	or; density (primarily coarse)/consistency & plasticity (primarily
W 327 18° N 100 183 Sind out grace vict prolifer to 100 100 100 100 100 100 100 100 100 10	Well Details  El-Jankasay (7.5 /24/1) - Medium Juse  Led-Strong H Codor -  170% Clo% Gravel-take satisf  At 2 /4 (70% Gravel-take satisf  Odar  1 20% (70% Gravel-take satisf  A 20% (70%
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Well graded with graded with graded with graded	-blan (7.54R5/2) wit, tense, Strong Fl-Codor- 15% Colo G30/oup to 1 SR/SA Otz Fld 1 bthis Jao above - different %'s!
11.081 KIN 11 1 10 489.5 - SM	
W 1608 8 M 190 = 10% M 1008 M 190 = 10% M 1008 M 190 = 10% M 1008 M 190 = 100% M 1008 M 190 = 100% M	90% C 20/0 C720% CP to 1 gove (7-5 4/2 5/2) - Wet, Dire, will 5 th C creor 154/54 30/0 C30/6-120/0 4 P to 12 constitution
Sunda bram graded - Stran	406 C 10/0 (770) CP to 1 gene (7-5 4125/2) - Wet, Dire, will 5 th C cidor 30/0 C45/6-10/0 4P to 12 grands 1200 From 476-486 & Re-Retrewed
Halitional Comments: DFELL At My Core barrel W/ Core barrel Run from 483-49:	3 /
Halitional Comments: DFE   at al Core barrel  Covery: None   Partial   Partial	Complete
Halitional Comments: DFEII At of Core barrel  Covery: None Dearth Partial H	Complete = Yes N = No

Thing Company:  AD Prilier    Project Number: 62735DM02.1017	EA				_	_	_	BORING/WELL CONSTRUCTION LOG	
distional Comments:    Description   Descrip	roject: Kirt	tland BI	F					Project Number: 62735DM02.1017	
Hing Method:  Final Depth:  Fi	end Dailla	npany:						Start Time/Date: 11/5/18	
Sing Dameeter OD.  On type and Outer Diameter  Ingred By Low Andrews  Fagorite of 29  Soil Description  Soil Obserption  Soil								Completion Time/Date:	
Soil Description  Soil Descrip								Final Depth:	
Soil Description  - soil type: Munsell color; density (primarily coarse) consistency & plasticity (primarily coarse) coarse, etc.)  - sand (include grain size % fine, medium, coarse, etc.)  - sand minerology  - sand minerol				-A. T	7/	7 7	-	Bit Type and Outer Diameter	
Soll Description  - soil type: Mursell color, density (primary)  - soil type: Mursell type: Applied to type: Applied type: Appl	J Ten	1	CAT	0-1	100	27	_		of 29
HARD HONDER PATIAL THE COMPLET NO ANGENCY OF THE MAN MISSING TO ENDANCE OF THE MAN MISSING TO THE MISSING TO TH	1/1	20.	UV fluorescence	Samples collected	Core Run	Recovery	pth, ft	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
SAR & Y93  SAR & Y93		10 25.25 M	Y 728		1		493		
SAA @ Y q 3  SAA @ Y q 3  SAA @ Y q 3  ditional Comments:   Covery: None Partial Expression	Sul Sul	33.96	7 2		3		495	SAAC 493'-sme odors	
SAA CYGZ - NO ORGANIC O'DON  ditional Comments:  Covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; IV = ultraviolet; T = thermal restaurance in the state of the property of the state of the property of the	W	4	N		*			) SHAR 493'	
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IV = ultraviolet; T = thermal	W		N		8		198		
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: LIV = ultraviolet; T = thermal	ZV	23,	1			,	199	Vto 499'-	
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IV = ultraviolet; T = thermal variable.	Additional C	omment	s:						
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IV = ultraviolet; T = thermal variable.							_		
mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IIV = ultraviolet; T = thermal - restriction of the state of									
mples: V = VOUs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, E = Fine M = Medium, C = Company Conductivity			Q	tz = quarta	2			$Id = feldspar   Y = Yes   N = N_0$	
	amples: V = Rounded	VOCs/E	.DB; l	nded, SA	vi = = Su	mine	rolog ular.	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conducti A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coorse, C = coord	ivity

	ONSTRUCTION LOG
BORING/WELL C	ONSTRUCTION LOG Project Number: 62735DM02.1017
oject: Kirtland BFF	Start Time/Date: US//X
"" C ('AD(C \ \ )	Completion Time/Date:
	Final Depth: 504 ft by
rilling Method: Sc NC	Bit Type and Outer Diameter  Logged By: \ And Ct \ S Page 29 of 29
using Diameter OD:	C. !! Decomption
Soul Type: Munsell color with the standard of the stand of the standard of the	r; density (primarily coarse)/consistency & plasticity (primarily size %; fine, medium, coarse, etc.)  Well
N Sond W/ Large Janke, wet with 1500 To 700 M	gravel/cobbles-seam (757R) cligraded H-Codos (4/2) cligraded H-Codos (4/2) cobbles up to yill shisk ore, luring
THUY TO KEY:	= 504.0 A bg
Concrete - QUIKRETE Portland TYPE 1/11  Bentonite Grout - Halliburton O O Bestonite - Halliburton O O Book Solid QUIK-GROUT  3/8" HO	vitor Soil/Slough
diversal tromments.	
ditional Comments:	
antional Comments.	
Destin III	Complete
Partial H	N - No
Destin III	Y = Yes N = No  Y = Yes N = No  Y = qualities: G = gentechnical; UV = ultraviolet; T = thermal conductivity

	<b>S</b>						ORING/WELL CONSTRUCTION LOG		
Project				1-			Project Number: 62735DM02.1017		
Drillin Lead D		pany:		scade			Start Time/Date: 10 - 5 - 18		
Drillin		od:	MIRI	ARCH			Completion Time/Date:		
Casing			).	113/41	7	95	Final Depth:	all it ill at	l
Boring				B-10	7 56			8/2 millboth	Fr Co
Doring	y III		FAI	19-10	60	,	Logged By: Joshua Messanger Page 1	of	
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily coarse, etc.)  sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details	
					2		0-6 asphall		
5W)					3 4 5	K-HTOROKNIFE-	0-6" asphalt 6"-8" sand with gravel - brown (7.542 94)  sand fine to coasse, well grated \$00%  gravel up to 2" - calicle & lithius \$20%		5
SM)					10		Silty sand - reddish brown (31R 5/4) loose moist sand 70% VF to C (feld, Qtz, Lith. cs) VF = 40% 5ilt 30% nonplastic F = 40% sand is SA to SB M = 10% C = 10%		
-	-	-	-		15		The state of the s	$\mathcal{H} \mathcal{H} \mathcal{H}$	
ñ2)					- 2D		silt with sand - seddish Grown (542 5/4) lose, moist silt 70% rouplastic sand 30% VF to M - VF = 60% F = 30% M = 10% (feld, Qtz, lithics) SA to SR		
ng)	8.1						SAA @ 15' 5:14 80% sand 20% brown (7.548 5/4)		
12)					-25		SAA @ 20' brown (7542 5/4)		28
/					ļ			6 6 6	28.
					30	_		6 0 0	
ddition	nal Cor	nments	3:				· ·		
ecover	v. M.	one	7			Partial	Complete		
COVE				tz = quartz			Complete $Id = feldspar \qquad Y = Yes \qquad N = N_0$		
AA = S	THIS ME		V	- quait	•		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

Project		land D	EE	S	ONI	CC	ORING BORING/WELL CONSTRUCTION LOG			
Project: Boring/				ER - IALS	E		Project Number: 62735DM02.1017 Date:			
Porms	TV CII	ш.	FMI	FB-1065	5		Logged By: Joshua Messenger Page 2	of_		
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well Detail	
	15.5				30		500 0 20	0	Petan	S
mû Ma Ma					35		SAA @ 25  Silt with sand, clay and gravel - redish Grown (SYR 5/4) loose mist silt 80% slightly plastic; sand 10%  VF = 75%; F = Joho, M = 5% (atz, feld, lithics) SA to SR  Growshan Clay 50% slightly plastic; gravel 5% up to 1/2" (atz + lithics) SA to SR - clay exists in nadules	00000000	0000000000	0 0 0 0
mi)	7.5			e man en e	70		SAA @ 35' gravel -6 3/8" clay nodules	0	0	0
mî)					46.		SAA @ 40'  Clay policles	0000	0 0 0 0	0 0
mi)	1.4				50		SAA @ 40' no clay - 5:1t 85%  5and 10%  proved 5% p to 3/8"	0	000000	0
mz)					55		SAA @ 50' grave 1 sp & 5/8" SAB SR 3"14 75% slightly plastic Sand 20% F=60% M=30% ("10% SANSF	0	00000	0
SW					60		Sand with gravel - brown (7.542 84) loose moist sand 85% F=16% M=40% C=50% SATOSR	0	0 0	0
1						***	(Qt2, feld, lithins); gravel 15% up to 3/8" SA to SP. (Qt2, lithins) sand well graded	0	0	0
Addition	al Cor	mments	3:							
Recovery SAA = Sa	me as			Qtz = quartz			Fld = feldspar $Y = Yes$ $N = No$			
							B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduc	ctivity		
= Roun	ded. S	R = Su	bround	ied. SA = Sul	anoul	ar A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse			-

roiec	t: Kirt	land B	FF		ON	C CORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02,1017 Date:	
	g/Well			AFB-106	\$5	Project Number: 62735DM02,1017 Date:  Logged By: Joshua Messeng et Page 3 of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
					65	silt with sand - reddish Grown (54R 5/4) loose most	
n2)					70	511 90% sightly plasfic Sand 10% VF = 40% F= 30% M=30% SABSR (atz, fell, lithics)	
	31.9					5AA @ 65' (eddish blown (54P 5/3) silt 85%, sand 10%, clay 5% exists as nedules	
	-4/34/30111	ar (larantama)			75	NO CUITINGS RETURNED	
1	2.0				યુ	SAA @ 70' reddish Grown (54R 5/4) Clay redules	
2					85	SAA & 80' Clay robbles	0
	3.0				70	SAAR & 851 sitt 80%, sand 15%, clay 5%	
					95	SAA C 90' s. It with sand and gravel - NO CLAY of SiH 80% sand 15% gravel 5% up to 3/8" gravel SA to SR (Qtz + lithics)	0 0
lditic	onal Co	mment	s:			l ba	E E
	ry: N Same as	s Above		Qtz = quartz		Partial Complete  Fld = feldspar Y = Yes N = No  plogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivi	

65

			-	S	ON	IC C	ORING BORING/WELL CONSTRUCTION LOG	-	
Boring		land B	FF	KAFB	-10	1.06	Project Number: 62735DM02.1017 Date:		
Doring	VCII	ID.	_	KATH	-/U	635	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well	
	5,0				100		sit with said - coldish for 1848 du 1 10 mit	Detail	IS C
					105	105	silt with sand — reddish Grow (548-5/4) loose, moist silt 90% slightly plastic — sand 10% VF = 60% F = 30% M = 10% SA + SR (A12, fell, littles)	000000000	
m2)	2.9			- 11	НŌ	**************************************	SAA @ 105'		0 0 0
ML	A				115	415	SAA & 110'		0000
(nL)	1.0				120	120	SAA @ 115 "	00000	000
ml)					125	125	SAA @ 120 with 5 % clary 85 % siff 10% sand	3 0 0 0	0000
$(\tilde{M})$	1.0				30 -	130 5	m silty sound with grave [ — (eddish brown (548 5/4)) lossethousend 80% VF = 15% F= 25% M= 35% C= 25% SA to SR (Qtz, Geld, lithics); silt 15% slightly plastic; grave 1 5% up 40 1/2" (Qrz + 1:thics)	000000	0 0
				man arm arm			plastic; gravel 5% up 46 1/2" (Orz + lithics)		d
Addition	nal Co	nments	<u> </u>					a M	6
Recover SAA = S	ame as	Above		tz = quartz			Id = feldspar Y = Yes N = No		-
amples:	: V = V	OCs/E	DB; P =	TPH; M = n	ninero	ology;	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct = Angular, VF = Very Fine, $F = Fine$ M = Medium, $C = Coargo$	tivity	

				5	ON	C C	ORING BORING/WELL CONSTRUCTION LOG		
	g/Well	land E	FF	VAER-	In/ C	-	Project Number: 62735DM02.1017 Date:		
Boring	g/ weii	Ш;	_	KAFB-	065	5	Logged By: Joshua Messenger Page 5	of_	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	1	Well Details
0					135	735	5m along it send and love assed - brown (754)	0	PO
	0.9					7%	5m clay with sand and tace gravel — brown (75 YR 5/4) slightly plastic — clay 90%; sand 7% VF=60% F=30% M=10% SH to SR (Qtz, feld, lithics); gravel 3% up to 12" (1. thics) clay nodules up to 1" silt with clay - brown (7.5 YR 5/4) slightly plastic silt 90%; clay 10% Models	0 0 0	
							The state of the s		0 0
(3)					145	145	SAA@ 140 — silt 80%; clay 20%  clay nodules up to 1"	000	
That arefre are	7.40 70 100	ter mer ir		* ***** (******* **** **			św.	0	0 0
	0.8				750	150	5AA@ 140' silt 90%; day 10%  small (day nodules) to 1"	0	
SP)	) 		- 11 - 11 - 1	(0 - (0 - 4))	/55	155	son Sand with sitt - reddish Grown (58R 5/4) loose moist Sand 90% F=60% M=40% (atz, feld, lithics) SA to SR sitt 10%, nonplastic poorly gaded sand	0	0 0 0 0
						1/-	M	0	0 0
9	1.6				100	Ho	Sand - brown (104R 5/3), loose - Sand 100% F= 60% M=40% poorly graded (9+2, feld, 1. this) SA to SR Moist	0	0 0
					165	165	sand with sit - brown (7.5 1/2 5/4), loose, moist	5	0 0
SM)							Sand 90% - F=10% M=50% C; 40% SA-SR (O+2, fell, lithis some) - silt 10% nonplastic caliche	0	
Additio	onal Co	mmen	ts:						1112
Recove						Partia			
SAA = :				Qtz = quartz			Fld = feldspar Y = Yes N = No  B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduction	ativit.	
							= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	avity	-

	-		-		SON	CC	ORING BORING/WELL CONSTRUCTION LOG	
Boring		tland E		1066-1	19/0		Project Number: 62735DM02.1017 Date:	
DOTING	well	ມ):	F	AFB-1	065	2	Logged By: Joshua Messenger Page 6	of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	2.6	-			170		5000 = 40/mil 1= 1000 5/1 /000 601 100	Plolo
	1,5				175		SAA @ 175' with those grave 1 up to 3/8" (1.thics)	
SW)					185		SAA @ 180° grave 1 5% up to 1" (ARI lithics)	
SW)	1.3				190		SAA @ 185' gravel 5% up to 3/8" (A+2+1.71):cs,	
SN)					195		SAA @ 190'	
5W)	0.9				200		SAA & 1951 trace grave ( to 3/8"  Sand is well graded F = 30% M = 40% C = 30%	
							The state of the s	000
Additio	nal Co	mmen	ts:					
	-	-			-	_		
Recove	ry: N	lone				Partia	1 Complete	
SAA = S			e	Qtz = quart			Fid = feldspar Y = Yes N = No	
Samples	s: V = '	VOCs/E	DB; P	= TPH; M =	miner	ology;	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	etivity
Rot	inded,	SR = S	ubroun	ded, SA = St	bangu	lar, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	

SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF  Project Number: 62735DM02.1017  Date: 9 06718  Boring/Well ID: Logged By: Teshya, Market Page 7 of	
Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)	
OSS OF THE PROPERTY OF THE PRO	Q.,
SW ) Sw   graded sand with silt - GOWA (7.5 1/2 4/4), loose of sand 90%: F = 30% M = 40% C = 30% SA-5A.  (Gtz, feld, lithics); silt 10% non plastic of caliche meist	0 0
SW) Well graded sand with trace gravel - brown (7.5 Kp 4/4) of loose - sand 9.7%; F= 10% M= 50% (= 40% 5A-5R of Care, feed, lithius); gravel & 3% up to 3/8" (lithius) of Maist	00000
SW) SAA @ 210' NO +GLE gravel 00 00 00 00 00 00 00 00 00 00 00 00 00	9 0 0
SW Well graded sand with silt and trace gravel - yellowish of the sound (10 YR 5/4) love, dry - sand 90 %: F= 15 % of M= 40 % C=15% (Otz, feld, lithics) SA-SR silt 10% penplastic; gravel trace up to 3/8 " (lithics) of	0000
(6W) well graded gravel with sand - yellowish brown (104R) - gravel 602 up to 5/8" (9tz, 1this) sand 40%: F=26% M=30% C=50% SA-5R (9tz, fela, 1ithics)	00000
1.9 well graded sund with gravel - brown (754R 5/3) ioose, moist - Sand 85%: F= 10% M= 50% C=40% (atz, feld, lithics, france) SA-SR; gravel 15% up to 1/2" (lithics)	0 0 0 0
SP)  Quarty graded sand - light yellowish brown (101R 6/4) loose,  moist - sand 100%: F=80% M=20% SA-5R  Quarty fell, lithics, foliate  Additional Comments:	000000000000000000000000000000000000000
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  R = Rounded, SR = Subrounded, SA = SA = SA = SA = SA = SA = SA = SA	

					SON	IC C	CORING BORING/WELL CONSTRUCTION LOG	
Project Boring				and the same			Project Number: 62735DM02.1017 Date:	
Boring	, well	Ш.	F	AFB-1	063	)	Logged By: Jishva Messenger Page 8	of
USCS Soil Type	PID Reading (ppm)	Femperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
	4.1	-	_	0		-	60 - /	Details
(S) (S) (S) (S) (S) (S) (S) (S) (S) (S)	9				246 250 255 260		SAA & 235' Sand is yellowish Given (101/R 5/4)  Well graded gravel with sand - brown (101/R 5/3) loose, moist - gravel 85% up to 7/8" (Att + 1/thics)  Sand 15%: K=10% M=40% C=50% SA-5R (Att, feld, lithius) - 248' diell chatter  Well graded Sand with gravel - brown (101/R 5/4)  loose moist - sand 95%: F=20% M=50% C=30%  SA-5R (att, feld, lithius) - gravel 5% up to 5/4" (lithius)  poorly graded sand with sitt - light yellowish brown (101/R 9/4) loose moist - sand 90%: F=90%  M=10% SA-5R (Att, feld, lithius) - sith 10%  nonplastic  Well graded sand with throvel - light yellowish Grown (101/R 9/4) loose moist - sand 80% F=10% M=50%  C=40% sansin (att, feld, lithius formation) - gravel 20%  SAA @ 260' gravel trace up to 7/8"  SAA @ 260' gravel trace up to 7/8"  Sand: F=20% M=30% C=30%  SAA @ 265' no gravel  SAA @ 365' no gravel	
dditiona	l Con	ments:						
ecovery:	ne as	Above		tz = quartz		artial Fl		
mples: V	V = VC	Cs/ED	B; P =	TPH; M = n	ninerol	ogy; I	B = biologic; W = moisture analysis; G = geotechnical: IIV = ultraviolet: T = thermal conduct	ivity
= Round	led, SI	R = Sub	rounde	d, SA = Sub	angula	r. A =	Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	irity

Project		land B				CC	ORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date:	
Boring	/Well	ID:	KA	FB-1065	55		Logged By: Joshus Messenger Page 4	of
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Wo Deta
			-		275		post by graded sand with clay - yellowish Gows (10 1 R 3/4)	0
sc)							porty graded sand with clay - yellowish Grown (10 1 R 74) Soft, slightly plastic - sand 70%: VF = 30% F = 40% M=30% SIGHTLY Plastic	0 0
	7.0				280	*****	SAA @ 275' Sand 80% clay 20%	-00
	110			e a maria la lacada			Sana Bore ciny 20 ib	.0
5C)	erior a		100 100	emenio score e		- er - 10	A CONTROL OF THE POST OF THE P	200
			70 (				erran an remain common and a season of the continue to be attached in the continue to the cont	
46.46				138.6 (382 7) 1 1 1	20/	e		0
					205	1 10 100	AND CUTTINGS RETURNED JM poorly gladed sand with silt - yellowish brown (10 1 P. 5/4) loose, moist - Sand 90%: VF=20% F-50% M=30% SA-3R	0
58/							with silt - yellowish brown (101R 5/4) lose, moist -	0
511	,			1 er e e e e e e e e e			Sand 90%: VF= 20% F-50% M= 30% SA-SR	0
				****			(arz, feld, lithics) - Silt 10% non plastic	
**** **** ***				,	200			Ö
					290		SAA @ 289 SM NO CUTINES RETURNED	0 8
7	** ***	40.00					of 41 to the second of the sec	0
SC)								0 0
								00
					295			-0 6
~					1		well graded gravel with sand - brown (104R 4/3) loose, moist - gravel 70% up to 3/4" (4tz + lithics) sand 30% F= 202 M= 50% (=30% SA-SE	. 0
CWI							loose, moist - grave 1 70% up to 3/4" (atz + lithics)	0
Or.	(1. <b>22.</b> - <b>2</b> 1				ļ		Sand 30%: F= 202 M= 50% (= 30% SA-5R	. 0
				*******			Catz, feld, lithics)	0 0
-	7 m m				300			0 0
	2.2						poorly graded sand with tracest gravel - yellowish Grown (1042 5/4) loose moist - sand 95%: F= 85% M=15% SA-5R (Otz, fell, lithius) - gravel 5% up to 1/2" (lithius)	0
40	n +17*/ 1	. ves s					(1042 5/4) loose, moist - sand 98 %: F= 85% M=136	0 0
0							SA-SR (Otz, tell lithius) - grave 5th up to 12" (lithics)	0
							annia desaranta a desaranta de esta de esta de esta de esta de esta de esta de esta de esta de esta de esta de	. 0
					305			0 0
							poorly graded sand with silt and prace gravel - yellowish brown (104R 5/4) loose, moist - Sand 90%: F= 70% M=30% SA-SR (QIR, Eld, lithics) - silt 10% non plastic gravel trace - up to 3/8" (14thics)	0 0
59-)							brown (107R 5/4) losse, moist - sand 90% F 70%	P
5m	0			4			1117 30"6 >4-51- (Q42,616, 1,1465) " SIT 10% NON PLASTIC	00
		1 100 000		A MARK MICH. THE CO.		47. 101.11	glasel mace - up to 1/8 (lithics)	0
Additi	onal C	ommer	nts:	L				101
Recor	ery:	None				Parti	al Complete	-
		as Abo	<u> </u>	Qtz = quart	7	Lutti	$Fld = feldspar \qquad Y = Yes \qquad N = No$	

	1 2 2 2		SONI	C COI	RING BORING/WELL CONSTRUCTION LOG	
roject: Kirtl: oring/Well I					Project Number: 62735DM02.1017 Date:	
oring/ Well I	D: /	LAFB-10	655		Logged By: Joshua Messenger Page 10	of
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV iluorescence Samples collected	Depth, ft bgs	covery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
2.3			310	7	1011 acaded coad with acoust - will is I leave	Detail
N)			- 3 <i>js</i> - 320	Č	18/1 graded sand with gravel — yellowish brown (104R 74) 10058, moist — sand 9590: F = 40% M=40% C 20% SA-SF (atr, feld, lithics) — gravel 5% up to 2" (lithics)  SAA @ 310 — Sand 85%: F=10% M=80% C = 40% — gravel 15% up to 310"	
2.5 N					SAA @ 315' - sand 60%: F=20% M=65% C=15%  graves 40% up to 1"	
y)			- 325		374' dull chatter SAA @ 320'	9 0 0
2.4			330	3,	329 drill charter  AH @ 325   Sand 90% F= 30% M=45% C=25%  gravel 16% up to 1"	
			- 335		SAA (2 330' sand 862 gravel 20%	
2.6			340	51	eA @ 335'	
100					en 1889 y restricte and announced and a secondary and a secondary and an enterprise and an enterprise of the secondary	9
tional Com	nents:		- Announced to		L. C. C. C. C. C. C. C. C. C. C. C. C. C.	
					***	
very: Non	e I		p.	artial	Complete	
		-				
= Same as A	bove	Qtz = quar	TZ.	rid =	feldspar $Y = Yes$ $N = No$	

		ONI	C C	ORING BORING/WELL CONSTRUCTION LOG			
Project: Kirtland I		0.0	4	Project Number: 62735DM02.1017 Date:			
Boring/Well ID:	KAFB-10	6.55		Logged By: Joshua Messenger Page 11  Soil Description	of		
USCS Soil Type PID Reading (ppm) Temperature (C)	UV fluorescence Samples collected	Depth, ft bgs	Recovery	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		/ell tails	
		345			9 6	0 0	
5W)		350		well graded sand - yellowish Grown (104R 5/4) loose, Noist - sand 108 %: [F=20% M=70%] SA-SR (Q+z, fell, lithics) C=10%  Well graded sand with gravel - yellowish Gravn (10 ir 5/4)		000000	
(SW)		355		well graded sand with gravel - yellowish Grasn (10 ir 5/4) low se, moist - sand 85%: F=60% M=30% C=20% SA-SR (etc. feld, lithius) - gravel 15% up to 3/4" (lithius)  SAA @ 350' Sand 90%: F=45% M=10% C=15%	9 9	000000000000000000000000000000000000000	
5W) 4.0		360		gravel 10% up to 1"  SAA @ 355' Sand 85%  gravel 15%		000000000000000000000000000000000000000	
(5W)		365			0		
5w) 		370		SAA @ 360' Sand 95%: F: 35% M = 55% C: 10% gavel 5% up to \$18"		00000	
SW)		375			0 0 0	00000	
(SW)				Well graded sand - yellowish Grown (104R 5/4) loose, moist sand 100 %: F= 20% M= 60% C= 20% SA-SR (a+2, feld, lithius)			375
Additional Common	nts:						
Additional Commer	nts:	-	_				
Recovery: None			Partia	al Complete			
SAA = Same as Abo				Fld = feldspar $Y = Yes$ $N = No$			
Samples: V = VOCs/	EDB; P = TPH; M =	miner	ology	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	ctivity		

				S	ONI	CC	ORING BORING/WELL CONSTRUCTION LOG		
	t: Kirt			17 A . A	IAF		Project Number: 62735DM02.1017 Date:		
Borin	g/Well	ID:	FI	AFB-10	255		Logged By: J. Maskager Page 12	of	
USCS Soil Type	PID Reading (ppm)	Temperature (*C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	W Det	ell ails
	2.9	-			380			7	4113
SW) SW)	2.1				385		well graded sand - brown (104R 5/3) loose, moist Sund 100% - F= 20% M= 55% C=25% SA-SR (atz, feld, lithics)  well graded sand with gravel - brown (104R 5/3) loose, Moist - Sand 95% = 20% M=50% C=30% SA-SR (atz, feld, lithius) - grave (5% up to 1" (lithius)  well graded sand with trace gravel - brown (104R 5/3) loose, moist - Sand F=30% M=60% C=10% SA-SR (atz, feld, lithius) - gravel up to 3/8" (lithius)		
(Sw)					395		SAA @ 390'		111
SW	1.1				400		SAA @ 395' sand 90% F=20% M=50% C=30% ARCH TO = 400' gravel 10% up to 1/2" (i.thics)		
					405				
					410				
Δ.d.d.i+:	onal C	mmen	te.				<u> </u>		1//
Additi	onal Co	ınınen	ıs:			-		****	
	ery: 1	7.15				Partia	· · · · · · · · · · · · · · · · · · ·		
_	Same a			Qtz = quart			Fld = feldspar Y = Yes N = No	-41. 1.	
							; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	ctivity	

	1000				SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	ATTENDED OF THE	TO THE OWNER OF THE PARTY OF TH
Project:			FF	-				Project Number: 62735DM02.1017 Date: 10/	21/	18
Boring/	Well I	D:	Kit	10-	00	05	5	Logged By: Page 13	of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Vell
					X	0			/	Tans
CW.	15				XXXXX	striked Sup	yw	Sand, benn (7.5/25/2), Losse, stightly moist, well graded (7.5/25/2), Losse, stightly moist, Fyo/o M 30% C 30% G-trace in to 1/2" SHISE		
() () () () () () () ()	1./	20/0	N	and the second of the second	ļ	Let - D		5 AA cloof different %5		
SW	***************************************	M	N	gyste Wardlights day asker		Mark	1 1	F.50% M30% C 20% G		
Sh.		1 /	J		8	1 - 3 6	403	SAA @ 400ft 402 feet - Some %5		
31	2300 V 201 1 April 10 C	45. Se	7 7	n punations on a distribution		care bur	- track many	SAA @ 400 ft different %'S VF 28/ F 30% M 30% C 20% No gravel		
	Historia III.	₽	N	44 PT - 111		Il ortal	<u>101</u>	5.4.1 @ 403 ft	1111	
CLD	5	200	N			saye. F	406	Clay - Brain (7.5 425/3) very dense, plastic, slightly mors +		
~		22,5	N	The court section will be	1		44	Clay-reddish brown (5 YR 5/4) - very divise, stylethe dense, Now plantic	*//	
C		22.0	N		3		Y.Y.	chatastreto 40705-Reddishorum (5 485/4) clay,	111	
Addition	nal Co	mment	is:							
Recover	v: N	one [	_	7	ani	اوا	Parti	al Complete		
SAA = S			e C	tz = quart	-	rec		Fld = feldspar Y = Yes N = No No No		
COLUMN TO SERVICE STATE OF THE				AV ROLL STORY STATE AND A STATE OF		min		y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivi	tv
R = Rou	nded,	SR = S	ubro	unded, SA	= Su	ban	gular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	In A	- J
		Арр	endi	x D				Page 552 of 793	e	

E	A			III SING CO COCCO	so	NI	CC	ORING BORING/WELL CONSTRUCTION LOG		000	7
	t: Kirt		_					Project Number: 62735DM02.1017 Date: \2/2	418		
Borin	Well !	D: K	K	-8-100	5	5	-	Logged By: Land Indress Page 14	of		
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	v	Vell etails	
ci	-		Ē		tř	1	-	C 408 Clay of fire yand - Redough a tout Har S/2 ) and	7	TIT	-
(L)		22.0%	7	a desario succe			489	EVS. 25 - clay of trace Sand - Riddish Sterm (54 RS/V).  Mad de NST - New Clastian Sand - ettervesses y tice - Burite  8 408, 75 - 5 and fant 5 485/3) - Loose must welle saded			
sh.	4.7	22.50	2	······································	5	11111111	YIO	or 409.5 - No coarse or grant fracture - unor clay everes up to your ft		111	409
NR	PART COMMENTAL CONTROL	では	N		V	164	dir			7 7 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
St		No	30 B		1	MILLE	YIZ	sind 1-5 ye (3) Som - fine graved - Loose, slightly moist - poorly graded			
S	3.7	7	35			1111111	413	SAREGUIFT		Thirting.	41
SW		276	762,40		5		414	5000 - 10/ht 10000 (7.5 YR 6/3) - 1005, Slylity NOW, will gade NSO% C 20%	1. 18 M. 19 1. 14	1111111	
51)	2.4		18th 9			MIIIIII	415	CHY14,25-5610 as about increasing Finis VF 25% P 50% M 70% C-56 - occasional Fine grand janisters concretions 17+1,5"08		11111111	
S	3,2	272	21.75	20 May 12	-	MIIII	416	sond town (+5/RC/3) - Loose, shahat houst, polly graded very fine to fine grand work you concretion of fine grand sand stand up to 150.		position of the control of the contr	
SP	25	023	3/400	V1P. 0417	1		417	SAAC 4154- no concretens			**
Additi	onal Co	ommen	ts:					The second secon			
D		Tarri			_	. 71	-D		1		
Recov	Same	None	Je.	Qtz = quart		h chi	Part		1		-
_			_			min		Fld = feldspar Y = Yes N = No / NO (B) Sy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nducti-	ity	-
								c, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	nuactiv	ity	-

					so	NI	CC	ORING BORING/WELL CONSTRUCTION LOG		
Project									21/18	
Boring	/Well I	D: K	F	3-1065	5		-		of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Detail:	s
S		21.9%	2	VIP		MILLE	3	SAAC 415 ft - NO concretung		1000
9		( )	1	C 111		11118	418	SAA @ 415 ft - No concretions		20,000
SP		こんしてい		enement of a 18 % of an inc	5	1111111	414	SAA e 415 ft no concretius		
		N	7	-Martine City Const. Const. Const. Const. Const.		WILL	420	SAA @ Y15 ft No concretions		
SP	3.8	×4.7	Y		*	11111	421			
50	Pana Manya	0 0	N	e company as another on both com-			422	SAA @ 915 (+ - No carrections  ENZE (+ - Sand light brain (7.5 yields)  Zoose styling morest - party graded said as		
3/		350	N			1111111	પાંક	Lore by ~ 3%, gravel up to 3/4" se/sA af		
50		1, 2°C	N	e and advance and an extension	5	11/1/11	ksp	Sand 4- (grovel lorun (7.542573), 10052, Slightly horist, well graded F 70% M30% C 40% Cq 20% - P to 1.5" Chrz fld, Terlins SABR		A
SN		32	N	2700 000 to 110 to 200 to		11/1/11	425		2000 2000 2000 2000 2000 2000 2000 200	10 1 10 10 10 10 10 10 10 10 10 10 10 10
5W		39.200	2 /		1	11/11/	de	SAA EYZ3 H E425:5-sond philippina 125 yr C/3) Louse, sightly mass - greetly grand of		
Additio	onal Co	mmen	ts:			_				
			-					*		_
Řecove	ery: N	lone		(	Jr.	ut	Part	Complete		-
SAA =			re e	Qtz = quart				Fid = feldspar $Y = Yes$ $N = No$	maj	nn
Sample	es: V =	VOCs/	EDB	; P = TPH; I	M =	min	erolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal com		

	No. of Concession, Name of Street, or other party of the Concession, Name of Street, or other pa				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG		
Project			FF		_			Project Number: 62735DM02.1017 Date: \\	24/18	
Boring	/Well I	D:	SA	FB-10	X6 8	55	Character	Logged By: Page Page	of	
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	W Det	578
					1	1	426	set with the pot to tent surplay care by not opered &	1	
37		228°C	7 4			MIMMINI	429	5 and (+15 42 5/3) 1000, slanding moist, well galed - F.5% NISO C 50% G 20% up to atz fll 14 ms E 10% M 40% C40% G 20% up to 14 54) Se E 10% M 40% C40% G 20% up to 14 54) Se	· · · · · · · · · · · · · · · · · · ·	
56	6	30.	N	Colombia (Sana) hada maka kata (Sana)		1111111	44	Sind of Javel-bran 7.5 Yelf/3 \$ 1005, Styland Mast, well galed Ford 15% up to 1' StISK PS% Mysto Cyo% Good 15% up to 1' StISK 0429 atz, fullithus		
4	29	75	N	and the second control of the second	70	1111111	Y30	F5% Myse Cys% Good 18 of to 1 StISC atz, fullithus Singly growd / good of Sond - wan 7-5 y 4573 ) Cosse Singly moist, well gades PC5% Mis 5% Cys% G50% to 1.5" SASR OTZ FILL Lithus		
5W/	- Hydron (melanovi)	28tgc	2 7			11111111111111111111111111111111111111	¥31	GALE 4291 to 431  @431 - Sand, Xellanth Red (5424/4) carriganed  of clay nelves so +x3" of and dense (mod plastic  claf-year (7.5125/3) - Sand coerse graved - Loose,  walgraded, Slightly mast-clay ~ 30%  F(5% M 20% C 55% G20% up to 1" lither ship		
SWCL SW	CONTROL OF STREET	2,9	N			Robeined - Collins	134	5AA O 4 SI to 132.5 then sand-light brain (7.5 % 6(3) Coose Sighty wast, well graded - SYSRGTEFILE F 20/ M 306 Cy06 G 10% up to 1"-SYSRGTEFILE Finney Lanuard S		errors e
527	11-00 part 5	22	N			0+3 AL-POT	<b>1.3 Y</b>	C133.25 - Sing) as above F76 M 26/6 C 10/6 No 5 ravel		10000 100000 100000 100000 100000 100000 100000 100000
Addition	onal Co	mmen	N ts:		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	54 tell	135	Jaded F 60° VF20% M 15% C 5%	*	
									-	
	Same a s: V = V	Abov /OCs/I	EDB		z M =	mine	rolog	y same	Meduc	

	0			(1000 p 11 0 1000 pp. 1000 pp. 1000 pp. 1000 pp. 1000 pp. 1000 pp. 1000 pp. 1000 pp. 1000 pp. 1000 pp. 1000 pp	so	NI	C C	ORING BORING/WELL CONSTRUCTION LOG
Project						- 42		Project Number: 62735DM02.1017 Date: 13/24/18
Boring	/Well I	D: 1	F	B -110	15	9		Logged By: Page of
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
SW		CO	1		1	メイ		
SW		250	1		10/1	1 84 W	436	ey35. 5 Sand of grand - branchayes/3) loose, shappy ?  Most, Eneth gended Grand - branchayes/3) loose, shappy ?  F 50% M 15% C15% C7 20% 18 + 1" - SALSR G12 flight  Sund - branch - 542 5/3) (loose, shappy Most, well
SW		J.	N			1111111	·*137	Julia 1
Sil		26.	1			111111111111111111111111111111111111111	450	well graded C G 0% 1 books 14th Collete
- 3		Y.	N	THE STATE OF THE STATE OF			434	goodly graded Fire granier, trace heden
W	35	First	N	udiaman Continu	(0)		440	5000-6000, (7-5405/3), Loose, Shylling must, will graded - 60%, (715/10 to/2 st se ate) F < 5%, M 20% (50%, (715/10 to/2 flectorius)
Ne		20	2	n, accumentate as to second		111111111	14	Shot a diff the sun of gravel & cobolis of gra
Say GW		39.8	2	Allowed to the second		1111111	YUZ	F5% M20% C 25% G 50 18 up to 3 1 545R could could stop to 3
15 Bis	<b></b>	· 20/	2	THE RESIDENCE OF THE SECOND		11111111	443	mist, udigaded - F5% M5% C20% G70% of to 2.5" 54/5 CYYZe5-443-5000 of GMC than 7.54R 5/3) topsarehold worst-well acted the fram 7.54R 5/3)
SN Additi	onal C	3 5 5 5	N te:	engend discourse	7	111111	W	e 443 - 444 - Sind - brann (75 47 572) - loss sught Mist, well graded - Propolo M 10% C 20% G 20% as about
Additi	onai C	Junien				_		C 415 44 25
					,			is min
Recov		Vone	10 6	)ta = = -	-	eld	Par	
		VOCs/		tz = quar P = TPH;		= mir	ierolo	Fld = feldspar Y = Yes N = No / NO / POWER STREET S
								r, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse

	3	20-100-24		-	SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	NAME OF TAXABLE PARTY.	
	t: Kirtl		FF		-/	-	F-	Project Number: 62735DM02.1017 Date:	122/18	
Boring	/Well	ID:	4	-F3-1	06	5	2	Logged By: Page	of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primaril % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Detai	
47		60,84	2 2	c) Themse in	03	MIMMENTALICARIO	445	Flow Myo's Czo's G35/ Upate, list's styly  Flow Myo's Czo's G35/ Upate, list's styly  Flow Myo's Czo's G35/ Upate, list's styly  Flow Myo's CW/ G30/ Up to Z' SABR  Lithus, otz, fld	WY.	44
500	200 200 200 200 200 200 200 200 200 200	33, K	2 2	4		William Intill	447	F510 M 354 C VOB C 73) was super most will general - F15/0 M VOB C Y56	1.654	
R R	N. N. N. N. N. N. N. N. N. N. N. N. N. N	28252	72 72	Annual Control of the		Mummi	444	Sand Lyhot Sawn (7.5 4 R 4/3) loss, Shahaly most, well graded - F30/2 M 40/6 (20% G 18%, to 34/1 54/58 at 2 CHN 8,5 - Swo as always different 7'5: Fid  F LS% M 20% (20%, 9 trance up to 1/4-1/2"	3	
SV	and the second	26.82	N			Milli	451	Sund & brown fr. 5 / R 5 (3) Loose, Sughtly most, well graded_ F 3.4% M Y5% C 15% G When I' - St/SR Ct/2 i thus, fld		
Sul	ent service a	54 C	2	01.00 - <b>31.</b> 00 - <b>31.00 00.0</b>		Willing	452	Sind brann (7.5 YR 5/2)-losse, shaplarly houst, well 5000 VF 10% C~5%		
gN		11/3	N		5	111/1111	43			
Additi	onal C	omme	nts:			4				
			-			_				
Recov	erv: 1	None	П		1	WA!	Par	Complete C		
SAA =			ve	Qtz = quar		four	7 - 41	Fild = feldspar $Y = Yes$ $N = N_0 / N_0$	-	
						= mir	erolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal	conductivity	
								A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse		

ES			5	50	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	363.46.2312	
Project: Kirtl		FF					Project Number: 62735DM02.1017 Date:	72/1	8
Boring/Well I	D:	V	AFB-	10	(05	T	The state of the s	of	-
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Wo Deta	
£W .	Kape	2 2	e deserviciones de la companya de la	- 00°	MIMMININ	rsy rsy	Sand - borann (7 5 412 6/3) 10000, shylling nowst, well graded - SAHC 45(ft	A CONTROL OF THE PROPERTY OF T	
an a	14.44	N		1	1111111	456	Sond frank 7.5412 9/3) - lose, Sloghary Most, will graded to above to 455.5 from different %'S VF 100 M 30% CZU/o G-occasional up to l" SRISA Lithus (at Effect)	S SANDER S S	7
5W 49 5W	21.2°C				MINNIN IN	457 458	well graded - start should must,  well graded - stight odor- old sepschering  event, well graded - stight odor- old sepschering  event, well graded - stight odor on a court  vitzly F306 306 Clob G tack up to 1/2"- Ext 18/165.  o 458 - Song as above at 457 - fin. o commond	Constitution of the consti	
SW 3,2	21.93	* ***	on manifestation of the state of the	100	11111111111111111111111111111111111111	V59	Sand-19m From (7.54R 4/3) loose mast well a raded - Slight who of old petroleum thydro Esop Maybe C take	1 Variety Value Va	
5W8.7	1,78 24,9°C		amenda kan ing Jerokov	\ \ \	MILLING	401	Sund - Man (7.5 Yr 6/3) tose moist, well goded-slight aged petrole in a Lor - Well UF30% F15% M 70% (25% G 10% pto 1 1 14hrs Sund - bran (7.5 yr 572) lower mast well goded slight odor (as above) UP 30%		
Ju.	3			الم		462	P 35% M 20% (20% Gottas 5 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1	. =	
Additional Co	mmen	ts:		0	-	100	TO THE OF THE LAW	.17	
raditional Co	, milen			-					
Recovery: 1			- (	CVV	plu	Part			
SAA = Same a			Qtz = quart		767		$Fid = feldspar   Y = Yes   N = N_0$		
				_		_	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con . A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	ductivit	у

	5				so	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	Market Market Bar	
	: Kirtl							Project Number: 62735DM02.1017 Date: 10/	22/1	8
Boring	/Well I	D: \	4	FB-106	5	5		Logged By: Law Latross Page	of	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	W. Det	
		00				11		SAA	- cont	` .
SW	₹	tilly	2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			467	@ f63 a 2" well nowed to tangent Rock (alice)	Company of the Compan	
Sul		202	N		5	11/11/1	Yiell	wist-willy mist Slight odar a rune (4.54 G/Z) (00%)  Nost-willy mist Slight odar a rune  F 166 (156 C156 G 340 Commented 1) of their	To worker	
SP		36	Ŋ			11/1/	465	Sund - pight Braun (7.5426/3) Louise, Must, J Slyhodar as alone, porty graded Fingrand trace medium granj	Conference of Co	
The state		366	N				760	First a sondy clay grove / where - to am (7.542 5/3), lase Moist, will graded, shight obar as a lare - (7.542 5/3), lase First Mypl, Cials G300 up to 3" of Hhis or clay were  SHIST.	A GARDY	, , , , , , , , , , , , , , , , , , ,
54	28	20.7%	12678 Z	VIP C467		111111111111111111111111111111111111111	**	Sandy our (7.5 Y L 5/2) - Loose Shehrly horstruth graded V Fg F35/6 M 30% C 20% CHO% up to 1.5 " SAISE OTE fle lithes Powly graded VF to F graved - + Face Mann grans		
SW		, 2°C	やしてる		3		469	Sand Grown (CYR 5/3) medium duse, maist well graded - Shight odor as a save - VF 58756 F15/6 M5/: C5% o M/69-sand as about at 468 thet w/cary gard/mal		
Six	1.20,3	22	と深れ	,		1111111	478	ory to - Sand as above at 468 foret w/lary grand/small controls of 1 Hhred sweetine ) is clay - brown (7,5 ye 5/3) mod. Levis, plastic ) is clay - brown (7,5 ye 5/3) mod. Levis, plastic (10 yrcyc) medicin dise will grand - for egayshoram (10 yrcyc) medicin dise will grand & VE 40% F 45% M 10% C 7% tak 55 good of	A LINE	
Additi	onal Co	23.0 6	Mark.		1	11/11	471	chartest sand & clay +51/t - Hedern, densite dense-we interplayer sond as above at 470ft - slight clay & 5/1/t in sand - weakly to non plastic-slight of as a source - significant response of as above - so gard, less m & C		
Additt	onai C	MITTEL	.13.4		-					
	ery: 1				_	rote		Complete Complete		
	Same			Qtz = quart		_			rpari	West
								gy; B = biologic; W = moisture analysis; G = geotechnical; $UV$ = ultraviolet; T = thermal core. A = Angular, $VF$ = $Very$ Fine, $F$ = Fine, $M$ = Medium, $C$ = $Coarse$	nductivit	y

	And Married				SC	IN	C C	ORING BORING/WELL CONSTRUCTION LOG		
Project			FF					Project Number: 62735DM02.1017 Date: [0/2	23/18	/
Boring	/Well	D:	KI	tFB-1	06	5	5	Logged By: Land Andress Page	of	
								Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily		
	pm)	0	0	p				- % sand (include grain size %; fine, medium, coarse, etc.)		
ype	g (p)	) a	ence	ecte			· ·	sand minerology		
Tii	ding	tur	esc.	coll	_	_	ft bgs	% gravel		
SSo	Reading (ppm)	era	fluorescence	səle	Ru	ver	h, ft	gravel minerology		TO THE PERSON NAMED IN COLUMN
USCS Soil Type	PID	Temperature (°C)	UV fi	Samples collected	Core Run	Recovery	Depth,	angularity/roundedness	W	
2	<u> </u>	1	)	S	10	~	0	% fines (silt/clay)	Det	ails
1			,					a med - Stand of 12 43 / mound wise wet and		
AV		. 1	(			1		VELS F706 M 15% C 56 +500 Carl 1016"	Great	,
		00	N			11	U27	SA Little Clarest	-	
100		0				1	714	CALL 2007 JULY 60 MIN TO COMPLIANCE AND THE WAY	seare 6	
SW		0				1		1/2 - State of the state of the	1 4000	,
0	1.0	63	N			1/		1 906 196 10 106 C 5% No gravec	anner "	
	1.		1.			1	473	Sand Drawn (1041243), medium duse, wet vell graded - stighted (5% C 5% train Gravel upto 1/3" SA lithics granut of 1/3" SA lithics granut vet vet VF50% F15% M20% C 5% No granul c 473 - ~5% M& C grains stighted of	- Control	
		0.00 11 104			,	1	MZ	SAA @ 472 -	***	
SW			1		5	1		78160 6 112		1
200			N		()					
		÷ 1	1		1	1	121		7	
1		0	(	HAME THE TE COLD THE BELL THE		1		The state of the s	-	
SW		7	N			1			t description	66 6
		20.	)"			1			-	1 1
		20		-			475			
Mil		. 1				1		sand as about at 472 w/ ~30% red clay pieces ip to 3" - soft Alight to NON-plaster - and 20% sudstance of bells up to 41/2" modum-coarse granged ss by staff, gtz fill I the grans - well normated - significant	" 4	£ ',
Sul	113	N	,			11		vipto 3"- soft Aight to NON-Plastice - and 200%	* Blitar	
a	440	9	N			1		Sind Star cold bells up to 41/2" medium-coarsi granged 55	Allen A	
C	Want P	2	4		V	7	476	7 staff, 9tz file 1 4the grans - well norrated - 360		6
	N Te				1			escistant (10/2 1/3) (1-000 10/6.4/3) - 1 mset wet	f 1 elates	2 4
0		, )	1			1		Will graded - stight and Shiftenest H-Color Will Lause	1 10000	3
70		0	N					F 186 M (06 C 106 G206 upto 1" SHISR	1	
	Tours - Just mare	T.		the territories of a variety	.   .	1	477	Contract of the Contract of th		
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ay		3				1		of selections of the selection of the se	-	. 4
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1000 1000 1000 1000 1000	our money.	chun armar			+	11	478	Coffres, at 2 18		r 19
1						1		Carse some as above at 977		-
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1		1	M		1	1	U 14	+5% M293 C 45% GD 3P 10264		17
Cation acampa				COMMUNICATION OF THE PARTY OF T	13	1	1.1.7	Cay ALT hus dete	, =	1
1.	-1	3	1		11	1		pieces Alme	8, -	10 1
M	2107	-	N			1		(/		*
			1		11	1	180	\$ (80° Jovel Small up to 1,25° charpieces)		1
Additio	nal Co	mmen	s:			2		Sant Commencer of the C		
Recove	rv: N	one [	T	/	gri	eld	Parti		(noa)	
SAA = 3			e (	Qtz = quar	tz			Fld = feldspar Y = Yes N = No / Note No Children	eratil	
Sample:	s: V = V	VOCs/I	EDB	; P = TPH;	<b>M</b> =	min	erolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity	)
$= R_{01}$	unded,	SR = S	ubre	ounded, SA	= Su	ıban	gular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse		

EA				SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG			non 1 (Ca	7
Project: Kirt	land B	V	F 2 1	. (	0 -		Project Number: 62735DM02.1017 Date: \ 0 /	27	3/1	8	
Boring/Well	ID:	Lot	F3-1	06	21	_	Logged By: (au Indress Page 22	of	l .		
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		W. Det		
200	21.300	27	1.17 (f) is now as		MIMMINI		Shipfort Sand of gravel - (binn 7.5 ye 5/2)- Lossito meddinse, wet well galed - 25"- 1 yhus sake  Efrom in 20% (40% of to 25"- 1 yhus sake  out 1 - Gravel of sand-brown + 5725/2) westened duke,  well gashed-wet-  Frame M20% C 15% Gloss ate A1 1 this	A 20 00 00 00 00 00 00 00 00 00 00 00 00			
34	201.0	1	ned on the season of the season of		MIMILION		well grased-wet.  Frame M20% C 15% Gless ate fly lither  Send of gravel gravel boun (loy R 4/2) SAA at  477 ft gravel of 34 2.5 with more clay  preces, regravel - slight o for - less than previously	10000000000000000000000000000000000000			5
Sh 218	3	1	Mante of Life and Com-	)0  -		464	e 4835-gravel smiller-up to 1.5- SAIR 977ft on I minor clay pieces in gravel - Stigner odor	The state of the s		* * * * * * * * * * * * * * * * * * * *	4 2 7 2
SN Not	35.74	1	to the contract of a second decimals.		111111		Gird wil gravel Lak grayth brown (laye 1/2) sto med dense, wet, well graded-slight perfolence H-coder F10/6 M15/6 CF0/6 (725/6 ip to 2" SALSR Lotines, QTZ, f11	4 4 44 44			***************************************
Sul	501	J		1		(86 ST	SAMENTT Increased odor	**************************************		The state of the s	4
5h 1942	19/0			1111111	1111111	Y.¥_	Gre bag por operation for parental sampling -	4, 23,00	a a		48
Additional Co	omments:	181	190	D	374	EJ .	shipped to PTS Lab for analysis	- 1		*	
								-			
SAA = Same a	lones Above		= quartz				Id = feldspar Y = Yes N = No Wind Mule Make	sect,	1		
Samples: V = '	VOCs/ED	B; P =	= TPH; M led. SA =	Sub	iner	ology ılar.	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	duct	ivity		

Logged By: Logged By: Page 23 of  Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily	Projec	Wir. Kir.	tland I	PEE		SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	- 13 - 10 t He	and then pr	E REGICAL
Soil Description  Soil Descrip				_	-B-15/-6	2 5		-	Project Number: 62735DM02.1017 Date: 107	3/1	5	
BE THE CONTROL OF THE SAME OF THE COMPLETE OF THE CONTROL OF THE C	50111		T	T	100	00	-			of_	-	
The state of the s	USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Ħ	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)			
The property of the partial All Complete A to a gard of the partial Description of the partial All and the			1		1		11		every notified for gotenhal surgery		II	13
Soul date of the graph of the grand  Soul date of the graph of the grand  Soul date of the graph of the grand  Soul date of the grand  Soul date of the grand  Soul date of the grand  Soul date of the grand  Soul date of the grand  Soul date of the grand  Soul date of the grand  The grand  Soul date of the grand  Soul date of the grand  Soul date of the grand  The grand  Soul date of the grand  The grand  Soul date of the grand  The gran	-71 -00-40	alani	3/16	7	GUV 488 490			490	anolysis	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
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Sind of Control of Sind Contro	Li	N	32.08		VIP		11011	491	Toba Colo C7 50% Cirtus Cotz	, , , , ,		
SATE 493 A -very fine graved  SATE 493 A -very fine graved  SATE 493 A -very fine graved  SATE 493 A -very fine graved  SATE 493 A -very fine graved  Floy M 65, C29, Grass prof  White Gaster prof  Well graved  Floy M 65, C29, Grass prof  White Gaster prof  White Gaster prof  White Gaster prof  Well graved  Floy M 65, C29, Grass prof  White Gaster prof  White Gaster prof  Well graved  Floy M 65, C29, Grass prof  White Gaster prof  Well graved  Floy M 65, C29, Grass prof  White Gaster prof  Well graved  Well graved  Floy M 65, C29, Grass prof  White Gaster prof  White Gaster prof  White Gaster prof  Well graved	, הל	18/	. 0	N	e yal				Sitt		31, 3	
SATE 493 A -very fine graved  SATE 493 A -very fine graved  SATE 493 A -very fine graved  SATE 493 A -very fine graved  SATE 493 A -very fine graved  SATE 493 A -very fine graved  FINE Sound took gray luys 4/1 ared doze -very wet, well graved  FINE M 65/6 C246 A 5/2 Petol retinal Constitution (and constitution)  FINE Same as Above Qtz = quartz  FId = Feldspar Y = Yes  Set Y = VOCXEDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = gentechnical; IV = utraviolet; T = thought and the set of the s	1		الم	7		10			Sind of Clastic - fire gray (loyle VI) - devise, wet, poolly grated now plastic - fire grayined - Etay - 26% everly dispused.	42.50		
Sond the gray (lays 41) and date - very met.  Sond the gray (lays 41) and date - very met.  Well grace Fible M 65% C7% Graff - professional Comments:  Very: None Qtz = quartz Fid = feldspar Y = Yes N = No  les: V = VOCsEDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = gentechnical: IV = ultraviolet: T = thornel and the fiber of the second content of t	2/	57	25.6		ar amerikan, an jarir adaraw.			115	SAA @ 492 W/ more flag silt			
Sond the gray (lays 4) and date - very met.  Sond the gray (lays 4) and date - very met.  Profe M 65% C2% Grash - professor of the gray (lays 4) and date - very met.  Professor of the gray (l	*	J -		1	the state of the artists and the state of th			194	SAIT @ 493 A -very fine graved			
Sond that a cary (1042 4/1) and dark over quest, well a care of the state of the st		0 10 m	300	N	the ariemantages (e. a con core		1	75		6	C 6	
very: None Complete Partial Complete Partial P	46	, det	of	N			1111111		SAA @ 493 ft = five grained	44.		* *
very: None Complete Partial Complete Partial P	× -		1		ul.	1	1111	19/4	Soul dark gray (LUYR 4/1) med dense-very wet,	24 20 20	ti b	The second secon
very: None Complete C			8	N	the second on a sone and		) Y	97	Flore M 65% CZ96 Gasto Pto State Garage glass			
very: None	5	0,0	L	N		10/11/1	111111	98			3.5 C S S S S	
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No les: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IV = ultraviolet: T = thornel can destrict	lition	al Co	nment	s:		نا:		<u></u>		10		0
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No les: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IV = ultraviolet: T = thornel can destrict												_
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No les: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IV = ultraviolet: T = thornel can destrict							4		. atem	-		
les: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical: IV = ultraviolet: T = thormal conductivity						upe	JF		JV461-1, West	m		-
to S. I - I Co. E. D. I - I F II; IVI - Interviolet; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity						[ -	.i.	F	id = feldspar $Y = Yes$ $N = No$			-
Olinged NK = Nibrolinged NA = Nibangular A = Angular VE - Va Pt. Pr. Pr. Pr. Pr. Pr. Pr. Pr. Pr. Pr. Pr	Rour	ded 9	R = S	uhro	unded SA -	Sub-	uner	ology	G = Angular VF = Vary Fire F = F	uctivi	ty	•

	0	COM 3 3 11 - COM		A SURCEUM, STATE	so	NI	C C	ORING BORING/WELL CONSTRUCTION LOG			
~	: Kirtl							Project Number: 62735DM02.1017 Date: \0/3	3/1	3	
3oring	/Well I	D:	AF	B-106	59			Logged By: Love Andress Page 74	of	-	-
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	epth, ft	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	V	Vell	6
					Ť	1	_	east bag somewiff sand tolk gray (7-5 YR 4/1) med	10 1	9 0	
gy gy		412-ya Sayes	2	1.11 (1) (1)				early wet, welly radio - shees of this 12" to 2"-sondy lay-lax-making photo Golf Glob to 1.5"  Atz fld 11 4this  SHISTE			
						11	500		460		3.
50		22.44 **********************************	N				50(	Sand of a rarel & Colobbes - gray (7.5 yr 5/1) med. Zerser well y to be wet majorely & colores of R to A 14thors of corresponde converted a substruction of 52 to 54 good UP to 11 in it - Sand: 151			XXX
91	45	FORMULA	Ŋ		And the second part of the second sec		52	F Wolo M folo CHOTOST G Works Cobbact to C5%		X	
Fil		el terrent e è se s	Ŋ	e.	10		507	15AA 502,25 -5041	X		
SN	N	a 1444, sta 112 (th	N				504	Convoled conglowers sometime (fizzes of the )			
Sh			2	y any "Sy rangement fact and Speeds	Control No.	11111111	35	tore tous more and of sind-date gayishbrand 10/2 4/2) medim bise, but, well graded  F 30% M 25% C 25% G 20% up to 3/4 2 Se 1 of the sore f 18 1 into sore f 18			
9	1/0		N	V18 e 506			506	e 505.75- Farestore Fizzes-carbanata cerent-F-Coorscham  TO = 506.64 Emil Industrial Const.	X		
Addi	tional C	Comme	ents:	- Landy				TU=506 ft Ywll indirated discuss			
Dear	vor."	Mone			Ca	00.1	+ Da	tial Complete Med = Med	ection	_	
	very: = Same	None as Ab	OVE	Qtz = qua	200	jell	Fa	Fld = feldspar Y = Yes N = No / No	La lo		-
						= mi	nerol	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal c	onduct	vity	
D - T	laundae							r A = Angular VF = Very Fine F = Fine M = Medium C = Coarse			

EA		SO	NIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland B Boring/Well ID:	FF KAI	CB - 100	55	Project Number: 62735DM02.1017 Date:  Logged By: J. Messages 1 L. Andress Page 7-5 of	22
USCS Soil Type PID Reading (ppm)	UV fluorescence	seted	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	Well
		<b>3</b> 1	-+-	1 / - 2	etalis
				LEY:  2"diameter blank PVC Schedule 80  3"diameter well screen Schedule 80 PVC 0.010 slot  3"diameter well sump (2F) with 3" solid flat end cap	
				- Filter Pack: 10/20 Silica sand (Premier Silica)	
				- Bentonite Seal: Halliburton 3/8" HOLEPIUG	
	0	000		- Bentonite Grout: ≥20% Bentonite Solids - Halliburton QUIK-GROUT 20% solids pumpable bentonite grant	
				- Concrete: Portland Cement	
	×		- man	+ Native Soil/Slough	
	**************************************		en a la la Moria (1 la)		
Additional Commer	nts:				
					-
	EDB; P = 7			Complete  Fld = feldspar Y = Yes N = No gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	,

E	0					I	BORING/WELL CONSTRUCTION LOG	
Project	t: Kirtl	and B	FF				Project Number: 62735DM02.1017	
Drillin	g Com	pany: (	axi	de			Start Time/Date: 1350 1/16/19	
	Driller:		it C	batten			Completion Time/Date:	
	g Meth		Til				Final Depth:	
	Diame			14/19/			Bit Type and Outer Diameter	,
Boring	/Well I	D: V	FIS	10657	-	-	Logged By: C. Marty Page 1	of 29
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
ML	15.9	3 200			<b>10</b>		Silt, Strong Brown (7.5485/6), Loose, reaplisher 50% Five 30% Very Fre, Dry  SAA Charge of Color yellowith Brown (548 \$76) Con 60% Fine 40% Very Fore, Dry	
<u> </u>	3.1	12 mars		100 m 100 m	10		SAA Face pen siled Cravil Con 70%F 30% VF	
\$				111 (m. k.)	L\$		Clary Sml, Yelland Bran (5485/6), 50ft Slightly Plasta, 20% Fox, 80% VF, Lithins'and etz, SR to R, Dry	
Addi+	onal Co	mmen	ts.					· · · · · · · · · · · · · · · · · · ·
Recov SAA =	ery: N	None	e	Qtz = quartz			Fld = feldspar Y = Yes N = No	
							; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condi	uctivity
R = Rc	ounded,	SR = S	ubroun	ided, SA = Su	bangı	ılar, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	

Project: Kirtland BFF  Boring/Well ID: CAFB-/CG57  Logged By: Page 7 of 29  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Well  Details
Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  w fines (silt/clay)  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  Well  Details  Soil Description  % sand (include grain size %; fine, medium, coarse, etc.)  % gravel  % gravel  % fines (silt/clay)  % fines (silt/clay)  % fines (silt/clay)
OSSO THE PROPERTY OF THE PROPE
35
35
$(\Lambda \Lambda - 0) 0$
SAA 50%F, 50%VF
40
CL 4.9 Souly Clay light Rodish Brown (57R 6/4), Dry Soft Slightly Plast 2 60% VF, 30% 10% on Withers, Otz, Feldgow SR
145 Silty (lay Vellaist Basin (5 YR 5/6) toose
Silty (lay yella 17 L BEONN (5 YR 5/6), toose  Very 5/1 L. Aon Plastic, Lithius, Qtz, Felleyel, SR, Dry  50% F 20% F 70% F
4.0 SAA 90% VF, 10%, F
55
Clayer 2and yellowith Brown (5/K 5/6), beyloose 10% melum, 40% F, 35% NE, 24 couse,
63
5 SAA VI Time Coronel SR Lithis, Fellow, Gtd, 25% carse, 15% malur, totto 60% Fox, 0
Additional Comments:
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  R = Rounded SR = Subrounded SA = Subrounded SA = Subrounder A = Angular VF = Very Fine F = Fine M = Medium C = Coarse

E	Telephone St.		-	S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG	(1)		
		and B	FF	1016	1	-	Project Number: 62735DM02.1017 Date: i// Logged By: Page 3	of 2	4	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness		₩ell	
	<u>a</u>	T	5	Sa	1	R	% fines (silt/clay)	D	etail	S
Sin	42				10		SAA 10% 40% F 6 NOVE, Track Chands, SR Lithes, Fellspar, Gtz.  Silty Sand yellowith Red (5 18 5/6) very losse, Aun plaston, 40% F, 10% VE 10% Coarse, K-SA, Lethizs, Qtz, Feldspar	0	0	9 0
5M				The state of the s	75		SAA- Yellowish Red (578 4/6) EOF, 40%M	p.		Special
SM.	3.8				80		SAA	O		3
er i	D-0				85			3	<b>3</b>	O
5M	i i i i i i i i i i i i i i i i i i i	11 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		a stance i an i tra came an i se te di tra (contra a	90	n ou o	54A Yellowith Red (5725/6), 40% medium, 63%F	0		6
SC.	3.5	*** 140 m **			· · · · · · · · · · · · · · · · · · ·		Clayer Sond yellow 17h Eal (54h 5/8), Sond 13 50207 Soto Borof, 13% Clay Lithizs, Feldger, Qtz, Pointed Graves			6
		100 100	(a)		95	1000000 0	SAA-501F, U0%F, 10% (lay	0		6
Addit	onal C	ommer	its:		***			to	С	
Recov SAA = Sampl	ery: Same	None as Abov VOCs/	/e EDB; P		mine		al Complete  Fld = feldspar Y = Yes N = No  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct  A = Angular, VF = Very Fine . F = Fine, M = Medium, C = Coarse	uctivit	у	

E				S	ONI	CC	ORING BORING/WELL CONSTRUCTION LOG			
		land B					Project Number: 62735DM02.1017 Date: //	16/	19.1	
Boring	/Well	D:	-EB-	12657			Logged By: C Montaya Page r	of ·	24	
USCS Soil Type	PID Reading (ppm)	Temperature (*C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well Detail	
40	1.6				100		Fine Grand Sent Light Brown (7. ) 4K. 6/4)			
1		e a so ac			NCS.		Fine (value) Soul Light Boson (7.) 4K, 6/4), Wy 1005g Dry Qtz, Lithies, Feldspar, SR, 90% Fich Utt	0	()	0
51							SAA - County pount of soulstone concertors		Ĭ	
at 4111							en en en en en en en en en en en en en e	0		
			Kome I				The same of the second course to the second manages of the same same stage where the second second second second			0
5M	3.L	TO THE STATE OF		en see to a	110	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Silty Sand, Vellowish Red (5/R5/8), wey lose, a Lithius, Fellow, atz, R-SR, Io'lox, 100 hv	7	Ü	
1285 1 12 138			e lander	1 * * 1 * 0 * 12 * 12 * 1	**************************************	10 m 10 m	[Lifting], Fall Str. 147, 1236, 1010x, 1010x, 1010x			
		- Fig Gr		Same For River			r home. However, respectively, a first section of a second manifest of the month for the contract of the contr			O
SM					115		5AA-60%F, 30AFFim	6		
480 L		entire the	4 4 1 1 3 4 4 A		K ew h		estate of the second control of the production of the second control of the second contr		0	
	0 P W Y 1			6781741741 - 18(10 -		. 42 (4)	emit til fil sæstiminiminim tilsta skall grænen met be menne men en en en en en en en en en en en en e			
1309 0				r ninet a out o r	173	-9. h-15	er burg er 19 gil formal om flætstag und er men er skillementen de kombor er brog et al fir i i i in.			
5M	7.3						SAA-50%F,50%VF	6		0
	1941 141						e men i sterio di manante di mananta andi di mananta di manante di manante di manante di manante di manante di			
					125		The second of th			
CL.	e de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della comp			**************************************			Sindy (lay Strong Boun (7.5 4R 5/6) very 5011 Significant moist, Slightly Mastre, Feldspar, atz, Lithres, 70% VE, 30% F	D		t
				K 7111			THE THE PERSON NAMED AND ADDRESS OF THE PERSON OF THE PERS		ō	
(L	3.5				133		54A 40% F, 65% 18	0		0
				de co est			The state of the s			
		Set 1							Ü	7 -
		1431111		i manakian iki k	411		The second control of the second seco	0		600
Additi	onal C	ommen	ıts:	L				1		-
Recov	ery: 1	None				Partia	al Complete	_		
		as Abov		Qtz = quart			Fld = feldspar Y = Yes N = No			
_							; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	uctiv	ty	$\dashv$

SONIC CORING BORING/WELL CONSTRUCTION LOG  Project: Kirtland BFF  Project Number: 62735DM02.1017  Date: \(\lambda \) \(\lambda \) \(\lambda \)										
				121			Project Number: 62735DM02.1017 Date:	119	,,	
Boring	Well	D: F	4 1/3	10457			Logged By: Contact Page 5	of Z	4	
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	De	Vell etails	
4p					135		Send, Strong Brown (7.54K 5/6) Louge			
				a a a a a	ido	. 10 V. 1	Sund, Strong Brown (7.57K 5/6), kooses 1090-wedning, 60% F, 20% VF, Lithics, Qtz, Fallyon 5.R	0		
Sc	3.0	100 10 10 10 10 10 10 10 10 10 10 10 10					Clargey Sand, Strong Brown (7.548 5/t), loose Plastic, Mussl, 50% F 10% C, 40% VF, Lilhis, Feldspers, Rtz, SR-R		)	
50					145		SAA F-30% VF-70%	(A)		
5 <u>.</u> £	ye~	tres into a		Composition 1	150		Ac	J.	3	
54	3.8					e or election	SAA- F-50%, VF-50%		D	
310					155		SITY Sand, Strong Bran (15 YR 5/6), Loose 10% pl, 20% F. 70% VF Rould Grang Qtz, Feldyn, Lithres		٥	
M	4.1			*************	160		5147 Sml 216/10/ 1/4/10 (7.54x 6/8) Javie			
						ere e	Thee Silk Concelled Library at, Feldyand	0	S Common	
SM.					165		SAA-40% F SOUNT 10% Evenil, Would, 55R, ~4.75mm, Lithius, Otz, Fildspor	O	0 0	
Additi	onal C	ommen	its:		-					
					_					
y e	10.74						. (///) PAGE			
Recov		None is Abov	/A	Ota = avart	_	Parti	1			
				Qtz = quartz = TPH; M =		rology	Fild = feldspar $Y = Yes$ $N = No$ Y = Yes $Y = Yes$ $Y = Y$	ictivity		
							A = Angular, VF = Very Fine . F = Fine, M = Medium, C = Coarse	Luirity		



E	THE REAL PROPERTY.			S	ON	CC	ORING BORING/WELL CONSTRUCTION LOG		
	t: Kirt						Project Number: 62735DM02.1017 Date: [ / /	7/1	9
Borin	g/Well	ID: [4	VIF	13-1665	7		Logged By: Page	of	24
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well Details
41	15.8				170		SAA-10%C, 36-101-657-VF, NO GONEL		Details
					135		3/10m, 60%.F.	0	5 6
m						,	Siltly Sind, Reddish yellow (7.5 4K 6/6), Lose Dry 15% ( 25%) to job , Lithres, Qtz, Feligra, R-SR 125% My 60%)	0	
SMI	[[-0		er ar il		1550	**************************************	5AA-25%C,22/2011,55%F	Ö	) c
51			- m - 1		<u>(85</u>		Sent, PINK (759K7/4), 1005- Dry 10% ( 60%, m, 30%, E, Feldsper, Goz, Lithres, 125R	0	f are
Sp.	13.8	Tractical			190		SAA	500	9
*					[95]		SAA-15% (, 60% W, 25% F	0	9
		in the	energialis.		200			0	٥
P	15.3						Sul, Light Brown (7572 6/4), 10% M, 40/4F, 45/35 576C, 45 6 Libberg Fellige, Gtz, K-5R	000	b t
Additi	onal Co	mment	s:					0	D
								_	
	Same a			Qtz = quartz			Fld = feldspar $Y = Yes$ $N = No$		
R = Ro	vs: V = V unded.	OCs/E SR = St	DB; P	= TPH; M =	miner	ology	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu-	ctivit	ty

E				S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG			
		land B		2, 7.1			Project Number: 62735DM02.1017 Date: //7	119	-	
Boring	/Well	ID: V	AFB	-17657		_		of _	24	
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well	
SPA	The				10		Gilty Sim Coldin Vellas (+ 548 6/4) lines	0	TT	^
					20		Gilty Sind, Reddish Yellow (+ 57R 6/6), Loose, Dry, Lithics, Qtz, Feldsper, M. 60% F 20 V-15, R. Gland-590, Lithics, Qtz, Feldsper, SR-R.	ō O	2	0
SA	1.7						SAA- C-18%, M-50%, F-10%, UF-21. 15%		11	
	. 1000				115		Exact - 15%	0		ō
SIL	1447-19	*					SAA- C10%, N-60% F10%, VF10%		W	
							JAG - LONG WELLING WELLING	Ď	2	O
	. 0		77.11 12		70			0	81	
Sm	21				218	n a na e a na e ke re en e e	Silty Sinly Light Brown (751R 6/4), Loose, Dr., C-25/9 M 50/9 22 F, 5 %NF K SK, Lithins, Oty, Feldspar	٥	ō.	9
Sin					<b>1</b> 50		Silty Sand W/Gravel, Reddish Yellow (7.54R 6/6) love, Dry, C-30, M-40, F-10:00 F-5%. Evancl up to 1.5" in 572c, 15% Gravel Sand- Gtz, Lithres, Feldson Gravel- Livestone Btz, Lithres, Feldson	0	Ó	2
541	2.4		PIPE HALL	a. eli			5AA- (-704 0072) 10/6 1 1 - 10/1 (0 0 - 40/1			0
					L35			<b>⇔</b>	٥	۵
500		-		ete u tija bio	-		Sat - Gara 50/ 1-1-01 11-55% Evy 15-54			
/ · · · · ·							7 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	4	0	3
Additi	onal Co	ommen	ts:							
			-							
Recov	ery: 1	Vone				Partia	al Complete		-	-4
SAA =	Same a	s Abov		Qtz = quartz			Fld = feldspar $Y = Yes$ $N = No$			
							; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	ctivity		

	0	. 11		S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG
		land B		14			Project Number: 62735DM02.1017 Date: \/ 1719
Boring	y/Well	ID: C	AFB	- 120g t	1		Logged By: ( n) partial Page of 24
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color, density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
SIN	24				240		5 AA NO Grand 108% C, 70% M, F-10%, 05-10%0
		112 2 3		- 50 -	245		
Gon							GAA
		**************************************		1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			b
F.	11		1.4787 .44 AT		250		
Gr	1.5	e total e	- 124 - 12 - 124 - 12		255		Loose, Pry, C-10% M-10% Cravel up to  0.75" ASTZE, Grand-80%, Soul-Lithius, Qtz, Feldspar, R-5R  Cravel-Lithius, Comestre, Qtz, Feldspar
SM				411	17		City & State of the State of th
0 - n					24		Looge, Dry, 10% ( 60% M 25% F, 5% Gravel, R 0 Lithics, Feldspir, Ctz Gravel up to 0.75", RSR 66 Min Lithics, Lanstone, Qtz, Feldspir
CL	1.7						Sondy Clay, Pink (754R 7/4) Sott, Plastiz,
182	. 91 - 10	i n as	- Fr (1 ) (1 )		en en en		
( w . )		74-74-9	en en fil		265	1-0.7	The second of the second control of the seco
CL	) gras -		0.1 100	Y Parker .		100	SAX
1313 2 2		en vers	en - sen en s		210		
11	1.6			H-3-11-46-	Tin		Clay, Brown (754R 4/3), 51ft Nustre
Additi	ional C	ommen	nts:		-		
	Same a	None as Abov		Qtz = quartz	z	Parti	Fld = feldspar $Y = Yes$ $N = N_0$
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse

E	4			S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG			
		and B		130.64			Project Number: 62735DM02.1017 Date: 1/17	111	1	4
Boring	/Well	(D: 🔼 )	4FB	-13697			Logged By: C. Warton A Page	of 25		4
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	100	Vell tails	
(					500	7	SAA	0	П	0
7					250	V 44		0	Tit.	2
CL	1.7						Grandy Clay, 1: 1ht Brown (+572 6/4), 50ft, Glighty plaster, Gravel up to Y4" in size, Limetony Knylov, Cruvel-35%	. 0	0	Ü
SIN					267 328		the final of the second state is a major of the particle of the second state of the se			
2117		F 1 F 12 F 1		n man ( )	46		5,14 9ml, Bran (7.542 5/4), 1005e, Dry, M-60%, E-35%, VF-5%, Qtz, Lithizs, Feldsper			9
		(CONTRACT)	1010-0	1000100000	50					Ċ
SIN	1.7				245 540		Silh/Sand, Brown 17.5724/3), 12052, 5% (, 45% A, F-45%, NF-30%, 20% M, R-5R, Qtz Lithres, Teldsper	O	6	L
5m					-1:4	j ne s	SAA - C-10%, M- 25, 45% F, 20%VF	٥		Ó
* * *	Die V			1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	350			Ю	4	T
SM	1.2						SANT (-15, M-30, 40%F, 15% TF	0	6	Ò
5P-					305	cr	Gravelly Sand to Silt, light Brava (7.54R C/3),	0	8	2
SM.		er Liver					Losse, Dry, C-45%, M-25%, Evinul-30%, Sond-Otz, Feldsper Lithics, SR-R Evavel- LS, Qtz, Feldsper Lithics, K-SR	3	٥	4
Addit	ional C	ommer	nts:			-	10, to Etts CIS "IN SIZE		Ш	_
Addit	ional C	Juniel	10.		_					
		-				_	** *** *** *** *** *** *** *** *** ***			-
Recov	very:	None				Parti	al Complete			_
SAA =	_	as Abo	ve	Qtz = quart	z .		Fld = feldspar Y = Yes N = No	Ą		
-							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	uctivity		
K = K	ounded	, SK = 5	ouprou	nded, $SA = Si$	ubang	ular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse			

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		land B		1017			Project Number: 62735DM02.1017 Date: 1/1	148	19	
Borin	g/Well	ID: K	AF	4-10657	-		Logged By: C. Montout Page	of Z	24	_
USCS Soil Type	PID Reading (ppm)	Temperature (*C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well Petails	
5P-	14			3/3	37	7	547		$\Pi \Pi$	٦
SM St					315	bek	51A- M 6090, 22/05, 3510 Gravel	O	4	0
0 - 4-				6 TE 14 BR		***	e (actual de 1900 de 1800 de 180 de 180 de 180 de 180 de 180 de 180 de 180 de 180 de 180 de 180 de 180 de 180 de			1
5r	0-1				320		SAA	0		ø
100						****	and Carlington material representation of the first to the control of the control		111	
					325			ō		a
うト							Poorly Graded Send, Blown (757,25/3) Wose, Pry, 590M, 95%F, Rtz, Lithizs, Feldige			7
					330				$\Pi$	1
Sr.	1.3	1 25 - 1 1 25 - 1 1 21 1 2 3			335		. SAA	5	3	
Sh.	2 2	jri, 2					Dry, 10% (, 40% M, 53 F, 5% VF		7	)
	i de d	10 m - 10 - 1	40 AF	an an an haife an	340	***********	enter ex des de la granda des la la ambie depla altra el majoritorio del la la la la completa del completa del completa de la completa del la completa de la completa de la completa de la completa de la completa de la completa de la completa de la completa de la completa de la completa del la completa de la completa de la completa de la completa del la completa de	0		Đ
SN	[]	()			*********		Silty Soul 4/ Fravel, 117/14 Brown (75486/4) Lose, Dry, 10% C, 20% M, 20%, VF, 50% F Dtz. 11/6:55 Tetlson D-SR	9	0	
		1101		NHALIA.			the separate of the second sec	0		75
Additi	onal C	ommen	ts:							4
Recov		None as Abov	10	Qtz = quartz		Partia	al Complete Fld = feldspar Y = Yes N = No			
Sampl	es: V =	VOCs/	EDB; P	= TPH; M =	mine	rology ılar, A	rid - fedspar Y - Yes   N = No Y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond- A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	uctivity		1

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		land B					Project Number: 62735DM02.1017 Date:	17%	15/	14
Boring	/Well	D: V	F.C.	13657			Logged By: ( . M	of Z	24	1
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well	
SW					315		well traded Sand in Trace Gravel, 1884 Begger	0	TT	D
SAK	693				350		(75416/7), Loose, Dry, C-20%, M-40%, FW, Grand- Otz, Lithics, Feldspar Grand- Qtz, Lithics, Feldspar Grand- Qtz, LS, Feldspar Porty and Sand, Rome (75784/4) Loose, PC		õ	
SP							60 % F. 10% UF 15% C, 10% M. Trace Guel - 5%	2		
40			-014	100 100 100	355		Gund - Feline, Gtz, Lithius Gundlun to 1/4" msize, Lithius, Fellyn			۵
3P	1	i i i		a sacura		ione si	5.A.A	0		
			2000	17 1	7/ 3				7	٥
1.1	1.4				360		5AA- 50% + 10% LF 15% C 10% + 6 and -15%	1		
54	ν 1.				365		Million Described for the second seco	O		
Sp.					370		Wednesded 45% - Gravel, 40% ( 15% M, 5% & 5% NF  Grand Brown (257,24/3) Feldown atz, Lithies, 3R-R  Charley to 1/2" inside, Lithies, Feldow, Gtz, R-SK	0	a	0
SW	5.1	4 3 - 35 - 6	The state of	10 1 10 10 10 10 10 10 10 10 10 10 10 10		10-10-0	SAA			
<b>7</b> Y		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			37 <u>5</u>		SAA	0		0
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Additi	onal C	ommen	ts:					-		
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Pagar	eri"	Mona				Part:	ol Complete			
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						rology	The reduspat $Y = Yes$ $Y = No$ Y = No Y = No	ictivi	tv	
R = Rc	ounded	SR = S	ubrour	ided, SA = Su	bang	ılar, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	.cuvi	J	

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		land B		12 22				(1 =)		
oring	/Well	ID:	115	1-05+	_		Logged By: C. Mintry A Page 12	of_	24	_
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Depth, ft bgs	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Wel Detai	
P	3.4				350		As his fosted Pooly Charled Sond Belligh From 17571	3		c)
		13 - 9 Gu					Forted Pools Guled Sond, Berligh From (157) (6/4) Ber F. 150 F. 500 M. Riz, Lilletin, To some founded	000	0	0
	Martin Control	-		-	385	g . , , <del>(1</del> )	The second secon	-	Н	-
							SAA			
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u n	P.P		eff/ 1.45 s.l	in section -:			5AA	1		
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		- 100 m j.			395					
					· ini		SAA - 80% F, 10% VF, 10% M			
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AU M										
					400			/		
SC.	-5.1	(s.nsas)		1 manual a		n 11-7	Gravely Soul w/ Clay redd sh Yeller (7 5786/6, Gravel - 10%, C-40%, M-20%, F-10%) Soul- Got Feelsper, Lithers, R-5R	1		
MI	M		anur a A	142 91214011461			Grand - 10%, C-4:16 M-26%, F-10%			
311/4							Sind- Cote, Eudson, Lithirs 12-512			
			200				Grand - Qtz Lithias, Feldyrs, SA-SR			
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dditi	onal Co	ommen	ts:							
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lecov	ery: N	None				Partia	1 Complete		-	
	Same	s Abov	е .	Qtz = quart	Z		Fld = feldspar   Y = Yes   N = No			

Sonic Driller: Roger Rodriguez

7-inch 6it

Project Number (2735) MAP (2017)   Date: crimg Will Dr.	至人	-			SO	M	CC	ORING BORING/WELL CONSTRUCTION LOG	7	
Soli Description   Fact   1   1   1   1   1   1   1   1   1			BFF	1/4				Project Number: 62735DM02.1017 Date:		-
Section   Sect	Boting/ W	ren in:	1 1	KA	15	10	165	11.000000000000000000000000000000000000	of 2	7
Wall   graded Sound   wignand - 5 frong from (4.5/2 \$16)   loose	USCS Soil Type	Temperature ('C)	UV Auorescence	Samples collected	Core Run	Recovery		soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness		
Wall graded Sound wiggland - 5 frong from (4.5/2 5/6)   mose			11					400-401' ALD DELOVERY	T	II
SHH   102.75   100 00   100	500				1		401	well graded Sand w/grand - 3 frong Grown (7.548 9/6) loose SLM - Sand = 70%: F= 20% M=65% C=15% SA-5R (0x2, feld, (ith): grayel = 30% water 2 8/8" (144+0/2)		
100   100	-					$\triangle$	402	(no oder		
10   10   10   10   10   10   10   10	(D)		الوا					SHA 402.75		
45 A nodules - langum (75 Y & 5/4)  45 nodules - langum (75 Y & 5/4)  45 nodules - langum (75 Y & 5/4)  46 spar with clay lense (a 406.5 - 406.7  54 nodules afoue  (25 Y & 5/4) and brown  (26 Y & 5/4) and brown  (27 Y & 5/4) and brown  (27 Y & 5/4) and brown  (27 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/			+		-	$\hat{\chi}$	403	2016 9/240d Send = 6644 /2 5/2 (1) /210 1141	1	
45 A nodules - langum (75 Y & 5/4)  45 nodules - langum (75 Y & 5/4)  45 nodules - langum (75 Y & 5/4)  46 spar with clay lense (a 406.5 - 406.7  54 nodules afoue  (25 Y & 5/4) and brown  (26 Y & 5/4) and brown  (27 Y & 5/4) and brown  (27 Y & 5/4) and brown  (27 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/4) and brown  (28 Y & 5/	GP)		į			X	404	Sand = 100 % = 7 = 4020 M= 60% (Minte send - 54/52) (Ati, felt, lith); trace gravel up to 11/2" (lith); trace chay as notules - brown (7.542 5/4)		
SAA with clay lense (a 406.5 - 406.7  SA. nodales above  Clay with fand - reddish bown (2,578 14) and brown  (7,578 54); clay = 802, std very std. med. plasticity  weakly motified to white (7,578 81). If you will acid; see color bowat  yes sand = 1516. If 1016 C=1016 (Av. falls, 11th) SA-SE  A Same as Above Qiz=quartz  Fid = feldspar Y = Yes  N = No/None  mples: V = VOCS/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	56)		N				405	grave = 13 h p to 1/4 (Oter 11h); trave clay		
SAA with clay lense (a 406.5 - 406.7  S.A. moderles above  Clay with gard - reddish binson (2.572 14) and brown  (7.572 54); clay = 80% 51% - very 51% med plasticity  weekly mothed to white (7.572 81) - 140 m/acid: sec. color busbust  408 5and = 15% F= 206 M = 70% C=10% (412 606, 114) 54-58  Gave = 5% y to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 78 " (Atz + 114)  What we have a sec. color busbust  1409 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 100 \$\frac{1}{2}\$ and \$\frac{1}{2}\$ by to 100 \$\frac{1}{2}\$ by to 100 \$\frac{1}{2}\$ by to 100 \$\frac{1}{2}\$ and \$\frac{1}{2}		39.0	N		0	XXX	406	\$	/	
ditional Comments:    Gave = 526	Silver Si		N			1		SAA with clay lense a 406.5-406.7' S.A. nodinles above		
ditional Comments:    Gave = 526			Ŋ				108	clay with gard - reddish GAZA (2.5 1/2 t/4) and brown . 7.5 1/2 5/4); clay = 80% stitl - very stitl, med plasticity weakly mottled to white (7.5 1/2 8/1) - Tru w/acid: sec. color burbows sand = 15%: F= 20% M= #0% C=10% (412 fold, 1.7h) SA-SR	/	
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	W)		N			4	69	SAA @ 454-4151 Pale Grown (1048 9/3)		
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	dditional	Commen	ts:			7	N	UN - UNG Wicherful		
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	,				_	7	14	TOI TOB GRATINI ENCY		
mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	ecovery:	None				-1/				
Property of the subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Co						.1-				
	= Round	ed. SR = S	ubron	nded. SA	= Snh	ano	rolog ular	(; D = Diviogic; W = Moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal col A = Angular, VF = Very Fine, F = Fine, M = Modium, C = Constant C = Constant	aductiv	ity

国公				SO	MI	CC	ORING BORING/WELL CONSTRUCTION LOG		
Project: Ki		3FF	1/4				Project Number: 62735DM02.1017 Date:		
Boring/Wel	UD:	П	KAF	1	- 10	165	Soil Description	of Z	4
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV Auorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Vell tails
50)		W			1	404			
Sw 0.3	39,0	M		70	1	411			
Sú 54		N			1111	412	SAA w/clm lease @ 411.4-411.6'  clay=SAA @ 407-408 brown (7.578)  w/sands gravel		
SC SC		À			1	413	S'AA W/More clay  sand = 65%  grave = 25%  clay = 10% still mw-medisticity  trace silt - nonplastic		2
	26.9	1.		5	1	ilry			
争		٨			1	415	514A @ 403-404 Sand=900 up to 1"  grave = 10% up to 1"  fruce course sand  fruce clay	4	
9	V	N		V	1	416			
SP		N		21	1	41/7	SAA sand: 95% of to 1"  fine coarse send clay		· · · ·
Additional C	ommen	N ts:		V	1	4/8		*	
				_					
Recovery: SAA = Same	as Abov		z = quart				ld = feldspar Y = Yes N = No/None		
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	nductiv	rity

	1 5555	S	ONIC (	ORING BORING/WELL CONSTRUCTION LOG	
roject: Kirtlan Boring/Well ID:		1/160	- 101	Project Number: 62735DM02.1017 Date:	27 7 4 7
soring/ Well ID:		KAFB	-106		of 24
USCS Soil Type PID Reading (ppm)	UV fluorescence	Samples collected	Recovery Depth, ft bgs	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	Well Details
$\gamma = 1$		1	118	well graded Sund - brown (7.542 5/2) loose, SLM	Details
5 M	الر		419	well gended Sund - 6500 1 (7.54 5/2) loose, 52 m Gand = 90%; F=25% M=65% C=10% (Qt, fild, 1.16) SASP gravel = 10% op to 1/8" (1.16 + 412) trace silt = nonplastic No des	
W 1.3	Ŋ		420	5AA: sand=F=2020 M=6526 C=152	
3	20 P	P,V	720	= Sand: F= 00% Al-65% C=15% JMM 9 121-422' should be up here & 420-421'	
9		1,	421	V( , ) 1 5 }	7
pt	J		4/22	proly gaded sand w/silt - Pale brown (1042 6/3) loose, SIM Sand = 9020: F.452 M=552 (Ste, 662, 176) SA-52 914 - 102 norplastic (trace coased ho odor)	,  -
n n	N		423	421-423' SAA @ 420-421'  421-423' trace coange sand "(1.th)  trace growel of to 12"(1.th)  trace clay as nodules - 19th of 1254 5/4)	
	N		424	SAA w/ 1055 5:14 Sand = 90%.  ( **GOVE - 7.54 R 5/3) Sit = 6% of to 1/2" (1.74)  SAA Sand = 90% of radius 5 AA  (lay = 5%	
			425	SAA Sand = 90% 51 + 5% as noticles sha (14) = 5% as noticles sha face ground to 1/2 (1ith)	, , ,
70.	الرا	1			
>	Ŋ		426	SANA - light brownish gray (104R 6/2) loose, SLM)  Sand = 95% Hrace gravel to 3/8"  Silt = 5% Hrace clos GAA	
lditional Comm	ents:		1	As well as the first of the second se	
			W	28 423-424 dusturbed	
covery: None			Part	al Complete	
A = Same as Ab		= quartz		Id = feldspar Y = Yes N = No/None	
				y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	

Toject: Kirtland BFF	SONIC CORING BORING/WELL CONSTRUCTION LOG	
	AFB-106S7 Project Number: 62735DM02.1017 Date:	
VSCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity	Well Details
20.4	1 427 SAA - Hace coarse sand  Sand = 05%  Sit = 5%  First = 5%  First = 5%  First = 10% up to 1"  SAA @ 418 - 419' sand = 85%  Grave = 10%  Grave = 10%  Grave = 10%  Grave = 10%  Grave = 5%  Grave = 10%  Grave = 5%  Grave = 10%  Grave = 10%  Grave = 5%  Grave = 10%	
M N N	3:11-5% nonflastic  3:11-5	
5) 68.7 V	will graded sand wygravel - pole Gown (1042 6/3) 60050 SCAN  Sand = 70%: F=30% M=35% E=152 (Qto, fold, lith) 5A-5R  131 gravel = 75% + 9 to 1'4" (1.th +Qtz)  Silt-5% MONPlestic	, , , , ,
	SAA - light gray (10 TR 7/2) Sand = 752 JM 9427-428' grayet = 2025 5: H = 52	
)     58.6   N	41 424	
	SAA - light brownish gray (104P 6/2)  Sand = 906  Silt = 56  grave = 560	-
	9124-5%	
litional Comments:		
overy: None	Partial Complete  artz Fld = feldspar Y = Yes N = No/None  H; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	

ject: Kirtland BFF	SONIC CORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date:	
ing/Well ID:	V4CK-1/16 CZ	nf 24
PID Reading (ppm) Temperature (*C) UV fluorescence	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	Well Details
	136 SAA @ 430;25 - 432' no oder.	
	937  Poorly geaded Sand 5:1+ gray (2.54 6/1) loose SIM  Sand = 85%: F = 35% M= 55% C-10% (etz, fild, fil) SAZR  5:1+ = 10% Norphist=; gravel = 5% y to 1" (atz+lith)  No odor	, .
)   N	SAA & 436-4371 Sand: 80% Gand: 15% Have clay 5:11-5%	
	440	
1.6 67.5	94	
	442	
	SAA@ 429-430' w/ Have coms?  yus gravel = 5%  Sitt = 16%  Sand = 85%	
	499	Na need and a second
	FORTHY graded Sound - pula brown (1848 6/3) losse, SLM  Sand = 180h: F= 402 M=602 Hace course sunl  (ATC, Fell, 1,th.) SA-SR, Hace gravel up to 5/6" (Otz+1,th.)  MO odos	
tional Comments:		
very: None	Partial Complete	
	z = quartz Fld = feldspar Y = Yes N = No/None = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	

Project Number 67755000001017 Dates strong Well Discovery Well Description  Soil Des	图图		S	ONIC	CC	RING BORING/WEI	L CONSTRUC	TION LOG			
Soil Description  - soil type; Minusel color density (primarily course) consistency & plasticity  - so and (include grain size \$5, the medium, course, etc.)  - so and minorology  - some primary of the		BFF				Projec			Date:	-	
- Sale to Substantial Comments:  - Sale to Above Ote - quarter  - Fartial Hard Complete  - Sale to Above Ote - quarter  - Fartial Hard Complete  -	Boring/Well ID:		KAFB	-10	<u>65</u>	Logge			Page /S	of 24	
With the service of t	USCS Soil Type PID Reading (ppm) Temperature (*C)	UV Auorescence	Samples collected	Recovery	pth, ft bgs	<ul> <li>% sand (include grain size %</li> <li>sand minerology</li> <li>% gravel</li> <li>gravel minerology</li> <li>angularity/roundedness</li> </ul>	sity (primarily coarse	/consistency & plas	sticity	2.00	
wob gre Led sand my saved - 1-ght Grounders the state losses SIM - Sand - 80%: 1-32 M grade - 10 ft state of 10	3.11			119	193	<i>f</i>			1	Deta	iils
Chyp. + 147.6 - Clay - string bown (3.578 4/6) around on trible and wrown (3.578 4/6) around on trible and wrown (3.578 4/6) around on trible and wrown (3.578 5/3) around on trible so when (3.578 4/6) around show his plan for the solid soli	F 67.	5 N		5 4	146						
Chyp. + 147.6 - Clay - string bown (3.578 4/6) around on trible and wrown (3.578 4/6) around on trible and wrown (3.578 4/6) around on trible and wrown (3.578 5/3) around on trible so when (3.578 4/6) around show his plan for the solid soli	( ) ( )	الم			.10	vell graded sand w/ loose, SIM - Sand (atz, feld, lish); gravel =	5 avel - light = 802: f=302 202 up to 214'	6000 not 7.5 10 gray 10 12 M = 600 C=1020 (1.4)	10 doi		
SAAF & 447-445 brown (75 YR 5/3) and black (25 Y 5/4) while (2.5 Y 8/1), and black (25 Y 3/4) while (2.5 Y 8/1), and black (25 Y 3/4) while (2.5 Y 8/1) and black (25 Y 3/4) while oikher from the value of second control of the oikher from the value of the oikher from the value of the oikher from the property of the oikher from the property of the oikher from the property of the oikher from the property of the oikher from the property of the oikher from the property of the oikher from the property of the oikher from the property of the property of the oikher from the property of the pr				1	97	/					
Clay - brown (15 the 5/2) unaffered very 5ft (25 the 8/1) white allege from the last (2.5 the 8/1) and black (2.5 the 3/2) — white allege from the object from	SW)	J.		4	49	Continue and wice lowphisticity, S.	WA (7.5 IR 8/4) LIM (10 odor)	on inside -	very still		Ш
Clay - highly affected + mother to 0/1 ve (58 3/4) white (2.58 8/1) and black (2.58 2.5/1) - while alteration is well as see. Cole carbonage - very shift no ador)  100 - mad plasticity dry  100 ador)  100 - mad plasticity dry  100 ador)  101 - mad strong brown - (2.58 5/6) SIM  102 - well strictly  103 - white mothling - altered to the alive year  104 - 105 mad strong brown - (2.58 5/6) SIM  105 - well strictly  105 - well st	( <del>1</del> )	1)		1	149	SAA @ 441-49 \$ to 448;	5 brown (	7.5 YR 5/3) (	NO OF		
SAA — No white mottling — altered to the diversity  Notery still—low-milesticity  Very still—low-milesticity  Very still—low-milesticity  Very brown (15 YR 5/5) unaffered very still  mod. plasticity  Very weakly mottled to white (25 Ye bl)  Will ador  Will ador  Partial B Complete  A-Same as Above Qiz=quartz  Flat feldspar Y-Yes  N=No/None  Aples: V-VOCa/EDB; P-TPH; M=minerology; B=biologic; W=molsture analysis; G=geotechnical; UV=ultraviolet; T=thermal conductivity	34.	3 /	. 0	1	50	clay - highly after (2.5 × 8/1), and Example cal-cal-cal-cal-cal-cal-cal-cal-cal-cal-	plack (2.54 2. black (2.54 2. bloomyle - velgs ticity dry	o Olive (575)  - white  no odo	y) white alleration		
Clay - brown (75 YR 5/3) unaffered very stitt med. plasticity very weakly mothed to white (7.5 YR 8/1)  Weak olor  Weak o	CD 0.1	N		4		SAA - no white - ay and strong	Mottling - 0 From - (7.59)	Hered to the	e olive Hack		
Clay - brown (75 YR 5/3) unaffered very 5htt  Med. plasticity  Very weakly mothled to white (75 YR 8/1)  Weak clos  Overy: None Partial Complete  A - Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Taples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	is I	N					:				
ditional Comments:    Complete		N		9		lay - brown (154) med. plasticity vi	5/3) unalte ny lieakly m	red, very sti	( (7.5 / 8/1)		
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  aples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity		<del>                                      </del>		4/5	3	(		W	East odoi		,
covery: None Partial Complete  A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  aples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity		M	4	45	4	<i>\rightarrow</i>		Firm		* - *	
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  aples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	dditional Comme	nts:					v s				
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  aples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity		<del>,</del>									-7.4
aples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	ecovery: None			P	artia		- Mary				
iples: V = VUUSILDB; F = 1 PH; MI = minerology; B = Diologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity				24.53							
	=Rounded SR =	Subround	ed. SA = S	ninero	lar. A	D = Diologic; W = moisture an = Angular, VF = Very Fine F	aiysis; G = geotechni = Fine, M = Madi	C=Coarre C=C	t; T = thermal co	nductivity	У

				SO	MI	CC	ORING BORING/WELL CONSTRUCTION LOG	1	-
Project: 1 Boring/V		BFF	1/2				Project Number: 62735DM02.1017 Date:		,
	PID Reading (ppm)  Temperature ('C)	UV Anorescence	Samples collected			Depth, ft bgs	Logged By: T. Message Page 19  Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	of 29	ell
(i)	34.3	2			1	154	SAN .	Det	alls
(II)		N		10		БЬ	5 AA (2 446-447'  5 If with clay - pale 6 coma (10 1/2 6/3)  5. It = 80% 50 ft non plastic  clay = 20% clay is still.		a+.
my my	45.4			41	1	57 58	SAA but less clay 150% silt clay is trace norplastic soft	ļ. []	
ML)	31 0	N .				59			-2
SM		N			46	<u>,                                    </u>	Silty sand - Pale Stawn (10 18 6/3) (2050, SLM) Sand = 85% VF = 20% F. 40% M=902 (Qto, fild, 17th) SA-SP  5. H = 15% saft, wanplactic		*
m)	46.9	<u> </u>	~~	6	46	2	SAA w/ Hace gravel up to I" (1.th)  and while course sand  CAH w/less silt - 1- 900		Z.
dditional	Commen	ts:			146	3	SAA w/less sitt sand= 903 3:11 = 103 tiace gravel + coarse sand	*	,
ecovery:	e as Abov		= quartz				d = feldspar Y = Yes N = No/None		
imples: V	= VOCs	EDB; P	TPH; N	1 = m	iner	logy	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nductivit	

医人	1 70 000	5	ON	IC C	ORING BORING/WELL CONSTRUCTION LOG		_	
roject: Kirtlar loring/Well ID		KAFE	2-	IAZ C	Project Number: 62735DM02.1017 Date:			
8	Temperature ('C) UV fluorescence	ollected	Core Run	183	Logged By: T. Messana Page 20  Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)		Wel Detail	8
p- .m	.   N		1	464		+		*
vi)	ia 1			416		4		
M				1680		1		
in 1	į			467				
	N			468	well graded sund - light brown sh gray (10 YR 6/2) loose, SLN sand = 90%: F=25% M=65% C=10% (atz, fell, 174) sa-se gravel = 10% up to 11/4" (arz + 1/4)  trace silt  Colofesent			
			1//	469	SAH sand = 80% gravel = 20%			
	,,   )   ' '	M,B		470	SAA @ 462-463 Soud=908			
6.3 72				971	cosily graded sand - biown (1098 5/3) loose SLM (sand = 952: 48:25% 8:65% M=102 (atz, feld, litt) sA-58 (silt = 5% MONPlastic upto 2"(1.th)			
	1	\ \	1	472				4
itional Comm	ients:						11	
overy: None		- Anartz		Partia	d = feldspar Y = Yes N = No/None			
ples: V = VOC	Cs/EDB; P =	TPH; M=	min	erology	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nducti	vity	-

	The second second		SONIC	CORING BOI	RING/WELL CO	NSTRUCTION LO	G	
	Well ID:				Project Number	:: 62735DM02.1017	Date:	
			ZAFB-106	soil type; Mun	Soil 1	T. Hessenger Description  arily coarse/consistency & dium. coarse, etc.)	Page Zi	of 24
USCS Soil Type	PID Reading (ppm) Temperature ('C)	UV Auorescence	Samples collected Core Run Recovery Depth, ft bgs	sand minerolo % gravel gravel minerol angularity/rou % fines (silt/cl				
ns n	E E	12	Der Rec	- % fines (silt/cl	ay)			Well Detail
(p)	23.6	J	5 47				(	
Q		N	1434	well graded Moist (212, fall, 1)	Sand with gr. - sand = 70% 1 Th); grave = 30% as nodules	wel-brown (1042 -35% M=65% C=10 up to 2"(1.14 + 6.15)	5/3) loose ols sx-sz ; face clay	
A		N	475	1007 y graded Sand = 100° (ore, feld, 1.7h	sand - 6/000 (10   VF=15% F=1   SA-SP, Haco S.   fiace 91	Wel- brown (1042 2352 M=652 C=1 up to 2' (i.th +&t=) VR SB) lowse, mois 6020 M=25% fluce The nor plastic and up to 1/2" (lith)	touse said	
,		iv	476	5			5	
	24.7	/	7 477		SAA - NO Frac Sund=1002: 1	e glavel (F=302 F=65% sitt	M=30	1
		N	418					
		N	9,24	51	AAC 474-475	11		1
		N	100	09	79 - 479, 26, 54 Siml = 95	of w/more quivel 5%		
1 46	-1	لد	1 487	SAA ( U) 2 N 480.51 SAA but w/	13-474 Sand = 55% logg - 50% logg	85% up to 15%" 215% up to 15%" & , gravel = 20%; clo w playfichty	y=15%	
litiona	d Comment	s:	IWI		ules - pale of		brown	
					7	7.	5 YR 5/3)	
overy	: None	_	Part	al 🖽	Complete			
	me as Above	Qtz = q		ld = feldspar	Y = Yes	N = No/None		
						geotechnical; UV = ultras		

E	-	-			SC	IN	CC	ORING BORING/WELL CONSTRUCTION LOG		_	
Project			FF	1/4				Project Number: 62735DM02 1017	-		-
Boring	wen	ш:		KAI	15	10	16.	13.77.03.00.00	of _	74	-
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)		We: Deta	
3		1	ر			1	481	1000/y graded sand w/grave - brown (7.58R 4/2) 10058 Moist - sand = 85%: F=406 M=60% Have coarse send (atzifela, lith) FA-SR; gravel = 1.5% up to 13/4" (atzitith) odoresent trace silt	,		m 4
31)			N			1	483				
8W)		319	N		<b>b</b>	/	484	SAB @ 184-486'	4		
			N				185	well graded gravel w/sand - biown (7.542 4/2) /oose, moist gravel = 65% up to 3" (arz rl.th); sand = 35%; F=15% m=60% c=25% (arz, Gol, 1.74) sa-52, trace sitt - nonplastic ochocent	2	- *	
SW)		نا	N	, V, M,B		/	186				* ,
500			N	1,34		1	187	vell giuded sand w/grave   - brown (7.542 H/2) losse, moist sand: 65% : F= 202 M: 70% C=10% (472, fold, lith) sa 512 gravd: 456 up to 3" (1ith) - trace cobble up to 31/2" (i.th) track sitt	.	1 1	
Sw			N			4	88	544 0/1014 gravel + Kale 51/7  Sand = 40% UP to 1/2"			
	3	1,1	ſ			40	39	SHA @ 481-482 w/less gravel  sand = 95% up to 14"  grave = 5% up to 14"  fince 5.14		,	1
Sr)		1				4	10				
Additiona	l Com	ments						9		-11	
		-		61	72	-	5	ne As Balon			- 1
Recovery	: No	ne l	T		16		Partia	17ever	_		
AA = Sa	me as a	Above		z = quartz			F	l = feldspar Y = Yes N = No/None	_		-
amples:	V = V(	Cs/E	)B; P	= TPH; N	[ = m	iner	ology	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	ucti	vity	-
= Roun	ded, SI	= Su	brou	ided, SA =	Sub	ngu	lar, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	-	-	

Project: Kirtland BFF	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Boring/Well ID:	KAFB-106.	Project Number: 62735DM02.1017 Date:	
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	Samples collected  Core Run  Recovery  Depth, ft bgs	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	
[1499]	4910	SAA @ 486-487 w/o cobbles  Sand= 80% Have coarsed  Sand= 80% Have coarsed  Sand= 80% Have coarsed  Sand= 80% Have coarsed  Sand= 80% Have coarsed  Sand= 80% Have coarsed  Have Silt	
9) N	492	SAA @ 488:489' Hace course sword \$:11	, ,
-	493		5 1
	70		
SP) 31.1 V	V, B, I 495	SAA @ 491-492' W/ trace clay as module odor' odor' (ight brownsh gray) odor' (ight brownsh gray) odor' (ight brownsh gray)	,
5W	496		ι
	49.7	5AA@ 491-492'	ř
	495		/
	499	present	
dditional Comments:			
ecovery: NoneQt		cl Complete  Id = feldspar Y = Yes N = No/None  7; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	

Project Number: 62735DM021107  Bening/Well ID:    Comparison   Compari		_		0G	STRUCTION LO	ING/WELL CON	DRING BOF	IC CO	SON					E
Soil Description  Soil Descrip	,		e:		62735DM02.1017	Project Number:				1/2	3FF			
9 183 2 500 500 500 500 500 500 500 500 500 5	24 Well	of Z	29		escription   rily coarse)/consistency	Soil D ell color; density (prima e grain size %; fine, med y gy dedness	- soil type; Mun- - % sand (includ- - sand minerolog- - % gravel - gravel minerolo- - angularity/roun-	säc			V Auorescence			
183   Sand = 100 2   Sand = 1/4"   Sand = 1/	Detail	D				у)	· % fines (silt/cla		0 2	Š	뮈	-	<u> </u>	<u>, , </u>
31.1 V 20 503 SAA sand= 95% prod= 5% wook)  SAA & 490-491 Sand= 80% wook)  SAA & 490-491 Sand= 80% wook)  SAA & 490-491 Sand= 80% wook)  SAA & 490-491 Sand= 80% wook)	-	2	Y					500			N		11:11.2	0)
31.1 V 20 503 SAA SANDE 95% paul = 5% paul = 5% paul = 5% paul = 5% paul = 5% paul = 5% paul = 15%			aut.	Codor	to 1/4"	Sand=100 % frice yours trace 9:4	GAA-	501			N		710.5	(1)
31.1 V 20 503 Frace 51/t  SAA @ 490-491 Sand= 85% weath  gravel = 15% have sitt		ε	2		,	4.		502			N			)
SAA @ 495-491 Sand= 85% (weath)  Sos ( truce sitt	,		***************************************			sand= 95% gravel = 5% Hale gilt	SAA	503	20		ý	31.1		)
T					-			54			V			
	t . 7	1 1	9	wear	Sand = 80% Marel = 15% trace siff	490-491	SAA C	505			N			
) N 606 )		1	),					506			N			
8.6 (N) 10=506' Key 13"PVC SELSO CO. 11/20 SILVED 10 0 0 14/10 Plug 100 11/3"			ehso	1 3 proseh		1		T		, V	7	V	6.6	1
Vortland Chips Soll Screen V/smg			th80 W/smg	3"pvc scho	Gnit	000	1. Sano			orthus emux	200			
litional Comments:											3:	nment	al Cor	itio
overy: None Partial Complete						Complete		Partial				one [	y: No	ove
N = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Aples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct		_			N = No/None	Y=Yes								

E	A								BORING/WELL CONSTRUCTION LOG	
	t; Kirt				355.				Project Number: 62735DM02.1017	
	ng Com			CA	SCA.	DE			Start Time/Date: 1-4-19	
	Driller:		_						Completion Time/Date:	
	ng Metl		2	ON	IC				Final Depth:	
	g Diam g/Well		D;	V	AFB	- /	1/	00	Bit Type and Outer Diameter 7-11ch 6.7	
Dorms	y Wen	10.	1	_	AT D	1	06.	30		of <u>58</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence		samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
(SP)	and sing mate ( 40 ma	Arriche (M. 1841) Majore d'acc		/	\			1	0-8' Poorly graded sand w/silt - brown, SLM trace to some fine gravels (feld, Qtz, 1.th)	
P	logic sylving source	es de la constitu			The state of the s	l amount		2		
P	demonstrate a source and	o og stil order melk kresensens s			· · · · · · · · · · · · · · · · · · ·			3		
(SP)	**************************************	··· (Billio ) or British his		The way	)			4		
(\$P)				ND NY		** ***		5		
93		1941 NO 1000 \$ 100 \$ walls 1		1	1///	**************************************		6		
5P.)	Total State of Feb.			mi acciolado d	***********	PETERSAN VALUE	7			
SP) Additio	nal Cor	mment	ts:		J		٤	3		
Recove	rv· N	one [		_			D	artic	1 III Complete	
SAA = S	_	_	e C	)tz = 6	martz		P	artia		
						[ = n	iner	olog	ld = feldspar Y = Yes N = No  Is B = biologic: W = moisture analysis: C = geotochnical: YV = pleuviclet T = 4.	
R = Rou	amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity to a substant of the substant									

				SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Boring/\		Extra de la companya del companya de la companya del companya de la companya de l					Project Number: 62735DM02.1017 Date:	
Boring/\	well ID:		KAF	B-	10	6.	Tage 2	of 58
USCS Soil Type	PID Reading (ppm)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  NO COTTINGS PETUPNED	Well Details
					+~~	9		
M) 3	3.4	N		1	11/1/	10	silt-reddish brown (54R 5/4) soft, SLM - silt=802; clay= 1020, soft-nonplastic - sand = 102 F=608 M=302 C=102 6A-SR (Qtz, feld, lith, caliche) postplastic 10 odor	
ML		Ŋ			/	12	5	
mr)	ļ9.	2N		6		3	SMA - silt is mothed by secondary calcium carbonate - (54R 7/2) pinnish gray (fires)	
ng ng		h   				4	JANA - silt= 70% Clay: 25% Sand = 5%	
my	\\	N				5		
Additional		Y N	5			7	SAA- (7.54R 4/3) brown trace gravel to 1/2" (lith-caliche)	
ecoverr.	Mono					2	1	
ecovery: AA = Sam		ove O	tz = quartz		-	Partia F	discontinuo di la composito di	
amples: V	= VOC	EDB;	P = TPH; M	= m	iner	ology	; B = biologic; W = moisture analysis; G = geotechnical: IIV = ultraviolet; T = thermal and	
= Round	ed, SR =	Subrou	nded, SA = S	Suba	angu	lar, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ucnvity

	SONIC CO	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106S	I amount D	of 58
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	. 홍       1	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
(MD) N	18	5	Details
19.7 N	51 19	SAA - silt = 60% yellowish red (5472 5/6)  sund = 10% still mottled to pinkish gray  (5472 7/2)	
ML)   N	26	no odor	
Mr) N	21		
ML)	22	SATA - Strong brown (7.54R 5/6)  5.1t = 80%  clay = 10%  Sand = 10%  No mottling  sand = 10%  No odor	
Mr N	73	\$	
nL 19.3 N	51 24		
MI) N	25	SAA- brown - 754R 5/4	
NI)   N	26		
Additional Comments:			
Recovery: None	Partial	Complete	
AA = Same as Above Qtz	z = quartz Fld	= feldsnar V = Voc	
ашрися: v = vOCs/EDB; Р k = Rounded, SR = Subroun	= 1 PH; M = minerology; I	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduc = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	tivity
7-, Subi 000	, or Subangular, A=	- Augulai, vr = very rme, r = rine, M = Medium, C = Coarse, G = Gravel	

	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF Boring/Well ID:		Project Number: 62735DM02.1017 Date:	~
Boring/Well ID:	KAFB-106S	7,7,1000	f = 5
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	1 26	clay - reddish Grown (5 YR 3/3) med. still: med. plasticity	
	27	clay - reddish brown (5 YR 5/3) med still; med plasticity  no mothling visible  no do	
	78		
	29	5	
ML) 33.0 M	30	SAA@ 21-22'	
mL 1.9			
ML N	32		
(ci)   M	33	SMA @ 26-24'	
CL) M	34		
ML N	35	SAA@ 21-22' mottled as in 18-19'	
Additional Comments:	1111-1	V	
9			
Recovery: None	Partia	1 H Complete	
	= quartz Flo	d = feldspar $Y = Yes$ $N = No/None$	
R = Rounded, SR = Subroun	ded, SA = Subangular, A	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	etivity

			SONIC C	ORING BOI	RING/WELL	CONSTRUCT	TION LOG		
	irtland BF					umber: 62735DM(	2.1017	Date:	10
Boring/W	ell ID:	KA	FB-106	8	Logged I	7777.400		Page 5 of	38
USCS Soil Type	Temperature ('C)		Core Run Recovery Depth, ft bgs	soil type; Mun % sand (includ sand minerolo; % gravel gravel minerol angularity/rou % fines (silt/cl	isell color; density de grain size %; fi gy logy ndedness	Soil Description (primarily coarse), ne, medium, coarse	consistency & plas		Well Details
(MD)	*/		36	SATI	A - highly	mothed			
ML)	31.3		41 38	1					
			39						
ml) 0.1		)	41	SAA -	lightly moth	fled sitt (syr 5/4) clay semi	= 85% 1:10% d = 5%		
ML	19.41		43	12.5-	43' - sar	sit = 7 clay = 10 sand = 15 (lith+caliche)	58 6 F= 50% (8+2) 54-58	N=30% feld, 1.H, (aliche)	
Additional	Comments:		44	SAH (C	90-71	1			
Recovery:	None		Parti	al 🎞	Comp	lete			
SAA = Samo		Qtz = quart		ld = feldspar	Y = Yes	N = 1	No/None		
samples: V	= VOCs/ED d, SR = Subi	ounded. SA	M = minerolog = Subangular.	y; B = biologic; W A = Angular, VF =	= moisture analys	is; G = geotechnical ine, M = Medium, C	; UV = ultraviolet;	T = thermal conducti	ivity

		SONIC C	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtlan	BFF		Project Number: 62735DM02.1017 Date:	
Boring/Well ID:		KAFB-1063	Tugo_	of 28
USCS Soil Type PID Reading (ppm)	UV fluorescence	Samples collected  Core Run  Recovery  Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(ML)   19:	4	6 45	5AA Sit = 70% Clay = 20% seddish brown no odon 5 yr 4/4	
MY X	N	42	10471 S	
MU 26	6	41 48	SAA @ 44-45 - highly mottled and secondary calcium (combonate alteration throughout to 5 TR 8/2) - finkish white	
my m	N	49	SAA - less calcium canbonate alteration - still Muttled	
1.6 A	N	50	SAA brown (2.5YR 5/4)	
ML) 57.413.2.	N	6 52		
Additional Comm	Pl ents:	53		
Recovery: None		Parti	ial Complete	
SAA = Same as Ab		quartz F	Fld = feldspar Y = Yes N = No/None	
Samples: V = VOC	s/EDB; P =	TPH; M = minerolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
K = Rounded, SR =	Subrounde	ed, SA = Subangular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

EA		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland I			Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAI	B-1065		38
USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
(CL)	Ŋ	54	clay - brown (7.54R 5/3) med. plasticity, and still light mothing to pinkish gray (7.54R 7/2)	Details
(CC) 1 26.4	N	55	SAA @ 49-50'	
mi) X	N	SI		
	Ŋ	57		
	N	58	5.H w/sand - reddish brown (-54R 5/4) soft - 5.H = 80% nonplastic - clay = 5% - sand = 15% F= 40% M= 80% trave coarse sund - SK-SK (errifeld, lith, caliche) (5LM)	
5M 28.6	N	59	5:14 sand - 6:001 (7.54R 5/4) loose sem - sand = 60% F = 40% M = 50% C=10% SA-SP (Qtz, feby lith, caliche) silt = 40% nonplastic — trace gravel to 4z" (lith + caliche)	
6P	r	M 60		
My 5.3	N	61	SMA @ 49-50'	
m)	N	62		
Additional Comment	s:			
Pagayany Mana		ъ		
Recovery: None SAA = Same as Above	Qtz = quartz	Partia Fl		
Samples: V = VOCs/E	DB; P = TPH; M	I = minerology	B = biologic; W = moisture analysis; G = geotechnical; IIV = ultraviolet; T = thousand	
R = Rounded, SR = St	ibrounded, SA =	Subangular, A	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ivity

	SONIC C	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	/
Boring/Well ID:	KAFB-106.	S8 Logged By: J. Messenger Page 8 of	8
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Samples collected  Core Run  Recovery  Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness	Well Petails
(ML) 28.6 N	63		
ml d	64		
ML V N	V 66	1 1 1 (CA) (CA) (A) (A)	
mi) II d	67	SAPA - light 60000 (7.54R 6/4)	
Wr N	68	INDER graded sand - light yellowish Grown (10 YR 6/4) long sign	
29.2 N	10 69	Well graded sand - light yellowish brown (1042 6/4) loose, 514   Sand = 90% = F: 15% M= 70% C=15% 5A-5R (atz, feld, lith); gravel = 10% up to 5/8" (atz+lith)	8
SW N	70	SWC 691 (10 odor)	
Additional Comments:	71		
Additional Comments:			
		Fild = feldspar $Y = Yes$ $N = No/None$	
R = Rounded, SR = Subro	; r = 1 PH; M = minerolog ounded, SA = Subangular.	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductive A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ity

EA				so	NIC	C	DRING BORING/WELL CONSTRUCTION LOG	
Project: K		BFF	1/4	- 12	10		Project Number: 62735DM02.1017 Date:	
Boring/W	ell ID:		KAF	B	106	25		of <u>5</u> 8
SSCS Soil Type	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	pth, it bgs	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	Well Details
SW)	1	H			1 1	2/	SAR	
MC		N			7	2	SAM @ 66-67'	_
		N			7	3	SAA - anount of mottling increasing from  72' to 74' - highly mottled to light by 79' gray (love 7/2)  no odor	)
ml)	29,2	N		10	1 7	24	no oder	
MI		N			7	5		
MV	V	N		V	7	6		.
MI		N	**************************************		7	7	SAA - med. shift to very shift  no ador	
Mu	160-1	N)			1	8		
	48.6	Ŋ		10	7	?	SAA - 5: H w sand 5: 1+ : 70%  sand = 20%  clay = 5% nonplastic	*
Additional	Comme	nts:			8			
Recovery:	None				I	Parti	al Complete	
SAA = San			tz = quart				ld = feldspar   Y = Yes   N = No/None	
Samples: V R = Round	ed, SR =	Subrou	nded, SA	M = = Su	miner bangu	olog lar,	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	onductivity

EA	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106.		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
3.9	80	SAA @ 76-771 alor	
MY	81	SAA @ 76-77 10. Odor	
M)   W	82		
Mr )	83		
M) 48.6 N	84		
m)   M	85		
ml d	86		
My I N	87	SAA - Very stift, low plasticity silt=80% sand=10% clay=10% no oder	
MU 77.9 N	7		
m)   b	89	SARA - highly mottled to light gray (10TR 7/2)	
Additional Comments:			
m C			
Recovery: None	Par	1 100	
SAA = Same as Above		Fld = feldspar Y = Yes N = No/None	
		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond. A = Angular, $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$ , $C = Croyel$	luctivity

	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017	Date:
Boring/Well ID:	KAFB-106S8 Logged By: J. Messenger	Page
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Soil Description  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plants % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
MU J	90	
MV 7.7.9	7 light reddish brown (54R 6/4	
MN. N	92	
ML) X N	94	<del></del>
	95	
ML 33.7 N	7 2	
	97	
Additional Comments:	98	<u> </u>
Recovery: None	Partial Complète	
	z = quartz Fld = feldspar $Y = Yes$ $N = No/None$	
Samples: V = VOCs/EDB; P = Rounded, SR = Subrounded.	= TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet aded, SA = Subangular, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = G	; T = thermal conductivity

	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106S8 Logged By: J. Messenger Page 12 of	58
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence		Well Details
ML) 33.7	71 99	
(M) M	100	
3351	poorly graded sand w/sist - light brown (7.54R 6/3) louse, SLM - Sand = 90%: F=60% M=40% trace coarse, sand + trace gravel to 3/8" (4+2+1ith) - sand = (atz, lith, fold) 5ilt = 10% non plastic	,
SPN N	102 Ao odon	
SP N	103	
ML SM	103-103.4 - silt SAA @ 91-921 SAA @ 100-101' Tace gravel to 3/8"	
5p /	105 @ 104.8-105 trace gravel up to 14"	
SM V N	104	
50) 33.9 N Additional Comments:	10   Pourly graded sand - Pale brown (104/2 6/2) 10050, 5 LM - sand=1006 107 VF = 20% F = 70% M=10% SA-SR (4+2, feld, lith, caliche)	
D 27   1		
Recovery: None SAA = Same as Above Qtz	Partial Complete  Iz = quartz Fld = feldspar Y = Yes N = No/None	
	z = quartz	
R = Rounded, SR = Subroun	nded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ivity

	2				SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project			FF	1/4				Project Number: 62735DM02.1017 Date:	
Boring	Well II	D:	_	KAF	B	- 10	165	B Logged By: J. Messenger Page 13	of <u>58</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SM			N			1	107	loose SLM - sand = 80%: F= 35% M= 45% C= 20% 9A-342 (att, feld, lithy caliche); 5.77=10% nonglassic; gravel = 10% up to 11/2"	
5P			N			1	109		
54 SM			V	· · · · · · · · · · · · · · · · · · ·		1	110	5 AA @ 107-108'	
51- 5m	2.6	39	N		101	1	/11	SAA @ 168-109'	
SW SM			الم			/	112	SAA @ 107-108' fo 111.5' - clay - brown (7.5 YR 5/3) SLM, very stiff, med. plasticity Slightly mottled to pinking gray (7.5 YR 3/2) reacts w/acid	
cv			٨			1			
Mu		,	J			/	74	clayer silt - light brown (7.5 YR 6/3) soft, SLM silt = 80% nonplastic clay = 20% med. stiff, bow plasticity  Tack sand + gravel (to 3/8")  SAA & [11.5 - 113]	
Ci		1	J			1	115	SAR @ [11.5-113	
ML	\	/	J		V	1	16	SAA Q 113-1141	
Addition	al Com	ments	:						
Recovery SAA = Samples:	ame as A	Above		= quartz				Id = feldspar   Y = Yes   N = No/None	
R = Rour	ided, SI	R = Su	broun	ded, SA =	Sub	ang	ular,	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

EA		SO	NIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland	BFF			Project Number: 62735DM02.1017 Date:	_
Boring/Well ID:		KAFB-	1065	Logged By: T. Messerge Page 14 of 5	58
PID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected Core Run	Recovery Depth, ft bgs	% fines (silt/clay)	Well Details
ML		[1]	/	SAA to 116.5' (10 odor)	
5w)	V		117	well graded send 5AA @ 107-108' sand = 20% sit = 5% gravel = 5% SAA @ 116-116.5' (SLN)	
			1	SAA @ 116-116.51	
mi) 421	ON	4'	118	no odor	
0 1					
ML)	M		119		
					Ш
ML)	N		120		
2.0		1	1		Ш
ML) 2.0	٨		/2/	$\searrow$	
SW	الم		122	SAA @ 115-117' Sand = 96%: F = 20% M= 60% C=20%  Pale 616WA Sit = 5% nonplastic - low plasticity  (108 6/2) trace gravel to 5/8" 5LM &  SAA @ 113-114'	
NI) 51.1	N	6	123	SAR @ 113-1141	
	N		124	SAA@ 111.5-1131 NO MOHILING (51M)	
	a)		125		
Additional Comme	nts:				
Recovery: None			Partia		
AA = Same as Abo amples: V = VOCs		= quartz = TPH: M = m		ld = feldspar Y = Yes N = No/None y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductiv	
= Rounded, SR =	Subround	led SA = Subs	noular	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, C = Gravel	ity

EA		SONIC C	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl			Project Number: 62735DM02.1017 Date:	
Boring/Well	D:	KAFB-106.	S8 Logged By: J. Messenger Page 15	of 58
USCS Soil Type PID Reading (ppm)	Temperature ('C) UV fluorescence	Samples collected  Core Run  Recovery  Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(i)	51.5	6' 126	SAH = 5 % F= M SAUN (5 LM)	
CD OD		127	Trace F-M sand fled to  Frace F-M sand fled to  Sightly mothed to  Sightly mothed to  Sightly mothed to  SAA Q 113-1141	-
MS	N	128	SCM) no solor	
		(29	SAH @ 111.5-113 highly mottled to RY slight odon  brown  pinkish gray (7.548 712)  sec. cal. carbonale - rxn w/acid  sec. cal. carbonale - rxn w/acid	
	1 N	130	* ************************************	
0.2		131	SAA @ 126-127.4 - no trace sand (no odus)  Nery still plasticity  med. plasticity	
(ci)	(4	132	SLW slight nottling to pinkish gray	
(E)	N	133	7.54677	
(ev)	N	134	SAH less mottling	
Additional Con	nments:	1		
			74	
Recovery: No		Parti		
SAA = Same as			Fld = feldspar Y = Yes N = No/None	
R = Rounded, S	R = Subroun	ded, SA = Subangular,	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con , A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

	SONIC CORIN	NG BORING/WELL CONSTRUCTION LOG	
roject: Kirtland BFF	1/102-10/00	Project Number: 62735DM02.1017 Date:	
oring/Well ID:	KAFB-106SB	Logged By: T. Messenger Page 16	of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence	mples collected or sand	Soil Description  type; Munsell color; density (primarily coarse)/consistency & plasticity and (include grain size %; fine, medium, coarse, etc.)  minerology ravel el minerology ularity/roundedness nes (silt/clay)	Well Details
cy 37.9 N	134	( 650WN (7.5425/3) DTY)	
(b) 37.1 (c) V	135 V 136	Mo Hling increasing  FUN Wacil  Sec. cal. carb. I moderately mothed	
	sand Cate 137 Addu	sand w/ clay - light yellowish Grown (1082-6/4) loose, SLM = 60%: VF: 15% F: 70% M=15% trace course sand -sA-SR feld, lith, caliche); sitt= 30% nonplashe; clay = 10% as ales + clumps - brown (7.58 x 4/4), shit-very shit, med. plasm 137-138.8' - clay SAA@ 131-132' No oder	2
et N	138	SM 134-138.8 - Clay SAA@ 131-132' No oder	
M N	139 544	@ 136-137'	
M 40.5 N	140	V 6AA 40 140.2'	
M	141 SAA Sa	who clay - silty sand - no trace coarse sand not and = 90% silt=10% porty graded sund odd A - less silt sand = 95% silt = 5% silt = 5% silt = 5% of	
P) N	142	Sand = 95% Sand = 95%	
ditional Comments:	143		
nanyamu Nan-	D		
AA = Same as Above Q	Partial tz = quartz Fld = felo	Complete  Idspar Y = Yes N = No/None	
		biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal c	and with the

Project Kirthand BFF  Boring/Well ID:    Carry   Project Number: 62735DM02.1017   Date:     Logged By: T. Messen Dec   Page 17 of 8   Soil Description     S
Soil Description  Soil Description
Sept   Sept
144  Well gended sand w/genvel - 1.9 ht yellowish Grown (104R 6H)  Josse, SLVM - Sand = 75%: F=10% M=60% C=30% SA-SR  (arty feld, 1.th.); gravel = 20% up to 1½" (art=1.th.); sitt=5%  JAN   145   145   1655 97avel + more silt  SAA - 1ess 97avel + more silt  Sand = 85%; f=30% M=60% C=10%  Silt = 10%  Silt =
SM SAA - less gravel + more silt sand = 85%; f = 30% m = 60% C = 10% no odor silt = 10% gravel = 5%.  SM SAA @ 145-146 - sand = (Qtz, fold, 1:th, caliche)  Trace gravel to 36"  SAA @ 141-142'  SAA @ 141-142'  SAA @ 141-142'  Trace coarse sand  Trace gravel to 1/2" (i.th)  SAA W/clay Sand = 85%  Clay = 10% 2 cft non plastic
SAA @ 145-146 - sand = (Qtz folk, lith, caliche)  trace gravel to #8"  sand = 986  silf = 10%  SAA @ 141-142  trace coarse sand  trace gravel to 1/2" (1ith)  Hace gravel to 1/2" (1ith)  SAA W/clay Sand = 85%  clay = 10% 2 cft non playtic
51.8 M  51.8 M
51.8 M  51.8 M
SPA W/clay Sand = 85% clay = 10% } soft, nonplastic
149 1149
149  Clay - yellowish brown (10 PR 5/4) 5titl - very stit 5LM  low - med. plasticity trace F-m sand  No odor
650WN 7.5 TR 5/3) notfled to  650WN 7.5 TR 5/3) notfled to  pinkish gray and sec. cal sen layid  sec. cal sen layid  time f-M sand  5 LM
NI HO.0 N 6 silt - strong Grown (7.54R 5/6) 80ft, nonplastic trace F-M sand SCM)
Additional Comments:
ecovery: None Partial Complete
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None
amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Cravel

Project: Kirtland BFF Project Number: 62735DM02.1017 Date:	
Date.	
Boring/Well ID: KAFB-106S8 Logged By: J. Messenger Page 18 of 58	
Soil Description  Soil Descrip	
Details   Details   Details   Details   Details   Details     Details   De	
(MV) 40.0 154 5ilty sand - 600m (7.54R 54) loose, SLM sand = 60%: VF= 20% F= 70% C=10% SA-SR (QFZ, Felle, lith) sitt=40% nonplastic no octor	
Poorly goaded sand w/s, It - pale brown (1042 6/3) loose start  Sand = 90%: F= 60% M=4070 trace coarse sand sa-sp (ofz, feld, 1.th)	
Sandy sitt w/clay - yellowish 610wn (1048 5/4), soft, SLM (no odd)  silt = 75% non plastic  3and = 20%: VF = 20% F = 70% M=10% sa-sp (04=, fell, 1 ith)  157 clay = 5% as nodules - soft, low plasticity  SAA @ 155.5-156    trace coarse sand  trace gravel up to 1/2" (1ith)	
5W 41.4 N 10 158 SAA @ 145-146 (aliche in sand sand = 90% (1.th+caliche)  5M 5AA @ 157-158 glayish 6000 (104R \$\frac{1}{2})	
160	
Additional Comments:	
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	

	2				SC	INC	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project:			FF	1/4	- 43		47	Project Number: 62735DM02.1017 Date:	
Boring/	Well II	);	-	KAI	B	- 10	060		of <u>57</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	-		Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
Sw			N			1	161	SAAR 158-159 10 odor	
(5W)	ı	11.5	N				163	Sand = 80% 80%  gavd = +0% 5m 15%  15%  160%  16	
SC			7	***************************************	10	1	164	clayer sand Wygravel - brown (7.54R 5/4) SLM - sand = 50%: VF=20% F= 70% M=10% SA-SA (atz.feld,lith caliche); clay = 30% still, low plasticity gravel = 20% up to 1" (lith + catiche)  to 164. Z'  no odor	
SW SC			N			1	/65	well graded sand w/gravicl + clay - brown (7.5 YR 5/4) loose, SLM 5and = 60%; F= 30% M= 50% C-202 SA-5R (atz, FeM, 1.4h) glavel = 30% yp to 11/2" (1.thics); clay = 10% coats gravel + as nodules mld. stiff -low plasticity  Clay - brown (7.5 YR 5/3) med. 5tiff, med. plasticity	
SW		V	N		V	1	166	5AA @ 162-163   sand = 75%; gravel = 15%, sitt=5% day = 5% as notwees	
SW	,		N			11/1	167	Sodor	
50			N			11	168	foothy graded sand - light brownish gray (16472 6/2) loose SLM sand = 100%: 4F= 20% F= 60% M= 20% SA-SE (atz, feld, lith, caliche) trace course sand; trace gravel up to 3/8" (lithics)  Hace silt	
519	2	9.1	J		10 <sup>1</sup>	11/1	169		
(SP)	and the set of the second		N			1	130		
Addition	al Con	iment	s:					¥	
Recover	v. Ma	ne l					Dont	al Complete	
Recover			Ot	z = quart	z		Part	Al Complete Cld = feldspar Y = Yes N = No/None	
					_	min		y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
								A = Angular, VF = Very Fine . F = Fine M = Medium . C = Coarse . C = Cravel	auchvity

		ORING/WELL CONSTRUCTION LOG	
roject: Kirtland BFF		Project Number: 62735DM02.1017 Date:	- Av
oring/Well ID:	KAFB-106S8		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature ('C)	Sambles collected  Sambles collected  Core Run  Recovery  Becovery  Becovery  % sand (inc  sarvel mine  gravel mine  angularity/r  % fines (sil	rerology roundedness ult/clay)	Well Details
0.9 N	170 SAA	W/more silt = 90% - sand = 90% nonplastic (10 odo)	
SM N	172 clay - light 6	brown (75TR 6/4) very still -low plasticity	_
29.1	10/1/2	(a) (70-171	
W	174	ed sand - light brownish gray (10 YR 4z) loose, 5 Lm 0%: F=30% M=50% C=20% SA->R (Qtz, feld, lith, calida 10% up to 1/8" (Qtz+lith); trace silt	
	175 (	- Sand = 90% gravel = 5% sit = 5% (no odor)	
	176		_
	177 176.5- 176.8	176.8 - dank gray (7.548 4/1) 5-177- gray (7.548 5/1)	
33.2 N	10 5AA @	167-168	_
	179 SAMA 6	173-174 Sand = 95% (lith+caliche) gravel = 5% (lith+caliche) trace sitt	
Iditional Comments:			
covery: None	Partial <b>!!!</b>	Complete	
AA = Same as Above	Qtz = quartz	Y = Yes $N = No/None$	

EA	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	0
Boring/Well ID:	AFB-106S8 Logged By: T. Messenger Page 21	of 5
PID Reading (ppm)  Temperature (*C)  UV fluorescence	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
3.7	180	
5W) N	/81	
5N N	182 Sand = 80%: VF = 20% F = 70% M=10% 5A-SK (Otz, feld, lith, caliche); sit = 20% 18/2 sand	
5m 33.2 )		
SPN N	505A @ 170-171 trace clay as nodules - 500wn (7.59R 54)	
5m 35.5 N	with silt — loose sim - sand = 80%: F= 30% M= 55% C= 15%  5A-SP (atz, feld, lith, caliche); silt=10% nonplastic  gracel = 10% up to 11/2" (1ith)  no odo)	
5M N	SAA @ 181.8 - 183'  Sand = 75%  7:1t - 20%  glavel = 5% up to 114'(1.th.)	
5m 1 N	187	
30.3 N	10   SAA - sand = 85%  Sint = 5%  Silt = 5%	
Additional Comments:	10 101 101 1 1 1 A	
	\$ 184-186 distribed	
Recovery: None	Partial Complete	
SAA = Same as Above Qtz =	quartz $Fld = feldspar$ $Y = Yes$ $N = No/None$	
	FPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cord, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	nductivity

(SW)  197  190  190  190  190  190  190  190	EA		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
SNA Same as Above Ote = quartz  Recovery: None  Sold Type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; Minsell color, density (primaryly coarre) coarsistency & plasticity  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; density coarre)  - soil type; d					0
- soil type: Munsell color, density primarily course/consistency & plasticity - sand minerology - sand	Boring/Well ID:	KP	FB-1063	S8 Logged By: J. Messenger Page 22	of <u>58</u>
190   187   170   171   171   172   173   174   175	USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	
190   191   192   193   194   194   195					
190   190	5W)	)	189	\( \text{2.6. (6.2)} \)	
SW 36.3  192  SAA = Same as Above Qtz = quartz  Fid = feldspar Y = ts  Same as Above Qtz = quartz  Fid = feldspar Y = ts  None coarse s and  193  Partial   Complete   None coarse s and  None coarse s and  194  Complete   None coarse s and  N		لم	190	pare 61800 1 (10112 6/3)	
SAPE (a) 178 - 171   Frace coanse 5 and no trace gravel    193	SW) 2.60	N	191	no odoji)	
SAN SAN W/silt - Sand = 80%  SAN W/silt - Sand	30.3	3	192		
Additional Comments:    193 - 196   Month   197   198   199	58-	N	193	).	
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz  Fld = feldspar Y = Yes  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	5B 1	N	/94	sand = 100%: F=40% M=60% trace coarse sand (SA-SR (atz, feld, lith, caliche); trace clay as nodules)  Have gravel up to 3/8 "(1.14)	
Additional Comments:    193 - 196	33,4		195		
Additional Comments:    193 - 196	5P, 5M	N	196	SAA W/silt - Sand = 80% 5:1+ - 20% non plastic light brownish gray (10 TR 6/2)	
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	5N) 23.1	N	10 197		
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Additional Comme	nts:	1	A 102 101 A 1 1 1	
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity				\$ 142-146' another bea	
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Recovery: None		Par	tial Complete	
	SAA = Same as Abo		artz	Fld = feldspar $Y = Yes$ $N = N_0/N_0 ne$	
					ductivity

		S	ON	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtla		- /	_		Project Number: 62735DM02.1017 Date:	
Boring/Well ID	):	KAFE	3-1	1065		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence	Samples collected	Core Run	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SP)	ľ			197	SAA (2) 193-194 ( brown (1048 5/3)  trace gravel up to /1" odo)	
(4W)	N			199	SAR @ 187-188'  SAR @ 197-128'	
<i>50</i>	N	******		200	SMA @ 194-118	
9	l l			201		
5W) Z	3: 1			202	SAA @ 198.5-1991 @ 201.5-202 gravel = 15%; Hace silt; sand=85%	
5w	Ŋ	**********		203		
58)				264	SAA @ 199-200'	
SN	N			205	SAA @ 201-202 sand = 90% gravel = 10% frace s.H	
Additional Corr	nments:			206		
Recovery: No		- د د د د د د د د د د		Part	1 8333	
	OCs/EDB; I			inerolo	Fld = feldspar Y = Yes N = No/None  gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor  A = Angular, VF = Vary Fine, F = Fine M = Medium, C = Coores, C = Crevel	ductivity

EA		S	ONIC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtlan		1/460	107	Project Number: 62735DM02.1017 Date:	
Boring/Well ID		KAFB	- 106	The state of the s	of <u>58</u>
USCS Soil Type PID Reading (ppm)	1 emperature (°C) UV fluorescence	Samples collected	-	gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SW 1			201	gravet to 1" (lith + Btz) gravel = 10% (00 odd)	
[5v]	1		208		
SW)	٨		209	5AA Ulmore gravel - sand = 80% gravel = 20% trace 5.14	
	5.6 N	10	210	SAA @ 206-207' W/less gravel sand = 90%  E 35% gravel = 5%  M = 55% C = 10% SiH = 5%	
50 0.7 50	N		211	poorly graded sand - light brownish gray (104R 6/2) loose sim	
<u>19</u>	1		212	^	
SW	N		213	SAA w/gravel - sand = 95%  SAA w/gravel - sand = 10% sitts no sitt  SAA @ 209-209' Sand = 65%  brown (10 1/2 \$13) gravel = 35% up h 2"  brown (10 1/2 \$13) trace sitt (0+z+1.1th)	
SUD	N		214	SAA light gray (10 1/2 7/2)  sand = 70%  sand = 70%  sand = 70%  sand = 85% = 30% C=10%  SAA - fale brown (104R 6/3)  Sand = 85% = 50% C=10%  gravel = 15% up to 134"	
Additional Comm	N		215	5AA - fale 610WA (104R 6/3) Sand: 85% m= 60% C=1066 gravel: 15% up to 134" no odor	
reditional Collin	ionio.				
Recovery: None		z = quartz	Par	ial Complete  Fld = feldspar Y = Yes N = No/None	
Samples: V = VO	Cs/EDB; P	P = TPH; M =	minerolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu , A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ıctivity

	SONIC CORING	BORING/WELL CONSTRUCTION LOG
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:
Boring/Well ID:	KAFB-106S8	Logged By: T. Messerger Page 25 of 50
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Run B % sand (i	inerology y/roundedness Well
3W 25.6 N	10'	( v/a 6/a) a ( v/a 6/a)
500) / /	217 Colo 60	104R 5/3) 5W 0/9 avel gard = 95% F= 35% M= 55% C=10% grave = 5% Hrace filt
5m N	- sand	un (104R 6/3) sande SAA but increasing gravels down = 85% gravel = 15% (no obod)
(BM)	well grade up to 2"	(atz+lith); sand=40%: F; 30% M=50% C=20% (4tz, fell, lith) \$\$
24.0 N	1 1 1 (	Gravel - pale brown (104 to 6/3)   loose, SLM - gravel = 60% (Qtz+lith); sand = 40%: F; 50% M=50% C=20% (utz, felh, lith) = \$\frac{1}{216} \cdot 217   Sw w/gravel  Sand = 90% gravel = 10% 10 odor
(Sw) 0.0		Sand = 80% gravel = 20%
(5w)   N	222 SAA Q	216-217  sand=90%  grusd:5%  5:14-5%
5P)   Y		ded sand - pale 600wn (104R 6/3) loose SLM (% - 6:40% M=60% trace coarse sand 5A-5R (arz. fild, 1.th) 120 up to 118" (arz+1.th); silt=5% nonplastic no odon
SP) N	224 SAA W/1	123,75 frace gravel sand = 90% 5.71 - 10%
Additional Comments:		
	Partial tz = quartz Fld = feldspar	
R = Rounded, SR = Subrou	inded, SA = Subangular, A = Angular	gic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  7, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

E	8			SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: 1		BFF	1/4				Project Number: 62735DM02.1017 Date:	
Boring/V	Vell ID:		KAF	B	10	65	7,7,7,5,5	of <u>3</u> 8
USCS Soil Type	PID Reading (ppm)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  SAAL & Z 2 Z - Z 2 3	Well Details
(911)	24	N		10 1	111	225	SAA @ 216-217 sand = 80% up to 134 (atz-1.76)	
SW)		, N			11111	227	SAM @ 225-226 Sand is Qtz feld, lith, caliche  Sand = 80%  slavel = 15 %  5.11 = 5%	
(Sw)	79	N		41	11	?28	- 227.5-228 sand = 95% gravel = 5%  Q 228 sand = 85% gravel = 15%	
(3) (3) (5) (5)		N   N			1	229	well graded sand with sitt — light gray (104R 7/2) loose SIM sand = 85%: F= 25% M=65% C=10% SA-SE (0+2,feld, lith, caliche) styr= 10% solt; nonplastic stavel= 5% up to 1" (0x2+lith)	
5W)	5 1	N		*	1		5AA @ 225-226'  1 230.8-231.2' sand= 95% gravel = 5% p to 34"  231.2-232' SAA @ 230-230.8'	
5W)	41.	14		6	2	3 z	231.2-232' SAA @ 230-230.8'	
Additiona	l Comm	ents:			\\	33		
Recovery	: None					Parti	al Complete	
SAA = Sai			tz = quartz				ld = feldspar   Y = Yes   N = No/None	
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	ductivity
r = Konno	icu, SK =	- Supro	unuea, SA	- ou	pang	mar,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

	SUNIC CORING BU	DRING/WELL CONSTRUCTION LOG	
oject: Kirtland BFF	1/162-11/60	Project Number: 62735DM02.1017	Date:
oring/Well ID:	KAFB-106S8	Logged By: J. Messenger	Page 27 of 59
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Samd (incl sand minerol % gravel gravel miner angularity/ro % fines (silt/ % fines (silt/	rology oundedness (clay)	Well
9 1 1	234	I sand — pale brown (104P 6/3) loose, SL. 7: 10% M=60% frace coarse sand 1, lith, calicha); glavel: 5% up to 1" (6	M SA-SR Of z + lith
b) 41.1	Well graded.	234.5   sand w/gravel - light yellowith brown (10th sand = 80%: F= 20% M=70% C=10% th); glavel = 15% up to 118" (6+2+1.th);	6/4) louse 54-52
W N	nonplastic	- \	no odos
M) 31.0 N	loose, sem (atz, feld, lit	oded sand while - light brownish gray (1092 - sand = 90%: VF= 30% F= 60% m=30% = 10% tace coarse trace gravel up to	6/2) sa-se sand 3/8"(1.74)
SM) N	Z38 SAA Wliess &	137.5' iit — sand = 95%: VF = 80% F = 70% M = silt = 5%	
	239 gravel =10;	sand-brown (10 TR \$/3) loose, sim %: F= 30 % M= 55 % C=15% M-SR (842) % up to 1 1/2" (ith + 8+2); sit = 5% nonpo	stic no odor
34.5 N	31 240 SATA @ 23	11acc + 1 an 3/9	
2.4	5AH @ 2	Hace gravel 70 7 38-239 Sand = 85% (Ofz, fold, lith, congravel = 10% (lith + caliche) silt = 5%	liche)
26.4 1	5 5AA	sard: 75% gravel: 25% trace silt	
ditional Comments:		.0	
covery: None	Partial	Complete	
A = Same as Above C	Qtz = quartz Fld = feldspar	Y = Yes $N = No/None$	et; T = thermal conductivity

EA				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Ki		FF	1/2	_	. ,		Project Number: 62735DM02.1017 Date:	
Boring/We	11 ID:		KAFI	5-	- 10	165		of 58
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SW	1	Ŋ			1	242 243	SAA: Sand: 70% (no odo).	
Sw)	26.4	N		1	1	244		
51		N	** 1 7700******		1	245	1 to 244.5'  5AA light brownish gray (104R bto) sand = 85%: F = 30%  M = 55% C=15% gravel = 10% up to 1/4" 5.7+ = 5%  nonprastic	
500 32M	-	N		V	111	246	-0 245.5 - sand with silt - very pale brown (104 R 7/2)  Sand = 90% F= 40% M=60% trace coarse sand  silt = 16% nonplastic trace graval to 3/8"	
5P)		Ŋ			1	24 <del>7</del>	poorly graded sand - fall brown (1040 6/3), 10050, 5 LM  sand = 10020: F= 30% M= 70% trace coarse sand SA-SE  (atz, feld, lith) — trace gravel to 1" (1.th)  no odor)	×
ŜŔ		Ŋ			1	z48	SAA: Sand = 160% = F = 45% M= 55%  No trace coarse sand No trace gravel	
(F)	31.5	Ŋ		10	1	249	5AA - grayish brown (10 YR 5/2)  L to 248.8'  well enough accord - Cole brown (10 YR 6/3) longer 51 mg	
(BY)		N			, VI	250	well graded gravel "I sand - pale brown (10 YR 6/3) loose, SLM1  gravel = 70% up to 13/4" (atz+1.7h)  sand = 30% = F = 35% M= 55% C=10% SA-SR (arx & U)	3
<del>R</del>		Ŋ			1	251	SAA @ 246-248 on 246-247 Sand=95% }	
Additional	Commen	ts:						
Recovery:	None			_		Part	ial Complete	
SAA = Sam	e as Abov		z = quartz			]	Fild = feldspar $Y = Yes$ $N = No/None$	
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivity
K = Rounde	d. SR = S	ubrour	men SA =	SIL	nanc	mlar	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Cravel	

				SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl		FF	1/4	~	,		Project Number: 62735DM02.1017 Date:	
Boring/Well	D:		KAF	B-	- 10	063		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(E) (E) (E) (E)	31.6	2 2 2		101			SAA @ 244.5 - 245.5'  SAA @ 250-25   Clay - light brown (7.5 YR 6/3) hard, 5LM  low-med plasticity (to 253.5')  SAA @ 244.5 - 245.5' Sand = 75% gravel = 25% sitt= 25%  254-254.25' - silt-pate Grown (1018 6/3) 50ts, nonplastic no adord  Clay - SAA @ 25-3-253.5	
	1	لم		\ \ \	1////	25S	5AA brown - 7.54R 5/3	
	41.2	2)		10	11/1/1	257 258	clayey silt-pale brown (10 YR6/3) soft monplastic, sum silt=1002 m silt= 80% clay= 70% - clay is SAA@ 256-257 clay SAA@ 286-257	
CL)  Additional Co	mmen	ار ار ار ار ار ار	1-1-2		1	259 260	clay SAA @ 292-257  Clay is altered/stained to gray (1048 \$/1)  Clay is altered/stained to gray (1048 \$/1)  (19ht gray (1048 9/2) @ 258.8 - 260'	
Recovery: N SAA = Same a: Samples: V = V	one [s Abov	e Q		M=		erolog	ial Complete  Fld = feldspar Y = Yes N = No/None  gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con  A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	nductivity

EA				SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirt		FF					Project Number: 62735DM02.1017 Date:	
Boring/Well	ID:		KAF	B-	- 10	165	Logged By: J. Messenger Page 30	of 58
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(C) 6.2		N				260	light gray to 261	
(CL)		الر		+		262	light grag and light brown (7.592 6/3)	
(CO) ML)	41,2	N		10	1	263	10 262.75   Sit - light brown (7.5 YR 6/3) 50H, nonplastic trace FEARD (noodo?)	
500		<b>/</b>			1	<i>2</i> 64	well gladed sand - light brown (4.592 43) loose, 5411 sand = 90%: VF = 20% F=50% M=20% C=10% 5A-57 (Q+2, fell, lith, caliche); filt=5% neglastic; clay=5% 5AA @ 265262	
SP)		N			/	265	5MA @ 263.75-264 but trace course  VE-20% F-60% M-20%  No day sand=95% sitt=5% (no odo)	
(b)	V	N		V	1	266	5 pa Q 253-253.5'	
<b>519</b>		J			1	267	Goody gloded sand - dark yellowish brown (104R 414) loose, SLM Sand=400 95%: F=50% M=50% trace comse sand sA-SR (Qtz, feld, lith); silt=5% nonplashic no odd)	
MÛ)	£8.2	١		101	1	268	Clayer sitt- brown (7.59R 5/z) soft, scm  sit = 85% soft; nonplastic  clay = 15% low plasticity	
ML		Ŋ		V	1	269		
Additional Co	mmen	ts:						
				-	-	-		
Recovery: 1	Vone [					Part	ial Complete	
SAA = Same a	s Abov		z = quartz				Fid = feldspar $Y = Yes$ $N = No/None$	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cone A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kin		3FF	1/10	77	- 1	1/ /	Project Number: 62735DM02.1017 Date:	
Boring/Wel	1 ID:		KAF	B-	10	160	7777767	of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
_	1			1	1.	269	1	
M <sup>1</sup> )	$\frac{1}{1}$	<b>b</b> /			1	270		
MI		N			/	271		
MU	602	N			//	272		
mi	58.2	N		10	/	2 <del>7</del> 3	$\left\langle \right\rangle$	
sm		N			/	274	293-273.25'- clay - 610 un (7.54R 5/2) hard dry low plast city altered to very dark glay (7.54R 3/1) and pinkin glay (7.54R 4/2) which ren wincid 5.11m sand - 1.9ht yellowish brown (104R 6/4) 1005R, SLM sand - 1.9ht yellowish brown (104R 6/4) 1005R, SLM sand - 85%: VF = 20% F = 70% M=10% (are, feld, 1.7h) SA-SR (add) 5.11: 15% noaplastic  SAA W Hace 5.11 Sand = 100% yellow 1/2 (1.7h)  **Yuce gravel 4P to 1/2 (1.7h)	
5P)		N				75	V	
58)		N		V		76	SAA - Pale brown (104R6/3) Sand = 90%  5.1+ = 5%  clay = 5% as nodules	
59)	1	N				?77	SAA - sand = 100% trace silt no clay	
	31.2	N		)	1	78	SAA- larger med. fraction  Sand = 100%: Re= VF=15%  F=65%  M=20%  Wace coarse sand + silt	
Additional C	ommen	ts:				101	· ·	
Recovery:	None [					Parti	al Complete	
AA = Same	as Abov		z = quartz			· 1	Id = feldspar   Y = Yes   N = No/None	
amples: V =	VOCs/I	EDB; I	P = TPH; M	I = I	nine	rolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor A = Angular, $VF = Very Fine$ , $F = Fine$ , $M = Modium$ , $C = Coore$ , $C = Coore$	ductivity

EA		S	ONIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtlan		1/4-5	101	Project Number: 62735DM02.1017 Date:	
Boring/Well ID	:	KAFE	- 106		of_58
USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence	Samples collected	Recovery Denth. ft bos	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(SP)	لإ		27	SANA	
R			28		
5W 1.0	لر		28	well graded sand w/ gravel - light yellowish brown (1088 6/3) loose, SLM - sand = 80%: F= 30% M= 50% C=20% sa-sil (Otz, feld, 1:th); gravel = 20% of to 1/4" (atz+1:th).	,
	1.2 1		28		
(C)	N		28:	SAA @ Z78-280' to 282,25'  clay - brown (754R5/3) hard, sim  low - med. plasticity  ao odo	
(C)	الم		28	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
CL	لرا		28:		
(P)	N		286		
39 1	1		285	SAA @ 277-278 no trace coarse sand on silt	
Additional Com	ments:				
Recovery: No	ne 🔲		Pa	rtial Complete	
SAA = Same as A	Above Qu	z = quartz		Fld = feldspar $Y = Yes$ $N = No/None$	
				ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nductivity

ES			SON	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland	BFF	1/40	20	107	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:		KAF	B-1	065		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected	Core Run Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
500)	N			288	well graded sand - grayish bown (104R 5/2) loose, moist  sand = 90% = F=60% M= Z0% C=20% su-sa (atz, Feld, lith)  gravel = 10% up to 1" (atz+lith)  No odo)	
5W	لر			284	SAA w/two clay stringers a 1/2" stringers @ 288.6" and 288.8" — clay SAA @ 282.25-283!	
SW SW	N			290	SAA @ 288-289 - clay 1/2" stringer @ 289.2"	
	Ŋ		7	291	clay - brown (7.5 YR 5/4) hard, dry, low plasticity lightly mattled to pinkish white (254R 8/2) Fxn with acid - sec cal-carb.	
	Ŋ			292	mothing increase - mod. mothed	
SP V	N			293	SAA @ 286-2871 Moist	
sre)	N			294	SAPA ( Sand=95% SLM) trace gravel, silt=5% nonplastic up to 3/4" (lith)	
(F)   55.0	N		3	295		
SP)	N			296		
Additional Comme	ents:					
	-					
Recovery: None				Part	ial Complete	
SAA = Same as Abo		z = quartz			Fld = feldspar Y = Yes N = No/None	
					gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivity

	SONIC CORING BORING/	WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017	Date:
Boring/Well ID:	KAFB-106S8	Logged By: J. Messenger	Page 34 of 58
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence		Soil Description Jor; density (primarily coarse)/consistency & pl size %; fine, medium, coarse, etc.)	Well Details
	277		
	278 NO CUTINGS and a poor Cuttings we all 4 f u	RETURNED - Highly disturbed representation of subsurface discarded. Was observed was of sand; no clay observas a poorly-graded sand.	ice. d that ved.
NO PUD	300 Appeared as	a poorly-graded sand.	
	301	) require	
	302 SAA U) 303		
	304 SAA @ 293-29	41 wet	
Additional Comments:	306		no odor
Samples: V = VOCs/EDB; P =	TPH; M = minerology; B = biologic; W = mois	Complete  Y = Yes  N = No/None  sture analysis; G = geotechnical; UV = ultraviol  Fine F = Fine M = Medium C = Coarse C =	

				SC	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: K		FF	1/40	7)	- 1	0/ 0	Project Number: 62735DM02.1017 Date:	
Boring/W	ell ID:		KAF	B-	- 10	165		of <u>58</u>
USCS Soil Type	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs		Well Details
SM		Ŋ				30b	sitty sand w/ginvel - light gray (10' R 7/1) loose, dry sand = 45%: VF = 2020 F = 702 M=10% trace coarse sand sansk (atz, feld, lith); gravel = 40% up to 214" (1ith) silt=15% sof, non plastic Acador	
\$ SP		Ŋ			1	307	SAA@ 293-294' sand = 902 5:14 = 52 grand = 52 up to 1/2"(174) 1 to 307.25'	
BW		N			1	308	Well graded sand w/gravel - yellowish brawn (10 YR 5/4) loose, SLM - Sand = 75%: F=30% M=50% C=208 sr-5 = (atz, feld, lith); gravel = 25% up to 1/4" (4tz+1.th)	
320	41.6	1		9	1	309	5	
SM		N			1	310	SAA @ 305-306 pale brown (108R 6/3) SLM - sand = 85% i sit = 15% Wace gravel up to 3/8" (1.th)	
5p. 0.	7	N			1	311	SAA w/less silt = 90% frace gravel to {	
37)		N			111	312	SAA @ 306-307 Kace coarse sand    gravel = 5%	
30)	V			M	111	313		
Additional	Commo	N			1111	314	well graded sand w/ gravel SAA @ 307.25-3091 (  Sand = 65% trace silt	
Additional	Comme	113.			A	1	304-3061 dis world A	
1					1	_	- 1 has the Liber in	
Recovery:						Par	T MA	
SAA = San			z = quart		- 1.		Fld = feldspar Y = Yes N = No/None	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor A = Angular VF = Very Fine $B = Fine$ $M = Medium$ $C = Correst C = Crossel$	auctivity

EA	SONIC CORING BORIN	G/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017	Date:
Boring/Well ID:	7FB-106S8	Logged By: J. Messenger	Page <b>36</b> of <b>58</b>
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	un B 200 covery the covery cov	lness	Well
5W   1		no nonplassic	
(Sw) 42.3 4 5m	317	-316,25 SAA @ 313-314 pale 6 rown (10 TR 6/3)	
5W) N	318 SAH @ 5and	314-315' f= 25% M= 55% C= 20%	
(5)0) N	319 319 5AA - Sand= Gravel: 5:14= Pai	60% of to 2" calcium canbonate 35% of secondary throughout for what brown (104R 6/3)	No odos
(3) (0.4) N 34.7 N	321	brown (1042 5/3) - light gray (1042 7/2)	
Additional Comments:	322	-	
Recovery: None SAA = Same as Above Qtz = qu	Partial <b>!!!</b> artz Fld = feldspar	Complete N = No/None	
		moisture analysis; G = geotechnical; UV = ultravio	

	SONIC CO	RING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106SE		58
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	mples collected ore Run covery ptth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5w / N 5p 34.7 N	7	SAA to 323,75'  orly-gladell sand-light yellowish Grown-(104R 6/4) loose, sint sand=95% F=20% F=70% M=10% (erzyfeld, 11th) 6A-5R=silt=5% nonplastic  @ 324.25'-well grated sand-pale Gown (104R 6/3) louse 5LM - sand < 90%: F=20% M=70% C=10% (arzyfeld,1.th) 5A-5R - gravd=10% up & 1/2" (atz+1.th)  AO Oder	
SW N	326	5	
38)	327	SAA to 326.5  Soorly graded sand - light brownish gray (104R 6/2) loose, sim sand = 952: F= \$58 M=558 Hace course sand SA-52 (Rtz, feld, 1ith); gift = 5% nonplustic - trace gravel to 3/8" (lith)	
(3P) N (58,1 N)	328		
50 0.2 N	330	SAA to 329.5  SAA 0 324.25-325 gard=908 grave=5230 J	
SW N	331	Vace silf and	
Additional Comments:	332	SAAW Kace silt Sand = 95% grave = 5%	
Samples: V = VOCs/EDB;	P = TPH; M = minerology;	Complete  d = feldspar	uctivity

				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Ki		FF	- 1/1-	~			Project Number: 62735DM02.1017 Date:	
Boring/We	11 ID:		KAF	B-	- 10	165		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	-		Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
5w)		N			/	332 333		
(5W)	58.1	N		10	1	334		
5W)	-	N			1	335	SAA - SAND : 80%: F: 15% M=65% C=20% gravel = 20% up to 1" G=2+(i+h)	
503)	V	N		V	1	336	SAA - SANd= 80%: [:15% M=65% C=28% gravel=20% up to 1"Exz+(i+h)  SAA (a) -324.251-SM SAND= 85%: F=40% M=30% C=10%  329.51 Sand= 85%: F=40% M=30% C=10%  9racel=10% up to 10 (a+z+1i+h)  5iH=5% nonplastic M˙	
800		N		1	1	337	SAA Wo silt - Wace silt sand= 75%: F: 10% M=65% (=25% grave= 25% up to 144" (Qtz +1.7h) no odor	
5P)		لر			1	<i>338</i>	poorly gladed sand - light brownish glay (108R 6/2) loose, SLM sand = 95%: F=40% M=60% Hove course sand 3A-5R (Qtz, ith, feld); silt=5% Non plastic; trace gravel to 1"(17th) no odor 338-338.75  SAA @ 336-337 sand = 85% gravel = 15% oods	
(3)	36.5	N		10	1	339	The state of the s	
(S) (S)		کم			1	340	SAA @ 337-338	
(O.6)		N			1	341		
Additional	Commen	ts:				_		
Recovery: SAA = Samo	e as Abov	_					Fld = feldspar $Y = Yes$ $N = No/None$	
Samples: V	= VOCs/	EDB; I	P = TPH; ]	M =	min	erolo	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor	ductivity

	1				so	NI	CC	CORING BORING/WELL CONSTRUCTION LOG	
		tland B	3FF	- 1/4			7.5	Project Number: 62735DM02.1017 Date:	
Boring	g/Well	ID:	-	KAF	B-	10	165		58
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(20)					1	1	341		
52)			لم			1	34z	SAA @ 338-338.75'	
(ei)			N			1	343	clay - reddish brown (54R 5/3) hard, SLM med. plasticity no odor	
cî)		365	N	***************************************	lo	1	344		
Ćŷ	,		N			1	345	SAA W/moderate // ing to white 8/1) (xn w/acid mate // hroughout (sir 8/1) seccal consonate // consonate // seccal consonate /	
(c)		V	N		V	11	346	KD 345 91 grand = 500 trace 5ilt	
(52)			7)			1	347	-@ 346.5' light brownish gray (100 5/2)	
Si		845	N		gi	1	348	SAA @ 346.5' sand = 9026 graved = 5% Clay = 5% nodules brown (7.54R)  @ 348 SAA @ 347 bot on (7.54R)	
5W)			~		1	1	349		
	)		N				350	(sAA-clay highly Mottled throughout for white (254R 3/1) sen whacid weak sec. cal. consonate	
Addition	Jilai Co	ommen	its:						
-							7		
Recove	-	None as Abov	ve C	tz = quar	tz.	-	Part	rtial Complete  Fld = feldspar Y = Yes N = No/None	
_					_	min		ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductions	tivity
D - D		CD /	C . 1		~			r A = Angular VF = Vary Fine F = Fine M = Medium C = Cooper C = Crossel	

					SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirtla		FF	1/1/	77	7	0/ (	Project Number: 62735DM02.1017 Date:	
Boring	/Well II	D:		KAF	5	10	260		of <u>58</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
	10.6	1			1	1	350		
(y)			¥			1	351	plasticity - clay = 60% - no mettling (surg) weak	
(U)		84.5	Ŋ		101	1	35 z	Blown Lilt - light brown 7.54R bl4) Soft SIM	
Mi	)	1	Ŋ		1	/	353	slayer silt - light brown 7.54R 6/4) soft, SLM silt - 80% soft, monthshie 3 low plasticity (odo)	
M			N			1	354	SAA Clay=10%	
(SP)		1	N		V	1	355	Fourly graded sand - pale brown (lovie 6/3) loose, 5 LM Sand - 952: F: 50% M= 376 Hace comse sand (atrifeld, lith) 55 5:1t = 5% non plastic trace gravel up to 3/4" (lith) (no odor)	
							356	highly disturbed + discarded: contents appeared as sand	
611			Ŋ			1	357	well graded sand w/grasel - pale brown (1048 6/3) loose, SLM sand = 80% = 8= 30% M= 55% C=15% (erz, feld, 17th) SA-SR gravel = 20% up to 134" (etz+1.7th)  no odoo	
F)	7	35.3	N		10	1		sand = 95% - F=60% M=40% (GTR 6/3) loose, 51M 51H= 5% Nonplastic 600000	
(SP)			N			1		5AA w/trace gravel up to 42" (lithics) - 358.6-358.8' SAA w/gravel - sand=85%; gravel=108 up to 1/2" () SAA @ 358 - 358.4' (10 odo)	
Additio	onal Cor	mmen	its:						
Recove	rv: N	one				_	Part	tial Complete	
200	Same as		/e Q	Qtz = quart	z			Fld = feldspar Y = Yes N = No/None	_
Sample	s: V = V	/OCs/	EDB;	P = TPH;	M =	mir	1erolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
D - D -	d . d	CD - C	haban	A D Labor	- 6.			A = Angular VF = Very Fine F = Fine M = Medium C = Coarse C = Crayel	

	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106:		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	1 1 1 1 1	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
50,4	360	SAA @ 359-360'	
3) /	361	( )	
SP W	362		
5P 353 W	Jo <sup>1</sup> 363	Sto 362.5'  well graded gravel w/sand - pale brown (104R 6/3) loose, SIM  gravel = 65% up to 13/4" (atz+lith) — sand = 35%:  4=30% M=60% C=10% SA-SR (atz, feld, 1.7h)  (0000)	
5w W	364	well graded sand w/gravel - Pale Grown (107R 6/3) loo se, SLM Sand = 65%: F= 25% M= 55% C=20% (QFZ, (eld, 1.th.) SA-SR gravel = 35% up to 15/8" (Qtz rlith) (NS do)	
500 0	346		
	347	SAA- WOWN (7.5 YR 5/2) Sund = 75%: F: 35% M= 55% (=10),  gravel = 25%  wall graded growth wilesand - light below to the count (1042 5/2) (1056 5/2)	
5w 36.4	368	well graded graved w/sand-light brownish gray (1042 St.) loose sen gravel = 45% up to 2" (Qtc M. th.); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (Qtc, few th.); sand= 25%; p= 202 M=656 (Qtc, few th.); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152 (Qtc, few th.)); sand= 25%; p= 202 M=656 (=152	
Additional Comments:			
Recovery: None	Par	tial 🖽 Complete	
SAA = Same as Above		Fld = feldspar Y = Yes N = No/None	
		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond.  A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	Kirtland B	FF	1/10	72	- /	07.0	Project Number: 62735DM02.1017 Date:	
Boring/W	/ell ID:		KAF	B-	10	165		of <u>58</u>
USCS Soil Type	FID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(A)				1	1	368		
34)		Ŋ			1	<b>3</b> 69	Postly gradest sound - Polle Grown 1042 6/20 long, SLAI	
(50)		Ŋ		1	1	370	Postly graded sound-pole brown (1012 6/3) loase, SLAI sound	
(F) (O)		Ŋ			1	371		
52	36.4	N		1	1	372	SAA @ 364-368	
52)		Ŋ		10	1	373		
5W)		Ŋ			/	314		
<u> </u>	)	N			//	393		
50)	V	J		V	1	376	grayish brown (1898 5/2)	
Sw		N			11/1	377	SAA brown (10 YR 5/3) moist no odor	
Auditiona	al Commer	its:				-	L.	
Recovery						Par		
The second second	me as Abo	_	tz = quart	_			Fld = feldspar Y = Yes N = No/None	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con A = Angular, VF = Very Fine , F = Fine M = Medium C = Coarse G = Gravel	ductivity

EA				SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirt		FF					Project Number: 62735DM02.1017 Date:	
Boring/Well	ID:		KAF	B-	- 10	165		of 55
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(SL)		d			1	377 378	SAA @ 364-365 Sand = 80%: F= 30% M= 60% C= 6	
SW)		N			1	379		
5P-5M)		N	***		1	380	Toorly graded sand whilt - brown (7.5 YR S/3) loose, SLM - Sand = 90%: F=40% M=60% trave coarse sand + trave gravel to 3/4 (4th); sitt=10% nonplastic no abor	
SW'Sm)	38.b	N		10	1	381	M=60% trace coarse sand + trace graved to 3/4 (1th); sitt=10% nonplastic (no above )  SAA to 350,25'  SAA w/coarse sand sand= 75%: F=25% M=60% C=15%  Tyraved growd=15% up to 1/4" (atz+1ith)  sit=10%  solve	
SMX SMX		N			1	382		
ÇW)		N			1	383	600 sitt Sand = 80%  97avel = 15%  57+ - 5%	
300		J			1	384		
50)		N			/	385	Sand = 76% Fiauel = 25% 5ilt = 5%	*
Additional Co	V	N		V	1	386		
Additional Co	mmen	.5.				-		
Recovery: 1						Par	1 000	
SAA = Same a			tz = quart				Fld = feldspar Y = Yes N = No/None	400.00
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal col	nductivity

					so	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
-		land B	FF	1/10	12		07.0	Project Number: 62735DM02.1017 Date:	
Boring	/Well	ID:		KAF	B-	10	165		of <u>58</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run		Depth, ft	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(SP)			Ŋ		1	1	387 387	Foorly graded sand - light gray (104R Hz) loose SLM no odor sand =100%: F=35% M=65% tragarse (2tz, feld, lith)  frue silt + trace gravel up to 5/8" (1:th)	
(33)			7	************		/	<i>3</i> 84		
39	de antico		<b>A</b> )			111	389		
51)	0.5	54,D	N		16	111	390	1 () 189 751	
(50)	0.5		N			1	391	(atz, feld, lift); gravel = 15% m=50% (=16% sn-52)  (atz, feld, lift); gravel = 15% up to 11/2" (10th)  (sand = 75% = 1 = 25% M=50% C=25%  gravel = 25% up to 13/4"  Hence silt  Hence silt  Hence silt  Hence silt	
(5W)	***		N			1	39 z	gravel = 25% up to 13/4".  trace silt	
5W)			N		1	1	393		
50						/	394		
SW) Addition	onal Co	ommen	ts:			/	395	\[ \langle \]	
Recove SAA = : Sample	Same a	s Abov		z = quartz P = TPH; ]		min		ial Complete  Fld = feldspar Y = Yes N = No/None  ty; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivity
								A - Angular VF - Vary Fine F - Fine M - Malina C - C - C - C	

EA		SONI	C COR	ING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland		4.00 (		Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	K	AFB-10	658	Logged By: T. Messenge Page 45 of	5 <u>8</u>
USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence	Core Run Recovery	% sa % gr an	Soil Description of type; Munsell color; density (primarily coarse)/consistency & plasticity of sand (include grain size %; fine, medium, coarse, etc.) and minerology of gravel revel minerology or minerology or minerology of m	Well Details
0		117	395		
5W 54	ر الم	10	396 Clay	J to 395.45  1 - brown (7.542, 5/4) very shift, low plasticity, 52m w/gravel = 10% ye to Jii  S to 396.25'  5AA @ 390-391'  Sand = 85%	
(SW)			24.5	SANA @ 390-391 Sand = 85%  grave = 10%  Sif- 592	4111
$\sim$			397	( 3,17 - 3%	
(Sú)	٨		398		
300	N		One	the 398.75'	
SPM (D.L	[ N		399 FA	rly graded sand w/s. It - pale brown (10 te bl3) loose, SLM  and = 90%: F = 45% M = 55% SA-SR (atz, Eld, lith)  10 odor  It = 10% nonplastic  (to 399, 5'  Clay - brown (7.5 YR 5/3) very still, low plasticity  SLM  Sclay to 400.5	
(-4)			400	SLM	
0.4 5P- 5C	N	10	P001 Sa	Sclar to 400.5  Try graded sand w/claz - gray (10 TR 6/1) (00 Se, SLM  and = 90%; F=50% M=50% (Qtz, Fold, Lith) SE  ay = 10% nonplashic  SMA @ 396.25 to 398.75'	
Sw)	N		<b>3</b> 6≥	SAA @ 396.25 to 398.75'	
Sw	N		463		
Sw	N		to 40	SAR Sand = 70% 93.8) Silt = 50% 511 = 50%	
Additional Comme	ante:		404 100rl	by graded sand - 6000 (454R 5/3) loose 51M	
Comme	шъ.		gar	1 15 % F = 45% M=60% trace course sand (ato fely lith)	
Danasa NT				lel up to 1/2" is trace (lith); silf = 500 polarie SA 5P	
Recovery: None SAA = Same as Abo	ove Qtz = q	uartz	Partial Fld =	Complete  Feldspar Y = Yes N = No/None	
				= biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	uctivity
R = Rounded, SR =	Subrounded	SA = Subans	rular, A =	Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

EA			S	ON	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kir			1000	,	0.7.7	Project Number: 62735DM02.1017 Date:	
Boring/Well	l ID:	K	AFE	5-10	165		of <u>58</u>
PID Reading (ppm)	Temperature (°C)	annassajonii AO	Samples collected	Core Kun Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SPA				1	404	SAA@ 400,5-401'	
20	60.1	)		0 /	405	Sto 409.75'  Clay- 5AA(Q) 392.5-400.5'  6 405.1'	
<del>90</del>	1	١	,	1	466	SMA @ 403.8'-404'	
382		/			467	SAA @ 404-404.75' + Frace course sand Hace gravel to 3/8" (1.7h) no. odor	
5P 5C		)		XX	408		
\$P\$ 50)	^	)	(	1	469	SAA trace gratel up to 314"	
50)	64.0	/	li		410		
50)	1	)			40		
(1)		)		X	412	well graded sand - gray (10th 6/1) loose slad (at, 521d, 174)  Sand = 85%: F= 30% M= 55% C=1281 54-58 (at, 521d, 174)  ginvel = 10% up to 144" (atz+lith); silt = 5% nonplastic  no other	
SM)	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			X	413	SAA = Sand=80% gravel=15% silt=5%	
Additional C	Comments	:		6	10 11	06-416 distribed	
				-	W V	ACA-III WAANIDAN	
Recovery:					Part	1 100	
AA = Same			quartz	22.274		Fld = feldspar Y = Yes N = No/None	
						gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

EA	5			SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	Cirtland B	FF	1/1	~			Project Number: 62735DM02.1017 Date:	
Boring/W	/ell ID:		KAF	B	- 10	165		of <u>58</u>
USCS Soil Type	FID Keading (ppm) Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
50		N			XXX	413		
3/2)	64.0	N	-	10	X	415	( light brownish gray (10YR 6/2)	
30	V	~		V	XX	416	Clay of the Control o	
( ) ( )		N			1	417	Clay-Jarrigray (7.542 44) JIN Olive (545/3) hard Med Plastophy - contains  SAA @ 400.5 - 401 - + Trace course sand (5 LM)  SAA @ 400.5 - 401 - Hace course sand 5 LM)	
5P) CD		N		31	1	418	Roosly graded fand - pale brown (10 4 6/2) loose, SLM grand = 95%: F: 460 M=55% trace coarse sund (arz, feld, ith) sa-se silt = 50% nonplastic trace gravel to 3/8" (ith) no do) Clay - center = brown (450 5/2); outler = strong brown (4/6) med. plashirty A ray stiff - 417.8 - 4191	
50	41.3	N		V	111	419	418 199 = SAA (2 4(7, 25-417, 8) nodules sand 52 46 to 1/2" (1.14) brown no	
	5 1	لر	P,V	1	1	420	well graded sund = 19 favel - pale brown (104R 6/3) loose, SUM  Sand = 85%: F = 2020 M= 70% C= 10th (0tz feld, 1/h) SA-SR  grand = 15% of to 23/4" (Otz + lith)	
( ) /.	50.5	N		5'	1	421		
50)		2			1	422	@ 421.8 - Poorty graded sand - see next page	
Additiona	l Commer	its:				N.	1 110 11 1 1	
				_	-	N L	OP - ATP. Graphress	
Recovery	: None					Par	cial Complete	
	me as Abov		tz = quart				Y = Yes $N = No/None$	
							gy; B = biologic; W = moisture analysis; G = geotechnical; $UV = ultraviolet$ ; T = thermal cond. A = Angular, $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$ , $G = Gravel$	ductivity

	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106S8 Logged By: J. Messenger Page 48 of 6	8
(i)	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	Well Details
<b>A</b>	SAA SAND = 9506 Hace coarse sand gravel = 5% up to 2'h" (1.7h) trace silt	
5W)     /	426  Well graded sand w/gravel - Grown (104R 5/3) loose sem  Sand = 65% : 1= 20% M= 60% C= 20% (are, call, ith) SA-512  Gravel = 35% up to 11/2" (atz+lith)  Weak, sweet  SAA - sind = 90%	
(50)   10.7 N	5AA - Sind = 70% gravel = 30%	
(SW) N	928 SMA - sand = 75%  gravel = 25%	
50) N	929 Sand = 85% of to 1"	
(ci) N	430 Clay-strong Grown (7.54R 4/6) still to very still low to med. plasticity  SAHQ 428-4291  Slight	
Additional Comments:	431 S 428-4291 (slight)	
Samples: V = VOCs/EDB; P =	Partial Complete  = quartz Fld = feldspar Y = Yes N = No/None  = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduction of the SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coayse, C = Cravel	ivity

EA		5	SON	IC C	DRING BORING/WELL CONSTRUCTION LOG	
Project: Kir					Project Number: 62735DM02.1017 Date:	
Boring/Well	ID:	KAFI	3-1	06 S		9 of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence	Samples collected	Core Run Recovery	Depth, ft	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	Well Details
500)	N			431	SAA W/less grand 95% Sand= 95% Sparl= 5%	
(Fin)	N			433	sand = 20% gravel = 10%	
Sw)	37.8 N		6	434	light brown (104R 6/3)  5 and = 95%  gravel = 5%	
Św	N			435	sand = 90% gravel = 10%	
(SW)	N			436		
ŚŪ	N			437	SAA - Sand = 95% F = 408 M = 58% C=10%  gravel = 5% up to 118" (etz-1.7h)  slight	
80)	28.3	ļ	11/	438		
السخ		_2.5000000000000000000000000000000000000		439	SAA sand = 90% up to 11/2"	
Additional C				440		
Additional C	omments:					
Recovery:	None	)tz = quartz		Part	al Complete  ld = feldspar Y = Yes N = No/None	
					y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal	conductivity
					A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

EA				so	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: K	irtland B	FF					Project Number: 62735DM02.1017 Date:	
Boring/We	ell ID:		KAF	B-	-10	165	18 Logged By: T. Messenger Page 50	of <u>58</u>
USCS Soil Type	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness	Well Details
01.	1 1			1	1	440	CON: 5 1 550 6 752 M: 60% (515%	
(3/1) (5/1)		N	-		1	441	SMA: Sand= 85%; F= 25% M= 60% (=15%  gravel=15% up to 11/2" (QKz+1ith)  forty graded sand - pale brown (1048 6/5) 1005e, 51m - sand=95%  F= 45% M= 53% (Atz, Feld, 1/14) 54-58 - 511=5% popplastic  trace grave to 3/8" (1,74) + (Qtz)	
5P)					\	442	Porty graded sand - pale brown (104 6/3) loose, SIM - sand = 95%	
3W	-	N		6	1	443	S SAA @ 436-437	
(FP)	26.6	N			1	444	SAA@ 441.75 -442.2'	
(SW)		N			1	445	SAA @ 427-428'	
58)	<u></u>	N		V.	1	44.C	SMA (a) 441, 75-442.2' trace course sand  Sand = 90%  Silt = 5%  grave = 5% up to 1" (atz+lith)	
522)	- 1	N			/	447	SAA @ 440-441' SAND = 50% M=60% CNO'S grand=10% F=30% M=60% CNO'S grand=10% SAA @ 440-441' sand=55% grand=45% up to 242" Clay - Grann (7.5 YR 5/3) stiff to very stiff, med. plasticity	
	27.7	٦)	2000	1	1	948	$\downarrow$	
Additional	Commer	N)			/	449	SAA @ 445-446'	
Recovery:						Part		
SAA = Sam			tz = quartz		mi-		Fid = feldspar Y = Yes N = No/None	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine , F = Fine M = Medium, C = Coarse, G = Grayel	luctivity

			SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland	BFF					Project Number: 62735DM02.1017 Date:	
Boring/Well ID:		KAFI	B-	10	65	18 Logged By: J. Messenger Page 51	of 58
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected	Core Run	Recovery	ı, ft	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5W 27.	2		144	11/1	449 450	SAACO 440-441'  Slight,  Sweet  Sweet  Solon  Clay - Teddish brown (54R 5/4) Very Stiff, SLM  low - Med. plasticity  Odor A	
CD SM	J			1	451	Clay is blown (7.54P 5/3) to 451,25  451.25' - silty sand - pale blown (104P 6/3) looge, SLM  Sand = 75%: VF= 15% F= 60% M= 8.5% SA-6F (Atz, Gly, 17th)  Silt = 75% nonplustic	
5P 34 34.	2 N		6		453	SAAT W/ 1055 Sift: sand = 900 Sift = 1000 SAAT W/ Coasse sand Fraction and gravel (=1000) Sand = 80%: F = 400, M = 500 (=1000)	
	N			/	454 455	SAH w/ coase sand fraction and gravel (=10%)  Sand = 80%: F = 40% M=50% (=10%)  Gravel = 10% up to 144 (atz, 11th)  Sift = 5% as notates (brown 7.54P 5/2) plasticity  SAA (a) 451.25! w/lest silt  sand = 95%  take clay and gravel up to 1"(1th)	
9f) V	الر		1		156		
36.6	N	l	1	/	457	Have course sand	
Additional Comm	ents:		-	-	-		
	s/EDB; F		1=		rolog	ial Complete  I'd = feldspar Y = Yes N = No/None  Ty; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity

EA	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106S8 Logged By: J. Messenger Page 52 of 5	X
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	5   9   9   0/ Eman (-11/-1)	Well Details
(F) 26.6 N	159 Sand = 90% 5:1t = 5% gravel = 5% up to 1/4 (1:th)	
GP) /		
1246	SAA Hace course sand	
SP W	462	
51.8 1	Hace clay as nodules brown (7.54R 5/3)	
5P N	464	
\$ 1	465	
(R)	466	
90 H	GAA trace coarse sand  10 clay	
Additional Comments:		
Recovery: None	Partial Complete	
SAA = Same as Above Qt	Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None	
	P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductive unded. SA = Subangular, A = Angular, VF = Very Fine $K = Fine M = Medium G = Coarse G = Crossellar, VF = Very Fine M = Medium G = Coarse G = C$	vity

Det   Style	5/3		S	ONIC (	CORING B		VELL CON				
Soil Description  - soil type; Munsell color; density from the coarse, etc.)  - soil type; Munsell color; density from the coa						F	roject Number:	62735DM02.1	017		
- soil type, Munsell color, density (primarily course) course (see plasticity - sand minerology - sand (include garia size %; fine, medium, coarse, etc.) - sand minerology - sangularily tomodechess - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand minerology - angularily tomodeches - sand min	Boring/Well II	D:	KAFB	-106.	58	I	ogged By:	T. Messenge	1	Page <u>53</u>	of <u>58</u>
SP		Temperature ('C) UV fluorescence	Samples collected		% sand (inc sand miner % gravel gravel miner angularity/ % fines (sil	clude grain si ology erology roundedness t/clay)	density (prima ze %; fine, med	rily coarse)/con lium, coarse, et	c.)		Well Details
SP	/	$\int_{t} \int_{t}	1	767	10050, SIM.	- sand =	10%: F: 30%	M = 60% C=1	or (ore feld, i.	in) ( adojest	
\$\sqrt{		N 9.0b	1					Z Latz +1,th	) ,	-	1111
\$\\ \begin{align*} \b	5P)	V	•	468	SAFE	466-	765			•	1111
\$\\ \frac{\f				469							
(Sp)   1/2   472		N		470		** * **************************	,		***		
State	59 54.1										
(F) (1.8 P, V, M, B H) (475) Additional Comments:		19		471				~~~~~~			
\$\hat{9}\$  \qquad                \		NII N	6	47.2							
(SP) 21.8 P,V,M,B 44 475  Additional Comments:	3)	1									
Additional Comments:		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						A TOTAL PROPERTY OF THE PROPER			
Additional Comments:	(4)	N. N.	A	475	- (			mo i's	+		
		(I.O N	P,V,M,B 4		<b>V</b>						
Recovery None Portiol Commission	Additional Cor	nments:									
Recovery: None Portiol Commission											
	Recovery: No		V	Par			Complete				
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity				= minerol						T - th	1-141-1

EA	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-106S8 Logged By: J. Messenger Page 54 of 5	8
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	S   S   S   S   % fines (silt/clay)	Well etails
	477 SAA No Face clay nodules  477 ( frace gravel up to 3/8 (1.74)  MO15+	
SP 21.8 N	478	
	SAA - face course sand moist  sand = 953 up to 2/2" (ith)	
(844) N	proist, trace silt	
51) N	Sand = 100% Frace gravel VP to 2"(1.7h) Frace 5."1+	
(5p) 27.3 N	482	
579   W	no trace graved no trace coarse sand	
30 N	484	
SP Additional Company	485	
Additional Comments:		
Recovery: None SAA = Same as Above Qt		
R = Rounded, SR = Subroun	P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductive and ded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	vity

		SO	NIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland	BFF	. /		Project Number: 62735DM02.1017 Date:	
Boring/Well ID:		KAFB-	- 106	S8 Logged By: J. Messenger Page 55	of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected Core Run		gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
<b>3</b>	٧		48		
SP 27.3	N	101	48		
99	N	V	148	s and model as all and a low of the second	
	N		48	well graded grave w/sand - brown (7.592 4/3) loose, wet gravel = 65% up to 2" (atz+lith) sand = 35%: F=25% M=55% C=20% sA-512 (atzfold)  SAH w/655 gravel Sand = 90% odo present gravel = 10% up to 3/4"  Sand: F=20% M=70% (=10%)	
GW Was	J.		49	SAA W/ less gravel gravel = 10% up to 3/4"  Sand: F= 20% M = 70% C= 10%	
GW 1498	لر		49	SAA ( 488 - 489 Sand = 4560 Z grave = .55 Z	
(Ju) [75.1	N	/b'	49		
(w)	$\mathcal{N}$		49		
(A)	N		49	SAA @ 480-481 brown (\$.548)	
Additional Comme	nts:		,		
Recovery: None			P	rtial Complete	
SAA = Same as Abo		= quartz		Fld = feldspar $Y = Yes$ $N = No/None$	
				ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond r. A = Angular, VF = Very Fine , F = Fine M = Medium , C = Coarse, G = Gravel	luctivity

		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland			Project Number: 62735DM02.1017 Date:	
USCS Soil Type PID Reading (ppm) PID Remperature ('C)		Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology	Well Details
(3)	P	494	SAA W Knce gravel to 11/2" (1.th)  and frace silt -non plastic  odglesent	
GP) 15.4	N	101 1916		
	<i>N</i>	49.7		
(5P) V	N	498	CMO ICA IIIa	
30)	N P, V, M, E	499	SAAR 489-490 Wet work	
SW)		560		
SW) 22.		501		
5W)	A)	502		
Additional Comme	nts:	503		
Recovery: None		Parti		
SAA = Same as Abo Samples: V = VOCs	/EDB; P = TPH;	M = minerolog	ld = feldspar Y = Yes N = No/None y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	luctivity

EA				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: K		FF					Project Number: 62735DM02.1017 Date:	•
Boring/We	11 ID:		KAI	FB-	-10	65	8 Logged By: J. Messenger Page 59	of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
				11	1	503	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
5N)		N			1	504	gravel = 58	
SW	22.(	N	***************************************	81	1	505	Mace gravel  SAA @ 503-5041	
SW		N			111	686	sand = 90% y grave = 10%	
3		Ņ	~4.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6		1	507	SAAC 478-479' Sand=100% Hace gravel+ coarse sand	
5)		Ŋ			111	508		
SW	20:4	7		8	1	509	SAA ( 503-504'	
SW)		N			1	510		
3.7		Ν			\	SII.	5 AA 500d = 902 grave = 1020	
3w		N			1	512		
Additional	Commen	ts:		-	-			
Recovery:						Parti	T MIN	
SAA = Sam			tz = quar				ld = feldspar Y = Yes N = No/None	
Samples: V R = Rounde	= VOCs/I	LDB;	r = TPH;	= Su	mine	rolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	aductivity

					S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project:			FF					Project Number: 62735DM02.1017 Date:	
Boring/	Well II	):	-		_	_		Logged By: Page <u>IS</u> of <u>58</u>	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run		Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details	
33	2	0,4	h	and the state of t	81	1	512 513		
SW	,		N		V	111	514		
	6.7			P,V				TD = 514' reach 1625 1-18-19	
				.,,					
							5-0		
Addition	al Com	ment	s:						
Recovery			. (	)tz = quart	z		Part	ial Complete  Fld = feldspar Y = Yes N = No/None	
Samples:	V = V(	OCs/E	DB;	P = TPH;	M =	min bang	erolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

BORING/WELL CONSTRUCTION LOG	
ject: Kirtland BFF Project Number: 62735DM02.1017	
Iling Company: (ascade Start Time/Date: 10/6/18	
ad Driller: Roger Rodriguez Completion Time/Date:	
lling Method: Savic Final Depth:	
sing Diameter OD:  Bit Type and Outer Diameter	
	of <u>75</u>
Soil Description	
The soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily coarse, etc.)  soil type; Munsell color; density (primarily coarse, etc.)  sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
1 0-3" sand w/ grave	6
2 3 - 5 ft shifty sond, brawn (7.5/8 5/3)  4 a few of sond from the son - 3/1/4 sand as about 1  5 p 5 ft Marge prophes /abbles p to 1  5 p 5 ft Marge prophes /abbles p to 1  5 p 5 ft Marge prophes /abbles p to 1  7 to 8 of the Set V mones of 5 ye 4/6), modularly sond from the sond	2 2 6 1 V C + V D C - V D Y V D V D V D V D V D V D V D V D V
	TITA
Iditional Comments:	
iditional Communico.	
ecovery: None Partial Complete	
A = Same as Above Otz = quartz Fld = feldspar Y = Yes N = No / No No No No	
pupples: V = VOCs/EDB: P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
= Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	

			SC	ONI	CCC	RING BORING/WELL CONSTRUCTION LOG	45/	1
roject: Kirt		F				Project Number: 62735DM02.1017 Date: 10/6/	18 f <b>B</b> 125	-
Boring/Well	ID:	MEP	5-100	es.	9	Dogged Dy. Charles	(Val)	4
						Soil Description	90	
व	06				_	- soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily		1
USCS Soil Type PID Reading (ppm)	Temperature (C)	9	Samples collected	16	7	- % sand (include grain size %; fine, medium, coarse, etc.)		1
USCS Soil Type	e l	fluorescence	llec	SS	. 1/	- sand minerology		1
din	1	ose.	[0]	Depth, ft bgs		- % gravel		1
So	era	nor	les	ı, fi	/er	- gravel minerology	Well	1
CS	di	/ 11	ď	ptl	Recovery	- angularity/roundedness	Details	
ON LA	Te	Z	Sa	Ă	R	- % fines (silt/clay)	Details	5 30
	1	1		4	*3(	santo 3125 tues glading to clay strang brown (7.57 R 4/6)	20	
ar	1	N		XX		I trace coarse grans of callete i damp	0 00	1:1
		14			32		4) 1	1 falt
	1	AL			33	clay- hyrtorum (7-5 YR 6/4), Lense, plastic, shappy	010	101
1	85	M	,	KXX.	44	Moist - Frace coorse caliche sand & gover-seveto 1/2/1	1 20 1	18/
2. /		-		ZXX	20		90	) /
2/1	17	N		HAN!	35	mod den se, Non plastic, true calling sand, her grand	N N	Λ
179	V	1/4		W.	36		-10	3/2
e.1	1	1		30X	21	SILL CONTRACTOR OF THE STATE OF	0 1 0	1
5M		1		AND I	3+	a touch up to 1/2" - grand of Linestone	4 1	1
	RUU	38,5-			_35	day of Sifty some - Strong Stores (7.5 YR 4/6) - dense,	100	/
	401			NO.	39	now plastic, non cold shiply warst	0	111
10,0	V	\$3913	-39.5	100	40	The sould be a	0 0	7
	1	41-4		XX	7	clay strong brown (2.5 TR5/6)-dense, slybothy mist;	0 0 1	6
		41.3		V XX	41	callelis and Sagram of 10 12 5A		0
	1				42	7-	0 6	
01	119	42-3			43	SAA	0 6 6	
d-	100	72-3	42.6	(8)	,	•		0
	1	42.5	100		44	ADA	1 1 19	
	1	N			- 42	SAA	00	0
0	V	10		A PAR	46	wigard wigard		-49
	1	1		WM	47	SAA to the 3 thes - sand from (7-6 yr 4/4), loose, 51 gluy	)   9	JI'
SN	6-111	N		THAN .		Som more commerce provides by stay some up to 25 11	0 0	0
	694				48			f
W.	>	1		MX	40	SAA	2 0 1	0
M.C	1/2	N		A STATE OF THE PARTY OF THE PAR	50		0 0	¥ 5
		-			1	Silty sand to 50,5 @ 50,5 silty sandy trace Clay		TOTA
AM _		IN		200	-51	about the by the file of the f		11/21
9	1	11		- 0	52	shally noist - trace calich coarse sand	0	0
CN	-11	(1)			57	51 Hy Sund of Frace clay is a bove - Horce	0 0	
SM	74.1	OIV		XX	ey	gravel upto 1/2 of caliche - SA-SR	0 0	10
5m	-	7			1	57-595-5AA to 55,5055 sand Africandum	0 9 1	11
-		N	35		33	grant top (1.5 /2 5/4), Lose, Jane	0	100
5W 0.0	V	14	NR	7	54	and the second contraction and	0	100
31	1	567-	+	AND	57	SAA C SOS A STORY O COOKS A GOVER STORY	0 0	
SW	en I	76.8			- V	Up to 13 (1) Have ( a 576 5 - 58 - 5A+ 0 54 ft	0	0
SM	69.			14/	SY	TAAC 544 +0 58 06- \$ 58.54 10 594 -5and, us from brown	0	to
5M	1	888			59	(7.5 /2 4/6) Losse NE to Cooks grand, Lows , shothing	0 0	1
SMORE	V	58,9			40	MOIST @ 59 ft Silty Sand -SAA PSY FT	0	6
	1	1		CK		5) 14 sond (7.5 YES/6) lose, UFG, shiplity doup to 665.	0 0	70
5M		N		- 3	6.1	665 -62 61 75 - 51t w sand fine to Copy grand sand	8 6	20
5M		14		M	62	Some color @ 61.75-63 - Some color & C	-0	7/1
5/4	19	3.1		F	62	Sand Macis from the grand brown (15 4 6/3)	0 0	6 60
SW	0	M			1. 0	gravel 40 to Villa Sir infines 2 635 - 64 57 fy sero - UF to C	00	10 6
SM.	1000	4 11 /	-11-A	一种	1 00	interpolated silty sand & sold foram 754215/3) WE to	0 0	2
with		\$ & 4:6	165.0	1/9	1 6	Man when are Mill from a second		
Additional	Comme	ents:			-			
n	Marie				Par	Complete		
Recovery:		7 - 7 -	Otz = qua	rtz ·		Fid = feldspar $V = Ves$ $N = No / Nowe Mod = M$	wolvalel	4
SAA = Sam	- VOC	e/FDR.	P = TPH: M	= mi	ierolo	y: B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	ctivity 🔍	/
D = D == 1	- VUC	Subve	unded SA =	Subar	gular	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse		
K - Konna	cu, or -	Danio	mucu, Dr.	~ 4541	0			

EA			S	ONI	C CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kir						Project Number: 62735DM02.1017 Date: 10/6/18 Logged By: 1 401 Aug. 155 Page 3 of 25	
Boring/Wel	1 ID: ⊱	AFB	-106.39			758	
	0					Soil Description	
Î						soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily	
S Soil Type Reading (ppm)	1 3	e	cted	6		% sand (include grain size %; fine, medium, coarse, etc.)	
Soil Type	l e	fluorescence	llec	Sa	V	sand minerology	
lio	atu	res	oo s	ft b	2	% gravel gravel minerology	
SS	per	Ino	ple	th,	ove	angularity/roundedness Well	
USCS PID R	Temperature (e)	N N	Samples collected	Depth, ft bgs	Recovery	% fines (silt/clay) Details	
-	-	-	01	M		STE-C Same color 15% - Stop - well granted - showing norst	60.
54/4M	6913	-			60	31/14 Some - Ye harush Red (5 / 296) / 45 Jane , weathy	-66
		A			67	consacted, shight y moist	C.
5M	1,14	1.		X	68		
ch	6000	1		X	G9	clayes to sids , strong brand 7-5 4R 4/6) dense - most	
5H 0,0	1	N			70	68125 -69 31 Hay Samo (F. 5 47 514), (20 St., 5/4 hally hard	-1
CL-Mt	-	-		XX	70	claying silt to 71.25-brown (75 yr 4/4) - Mad dense, weathy P	- fe
M	1	N		X	71	2) -71.25 -71.09 - 5/40 (1.4 V) -400 (MU) 11.0 - 15	
ML ML		1		X	72	715-11.75-5and-Dam (75 YR 5/4) - C- LOOSE / SAA E 71.250	
ML	1			X	73	afternating 51 It and sand . Sand ufg - cooper 5 % gravel o 060	
SW	6xit	N			71	strong to mot (f. 5 18 + 16) Lose - Slighty Moist - Jarel	
M	- 1	1		M	74	alternating siltand silty clay brown (7.5 /R 4/4)	
Mi	7	N			-	more directo coose, shightly west, stightly plusting of	/
10	V	4			- 76		16
MIC	P	74.8-			77		
100	14	37.7		XX.	78	light loran 7.54 4.86/4- mod Lens your-plasming skyling 40	
WL_	-674	1		M	45	SILT Storm Grown 7.5 y Rolls ) - W Sand of grave to TKS	
and the party of the last of the	2 1/	N	· · · · · · · · · · · · · · · · · · ·		79	Silt No sand/gravel +475-80) Sighty hoist	cin
51 B.C	V	-	AND DESCRIPTION OF THE PERSON	1	KO	The second secon	-80
M	1	A		X	81	57 (f stener lover 7.5 yr 10) in thick - stignity	
100		10		M	NZ	1 0 / 10	
M		AI		X	1/3	Gilt as above @ 8/ft increasing, cury to silly	
MAL	169.	M			Cut	Clay B 84 ft - st dry to shightly moist plastice of	1
-	670	701		1	89	5A4-Reduced clary content of ove	
MY		K.		X	85	0	80
-CL	W	14		A	86	11/ 1805 to 08605 - Dense 86:5 - 88 - 5/mar 7.54R 0000	180
14	1	A 1			87	St. Dart Stephen Marst	
M	100	14		X	2 44		
	00/-	89		X	00	SAA to 89 @ BOL ft silther mour clay (754R 6/4)	,
ML	0	89,2		X	3	Styling Phantie, mul Den Se, Shighty Maist	190
G	1			-	4	Clarken Silt as above to the soft, G. 9105 Sand, VF+0	
州	1.4	90.6		- XX	1 9/	Chella radio, brown (+5 4 R5/4), soush	1
SW		91.		XX	97	Sughtly mass	1
		1		X	q z	Sand firmy down wards to fine ( med & raised sand , o old o	1
58	60	DV		X	gi	porty graded, stightly worst, Loose	
		94.8		X	X	Band ( to rown (7-548 5/3), fire grand, Party	7
58		950		1	7 95	graded Loose @ 195.5 - well graded sand lease of	90
0	V	100		- 1	96		)
100	1	177	_		97	SAA - fire grand sand to 92,5 this	
58		77.5	)	X	0	medium graned - pourly surted, coose shall a	9
67.12	-	9.80	-	X	3	SAA- Gregrance	
AP -	7,1	99.	· · · · · · · · · · · · · · · · · · ·		37	O NO C	10
Additiona	ol Comm	_	1	T	1100	4	4
Additiona	ar Commi	игэ.					4
-	100		-				-
Recovery	: None				Part		-
	4.7		Qtz = qua	rtz		Fld = feldspar Y = Yes N = No / New Yes T = they mel conductivity	-
Camplest	V = VOC	e/FDR.	P = TPH; M	I = mir	nerolog	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	1
R = Roun	ded, SR =	Subro	unded, SA =	Subar	igular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	_

			SC	INC	CCC	ORING BORING/WELL CONSTRUCTION LOG
oject: Kirtla	nd BF	F	, ,			Project Number: 62735DM02.1017 Date: 10/6/18  Logged By: 1005 A 2005 SS Page 4 of 25
ring/Well I	D: 14	AFB	-10630	-		Doggot Dy. Love March
	OK-			•		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily
Î	1/	- 1	70	4	\ \	- % sand (include grain size %; fine, medium, coarse, etc.)
USCS Soil 1ype PID Reading (ppm)	Temperature (*C)	nce	Samples collected	A	A	sand minerology
USCS Soil Type PID Reading (p)	ıre	fluorescence	olle	pgs		% gravel
di di	atı	res	S	#	2	gravel minerology
a ä	per	ig	ple	th,	ove	angularity/roundedness Well
2 1	em	5/	am	Depth,	Recovery	% fines (silt/clay)  Details
	H	94	S	Ch WHE	-	1 ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (
0	1.	ass		4	101	Defet
of		N	VPUOL		107	Local shappy west
600	,	102,3	-102,7		103	pro not open che sage it talk life sorty a sand o o co
6 7	F-/6   -			KXX		5000 7 5 10 11 7 1 COOK 1 5000 25 4.05/2 - Live St. 11
5V	1,0	103/	103.2	W	tol	1011
				1	105	SAA - higher braun (7-5 4/5)
R	V	N		KAN	106	
	P. Commercial Commerci	1.06,3	-106.6			sand of gravel, brown (Fos VR 5/3) F to C. gravel up to
9	.1)	107.1	= 107.8	MY.	107	In well a rate grove of replace, at 2, fall por
700				<b>Mal</b>	108	
)	102	12/1	9-5H	1/8/	[09]	SAA - GRAVEL UP to ZII of pebble carollarvate of
W K	- Hallanderson	(8817		100	-	Sand Start of White , fellsper
0.0	V	-			110	clause of 11 and don't la don't to don't shelve moust
4	1	110,5	-		111	Chester of the state of the sta
ML		110,7	(	4	112	plastic ,
-	-	-	-		110	SAA -occasion of garel up to 1" of Comsters o
4	AAG	11215	Lawrence Assessment and the		113	Six lense of ~113.5 ft
M	9819	1121	\$/113.6		114	
-		114.7	-		110	at 1114 5 50 17 " ( below leaved, 514 modulately
M	-	115			115	at the state of th
-	V				116	Silt as above at NIM. of ft
M.	1	. 1		W	117	13/14 as a serve ag 1/11-011
W		A		477	18	Street & Hill & H to 19 4 = calling indivation
	7/12	1				GIFT OW above @ 114.8 ft to 119 ft = catione indivation
ML	3)	N		-	119	Sitt Vingo - story Silvi Clay Jam (75 yes/4)
0.0	V	*			Ve	weater sense - non plastill
AN /	1	151-1	9-	10	Vel	SALL 11 9 her some calche story at 12105 change
7		12/0		撇	有	to Clay tom (75 4e 5/4) mod delse, mod plasmi
10			4	- 114	127	al al al al al al al al al al al al al a
a	12.8			114	123	clay as above sense & plastic 0 06
CC	1	IV		NA.	124	0 1
d	F	=1	-		129	clay as above + 124.5, increased 51+ to 5
		M			40	113
CYML	M	1 4			124	
m	1	N		TE	12	charge sit bround-54 43 mid will by 124 of the clay-
a		14			12	6 mm 7-5 yr 4/3 Densesty WM MUST PLASTIC O 04
	69.6	1	5	ing	12	day 1 Completes VESTSDI AKO SINDAM MARKET DIGSTIC
d		N		-	10	
0,0	V			48	12	1305 1200 at 1200 at 13075 01X
	1	1. /			13	SAA att 300 a 23" Good of indirated carena at 150 75
d-	1	N		1	1/2	day as ware of metites careful
	102	-			132	Styr Clay Love Love (Love 4/2) Jan So, Mustally Plasticto
61	780	A August		18	137	plaste stand of colucte stand (5%) the world
a	1	N			121	Gorse gang of column stang (5%) described
IN	10	1			13	134-134.5-51 ty cand (7.5485/3). Losse, shightly he 1st
A dditional	Commo	nte.		17	410	
Additional	comme	ms.				
		-		_	-	
Recovery:	None				Par	tial Complete
		ove	Qtz = qua	rtz		Fild = feldspar Y = Yes N = No / Now Zero = New Yes State = State = New Yes State = St
SAA = Sam			-			on desired the special title altroviolet: T = thermal conductivity

ject: Kirtland Bl		~ ~ ~	7111		ORING BORING/WELL CONSTRUCTION LOG		
1 / / / / 11 TO		01 00				of _2	15
ring/Well ID: 🕡	4FB-1	0659			66 7	01	
200					Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily		
PID Reading (ppm)		ъ		1	- % sand (include grain size %; fine, medium, coarse, etc.)		
PID Reading (ppr	UV fluorescence	Samples collected	1	1/	- sand minerology		
PID Reading (p)	ese	olle	ft bgs	W	% gravel		
adi adi	ore	S	ff	5	gravel minerology		
Re bei	gno	ple	th,	ove.	angularity/roundedness	1	Well
	>	am	Depth,	Recovery	% fines (silt/clay)		etails
	P	N N	.0	24	@ 136.75 - Grad = 1 what 1500 C ( 75 YE 6/3) fine 900 med; ( 005 le	0	0 6 0
> 783	N		4	V36	\$ 136.75 - good - light brown (75 YE6/3) fine grained, Loose	-	V
A	1		The state of	137	SAAOC 136.25 occasional modern grains of 1 this		010
P 1	N		1		B. Calicha (21%)	0	131 0
71.8	1		ing the second	128	1 130 E to 130 Start (150 150 150 150 150 150 150 150 150 150	0	07
2	N		88	139	SAA to 138.5 from 138.5 to 139' Sand, fine to Gorse graved	0	
POOV	10			149	codisigrans die, Fld, lithis. At 134 soud, SAA @ 136.25	0	00
P 0,0 X	-		717		EAA +0140.25 then sand (1.5 YR 6/3 ) yet bern - fine to	-	010
				141	Cost of Cost o	- 0	
74.1	14		黑世	145	10% ocrosional gravel up to 1" -SD-Tophica)	0	0410
W	1	4	營富	143	SA Alic 142,5,4 his content of sand land, 1. CYR 7/3);	0	0/12
M	N		E .		will gaded gravel 160%, up to the modern modern modern Loose, Lay		PIL
M	14			644	sity clay to 144.75' brown (+.54R 4/4) Livise, Plastice @	-0	000
LIT	N		NA.	145	Just contract to 111 at 1 and 1 and 1 and 1 and 1	0	1
	1				Plastic - 144-146 stanty was		01
THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, THE OW				146		7	11 6
H 78.6	ENL			147	SAA to 197.25 of decreasing clay to 147.25 then	- 0	00
	10			M8	Silt, some color, Loose	A	
					Silt is above to 149,5 ft, then "2-3" bond of well mounded silt, then St. A, mod indivated , Stylety		0 6
LIAR	N	***************************************		149	industed silt, then SAA, mad industrict of 1914by	- 0	0 10
NAPL	10			150		-0	. 4
A A			1	451	Surdiffer to coass grand of grand, brans (7.5) 18 5/3), Loos Sugary most, grand 5 % up to 1" SR - 5/3), Loos	0	07
Verso	T/				Stightly west Jan 19 623 CILL March		1
6/20	(4		Will be	152	@15105- DAA - no gravel - Qtz fldilothics	30	01
	133.7	-		1153	SAA - at 153 increased coorse fraction & govel	_ 0	6 6
N 71,0	15400		II III	154	5% upto 1" Otz fld, Lothics	-6	91
	154.8-		程度			75	10
AL		p=====================================		155		410	OV 0
W V	155,5			156	Sout VF to C, garrel up to y of cooks sand anothernate of		A
1 1	157.1-	753.3	100		Some w/ grovel, provershaging (7.56/2) ul-Carned	0	010
202			inter.	157	gravel = 5-10% up to 1 75" of Littles I Loose well SP		11/18
78.8	157.4	157.6	1 195	158	and led , Ellewater mount around at 2 fld Tirtues = 54 SP	-0	0 7
J	1584-			159	SAT 10 158:5 - The corruged gable to 20% to 159 6159 ft	- 0	10
V 0,0	158.8		1988			1	OV
A A		-	100	160	514 to 160, 25, then tining downwards of mostly the san	10	A
1	160.7			161	W/N/O/ AN I COURT AND OFFICE	- 0	0 0
W	160.9		13.11	(62	Dry to very shiply may	0	4
从极小	1		Par		3AA a 102-5 then sond, light brown (+54R 9/3),	5	0 /
	1		- 1	163	Fire grance, pour by graded, shorty moist	- 0	0
Z X	4 1	- Committee of the Comm		169	U	-0	00
1	A /			165	SHATE 164.5 then sand or gravel fight brown (7.5 YR 6/3)	- 0	
W	IV		200		ment of ravel of med granged smelster habits of Skylith	0	A
00	4			160		- 4	1/1
SA MI	- (			167	SAA - gavel also of atoplinestone	_ 0	0
W 171.	N		1	166	100	0	1)
P	1			169	Sund, for goined, pinterstagan 15 yeldz) Routy gader Jay	0	10
1 9999	W			16	C/6915 sand fue to my send typh brain (7.5 6/3), loss	- 6	Poly
W 00 1			-	17	I'm and days.		
ditional Comme	ents:					-	
uditional Comme						-	2 495
uditional Comme							7 1
				-	Complete PIA load	CODO	'00 day
ecovery: None				Part	TO THE STATE OF TH	FYPE	red state
ecovery: None	Edv 17	Qtz = quar	tz		Fld = feldspar Y = Yes N = No Now S  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	V // -	

			SC	DNI	CCC	RING BORING/WELL CONSTRUCTION LOG	-	
Project: Kirtl			-1 m/. 00	ſ		Project Number: 62735DM02.1017		f 25
Boring/Well I	ח: יע	TB	10050			Logged By: Soil Description	rage 6 0	1 345
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Depth, ft bgs	covery	- soil type; Munsell color; density (primarily coarse)/consistency & plast - % sand (include grain size %; fine, medium, coarse, etc.) - sand minerology - % gravel - gravel minerology - angularity/roundedness	city (primarily	Well Details
D A	H I	7	Ö	0		- % fines (silt/clay)	(13) -	d d-1 0
20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	THE THE THE THE THE THE THE THE THE THE		V P CITY		171 172 173 174 175 176 176 177 187 187 187 187 187 191 192 193 194 194 195 194 196 196 196 196 196 196 196 196 196 196	Sand For Sand Fight bon attack of special of special of the special of special of special of special of the spe	Light Norst of Cocasind of the wast of a company of the state of the s	
1	*	1			20	5 and light brann (7.5 YR 6/3)- F- C grains	1 melles	0 010
Additional C	18.0 N	J	Res Q1	91	757 703 704 705	71.	5% - 2 arz 536 - 4 rard ~ 5% 9 This	0 0 4 0 0 0 4 0
Additional C	оппиентя	d.A	0.	4.	MAL.	between bag & call only into core		
		an	a su	~~	W. T.	()		
Recovery:	None				Partia		A 01- 2 1	1
Recovery.		_	Qtz = quart			$Fld = feldspar \qquad Y = Yes \qquad N = No / Ne$	NH- wot to	10.0

			SC	NI	CCC	RING BORING/WELL CONSTRUCTION LOG	140	
Project: Kir						Project Number: 62735DM02.1017 Date: 10/1	of 25	-
Boring/Well	ID: K	ME	3-1065	9		Elogget 2).	01 2	1
	OF					Soil Description - soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily		1
Î	,		7	ch	7	- % sand (include grain size %; fine, medium, coarse, etc.)		
USCS Soil Type PID Reading (ppm)	5	nce	Samples collected	V		- sand minerology		1
Ty	nre	fluorescence	olle	Depth, ft bgs	W	% gravel		1
Soil	rat	ore	o sa	£		gravel minerology		1
SS	adu	flu	ldu	oth,	Recovery	angularity/roundedness	Well	
USCS Soil Type PID Reading (p)	Temperature	20	Sar	Del	Rec	% fines (silt/clay)	Details	
SW	98	N			206	SAA- F-60% M-25%- C-5%	0 40	1-200
74	10	-14		281	THE PERSON NAMED IN	and the second of the second o	9 00	
July _	1	N			207	20726 - a revel of son prince gray (7 - 6/2) Lave, in to sight  20726 - a revel of son prince gray (7 - 6/2) Lave, in to sight  Jamp - wollgrave - F-10/2 M-16/2 C-25 Grad - 55/2 pp 11/- A-5R-072, inc.	Phy Direction	9
GW	4	1			208	dang-will grate - f-102 M-106 C-25 Grad 50 8 0 1 1 - 17 51C-	0 07	
Shu	9011							2
0,0	1	1	/		210	Gravel 35% up to 25" SASE Ot 2, Fld, I while S	0 0	210
T	*	1			~	SAA @ 209 - P-55/M W/ C-40/ grave 40 to 37 -50%	0 1	3
31	-	N			4	Loop well a rated dry to stay mast, Qtz, Fld		
0		4 A			212	Whis who give A-SR	0	
SW	1.1.	NI			213	SAA - Flob Mark 90% 9 30%	0 06	a
-	7816	N			714	(213 15 - ban (25 yrs/3)-SAA but w/ clay infines - Softwatic	0 0	
3W/U	- 1	. 1			7	212,5-214,5 (CAA) @ 214-5-5, lify sand w grower -parkish gray	0 0	
SW.		Al			(12)	7.5 (27/2) - Loose, will gradio - Stighting more - The M HOLC 5/		0
SM	W	10			216	gard 5% ~pto 1/2" -SA-SR F= 80%	0 00	12
0.	1		Non	11	717	sond-brun (7.5/RY/Z) Loose, well graded-slightly hoist	0	
SW	1	M	De France	1	718	1-60/M-208C-20/s occasional gavil up to 12-car2, FLD, Lishes	blat	0
-11	18/13	1	5/1/2	1	118	SAA to v zeaft thin Gavel John on hish gray (2.5 YR6/2)	0 7,0	
SN _	181.		13/5	1	219			
GWN	YV	N	13		,720	13/41/5A-SR (1042)	DO	22.0
NA	一个		Ma	I	1021	Ext Saw W gravel pakish gray 756/2) loss well graded, dry	10 10	
101	7		Just	14	-	F. 5/ M 25% C 60% G 10% Up to 1.5 " SA - SR - etz Fill	0 0	-
		IV.	1	111	722	Cotz Eld Lither		0
AN OUT			1 mg	17	10	John John Se Marie 20	0 00	
SW.	10301	IV/	3/8	111	224	PZZY - Sond light bound 7.5 VE G/3) LOUR LTY, HOW GOVER - VIDO TO MAKE ZO		0
	À		ASSE SE	11	729	Sand, pertusing say (7.54R6/2) (will, dry - will graded the		~
5N		M	B	X	27	CE ED V + 70V NY = " QTZI A L UTINGS WASH TO ST 3/ CAPO	1 0 0	771
	- VIV	10	- W		120			0
SN	1	A			19	Sand - Pinking gray (7.54R6/2) Wass Lry web graded	Ko o	
00	1.16	10			226	VP-30/F 30/M 10/ (30/- Little S/1-5/L)	+ 1 194	
A	ay de	1. (			729	Sund-probingray (7.5 yrur) (250 try - well graded	0 07	0
WA		N			230	VF2011 2010 19 50 106 - Med (1000 to 228.5 then included		1 23
-				90.12	-51	230 350. 15 AA - 262 5230.25 -230.5 - 5mg of Pumice overesup	79 197	0
300	3/02.6				(23)	as a sure of occasional gravel up to I'm at file whis	50	52
SAA	94.	N		133	232	100 to 100 to 4 occasion of 2 second of 1-1 2 4-516		1070
	1	1			237	Sura brount. 5/R 5/2) F-C gramy occasional gravel,	-	d
gw -		1		쀖	234	VE 10/ = 30% N50 C 10% good occasual pto 3/ SR-R	0 2	
-	This	5		15.31		EAL Cours down wards to 235.5 to a	0 10	)
SW_	10	_ A			251	Diffi filling and a series the series the		
SP	11	1			236	2000, 1909 91000 F) 12 9/0/ COS/DOTATE VO (12) 300	A A	- 231
1	1	who is			254	core wet from 236+800 - Sano inglato conft 3 100/30 to		3
SW	1	266			- 0	well a radid it 20 \$ 20 the C 20 G - xashed up to I se it	aus o 1	
-		236	4	Was.	720	East = lightly on 17.5 /e 6/3), LOOSE, Slightly Mist; well the	9 4	0
	- (ala)	0		-	257	graded - V +20/ = 10/ M 60% C10 6 - Ote, Ad, lottes	10 01	
Ox		4 A	112	1	240	are lowered to keep to mor down,	A STATE OF THE PARTY OF THE PAR	
Additiona	- 0		1 .	_	10 C	001100	reled Copi	2
	(A)	05	mple	CA	NOS	mand - bay lost air somple recolled from 10 files		
				_	Par	ial Districted Complete		
Recovery			0+	ta	-	Fld - foldenor V = Ves N = No NA Act force		
SAA = Sai	** ***	menn.	Qtz = quar	- mi	nerolo	ry: B = biologic: W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivity	
Samples:	v = VOC	S'EDB;	unded SA = 1	Subar	gular	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse		
K = Koun	ueu, SK	- PIDLO	unucu, on -		8			

SONIC CORING BORING/WELL CONSTRUCTION LOG Project: Kirtland BFF Project Number: 62735DM02.1017 Date: \( \( \begin{align*} \frac{1}{3} \end{align*} \)											
				0 1/-1	0.5	1		Project Number: 62735DM02.1017 Date: 10/9/18  Logged By: Logged By: Page 8 of 25			
Boring	/Well ]	D: k	AF	B-106	50		T	Soil Description			
USCS Soil Type	PID Reading (ppm)	Temperature (*F)	UV fluorescence	Samples collected	Core Run	Recovery	Jepth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details			
d			7 7		1		242	clay is it - bount 7-5485/3) - modulity duse to deuse of how plastic grading to deuse o weakly plastic at 241. 5 mu the plastic antests gray (7.5 48. 1/2) of clay no lites a 241. 75 - 242 - stightly mist			
Ct.	7.6	24.60	7 7		101		huch	clay as above to 243.5. then Levise clay light bruin (7.5 YR 7/4) w/ calichi strang & dark french / bruin spots up o to yz"-pertode un odar & PID of core bear is 5.1 ppm clay dense dry to shigherly maisor, solven preces ~1.3"			
4	89	7	22				24K	MOUST - SILT ~20% VF 75 F4B% M-0% CO%			
d gm	,	1	V		1		247	clary-grayintoun to VR 5/2) Jens, Iry, non plastic of the plastic of the start of t			
swy.		40%	14		3'		248	Silt w Clay - Geoffst Velland brown (10/R5/4) o moderately Longe, weakly plastic -PIDONE cose of to 25 ppm - Shight set to be un order 51 thy sand - light from 17.54 86/3) - Moderately dense, o substance of a - Shighty most			
SH	1.5		N				25° 251	250-251,5-Clay - brand 10 YRS/3), moderally  Sinse 51, charm with modely plastic to moderally  plastic - 2 247.55-51/4 Clay For and 10 YR 5/3  301- notworthy, corestre non Plastic to mealing			
CL.	60	我,	N	×487	1		25	Platstick objectly Morest - perfole moder of a supplied oder of the supplied oder of the supplied oder of the supplied of the			
(h)			N				254	10 TR 6/3 - occasional tim coliche stringers - Stightly  Plostic, dense - fitaleun/Noptha odor  Clay - 254 - 257. E bran (75 YR5/2) - dry, divse-style  Clay - petaleus / nopetha 3 PID on core nis pphin  0 2 59. 5 5AND - Light Warm (7-5 YR 6/3) - Loose dry, 0			
SC	tional (	Comme	ents:		V		73	@ 259.5 SAND-Light brann (7.5 YR 6/3)- Loose dry, 00 poorly gaded fine glaves			
		\.		т		-	Do	rtial Complete			
-		None as Ab	IVe'	Otz = quar	rtz		-	Eld - foldener V = Ves N = No			
Samp	les: V	- VOC	/ED	R. P = TPH	: M:	= mi	ierol	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  r. A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse			

					SO	NIC	C	ORING BORING/WELL CONSTRUCTION LOG	3/10
		land B		-0 (0		-		Project Number: 62735DM02.1017 Date: 10/6 Logged By: Page	of 25
Boring	/Well	ID: 1		FB-10	65	4		Soil Description	
USCS Soil Type	PID Reading (ppm)	Temperature (*F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (sitt/clay)	Well Details
	<u>A</u>	-	1	Ø	1			256-257 Sand W/clay - Brown (7-5/R 5/3) - word 20	0 0 0
es	,	1	1				DSF O	visibly durise vify to coarse grand, Now plastice VFG-80/F RO & M & C 23/Light brand 7.54R (43) Louse,	
5W			N				38	Sand of Frace of Favel (7.54 R 6/3) light bran (7.54 R 6/3) Loose, 5 lightly norsh with granded 3) light bran (7.54 R 6/3) Loose, VF 30% F 10% M 40% C 20% trace grand up to 3/4"	000
SW		8412	N		5		S	5AA 6 528,	000
ML	4.6		N				30	SIH W/ Sand & Clay - brown (7 5 yr 5/3) : Loos to weakly constituted 5, 1+66% Sand utg 30% clay 10% - Newplastic	000
NR			-		V		201	500-591 1- WE KNOWO X	5 0
Sil		1	N		个		76	Sup w/ Cavelabrown [7.5 VR 5/3], touse, suglisty must well graded - Tining south wards - gravel ~ 5% ve to j'i Otz, fld, lightes - no o dor	0 0 0
W			7	1	1		263	Sand -SAA F30/ M70% C 10% No grove Loose	0000
an		815	淡色		5		Rel	sightly most, shight peterlerm oder-sond F - C	0000
gu			3657 YE				267	F50% in 30% C20% Gravel up to 2" SA - SR - Q+2 feld your - Lethnes, mica.	0000
SI		V	1.32				Sea	56,00 - hrown (7.5/R 5/3), LOSS, Shutty wast	
SN		1	12		1		267	well a adid - No oclar	
Sh			N				267	F-15% M-65% C-20% gravel frace SA-SR Q+Z Fld ( lothics	0 0 0
54		Flore	N		14		692	Sand SAAT Less coarse - No order	0000
dr	7.7	4/	N			/	727	ATTOMO TO A POSTUL BATTLE AND	000
0			N		1		33	Clay W/Silt-brund F.5/R 5/3), modurately dense to Juse, shightly warst to warst, occasional calibre robbles up to the petroleum of Shight	0000
0	- 1	揮	N		6		N. S.		000
Addi	tional (	Comme	ents:						
-									
Reco	very:	None					Pa	rtial Complete	VI:
-				Qtz = qua	rtz			Fld = feldspar Y = Yes N = No Mod > mod v	
-		MOC	- OFT	B; P = TPH	; M	= mi	nero	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal c	OMMUNITY
R = 1	Rounde	d. SR =	Sub	rounded, S.	A = 5	Suba	ngula	r, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	

	The state of the s				SO	N	C C	ORING BORING/WELL CONSTRUCTION LOG			
		land B	_			_			1/1		
Boring	Well	ID: 1	C.14	FB-106	50	1	_	Logged By: Land Andress Page 10	of_	25	_
USCS Soil Type	PID Reading (ppm)	Temperature ('F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)		Well Detail	
		wit	.(		1		j	SAA @ 270'	D	Ø	0
مل		*V	12				387		D	0	0
d		618	1				Her		9	0	0
CL		1	172		6		215	clay v/SILT-brown (7.5YR 4/3)-51/1~30%, INSE slybight Audioately plastic	0	O	0
16	C+-02.075400+	16.5	1		+				0	0	0
		1	la		M		276		0	0	0
a		1	333		1		277	clay-dele yellans brown \$5(10 YR 3/1), books, plastic slughtly wast to moret - coliche sports, up to 12 of soft sondy caline - lighter in color	0	0	0
a		9518	77.2				278	NP to 12" of soft sondy calibre - lighter in color	0	0	0
	N. Z	1	N				739	SAA caliche spots ~15%	0	Ø	0
00	*	1007	- 1			10000000000000000000000000000000000000	FIL		0	0	0
CL	/	V	N		1		18		d	0	0
	3.4		N		10		281	SAA caliche Spices/Sports 20% of thin stringers ~1-3mm thick - more dense, shight silt	5	0	0
		841	N		1		232	2 282 ~ 2" thick calicle leaves pinkisk(gen 7. 42/2)	0	0	0
Silv	4	1	N					most well grades, small preces of new plastic clay	0	0	0
<b>受</b> 协		93,1	N				THE REAL PROPERTY.	@ 252.5-283.5-5and-brough 5 YR 5/3) Not to F Mundy	0	0	0
5W		*	10				284	3) 144 Sand = 4 ellarsh 3 roun(10 / R 5/4) wf - F - teace Silt	0	0	0
SM		110,4	11				285	Coose, stighting marst - at 285 ft;	0	5	0
You	P	100	N		V		286	e 2855 - Sand-Pale brann (10 / 26/3) - Egrand - por 14	0	0	0
GN		1	N		1		257	Sind- light bran (7.5 /R6/3) - wall grades / cost of to shoppy horst - F -30 M-60 (-10 ( at 2	0	0	0
AN		375	N	)	2		L xl	6 587.5 increased course freque 2 Litting	0	0	0
Additio	onal C	ommer	its:		V	VV	000	F 36 M-60 30/2 C20% G. 30/2 Up. 40 73, 4			
						-					
Recove	erv: 1	None					Par	tial Complete			
SAA =	Same :	as Abov	/e	Qtz = quart	z			Fld = feldspar Y = Yes N = No	3		
Sample R = Po	s: V =	VOCs/	EDB	; P = TPH; l	M = = Su	mi	nerolo ngular	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con , A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse	auct	vity	
A. 100	-muvu			~~~		-	9		6 11		

Appendix D

G=GPage 656 of 793

med = meterally

	1000				SO	N	C C	ORING BORING/WELL CONSTRUCTION LOG	_	
and the same of th	The same of the sa	land B	-					Project Number: 62735DM02.1017 Date: \(\frac{10}{10}\)	8	
Boring	Well	ID: V	H	B-106	59	-	-	Logged By: Page \ of 6	15	
USCS Soil Type	PID Reading (ppm)	Temperature (°F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs		Well Jetails	
58		1			个	1	1		0	0
SW		811	N				289	289-289.5-5ind-Som (105 YR 5/3) = goved - Loose, dry, or well gradied - at 280-5; Sondy bran (7.5 YR 5/3) - Loose, dry,	0	0
SW	1-1		N				2010	well graded 7 9+2, gowill, lying of 20 4-20 up to 1/2" 54-5R0	0	0
5W		16	2				291	SAA @ 290 / fine durword	2 0	0
SN		di	N			H	792	0	0	0
SP	-	1	1	-	1			SAA @ 289 ft - grant up to 1/2" - finny dar noords	0	0
SW		616	N		8		~0		q	9
SW			N			対対	294	E 2991 - FYO'S Me 10'S C. 50'S Gypto 3/4 Colored of Fig. 150'S Loss dry well graded of Fig. Me 10'S C-10'S Hove gravel up to 3/4" Which SA/SR of C-10'S Hove gravel up to 3/4" Which SA/SR of C-10'S Hove gravel up to 3/4" Which SA/SR of C-10'S - Sand brum (7.5 yr 5/3) - Luss dry well graded	0	a
~ [		1	1			İ	1	Shat so Sand bount 5 48 5/6) Lease dry well graded o	0	0
Sal	NON-THE RESIDENCE	34.2	11	P			295	t 29 Myob C-10/2 Hore gravel up to 3/4" Which 554/SR 8	0	D
SW		1	2		V		296	E36 M 56 C56 NG Ruel	0	0
GN		4	1		1		297	F36 M36 (56 Mg avel Sand w (g avel - Sam 7.5 y & 5/3) cose, dry-to-steghtry Nova - Wellegraded F56 M. 40 6 C-35 6 G 206 up to 1.75"	0	0
GW		12.8	N				708	arz, feldspr lathies	0	0
GW.		1	N				249	Coloret Com to more lose half un oracoolen small of	0	0
S	0.8	Alle	N		10		300		0	0
4	(M)	*	N		1		301	300-3.00,5-5and-hond brown [7.5 / Rb/3) Fine Grand, loose of Drysto Stylethy marset spoorly grades	0	0
SW		157	1)		-			e 300,5 301.5 - Sandy fravel brun (1.5 /2/2) bose, or y well goods - F30% M70 6 C 20% G30% up to 1/2"	6	0
GW		Tr	16		4		302	@301.5-Grand w/ sad brann (75/R4/3) +5= MSh GAS GAS GAS GAS GAS GAS GAS GAS GAS GAS	0	0
5W	Á	ant.	N				303	6/2) - sheldy most, will goded.	0	0
SW	J.	那	-N		1	100000	304	#30% M 20% C 20% G 30% of to his of	a	0
Additi	onal C	ommer	its:				/			
		-						////		-
Recov		None		Ota = anost	7		Par	tial Complete  Fld = feldspar Y = Yes N = No / NOV. C		
SAA =	es: V =	VOCs/	EDE	Qtz = quart B; P = TPH;	M=	mi	nerolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conducti	vity	
R = Ro	unded	, SR = S	Subr	ounded, SA	= St	ıba	ngular	c, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse		

					SO	N	CC	ORING BORING/WELL CONSTRUCTION LOG	
ORDER DESIGNATION OF THE PARTY NAMED IN	OF THE PERSON NAMED IN	land B	THE REAL PROPERTY.		,				0/18
Boring	g/Well	ID:	CR	FB-	106	5	9		f_25
USCS Soil Type	PID Reading (ppm)	Temperature ('F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
32 ST ST ST ST		1063 X 1050	2222	i	To A Thirty		305 306 308 309	examinal gravel up 700 ( - otz fld white - of carried by fract up 700 ( - otz fld white - of carried by fract up 700 ( - otz fld white - of carried by the sold - Fty h 26 (50) Grop to 11 carreted ships of carried brown (14 x x y / 3) Loose Lry well graded ships of F 200 Month to 14/2 (50) SA-SR- atzential posts of 500 C206 G 400 car to 14/2 (50 SA-SR- atzential) of 301 - 500 O carreted brown (10 x 5/3) - Loose Lry well graded ships of carreted by my gravel of the sold of sold of ships of carreted by my gravel of the sold of sold of ships of carreted by my gravel of sold of sold of ships of carreted by my gravel of sold of ships of carreted by my gravel of sold of ships of carreted by my gravel of sold of ships of carreted by my gravel of sold of ships of carreted by my gravel of sold of ships	
433 33	0.6	少个家子个家子	7 777 2		* 16*		310 311 312 313	FORM NO6 C-75% Govern up to 1", st-sk of AAR @ 308,5	
ST ST ST ST		十十十八十二十八八十八十八十八十八十八十八十八十八十八十八十八十八十八十八十八	2272 2		>6		317	SAA to 37.5 thin Sand bram (7.5 Yre 5/3), Loose, Slightly Must well grated F 20% in 75% C 5% Gtrue upto 14 SA/SK o Gte fly lither	
		ommer	nts:					SATE 317.5 fiver Sand  F60% MZO% CZO% -Graveltan upto 1/2 "SAKKR  atz FLD Lothes	0 0 0
Recov		CANADA SERVICE SERVICES		04			Par	tial Complete  Fld = feldspar Y = Yes N = No / NOV	-
Sample	es: V =	VOCs/	EDB	Qtz = qua ; P = TPH ounded, S.	: M =	mi	nerolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduct, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse	activity

	0	STORE SERVI	escuperate		so	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project					-			Project Number: 62735DM02.1017 Date: 10/10/18	
Boring	/Well	ID:	LA	FB-10	06	Sc	1	Logged By: Love And ress Page 13 of 25	4
USCS Soil Type	PID Reading (ppm)	Temperature (*F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Well  Details	
Gir		11	N				321	Sim w/g duril 6 swer(7.5 VF 5/25) - Losso, Short Wist o	0
Sh		Poles V	2		4	i	312	F 20% M Ye% C 20% G 20% of to 1.5 SA-5R of of sand of grands brown 1048 5/3) Loose, Shappy, mast well of	0
SW		7	4		0		323	9 mded - F 20%, M Was C 20% G 20% 4 for [ 5" - " Finted )	, 9
a		101.	N		V		324	20-321-Clay of (100 stane of Cachens - Sportlasty 53) Leite, slightly moust plast c- crowing sports poddes 2 somewhetes by up (org - some black organic specks, streats	0
58		1	7		7		325	Sand-bran (10/R5/3), fine grand, Loose, Shoghothy o	0
ST		VOTA	M		スル		326	, W.	0
SP		个	N		1		327	SAA	0
SPSS		那	N				328	0327, 5 sme of Gravel - bravel 10 /25/3) alouse 311, 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0
SM SW		个	2		19		329	37 Hy Sand - 6 run (0 yr 5/3) - 1 gravel - Loose, Shylory must well graded - 4 F - 90% F - 0% - m % 6% G 10% up + 10 54 5 5 1 must og 328 5 - Sand 6 run (10425/3) - Loose, Lry will graded o	0
Wa	A.	277	12	Approved grade faces, Strategies are for the faces			330	E-20% M-35% C-40% G5/WP to 3/4" atz, lyhus 00	0
SW		7	N		1		331	sonder govil-bound to tes/3) cose, slightly mist, o o will graded F 20% M 20% ( 30% G30% up to 1-54 a	) 2
SW		1	N				332	SAUSE at the	2
NR	_	1	7	~	6		333	Lost 1 ft core-No record	0
GL SN		1	N		IV.	i i	331	Minds 21H-mo Frothy grass to gense of brastic to	0
SN		7	N				335	sand-bomin (10/RT5/3) worse, dry to shyloty worst, well goodes)	0
SN		83.7	N			The state of	330	R 40% on 10% C 20% G 30% up to 1" SALSK 0 0	0
1	onal C	omme	nts:						-
						_			
Recov	ery:	None					Pa	rtial Complete	_
GAA -	Came	an Aba	ve	Qtz = quar	tz			Fld = feldspar Y = Yes N = No	$\dashv$
Sampl	es: V =	VOCs.	EDB	P = TPH;	M =	mi	nerole	ry $G$ biologic; $G$ = moisture analysis; $G$ = geotechnical; $G$ = ultraviolet; $G$ = thermal conductivity $G$ =	-
IR = Re	unded	SR =	Subr	ounded, SA	= 5	uba	ngula	r, A = Angular, vr = very rine, r - rine, wi - wienium, c - contae	_

A STATE OF THE PARTY.	SONIC CORING BORING/WELL CONSTRUCTION LOG										
Project:					0-	-		Project Number: 62735DM02.1017 Date:   0	111/1	8	
Boring/	Well	ID:	A	FB-106	50		,	Logged By: Love Andress Page 14	of 5	15	
USCS Soil Type	PID Reading (ppm)	Temperature ('F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)		Well Detail	
0 1		1	1.1		1			sony boron (7, 5 ye 5/3), Louse, stightly horst, well g pides	0	0	0
SW		0	1				337	F70% MZO% CO% GTZ Fld lithics	8	0	0
		10,00	1					sond brown (7.5 yet 5/3), Loose, shightly host, well godes to fill lithics come of gravel browns (7.5 yes/3) Loose, shightly horst well graded M-65 C-10% G-5% up to Yz" gotz Lithicis F-20% M-65 C-10% G-5% up to Yz" gotz Lithicis sa/sr	0		0
SW		V	1				338	F-20% M-65 C-10% G-5% upto /2 fix sayse	. 0		0
- : 1		1	1		E)			SAR	0		0
SW		011	1		1		339		0	P	1
SW		1.	N					0339.5 SAA -4 + TACE SILT	0	b	0
		V	1		V		344		0	0	1
SP	17	1	1					5000-120 (7,5 y (15/3) Loose, Shuppy Most, party Gradia 340.5 -5, 14y soudy garde clark - brown (+ 540 4/3) - 4000 yo to 2" Shire at 14ths Gard 1 30%, clay - shipt most stight plastur 30%	0	0	7
SMI	131	70x	1/2				341	gravel up to 2" style at 2 fthis Gard is 30%, clay - shight must	-0		
MY 7	1.0	1	N	VIP			342	0341.5-5, My Chy-occoping gravel-strong brain (7:5 4846) dr. to shight most-dense, shight plastic	10		0
MA		10	-	6347	+		114	SAA tO 343 > E B BUZZE	+1	0	6
5W		1	N		1		348	BAA to 343 25 @ PUZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ	P	0	0
	-	Sit	7		7+		" 1	8 24 2 (a May ellowsh brun (10 (R 5/4), dry to shight mast, dw	54	0	5
a		1/	N		6		TYPE	and out of A 187 Life ! All second	10		0
SW	$\neg$	1	1		T		- 1	C344 - Sand Lynt brum (4.5 yr (3) cose, stightly Masst, well graded - F &D&M 156 C5% occ. grandup to 1/2" OFFifus	7	0	
		nan	h				343	@ 244.5 - Sand - Cight Stans (7-5 / K0/3) JAM +0	10		0
58 Sp		810	1					shighly most, cost, poorly goods - the graved	6	0	
		V	1		Y		346		- 0	0	0
SW	1	4	D		1		לעל	Loss, will graded - pinks Gray (7.3 ye 6/2), 8 hours 1 hours	0	0	0
	_	8.8	1		-		347	P 34 70 Sand 4/ 8 Tart 1 4 (06 bles - pale bours (W 4 6/3) 100	20	0	0
Sw/	1	1/	P				7110	origing must well graded - couples up of 3.25" etz, fle	D	0	
1/1	+	*	1				348	@ 348- Smd & congragated grading to Sanda gayel p		0	0
30%	-	106.3	N				249	3401.5 ft-pale by and (10 Yele/2) Loose, Should more with gradul	9	0	9
enl		1	1			Ġij		F30% MO C30%	6	0	0
Soi		17	1				450	e 349,5 gravel as above up to 1/2 -no colode - 6-5%	10	0	A
Pulla	.8	1	1		die		. : 1	SAA @ 349.5 H-couples up to 5 , g Ruel up to 60%	0		6
GWO	00	05,0	1		4		35	Grand - SALE 3481-No coloble	- 0	a	6
GNI		1	N		1		35	Chames 1 2000 July 6 21 8 Los coases	0	0	0
Additional Comments:											
.,			-								
Recover	y: N	lone [	1				Pari		Apo	las	24
SAA - S	onte o	e Ahov	e	Qtz = quartz	2	-		Fid = feldspar Y = Yes N = No /None		-34-	_
Samples	amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse										

- THE STATE OF	SONIC CORING BORING/WELL CONSTRUCTION LOG									
Project								Project Number: 62735DM02.1017 Date:		
Boring	Well	D: V	AF	3-1065	9		-	Logged By: Lave Andress Page 15 of 2	5	
USCS Soil Type	PID Reading (ppm)	Temperature ('F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	1	
SW		1	1					Losse, Dryto Sught wist, will grade ploose 11 0 to fld 1465	0	
700		1 0	C		Ш		352		P	
GW		861	4		10	i	201	CISST -gard w/sar / 5100 / 678578) Case, 514/H hard will of garden of the state of	5	
	-	V			-		354	F 5% M 15% C50% GOOD to 3. SA 158	a	
SW		1	19				355	Fish M15% C30% GJoloup to 3" arz Ald lethis of Stud orly and - brown (10 4 R5/3) Louse, shightly must well goded Frole M30%, C30% G306 up to 2"- Grz, HJ Juhes of Garded Frole M30%, C30% G306 up to 2"- greens lethis of Garded Frole M30%, C30% G306 up to 2	0	
SW		18.0	4				35/4	5AA € 384	0	
EN!		1	N		1		357	SAN C 354	0	
CM	K	47	N				358		0	
	=	*	٨١		4		359	5AA @ 356'	0	
SW	7	848	1		†		501		0	
-	3	¥	N	and the particular section	M.		360	0 0	2	
SW		2.2	N		1		361	5.44 to 360.75 10 360.75 - Sand brownft. 5 4 p. 5/3), Loose, Shighty of a NOTEST welft foothy graded - fine grained of a	0	
58		100	N			+	362	mass well foolly grades - fine grained of	0	
30	7	个	N				363	3AA @ 360.75	0	
SP	-	27	7		6		file	\$ 21.8 It occasional small gravel up to 1/2; SR	0	
1		N	1		+		361	Dichology cor a boy not logged (sand (sand for potential)	0	
54		3	1		2		365	Sand - hypothe com (7,5 6/3) - loose, most of will scaled - Eng. M. 40% (10% C10% P) 111 54/56.	0	
5W		1	1		1		366	increased game of hoth to 30% well graded littles	0	
50	1	1	1		1		367	2016 M 10% C 20% Gup to 1/2 - SAKER-CHIMIS, OFZ CIdo. 25 - Sand - 1/2 by brown 7-5 1/2 (3) Losse, Skyly-nown	0	
58	8	29	N		4		368	well graded sond (10 y R. 6/3) pale brown - fine graved - 0 0	0 0	
Addition	nal Con	nmen	s:		- 1	KEL				
						-			-	
Dancerca	re M	one [	1		terstev.	and desired to	Part	ial Complete	-	
Recover	ame as	Ahov	e (	)tz = quartz	-			Fld = feldspar Y = Yes N = No		
Samples	AA = Same as Above Qtz = quartz FId = feldspar Y = Yes N = No  Amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity									

		NIC C	ORING BORING/WELL CONSTRUCTION LOG		
Project: Kirtland BFF Boring/Well ID: Y	Married World Street, Square and	0			18
soning well it:	F8-106-5	34	Logged By: Andress Page 16	of	72
USCS Soil Type PID Reading (ppm) Temperature (F)	Samples collected Core Run	Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	1	Well etails
1 1	4		SAA - Party Sarred fine graved sand	0	9 0
PIIIN		369	· · · · · · · · · · · · · · · · · · ·	0	di
2 301 88:1			SAA	0	6
N	V	370		0	91
1	N AN		SAA	4	90
369	4 11	371	111/4		0 (
76-1		711	SAR	9	0
(2.2.)		372		0	0
	9	115	Sand of Langu gravel-164R 5/3), Sourn, Loss,	b	9 0
MAN		373	Snd of lange glavel - (lo yr 5/3) brown, Loss, sightly motified damp well graded Lithics Lithics Took Mr 48% CO6 GL5640 to 2235 SRX4	0	0
- MA		2.1.2	5AA	P	P1 6
1 1		374		0	9 0
	Y	01 1	Did not year core water the spalane saved fright	0	PP
N 91.21		375	pointed surplus  SAA	0	0 0
grat.	6	OI)		0	00
1 W	W	376		0	0 0
1 1	1		Sand of gravel - brown (10 YES/3), LOOSE, Shight mist well a saled	0	0 0
1 90:24		377		9	HB
4 1 1		378	F70% M 40% C 25% G 15% upto 2 4 SASL Gtz Fld lithics	1	41
N TN		20/1	and witgraved brancing reggs hose, slight must well graded		UK
N TO TO	<del>                                     </del>	317	- 20 - 100 - 20 - 101 - 100 -		UL
N1581.1N		380	F30% M 40% C 20% G 60% up to 12" SAISR.	1	11
NIN		38/1	100		YY
1 000	N		t= 2° / M/m / mm/ ( 20/ 12111		IK
N N	/la	312	F 70% M40% (20% G 20% up 40 1"		11
N		383	sand ufgavel to SAA- Sylvent prantages.		47
J POIN		384	1= 15% M70% C 10% G -5% upto 1/2"		1/
ditional Comments:					
NT		Par	tial Complete		
covery: None	Qtz = quartz	THE PERSON NAMED IN COLUMN	Fld = feldspar Y = Yes N = No		illinois in the second
anles V = VOCe/ED	B: P = TPH: M = 1	minerolo	gy; $B = biologic$ ; $W = moisture$ analysis; $G = geotechnical$ ; $UV = ultraviolet$ ; $T = thermal con-$	ductivi	ity

T .	SONIC CORING BORING/WELL CONSTRUCTION LOG Project: Kirtland BFF										
Borin	<b>MODELLA CONTRACTOR</b>	The same of the sa	-					Project Number: 62735DM02.1017 Date: \0 / 16 / 18			
DULL	A MEI	TW:	10	AFB-106	200	1	7	Logged By: Andress Page 12 of 25			
USCS Soil Type	PID Reading (ppm)	Temperature Car	UV fluorescence		Core Run	Recovery	Depth, ft bgs	gravel minerology angularity/roundedness % fines (silt/clay) Details			
los		1	K		1	11	3	Sind w/ gravel - Same as above - different			
SW		pleit	1	-	10	1	385				
SN		V	N		1		386	P p° (0 M 20% C 30% G40/ up to			
50		1	N		1	1111	337	Sind-Light brum (7.5 /2 6/3) well graded, Slight most			
SW		21.9	N				388	9th (1) 1411 (1) (1)			
الد	-	*	7			W//		Sand - Light bour (7.5 /26/3), well graded, stight			
4	16	13C	N		1	1	389	From M 60% C 20% (grand up to 1", ~5%  SA-SR QTZ FILL/Hhrs, gents  Sand-lightwown (7.5 YR 6/3) Pown graded  two grand, Loose			
2N	1.7	Y	1 4		V	1	390	Sand-lighthorn (7.5 YR 4/3) Pour grant			
SR		200	7		,		391	For gover, Loose			
8		186	N	· Van		1	392	@392 a 4" bow of wellgaled Sad F28 M-706(10° Frank @392 a 4" bow of wellgaled Sad F28 M-706(10° Frank @392 6 SAA @ 391 at 7 fill lyber vo fo  "			
SP		Ly.	7				393	SAA @ 391 pl @ 391			
R		28.7	N	,	6		394	SAA 0391			
SW	100	14	1				345	7-5 (R 5/2) - Coss, Shigher moist, will galed - sund, to run			
hi	2	18	N	·			396	F 10% IN 40% C 30% GZO16 pto 11/2 5A/SP Consens Btz, Eld/ Whis sand no above @391 cocand downwards to Ned gramed			
36			N		1	1		sand no about @391 cocamidaduments to Med gramed Sur bran (7.5 42 513) pourty graded to 397 fthen			
SW		10,60	1		1	1	רוזר	willy saled, Louise, Stight must to moist			
317		N	1		1	1	7CD.	Sand as above our 397 ft, but dry			
50		25	7		1	11	) 1 har	5 and as above at 397 ft, but dry p 348,5-Sand. by yor bim (7.5 ye 6/3), Louse dry to Shight must - Poorty goden - very for graned			
75	641	3	V		V	1	100	YIII/			
ddition	dditional Comments: te merature talan in a as of gan 10/16/18										
4047											
ecover	CONTRACTOR OF THE PERSON		1	The state of the s		u	Parti				
	A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No  nples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity										
mhrea	. v - v	COSIE	الادمه	, a and any av	- 12	442	- , J. U.	1) in managed 1. second and a Sanaraccount of Managed and T and additional additional additional and additional add			

	SONIC C	ORING BORING/WELL CONSTRUCTION LOG								
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date: 10/	16/18							
Boring/Well ID: \AF	810659		of 25							
USCS Soil Type PID Reading (ppm) Temperature (p) UV fluorescence	Samples collected Core Run Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details							
SW JN	↑ <b></b>	She bran (7.5 ye5/3) Loose, Slightly must will gade	ANA							
5W 30 M	401	F46 M 20/6 C 35/6 G 5/6 VP to 1 SAISC FITTING	AHH							
SN EN	402	eyour shar genelop to 1/2"	111							
NG K	743	Sond as about e 400 - gard up to 1/2"	2117							
SN KN	6 434									
	V.E	Not logged swed for extended smelling of moust, will	711/							
SN ZiN	436	JE 10% M 30% C 45 G 15% UP to 12 11	1111							
58 21N	- XX	SALSR CAZ, Fld, lethics Sand -Bran (7.5416 5/3), Lose, Shight moist, pourly	711/1							
SW- Y	1 34	e 406 5 soul bour 17:579 7/3) Lows, slight must, will gold	1111							
SN 2.8 M N	11/2/108	F 60% M 30% C 10%								
SW SUW	7 / 104	sand - SAA @ 406,5	4 4 4 408							
SN 19 2 N	Jun									
2M 2N N	DEPARTMENT NAMED AND ADDRESS OF THE PARTY OF	Sond - brought 5 184/3) - Loose, Shuht mist to must								
an zin		6411 Sind Grant 7-5 YR 5/3) - VF 400 F/06 M50 CO% 1 LOSE, SLOVIT MIST, 1 GTZ F/2 F/12 14 HLS 54/5PC								
100	19/2	Sand Attorn (7-5 /2/14/1 6,200 7,5 /2 4/3), Losse/								
1 20	913	5 light mist, well graded 15% C 30% Grand 10% up to 3/4"	1 1 11							
5N 1	PO HAT	ate, fil lithus, SA/SC								
SW SW NV	P 415	Sand - Jan (7.5 /R4/3) weakly Just, wanty phastic	NE:							
CL ARNO		will goded - + 30% Myo" C30% trace Grovel up to 1/2" Datz FIL 0 415 - X - (Lay is above a 414" Strise Lixings	制件製							
Additional Comments:										
Recovery: None	(melti Part	Complete								
CAA - Some of Ahove Otz	= quartz	Id = feldspar Y = Yes N = No								
Samples: V = VOCs/EDB: P =	TPH: M = minerolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivity							
R = Rounded, SR = Subround	ied, SA = Subangular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse								
Appendix	U	Page 664 of 793								

Proje	ct: Kir	tland	DEE		31	DIAT	CORING BORING/WELL CONSTRUCTION LOG	
Borin	g/Well	ID:	The Person named in	EB-			Froject Number: 62735DM02 1017	
	1	7	17	10-	100	59	Logged By: 1	6/18
		OC.	11		1	11	Soil Description Page 19	of 2
	Reading (ppm)	1	11			11	- Sul type, Munsell color density (mains alle	
USCS Soil Type	J. J.	Temperature (4)	18	Samples collected	1	11	% sand (include grain size %; fine, medium, coarse, etc.)	
	90	P	8	ec	1	1	- sand minerology	
=	1	ten	18	0			- Sand minerology - % gravel	
In l	68	25	181	58	1 5	13	- 70 graver	
8	H	0	fluorescence	Ta.	Core Run	Recovery	gravel minerology angularity/roundedness % fines (silt/clay)	
8	PB	-	3		Dire	181	angularity/roundedness	44
P	land	Famil	121	V2	10	141	% fines (silt/clay)	M
1		1 0	111		1	11	Saw bown IRYA Tolland	De
w	- 1	9	NI			1/1/4	CALLES TO TO LOSS / SWILT MOUST - POST WING ROLLS	-
1	-	A	-		-	111		
W	1	Ž			10	11/4	19417 H 2-3" (which lever ) take grant up to 12" at 2 th	3
10	1	2	N		11/	11/4		1
-	-				M	77	a 4225 - Sand of greet - Pall brun (10/2 6/3) ASR - FRI A 2000000	16
14		-1/	N		M	1	Find - bound laye (72) losses should have the for all regulations	1
M		R	La		111	VIII		1
-	-	17	-		111	YY	well gaded = 30% M(001 C 10% G + 20 40 40 413 1 Hrues 5050	
MI	5	4.1	All		116	11	[well gaded = 30% M (00% Clo) G-tran up to 1/2" etz. Fil. 1 4hrs 49511	11.
11	17	X	1		116	1111	0419,25 SAA diff %5: Follo M30% (30% (20% 40 2")	1 1
	-		-	-	1-1-	77.16		1. 3
1		10	1/1		11	1	Show (10/R 5/3) lo sour / Louse, Stuff Moist, well graded	1 1
		1	V		118	WV7		1 14
11-		in	+		44	710	1 25% C75% G + ace up to 1/2") attifil	1 1
V	1	25,			110	1	TO 1 10 200 C - 01 C 1000	111
4	10	11	a		111	M M		111
-	-	-	-		1	A IN	F506 M15% C30% G 5% VP+111 JA/SR	1 11
	8	VI.	11		1	VIII -	Some-pole bound 0 426/3) AS above diff % 58	I I
1	3		V		0	142	F 20% M 70% CN% G 10% (4 11)	1
1	A	4	11-		XX	4	10 m 10 m	
1	C	X'IN		1	1	1.	F10% Male C 600 G W2, JP 15/21	LL
1		1	<b>*</b>		11	VCVE	10 11/	11
1	-		-		1	410		1+
	lo	11	V	SECOND SECOND	10	No.	A lord I de la la la la la la la la la la la la la	5-
	100	11	1	1		XYE	bound to ye of 3) loose stight that fair your of govel out fale	
1	1	-	1		1	-	Specific Color to 15 March of 1 th	1:1-
	10	11				1	425,5- Sund or grand (10 Y2 4/3) 10 35 & 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1:1
	14.	11,	4	1	V	1774	425,5- Sind of gravel 10 yr 4/3) loose sught most gode	EL
			-	-	THE	-	F 20% W 27 C 75% Grisk to 1" af 14 mis & Claypras -	1
	12	IN		-	Th	收	Saw torum (10 /25/3), Leose, North, goodly a radiol	
					1	104	andum graved.	10-
	29,2	11	1		1		11000 60	1.9
	2	IN		1	1	You	14	11
	1	1				JUX.		1-
	11	1		T	1		SAM - BRYN LOYES/3) - LOSS SLEDGT AND TO ADDIT	
	100	N			17	429		1
	J.	-			7	10	Vell graded - F- 20% IN 60% (75% Upto )11 City fle	1-
1	M	1.1			M	11	Since Since Control of the control o	IH
.8	13 1	IN			13	Y34 (	429.75-SANEYZY, Its gard	1.1
	-	+1	-		2	1/	THE YOU I LESS GRAND	1.1
		11			1	, <	grand = 60% M 20% (B/6 G 5/54/SR) " Otz	1:1-1
	Vo	N			1	42/1	from E 100 M 200 1 Holl Susakelill was	11-
	-	17	*	-	14	11	Jane - = 60% M 20% CB/6 G 5/5H/SR 1/1 OUT VAINS	IT
	36.	IN		10	W	Jos 6	431 miles a more to 10% della como Andrews	
	1	1			111	124	weter 3 0 1 10% as sense wegens	1:1-1
nal C	omme	nts:			111			-
						-		
y: i	None				0.05%	p. 4.		
STATISTICS OF THE PARTY.	The state of the s	<u></u>	tz= qı	Conf	elli.	Witness Park Street William	Complete XI	
ame -			THE - OIL	32117		Wille	feldspar Y = Yes N = No (A hade	••
ame :	VOC-	EDD.	D - min	ET. B#		7.16	Beldspar Y = Yes N = No //E/C  Be biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivit  Angular, VF = Very Fine, E = Fine, M = M. M.	-

Project:	Kintle	ad Dr	772	,	SO	NIC	CC	ORING BORING/WELL CONSTRUCTION LOG			
Boring/	Well IT	· //	HEB-					Project Number: 62735DM02.1017 Date: 10 /1/2	/IVa	10/1-	7
SOLIE!	W CH II	-	MB-	100	.5	7		Logged By: Loni Andress Page 20	of :	25	7
	A	111	1.	- 1				Soil Description	T		
	<b>E</b> 1	IA	V	- 1		- 1	1	- soil type; Munsell color; density (primarily coarse)/consistency & plasticity	1		
9	PID Reading (ppm)	F	Samples collected			- 1		- % sand (include grain size %; fine, medium, coarse, etc.)	1		
5	an	0	e c			- 1		- sand minerology	1		
	E	F.	90	- 1		-	pgs	- % gravel	1		
8	2		20 20	1	H	2			1		
50 1	A	ad la	1 2	1	K	N N	6	gravel minerology	ł		
USCS Soil Type		Temperature (F)	- In	1	Core Run	Recovery	Depth, ft	- angularity/roundedness		Well	
7 1	2		0 00		U	E   -1		- % fines (silt/clay)	1	etails	
1		110	Λ	1	M		100	Sand of gravel 15 coun (10 4? 4/3) - Loose Slight most, will		Cullis	-
W		9	1	1		Six	77	(much - F 10) 10 700/ (1/2) ( 3.0)	23	1-	1
-	1	1	-		11	711	33	F-10% M 20% CYO% G30% 10 40 7"		1.	1
NI	11.	1 %		-	11		1	andred - F- 10% M 20% C 40% G 30% up to 2"	- 1	1:1	,
-11	111	1 %			4	10			*	1.	7
		1		-17	K	ZY	34 C	133,75 - Clay Brand 1.5 Va 5/3) weakly moderate, most silt	-		8
			MOIS	NCO	AL	1	1	tologic but the otestich supress	4 -	. 9	3
7	11	0	17301-V	361	19	W	5	A MI OF AND I	14.1		**
		1	45	1	1	115	1	try & constitute		1.	100
1	11	16	1		1	0	.1	Moisture and signt to DBS for		1:17	54
7	11	M	1		N	14-	36	Moisture analysis 1		0	1
	-	-				113	H	W/ Carry		H	-
-				1	1	1	5	no Abrum (7:57/2 4/3) - Loose, slight most, will giaded - 10/6 M20/ C/06 G 96/ UP to 1-5" 511/512 - Orz. Fll, 14/45		FF	44
		1 ()	1	- 17	1	3142	7 1	13/ W78/ CYOL G 98/ 49 to 15 1 50-168 - ON (1) 14/46	- 3	1:	
-	1	T			7	90		10/0, 00% cho of 12 of 12 12) 1/1/2/2 carcibility	-4		4
	1	23.5			1		1	4365-437,5- gravel wy sound-brown (7.5/12.5/3) Loose stisted what - F 10% Mark Cloy (160% 43 to 21 - 54/58-cryfil) Missicley 4375- Sound (1944 brown (7.5 426/3) - loose, Sight Most-Gup to 18	31	1	414
7		1 3			1	742	0	WST-F106 M206 C10/4-960642 to 21-54/52-C17201/10/1045/104	5		4
	1	,		11		11	0	1375-Sand (1917-brand 7-5 1/26/3) - loss Stuly mass F	1	I.P	12
		1,		14	1	1	VI	60% 10 25% 210% 4 5%			2
	N	0		17,	17	434	15	nd light brun (7.5 YRG/3) lose, slyl+mass - poorly graded Fire 429 and w/ grave (brown 75 yr 5/3) lose, slyl+, well grade	300		0
-	1	12			7	75	p	429 5000 W/ gr w/ 1650Wn 7512 5/371000 Market woll a color	da l	· 1991 -	-
1	1 1	1. 3		11	1	1.	1	156 M65% C50% four Growl up to Yz" Lothing SR	11	· 📓 .	1
+	11	1 9			1	WIA	-	Tra re a control of the Children		100	4
-	-	-	(Performed Supplements)	Y	7	17	46	139.75-Clay of colida - earl & bran & YR S/Dainse to med phistory		M	ća
	N	N		11		1	h	tage sorte to potential Smith morning	# 1	1	4
1	1.1	100		1/		44/	M	distributed to some some some some sond	11		1
-	-	- 4	-		-	111	-	A CONTRACTOR OF THE PROPERTY O	11	11	
	N	15				1	1_	4	11	16	1
1	11	131		1		14/2	2	4. SAA	11	Ir	1
+	-	+	The same of the sa	-	177	-	-		11	11	1
1	IN	1			11/1		50	not light both (7,5 /R G/3)-1 oose to sightly luse,		11	1
-	11	()		11	11,	MS	SV	which most soorly a sold were (in a	11	11	-
		TH		110	14	IJE.	1-	O The state of the state of	11		1
11.7	41	2		W	11	UVU		u u	11	IV	
10.0	11 1	1,			11	77/			11	11	1
	1	T	A STATE OF THE PERSON NAMED IN		Time		Sin	ad brand I = VO = b \ VAME THE	TI	1.1	1
1	N	U			10	VIIT	9	10 pour (7.5 125/3), cose, slight muse - pourly	11	11	1
	1	0			11	147	1	and the derined	11	11	1
	1	10		11	110			A CONTRACTOR OF THE PROPERTY O	7 1	1.	4
	V	36		1.11	11	JUI	a	dur ar a will the trace!	1 1:	1.0	- Constitution
	1			W	11	174	C	445.75- SAA-@444 (MUS), med dowse (mod concern strange)	1 3		STATE OF THE PERSON
		1		M	11		An	LANCE SOVER & WILLIAM SAPERAY EST (love , lit	1	1.	1
	N	200			11	Yu:	T	Tandoran (215 /2 6/3) - unist, mist, stighty plastic.	1 6	1	-
e de la constantante de	11	11	nem overes out a		1	111	1	(")	1 1	1:1:	1
	1.1	7		116	1		01	47-clay branif. 5 (25/3)-don's, morst, plaster :		: :	1
	IN	el	-1	4	11	444	to	wrothly player	1		The same
-	11		_5_		1/1	@	NIPH DE	13 2 3 7	H.		
onal C	ommer	its:		2016 - T-4	-	dreament.			and the same of th		1
-				-	***************************************	-	-			Performance of the Performance o	1.
serere 3	None			AAOI	-	n	K	NIII)			Stronger
THE RESERVE OF THE PARTY.	as Abov	e 0	z = quart	MAI	141			Complete 4			
					inc	rolor	u. D	feldspar Y = Yes N = No / No /			
unded.	SR = S	ubron	nded. SA	= Snh	and	ular	A =	= biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduction of the	hivity		
7			Oct	200	mg	asset 9	42	Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse G = 4 (W.)			6

	SONIC CORING BORING/WELL CONSTRUCTION LOG										
Indiana and a second	ct: Kir		_			- Andrewski			17/18	8	
Borin	g/Well	ID:		LAFB	-10	6	59	Logged By: Love And 1885 Page al	of 2	5	
USCS Soil Type	PID Reading (ppm)	Temperature (F)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	1	/ell tails	
5M		Ue	20		5		444	51/14 sand-brown 7.5 yr.5/3)-medium duse, must, pourly graded-very finegrained			
5M	05	2619	1	-	1		450	@444.5-SAA@448 but fing graved			
519		28.6	1		5		451	SAA 0 449.51			
By Sind-bran (7-5 /R 5/3) Loose, most to shightly must											
SW.		26	N				453	FX F10 M 40% C0-5% Gof-tace-one piece of Restouselt 1.5" SR			
SW		S. M.	N		1		454	some as above & 152 increasing in must ire Ly light to morst at 455 f  SALL 15 pt Saw 15 run (7.54R 5/3), Lower to shifty ower, must, pourly gooded fine & eined	, , , , , , , , , , , , , , , , , , ,		
Se		Les	V		5	11111	455	styling ourse, must, pourly goded fine gound	E		
Syl		100	1		V		456	SAA @ 252 - Solyanjah Sam (10/24/2) 10000 dright	Ē		
SIL		30	N		1	MILL	457	Soul few Legrouph o tun (w/RY/2) mo couse, moist, will graded fyolo M30/6 C 30/6  E			
SM	J. J. K	24	N			XIII	458	@457.5' Elay - Sount: 54R 5/3) med grish stuste Aughtforder.			
4	2.2	0	N	428-400 128-400	5	11111	459	clay - Jusey maist - shight odor consult through care bay - don bay prot opened,	E		
CL		2	N			Jul.	460	Sing to DBS for themal aboverney & Kroist-re analy!			
SIN.	15A.O.	The	N		1	MILIM	461	@460 scary - Samuel Weathyland or mic vapor of the strong of order ocar			
SINX		7.	1		1	Willi	162	5. Ity Sand - 5 rown (0 4 R 5/3) Med Linse. Marst - 5. It ~ 30% fine sand 70% - stray			
3/4	R-13.2	25.	N	and the second second second		1111.	463	Odos on above			
Sond W/ g revel - F to C govel up to 1" Find											
Additi	Additional Comments:										
Merchanic Control			-				P. 1		RIJ		
ecov	ery: A	Vone		Qtz = quartz		lill	Par	Fid = feldspar Y = Yes N = No	INIC	)	
Sampl	es: V =	VOCs/	EDE	B; P = TPH; ]	M=	min	erolo	ry; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivit	у	
R = Rc	R = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse										
	Appendix D Page 667 of 793										

Pagia	ct: Kir	d 1 1	DIOT.		SC	NC	IC (	CORING BORING/WELL CONSTRUCTION LOG				
Dark Commonwealth	g/Well	_	topus and	NES-10	1 1	0.0		Project Number: 62735DM02.1017 Date: 10 /	<b>CONTRACTOR</b>	The state of the s	ACTION AND DESCRIPTION OF	-
DOIM	I WCII	1	F	1 5-10	0	27	7	Logged By: Love Andress Page 22	OÎ	a	1	Partier In
USCS Soil Type	PID Reading (ppm)	Temperature ( )	UV fluorescence		Core Run	Recovery	Depth, ft bgs	gravel minerology angularity/roundedness % fines (silt/clay)			/ell tails	
Sh		300	A		1	1	1	Lugged through covy buy - Sext to DBS For	20 4	H	1.1	0,4
0.		N	11		6		465	therthal and thought of the 1st Re arabisis	10.	H	1:	
3W ;	20510	26.50	N		1		466	1 - 107 M 7A/ / 30% / 4 50 / - 24/10 - 10 1 - 1/	1			***
SW	379.8	100	N		7	111	467	For My Cyol Gyor of to 1 18 A/SR OF FUITHUS - 3 trong				4 4 4
		~\ -\	r	-	+	1		@ 4101 ENI 7 11 1 1 1 1 1 1 Calille lines			1:1	
SW	•	3	N		-		468	C467.8 - saw as above @ 467' - of solar us above	: .	-		
SW		J.	N	PH	5	11	469	Loose-slight mist to Maist-will grade Sand bram (1042 5/3)		E		
7		2913	N	0 130	1	1		+5/00 15/C 50% GZOCP+ 1"-SALSR QTE LOLIUS, FIL	40			
	519.4	V	1	Piver	=	1	17/20	5 ynd brand 25 VR 4/3/2005e - well graded moist -	7			
SW	1440.	13.7°C	In In		1		47				1	9
DV-	531	V <sub>e</sub>	N		1		472	Files, Mog. Com Glog up to 1" STRA				
Da-	0-1	3/1	N			1	473	e 172- sond as a some of end changeand preas up to 12	20			
58		Va	N	G UV )	5	1	471	Sond - Lak grayish bound 10 y of 4/2) fine graned wet, pookly goden wedown Luse.				
X		21,2	N	Bey.	Ĭ	11	475		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1, 2,7
gf.	15X.	22.80	1	B,M,V,		1	47/2	wet-us ballack siding - Sond-Lorebran (10/R3/3)				
-11	2555	17	1	17 - 17 K	V	1	-	Sind bonn (10 /n /3) - Losse to moderns - well pade	100	=		
SW		70	N		1	1	477	stemy ador Fight Mob CDG-5-pto/2 1this device		=		
whi	-	33.	N		- Completions	1	474	2477.25 Lorge Calula cobble - 6 SRayales goverson	2	7		
5W		U	N		1	1	174	Not logged swid for porential soupling Sand brown (7-5 yil 5/9). Medicate disse, wet - well gade - F 85%. M-100	)			
SW		中	D	Proceedings of American Strategies	6	1	NXP	C-5% from grown up to 12 SR-18ticks, Qt = Petroby	)	7		,
35?												
2001110	mai Co	mucil			-	-	-	7 11/45 7/14				
								IV	and the same	Distance:		
Recove	AND DESCRIPTION OF THE PARTY.	one [	J			4	Pari			and the same of		4
				Qtz = quartz		2		Id = feldspar Y = Yes N = No  N = No No No No No No No No No No No No No	ED CA	wite		-
	mples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity											

Prois	ch Vi	rtland	DEVI	2	S	10	IIC	CORING BORING/WELL CONSTRUCTION LOG			
<b>ENDINENNAMEN</b>	ig/Wel	-	-	XF8-160				Project Number: 62735DM02.1017 Date: 10/4	2/	18:	16/3
OLIL	I WCI	7	7	AP - 100	97		-	Logged By: Page 23	of	25	
Type	Reading (ppm)	Temperature CFF	UV fluorescence	Samples collected	Phone of the Persons named (1904) and the Persons			Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology			
io i	F	atu	mes	8		e   :	P. Photo	% gravel			
n D	Re	per	100	Je S	É		5	- gravel minerology	1		
USCS Soil	PB	em	2	l iii	Como D	Donne mun	Denth fi	angularity/roundedness		We	11
W	I A	1 =	10	<u> </u>	15	16	( E			Deta	
-			N	1	6	1	1	Sond town (104124/3)-Mod duse, wet -well graded - 7 60% in 20%	7	-	1 ,.
1		U <sub>m</sub>	11,		11	1	1148			7:	1:18
	1679	53	11		1	K	1	EV88 . PS-cohehology barn (10/24/3) - dysse -wet, -well a solve EV88 . PS-cohehology of books luxe EV88 . PS-cohehology of books luxe Sond of Clark-good books (10/8 6/3) books reductor SA/SR		11	.4:
	The same	35	IN	1		M	MYX	Ind Plastil Lanks 20% of to sty which		1:	1:
ich	7	-	1		1	1	1 10	CY88 075 - cohehing cale brann (1848 6/2) Book nowated 50/58	1	-	4
-		1.1	1		5	W,	Ver	e 4825 - colich - vell indivated - tale ite (max /) are fill and		1.1	
¥.	1	Vo	N			1	NYK	e 4825 - colichi - vill indivented - white (104 & 8/1) can spanting	: +	-11	
Same of the last	-	U			+	1	1	- water and the long sold from solarite		J.	
0,	- 3	R	1		11	11	Na V	424, 20030	:-	-11	11.
N			L	Monte	14	1	140	1483.75-cohorismed-lyptomushgray (1470 G/2) toxic wast not logged-whole uno prod core statistical of from for LNAR HELL TOWNS WHY	1	11	
-		Ug	. 1	GUV	14	1	1	not logged-whole ungraved car; slot traticuscoping fourt		-1-1-	: 1.
1		1	Y	484-184	li	1	148	for LNATE LIGHT MES IN UN	it	1 4	1.
1	11 %	7		784 100	H	1	-		1	-11	
ľ	TE	) [	VI		11	1	446		·	11	1.
		a			N		1 at		E	1.	
24		1	-		_	1		5md & puces of indivation Sand Stage ( Same, comp of then as sand).	-	-	
- 1	. [	00	N		M	1	Fux	Sond & puces of inducted Sand Styre (Some comp of them as sond). Long course to an alloy P. 42 ) and with gladed morning come	E	-	
4		4: 00	-		1	1	401	e totas - sur of clay 5 me to an as a supe - This can	. E	-11	. :
4	-	EGK	1			1	in	garred - with moderney from to weater pastic		1.1	1:
de	1	ROK	1			1	BOY	@ 487 .75 calidre-well navoled - white			
10		^	1		1	7		with the mounted while massive-tizzes			
1		Co	N		3	1	489		. 1	H.	1.
	-	-	-		4	7	VO	Wells and - perples no der - molin to Easi gand			1
1		n	NII	LPA		1	Ugn	ment and - between out - morning to coarsi draining !	- 3	11:	1.
4	453	1	1	MI	V	1	119	o 4500 per-well indurated calichet the Missing - of 4711.	: .	1.	14.4
1	E	2	.1.	1.00	T	7		Not could and be adealled so she it she it is	1.	11.	1:1
-		25,2		VIPE)	11	1	491	(WYC5/3) 600 Se wet party grades Emedium graves.	1.		1.
+		0	V	490	V.	3	/ 11			11	1.1
	1	110	11	. / 1	N	11		491-493' to PTS Lab for UV malysis	1.	11	1.1
		1	1	UVI	11	0	491	191-493.	1	1	1
T	1	100	TI.	pun	T	2			1	11,	:
1	1			191-493	11	3	HAT		4	11.	
	2	W	7	110	++	2	493	V .	1		
F		91/4	Li	11/	11	De	193.5	whole copy sent to PTS Lab for.	1	1.1.	
F	2					21	194	W analysis 493-495'		1	
F		:0	1		11		management of the			1.	1 .6
		:0		, Xvin	16	5			. 1	1	
		0.2		143-44r	20	1-3	10-		: :.		
		:0		0000y 1913-495	20	2-12	195				
		:0		193-495	20	481-5	195	and of gravel - Larky any (7.548, VI) - mod			
4		:0		143-445 1,P,B	20	7-17-5	195	Lave Control of the C			
U. Silver	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	:0	1	1/19, B	20	N 481-5	195	Sund of gravel - dark grang (7-548 1/1)-mod Juse - wet, will grade + 10% M C15/610%			
U <sup>4</sup>	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	01. N	1	193-495 193-495	20	7-78-7	195	Lave Control of the C			
	ai Con	o. K. Normants	1	JiP,B	20	7-136	196	Juse-wet, will grade = \$ 10% M = C15% 6 10%			
rery	ai Con	or Normanisments		J.P.B Car	20	12-12-13 12-13-13	196	Juse - wet, will good == \$ 10% M C 15% 6 10%	rate	北北	
ery	ai Con	o. V. Noments	Q	J.P.B.			Parti	Juse - wet, will good == \$ 10% M == C15% 6 10%		1	

Ingential ID: (AFB - 106 59   Logged By-Low A 375) Page 21 025  Soil Description - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Munsell color, density (primary) consessionsistency & plasticity - soil type; Mu		SONIC CORING BORI	NG/WELL CONSTRUCTION LOG	
Soil Description  - soil type: Munsell color, density (primarily course/consistency & plasticity - so and (include grain size %; fine, medium, coarse, etc.) - soil type: Munsell color, density (primarily coarse/consistency & plasticity - so and (include grain size %; fine, medium, coarse, etc.) - soil type: Munsell color, density (primarily coarse/consistency & plasticity - so and initiations - soil type: Munsell color, density (primarily coarse/consistency & plasticity - so and initiations - soil type: Munsell color, density (primarily coarse/consistency & plasticity - so and initiations - soil type: Munsell color, density (primarily coarse/consistency & plasticity - so and initiations - soil type: Munsell color, density (primarily coarse/consistency & plasticity - so and initiations - soil type: Munsell color, density coarse, etc.)	roject: Kirtland BFF	1.06		
Source Source None Description of the state	Boring/Well ID: CATB-10	59		Page 24 of 25
disonal Comments:  Partial Harry State 1995 H  G 19 to 2" 5x/5x atz Fld (think)  Shill to about no stavel to 498,5 H  The gravel ~5% up to 1" of atz, 1 think  Sand at above No 9 tavel  The sond at above No 9 tavel  T	USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence	Gore Run Washington Depth, ft page 20 % sand (include grand) % gravel gravel minerology % fines (silt/clay) % fines (silt/clay)	Il color; density (primarily coarse)/consistency & prain size %; fine, medium, coarse, etc.)  y edness	Well
Sond of above No gavel  7 10% 5, It @ 500, 75 ff bap  Sond - betaloge y 3), me diam done wet, with graded - relative and of song file.  1897, M 50% C 35% Gravel ~ 5/ pto 1, 3" 5452-1544 Gravel of the control of the c	In section	497 9 UP to	2" SA/SR GTZ Fld lith	cs (S)
Sond of above No gavel  7 10% 5, It @ 500, 75 ff bap  Sond - betaloge y 3), me diam done wet, with graded - relative and of song file.  1897, M 50% C 35% Gravel ~ 5/ pto 1, 3" 5452-1544 Gravel of the control of the c	Sul oc N	3 Saw so a	whove no gravel to 49 al ~5% up to 1" of at	8,5H z, 1 Hlms Nelules JP
ditional Comments:    Sand - 6 carloye 1/3), me dim duke - wet, with graced extreheum order   Floris m 50% (35% Grand ~ 5% pto 1.3" SN/50- 1 music grace of the source of	Marie Si 1	PON Had	) /	
ditional Comments:    Description   Partial   Complete   A = Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None	W S H		1+@ 500.75 ff bap	
ditional Comments:    Partial   Complete   Complete   Partial   Complete   Partial   P	N VIE	50)		
ditional Comments:    Covery: None   Partial   Complete   Corper     A = Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Partial   P	1 20 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Willing rade FIE? M	50% C35% Grand ~ 5% SAISE- ITHICS	1-wet, 1. pto 1.34 otc, fld
ditional Comments:  Covery: None Partial Complete  A = Same as Above Qtz = quartz  Partial V= Yes  N = No/None		\$503 NO Rec	avry 503-510 fr	
covery: None Partial Complete  A = Same as Above Qtz = quartz  Partial Complete  N = No/None		7 PS 7 7 1	(use borne) tay	
covery: None Partial Complete  A = Same as Above Qtz = quartz  Partial Complete  N = No/None		No Pece		
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	dditional Comments:	W.		
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None				
A = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	ecovery: None	Partial 🖽	Complete	1 60 CORO.
	imples: $V = VOCs/EDB$ ; $P = TP$	H; M = minerology; B = biologic; W =	moisture analysis; G = geotechnical; UV = ultravio	olet; T = thermal conductivity

	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date: 107	130/18
Boring/Well ID: ICAPS -1	0659	Logged By: Lave Andress Page 25	of 25
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence	Core Run Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	-NORECOURTY 502-5/0'	No Percovery 503-510ft core fell out of core borrel & was disturbed * not retreived.	
	VV510		
Concrete Portland Cament		TD Littled to: 510 ft  KEY:  -3" diameter blank Pric schedule 80  -3" diameter well screen Sch. 80 Pric 0.010 slot  -3" diameter well swap Sch. 80 Pric with 3" solid flat end cap  Filter pack 10/20 - Colorado 1	
Recovery: None  SAA = Same as Above Qtz = qu: Samples: V = VOCs/EDB; P = TP		ial Complete  Fld = feldspar Y = Yes N = No/None  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal control of the second of the sec	nductivity

						BORING/WELL CONSTRUCTION LOG			
ject: Kirtla	nd BFF						Project Number: 62735DM02.1017		
lling Compa	any:	Cascade ger Rod SONIC				Start Time/Date:  Completion Time/Date:			
d Driller:	Ro	ger Kod	191	22		Final Depth:			
lling Metho	d:	SONIC	,			Dit Type and Outer Diameter 7 -inch 6:1			
sing Diamet		7-11	h	LV	1	Logged By: Page 1	of <u>32</u>		
ring/Well II	): 	LAFB	710	Yer		Soil Description			
USCS Sou 19pe PID Reading (ppm)	Temperature (°C)	Samples collected	Core Run	Recovery	oth, ft bgs	- soil type; Munsell color; density (primarily coarse)/consistency & plasticity - % sand (include grain size %; fine, medium, coarse, etc.) - sand minerology - % gravel - gravel minerology - angularity/roundedness	Well Details		
W)			Acade of Property		1	-% fines (silt/clay)  0-8': Well graded sand W/gravel  and cobbles  F-C gravels to 1.5" SR  brown, SLM  cobbles to 4" SR			
	M Parameter Control of the	ST ST			2	cobbles to 4" SR	-		
51D		SAM PLES MEASUREMENTS			3				
SW)		3 8			4				
SW)		NWIFE -			5		_		
Sw		20	00		6				
5w)					7				
Additional	Comme	nts:			8				
. realtional									
D	Mana				Ps	artial Complete			
Recovery: SAA = Sam		ove Qtz = q	nart	7		FId = feldspar Y = Yes N = No  logy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = No. No. No. No. No. No. No. No. No. No.	CONTRACTOR OF THE CONTRACTOR O		
	e as ADC	IVE QUE-	MAI L	-		D - 1 1 D T -	thousand conductivity		

EA	SONIC CORING BORING	G/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Varia 1-181	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAKB - 106 V	Logged By: J. Mossenger Page 2 of 32	
PID Reading (ppm) Temperature ('C) UV fluorescence	(primarily fine); moistur % sand (include grain sand minerology % gravel gravel minerology angularity/roundednes % fines (silt/clay)	size %; fine, medium, coarse, etc.)  SS  V  De	Vell etails
500 N		wel — yellowish red (54R4/6) loose, sem 206 M: 60% C=20% SA-SR (Atz, Rely vill) 144" (Atz+lith); silt=10% nonplastic  no odo ( with gravel and clay — reddish brown  sand=70%; gravel=15%; silt=10% nonplastic no odor	
38.1 5 m		5'	/
245 P	Clay w/sandrgrave still, med. dense - piakish gray (54R sand = 258 f = 300 grave) = 10% up to 3	re ( - (addish 6000 ( & 16 2/4) Medium  - low plasticity: clay=60% - mottled to  7/2)-fizzes: !secondary culcium cubonate  8 m=40% (=20% sarsh (ata, tak, 1.16);  88" (atarl.76); six=5% nonplastic  weak- odor	
mi) N		fitt - stringers of secondary colorium  (Rizz) - pinkishgray (SYR 7/2)  stringers of secondary colorium  (Rizz) - pinkishgray (SYR 7/2)  stringers of secondary colorium  (Rizz) - pinkishgray (SYR 7/2)  stringers of secondary colorium  (Rizz) - pinkishgray (SYR 7/2)  stringers of secondary colorium  (Rizz) - pinkishgray (SYR 7/2)	
my N	15 @ 15.5' SAB	w/ trace sand r gravel strong odor	
Additional Comments:	6 12	5	/
Recovery: None	Partial 🏥	Complete	
SAA = Same as Above (	Qtz = quartz Fld = feldspar	Y = Yes $N = No/None$	
amples: V = VOCs/EDB;	P = TPH; M = minerology; B = biologic; W = moi	sture analysis; $G = geotechnical$ ; $UV = ultraviolet$ ; $T = thermal conduction of the conduction of $	tivity

			S	ONI	C C	ORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date:	
roject: Kir		F		1.	1.1	Logged By: J. Wessenge Page 3	of 32
Boring/Well	ID:	KA	FB.	- /0	6V	- 88	
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity orimarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Clargy Sand >/364cl - yell with red (54cl 56) loose	Well Details
3C)		Y		11	18	clayer sand placed - yellowish red (542 56) loose \$2M; Sand * 70%: VF=102 #=202 M=402 C=302 \$4-52 (Atorfeld, 1.74); clay=15% soft, nonplastic; gravel = 10% up to 148" (atorfilm); silt=52 nonplastic  5. odoc	
50) Mg	24.9	الم الم		11/11	18	5AA@ 13-14' soft-med stift  SHA@ 13-14' soft-med stift  Soft-med stift  Soft-med stift	
mi) 254	17	N			20	SAA @ 19-20' w/frace sand (F-m) s.odor)  SAA @ 19-20' w/frace sand (F-m)  and frace gravel to h  (i.th. 25)	
MD CO	X	N			22	5'AA - silt = 75% sand = 15% clay = 10% sand = 15% clay = 10% sand (Gta, feld, little)  Sand = VF = 30% F = 30% M = 40% sansa (Gta, feld, little)	
MC)	249	2			23	SAA @ 13-141 W/ trace sand (F-C)  (are, feldy lith.)	
mi		N			25	SAA@ 23-24 w/tace sand (F-c) (atz, lith)  and trace gravel up to Yz (lithics)  Society	
Additiona	al Comm	ents:			24		
D	. N				D	rtial Complete	
Recovery		04	z = quartz			Fld = feldspar   Y = Yes   N = No/None	
SAA = Sa	me as At	OVE QI	_ quartz	M = r	inero	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T =	thermal conductivity
Samples:	v = VUC	SILDB; P	- 1111,1	- H		r, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

	SONIC CORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date:	
piect: Kirtland BFF		32
ring/Well ID: KAFB	Logged By: Nessenger Page 4 or Soil Description	
PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	Well Details
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1 26 SAA @ 13-14' reddish brown (54R 3/4)	
ny h	25 SAA & 13-14 reddish brown (542 5/4)  27 27 (542 5/4)	
N N	28	
nu   N	24	
22.1 1		
My 2330 N	31	
mi N	SAR - light reddish Grown (SYR 6/4)  trace sand (8-c) trace gravel up to 5/8"  (6+2+1ith)  5.0007	
MÉ N	SAA @ ZZ-23' sand has course grain truck course grain	
22.7 N	41 34	
My N	SAA @ 32-33 sand (Qtz, lith, Caliche)  frace gravel up to 5/8" (lith coaliche)  35	
Additional Comments:		
Recovery: None	Partial Complete	
	V = Ves $N = No/None$	2 2 2 2 2 2 2 2
AA = Same as Above Que q	HIT HIT FILE FILE FILE FILE FILE FILE FILE M. M. Medium, C. E. Coarse, G. E. Gravel	ermal conductivity

EA				S	ON.	IC (	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kin		FF	14.				Project Number: 62735DM02.1017 Date:	. 70
Boring/Wel	1 ID:		KA	FE	-	100		of 32
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
MI	22.3	N		44	11/11/	36		
ML		لم				37	SUA @ 13-14' w/trace F-M sand (atr+1.7th)  quellowish red (542 4/6) (5.00)	
ML		N			11	38	\frac{1}{2}	
Mr	216	N			11	39	SAA @ 36-37 (SYR 5/4)	
ML		N	and the second s	6	1	40	SAA @ 36-37 (59R 5/4)	
M 9 243	4	N			1	41		
ny	V	N	tana tanàna ao ina mandritry ny taona ao amin'ny faritr'i Austria	V	1	42		
mi		N	aniak usuk suka kula kalika kalika ka	1	11	43	SAM @ 39-40 (5.000)	
(hr)	22.7	J			11	<i>ए</i> थ		
Additional	Comme	nts:				-		
Recovery:						Par	1 110	
SAA = Sam			Qtz = quar				Fld = feldspar Y = Yes N = No/None	ormal conductivity
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ermai conductivity
r - Kound	cu, or =	DUDLO	unucu, 5A	- 0	uval	guid	, in rangular, it - for films, it - rine, bit - bitculum, C - Coarse, G - Graver	

Project Number (2735) MUL 101 Date:  Soil Description  Soil Descri	EA				SC	N	C C	CORING BORING/WELL CONSTRUCTION LOG		
Soll Description  soil type: Munsell color desarty formarily coarse/consistency & plasticity  primarily fine): moisture coaten  soil type: Munsell color desarty formarily coarse/consistency & plasticity  primarily fine): moisture coaten  sould include grain size \$5, fine, medium, coarse, etc.)  and another coay  grain size \$5, fine, medium, coarse, etc.)  and another coay  grain mineralogy  grain mineralo	Project: Kirtla		F				,			
The second of th	Boring/Well I	D:		KAFB	-	10	64			
My  Additional Comments:  Recovery: None  Partial  Partial  Partial  Complete  N=No/None	USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery		soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details		
Additional Comments:    April	(m)	nā	N		4					
Additional Comments:    Applications   Partial	MU	*	N	ulalisas	1			V 246.81 (5.0da)		
Additional Comments:    Partial   Complete   N = No/None   SAA = Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   SAA = Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/None   N = No/No	Mi		<b>N</b>	4.4			47	SMACE 22-23' Sand - lithics + calich +; trace grave  - Q 47.2' clayer sitt - reddish brown (54R 4/4)  soft - med. still /med. donse - low plasticity  trace sand (F-M) - lithir caliche		
Additional Comments:    SAA = Same as Above Qtz = quartz   Fid = feldspar Y = Yes   N = No/None	MD	21.9	N			1				
Additional Comments:    Complete   SAA = Same as Above   Qtz = quartz   Fid = feldspar   Y = Yes   N = No/None   Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	(A) 2991		N	in a property			50	SAA @ 47-48' brown (25th 5/4)		
Additional Comments:    Partial   Complete   SAA = Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None   Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	MI		Ŋ	114,004 post post post post post post post post			51			
Additional Comments:  Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	mu	1	N		V	11	52	THE CALICLE F.M.		
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	M	1			41	1	53	4.54R sty trace glavel to 3/4" (15th + caliche)		
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Additional C	ommer	nts:			-				
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity										
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity							Pa			
Samples: V = VOCS/EDB; F = TFH; W - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G government, S - minerology, B - biologic, W - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moisture analysis, G - moistu	SAA = Same	as Abo	ve	Qtz = quar	TZ NA		neval			
	R = Rounded	SR =	Subr	ounded. SA	= S	uba	ngula	r, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel		

EA				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Ki		FF	1772				Project Number: 62735DM02.1017 Date:	
Boring/We	ell ID:		KAF	3	-1	06		of 32
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery		Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
M		4			11	53 54		
mv	27,6	N		41	11	55	5AR - silt = 70% clay = 20% f = 46% M=50% C=10% SA-SP Sand = 10% f = 46% M=50% C=10% SA-SP (etc, lith, caliche)  trace gravel to 3/8" (1:thr caliche)	
	1	N	and the constant of the consta	V	1	56	S.odor	
(M)		N				57	clayer sitt-brown (45 8 5/4) soft, non plastic, SLM silt=80% tace F-m sand (inth-caliche) clay=20% trace gravel to 42" (lith)	
MU		N			1	58	5,000	
MD	22.1	N			1	59	5AA @ 56-57 5:1+= 75%; clay = 20% Sand = 5%: F = 40 % M = 50% C=10% SA-SR (Lith+ calida) trace gravel to 3/8" (ith)  SAA - Strong brown (3.542 56)	
ML		N		8		60	SAA-Strong brown (454 516)	
ML) 31.	31	N			17	61		
MY	V	N	P,Y	V	1	62		
Additional	Commer	ıts:		_	2			
Recovery:						Part	A Kitti	
SAA = Sam		-	Qtz = quart	7	mir		Fld = feldspar Y = Yes N = No/None	1 1 44e
-				_			A = Angular VF = Very Fine $A = Angular$ V	rmal conductivity

				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG		
Project: F		3FF	· ·	2		,	Project Number: 62735DM02.1017 Date:	27	
Boring/W	/ell ID:		KAFT	3-	-/0	06		of 36	
USCS Soil Type	PID Reading (ppm) Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details	
SM		لم			1	63	sity sand - reddish brown (548 5/4) loose SIM sand = 808: F=408 M=40% (=20% sa-52 (4+2, feld, (ith) silt = 15% nonplastic; gravel = 5% up to 1" (4+2+ lith)		
SM	21:	V			1	64			
MI		N	-	4	1	65	sitt w/sand - yellowish red (5 YR 5/6) soft, 52 M silt = 90% - nonplastic sind = 10%: VF; 40% F=40% M= 20% sa-se (4+2, lith) frace gravel to 5/8" (lith) 5. oder)		
mi		N		V	1	66	S S		
MV	1	N			1	67	SAP to 67.25		
5M 5M		N			1	68	well graded sand w/silt - brown (7.592 5/3) loose, SLM sand = 85% : NF=15% F= 35% M=30% C=20% 24-512 (QPZ, fild, lith, caliche); silt=10% nonplastic; gravel=5% upto 1/4" (lith+Qtz)		
MD	225	S		6	1	69	Clayer silt - brown (4542 5/4) soft, nonplastic silt = 80% clay = 20% as notables (5:00)		
ML		'n			1	Po	5		
5W 28	+	N			1	7	SATA (2) 67.25-68 F= 458 M=458 C=108		
Additiona	Additional Comments:								
				-		-			
Recovery: None Partial Complete									
SAA = Sa	SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None								
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	ermal conductivity	
K = Koun	ueu, SK =	Subro	unuea, SA	- 21	upai	iguia)	, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel		

	SONIC CORING BORING/WEL	L CONSTRUCTION LOG
Project: Kirtland BFF		Number: 62735DM02.1017 Date:
Boring/Well ID:		By: Y. Wessenge   Page 1 of 32
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	The state of the s	y (primarily coarse)/consistency & plasticity
ML N	1 5AA @ 68-70" 72 SAA - Strong Grown ( 518t-802; clay=	(7.54R 5/6) 1020; sand=1031F=462
M) 24.3 N	73 clay nodules - brown trace gran soft - M	(7.548 5/6) 1020; sand=10214=4626 e coargo sand sa-se (ith-realide) un (7.548 5/3) Sodoe  vel to 98" (1:4h) ed. Hill
mg   N		sand = 10%; clay = 5% up to 5/6" (1.4h) (5.0dor)
	76	102 A 10 Class 542
MD IN	5AA - 5:11 = 90 trace 50t1-med.	38 sand = 5% clay = 52  gravel to 3/8"  5. odo
mi 22.5 N	78	
M) N	6 79	
my N	80	
Additional Comments:		
		*
Recovery: None		mplete
SAA = Same as Above Qtz = q		N = No/None
	H; M = minerology; B = biologic; W = moisture analysis A = Subangular A = Angular VF = Vary Fina F =	ysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	- 2 2
Boring/Well ID:	FB-106V Logged By: J. Messeme (Page 10)	of 32
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
Mb 225 N	BO SAM - Silt = 80%, clay = 1,5%, sand = 5%  No trace gravel  No fecondary calcium canbonate  coating/staining throughout 5.0dot  soft-med-Stiff	
mg J N		
mi) N	SiAA - silt = 80% clay = 20% mino staining/coating present throughout soft to hard sodor	
mi)   N	4 84	
m N	85 SAA	
MC V N	V 86	
my / N	67	
NI 22.2 N	clayey silt w/sand - strong brown (7.5 YR 56) tolt  SLM - silt + 50% soft, non plastic; clay = 10% med.  Stitt/Denuse nodules; sand = 40%: Vi= 30% F= 30%  M= 40% FA-SR (atz, feld, ligh)  Endor	
	5ilty sand - brown (7.542 5/3) loose, SLM; sand =60% VF= 20% F=69% M=15% SA-SP (ats feld, lith): sit=30% nonplastic, soft; clay=10% exists as cobbles lemented by secondary calcium conformate (fizzes) up to 50%	
Additional Comments:		
Recovery: None	Portiol Committee	
AA = Same as Above Qtz = quar	Partial Complete  rtz Fld = feldspar Y = Yes N = No/None	
	rtz	A 1
R = Rounded, SR = Subrounded, SA	A = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	tal conductivity

				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: K		3FF	111		-	-	Project Number: 62735DM02.1017 Date:	
Boring/We	ell ID:		KAFE	3-	18	)6 V		
USCS Soil Type PD Reading (npm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details	
Sin		N				90	SAR-sand=80%; silt=15%, clay=5% exists as smaller nodules that are hard dense 5.000	
SM) 25	22.2	N		16		91		
SM	V	N		V		92		/
SM	1	N	and the second section	^	1	93	poorly graded sand w/sit - yellowish Grown (10125/4) loose, SLM; sand = 90%: VF = 30% F = 40% M= 30% sA-SP (atr. feld, lith) Hace coarse sand; sit = 10% nonplastic; gravel trace to 1/2" (atr+lith)	
SP SM		N		IL!	1	94	\$.000	
99	22.4	N		7	1111	95	poorly graded sand - yellowish brown 104R 5/4 loose  SLM; sand = 95%: NF = 30% F = 55% M= 15% 50%  (Otr, feld, lith); sitt = 5% nonplastic - trace grand  (aliche trace course to 76" (lithius + caliche)  Sand	/
54)		N		V	11	96	\$	
58m		N		1		92	SAA 6 92-93 ( tra su 5. odo)	
SW)	13,0	N		6	1	98		/
Additional	Commer	ıts:						
Recovery:	None			-	_	Part	tial Complete	-
SAA = Sam	M 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ve (	Qtz = quartz	z	_	_	Fld = feldspar Y = Yes N = No/None	
		/EDB;	P = TPH;	<b>M</b> =			gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	
R = Round	ed, SR = 5	Subro	unded, SA	= Su	ban	gular	, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	

	The same of the sa			S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG		
	Kirtland B	FF	V.	W)		-74	Project Number: 62735DM02.1017 Date:		
Boring/	Well ID:		KH.	PB	-	100		of 32	
USCS Soil Type	PID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details	
50		N			11	98	SAAR 94-95 sand= dtz, feld, lth trace gravel = lith (5.000)		
SP)	3,2	N	AND THE RESIDENCE OF THE PARTY	1	11/1	100	SAMPLED		
983	1097	N	2./	6	1	161			
R	V	N	<i>r,</i> v	V	1	<b>62</b>			
( <del>A</del> )	560	N		1		103	SAR & 98-99' - trace clay as notules  (5.000)		
39		7	nake papayayaninca kanasa sasa sana		1	104			
39)	30.8	N	***************************************	4"	1/	105			
SP	V	N	- LATER AVERAGE SALES MODELLE SERVICE	V		106			
SP	35.5	2		7		107	SMA-no trace clay sodules		
Addition	nal Commen	ts:							
Recover			43.			Part	* 100		
	ame as Abov		Qtz = quart		-win		Fld = feldspar Y = Yes N = No/None  gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = th	According to	
					_		y; B = blologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; I = th	ermal conductivity	

	FB-106V	Project Number: 62735DM02.1017 Date:  Logged By: 1. (Nessing e) Page /3	of 2-7
	1000	Logged Dy Page /3	
9		Soil Description	of 32
PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	ore Run scovery ptth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (sitt/clay)	Well Details
	67	SAA- (20 102-103' clay nodules that trace course sand - sound = atzfeld, lith t caliche	
P	169	-@108.8 - MASTA - brown (4.58R 5/2) med. shift med. danse, med. plusticity 5AA@ 107-108	
P	110	SAN@ 107-108)  5.000	
B 35.5 N	91	@110.8' SAA@ 108.8' Still-very still	
	1/2	well graded sand w/clay - brown (108 x 5/3) loose show sand = 80% (= 50% M = 35% C=15% stife (0+3,1+4) felling clay=10% as nodules - brown (7.58 x 74) med still full funce	
	113	well graded sand w/clay - brown (10 (R 5/3) loose SLM sand : 80%: F : 50% M : 35% C=15% stop (arz. ithfillian) clay = 10% as nothles - brown (7.5 8 74) med still/med lunge Stop 12.81 gravel : 5% nonplastic Med. plasticity  to 12.81 gravel : 5% up to 5/8" (lithius) click e click e  Clay - brown (7.5 8 5/4) med still/med. deuse/med. plasticity  saa - strong brown (7.5 8 4/6) still, dense, med-plasticity  secondary calcium consonate coating throughout	
	114	saa - strong brown (75 gr 4/6) still, dense, med-plasticity secondary calcium conbonate coating throughout	
	V 115		
3825 1 P,V	51 116	AMPLED	
itional Comments:			1117
overy: None	Partia	al Complete	
= Same as Above Qtz = qua			
	NYO 313	; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = ther	mal conductivity

EA	SC	NIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF Boring/Well ID:	-	106	Project Number: 62735DM02.1017 Date:  Logged By: J. Wessenge Page 14 or	of 32
PID Reading (ppm)  Temperature (°C)  UV fluorescence  Samples collected	Core Run	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
mi 31.1 N			SAAR 1131 - Very still, dense, med. plasticity  Plib. 4' - clayer silt - yellowish brown (101/R 5/4)  soft, nonplastic; silt = 90% clay = 10%  6. odor  10 113.81	
M) 2981 29.7 N	5		san@116.4 silt=80%  clay=20%  secondary calcium carbonde (calida) grasal  up to 1.5" exists — trace  (sodur)	
2179	×	12	remoted for possible sampling	
29.3 Y 1 Y B,M	16	12	Removed for Sampling	
Additional Comments:			chang - brown (45 °R °F/4) very still, very dease  Med. plasticity  shightly mottled to a finkish gray (4.5 °R F/2) by  secondary colcium conbonate (fizzes)  weakodon  artial  Complete	
SAA = Same as Above Qtz = quart		miner	Fld = feldspar Y = Yes N = No/None logy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	ermal conductivity

	3			S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
	Kirtland E	BFF	Var	-0		12 /	Project Number: 62735DM02.1017 Date:	20
Boring/	Well ID:	-	KAF	13	-	106		of 32
USCS Soil Type	PID Reading (ppm)  Temperature (*C)	UV fluorescence	Samples collected	-Core Run	Recovery	Depth, ft	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
CU	29.3	Ŋ		64	1111	126	(S.odor	
ML	-	N -			1	127	Clayer 5:14-6000 (4.542 3/4) soft to med. stiff med. st	
cy cy	28.8	N	o kabita ayan kabi	4	1	158	SAA @ 124-125 not motted (sadm)	
Mr		N			1	129	silt - brown (7.5 1/2 5/6) soft, nonphastic silt = 90% - clay = 10% as nodules  Sodor	
5M		N		\ \ \	1111	130	poorly graded sand w/silt - brown (1048 5/3) loose sum sand = 85%: VF = 20% F=60% M=20% 5A-5R (Qtz, fild, lith, catche) - too on Silt=18% nonplastic Clay = 5% as nodules (5.000)	
SP 3	278	٨		1	11111	131	SAH @ 129-136' sand: 95%  no trace coanse sand; no clay (5.0007)	
63	201	N			1111	132		
500	25.N 	N		6	1111	138	Sto 132.8'	
50		N_	_		1111	134	SAM - Sund - 95%: F=45% M=55% trace coarse sam; graver = 5% up to 1'4" (17th + Qtz) SAAC 130-131' S.odor	
THE RESERVE OF THE PERSON NAMED IN	al Commer	nts:					200-00)	
	y: None					Par	1 400	
	me as Abov		z = quartz				Fld = feldspar Y = Yes N = No/None	2004
							A = Angular VF = Very Fine F = Fine M = Medium C = Coarse C = Crossel	rmal conductivity

		ONIC C	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BF		- 16/1	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	LAFB	-1661	Logged By: J. Messenge Page 6	of 36
USCS Soil Type PID Reading (ppm) Temperature (*C)	Samples collected Core Run	Recovery Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5M) 25.1 N		135	SAA@ 129-130 90% sand; 10% 5.17  no clay trace coarse sand 3/8" (154) Atz)  sodor  nell realed sul- heave (158 5/3) large 544	
500	J	136	well graded food - 65000 (10 18 5/3) loose, 51M  5and = 90%: F=20% M=65% C=152 5A-5R  (Otz, fold, lith + caliche); sitt=5% nonplastic; gravel=5% up  to 114" (Otz+1th)  5.000	
5w 1		137	JAN ( 135-136' sand = 80%: 12.02 m: 606 C=206 gravel = 15% up to 1" (aterlith) silt = 5%	
(3P) 26.5 N	) 	138	SAA@ 130-131'	
3246 N		139	SAA but with trace course sand: sand = 90%	
\$P) \\		140	SAA@ 137-138 (5.000)	
mi) 1		141	clayer silt - 670 mm (7.5 5/6) Saft to med. 5454 per plastic silt - low plasticity clay nodules silt = 80% clay = 20% mildly mottled to a very pale brown (101R 7/3) = calcium carb. (fizzes)	
mi) 31.1 d		142	S.oder	
Win		143	plasticity - 5:14 = 70% Soft to very still low to med plasticity - 5:14 = 70% Soft to sery still low to med olay = 30% Sodor	
Additional Comments:				
Recovery: None		Parti	1 110	
SAA = Same as Above	Qtz = quartz		Id = feldspar Y = Yes N = No/None	musl and of the
			y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	rmai conductivity

SONIC CORING BORING/WELL CONSTRUCTION LOG
Project: Kirtland BFF Project Number: 62735DM02.1017 Date:
Boring/Well ID: Logged By: T Messenge Page 12 of 32
Soil Description  Soil Description  Graph Consistency & plasticity (primarily fine); moisture content  Soil Description
(1)  193 silly clay - very pale brown (1082 7/3) still, danse medium plasticity - readily effections which frighty str
31.1 N 145 Clay 19 yellowish brown (10 YR 5/4) Med. still to still med. dense, low plasticity
S.odes
SP-SM 146 37A @ 129-130' no clay; trace coarge sand; trace gravel to 3/3"  From N Removed for sampling well graded sand - pale brown (104R 6/8) losse, Sim  Sund = 90%; F= 30% M=60% C=10% SA-52  (atz, feld, l.th, caliche); sit = 5% nonple stic  Clay = 5% as node les - trace clay  gravel = 5% up to 13/4" (ith+ atz) 5.0 door
l luce /
5W) 24.2 N Well graded Sand - pale brown (10 1R 6/3) Cose, SLM - sand = 85%: F = 20% M = 65% C=15% SA-SR (atz, feld, lith, caliche); gravel=102 up to 1/8" (lith, atz); silt = 5% ann plastic
SW N 150 5
SW 3163 1 N Sand: F=208 M=708 (=108) gravel up to 2"
5W 14.9 (251.8-15) = Clay-brown (2.54/2 5/3) stiff, dense, med. plasficity
Additional Comments:
Pagavagu Nana Pagist
Recovery: None Partial Complete
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
R = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

<b>5</b> /3	new .	SC	ONIC	CORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date:	
oject: <b>Kirtland</b> oring/Well ID:	BFF	KAFE	- /		of 32
USCS Soil Type  (fig. 1) PID Reading (ppm)  Temperature (*C)	UV fluorescence	Samples collected Core Run	Recovery Denth. ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	N		13	SAFT (2) 148-149 - SAND = 70% gravel = 25% yet 23/8" Sist = 5% Ester	
	g N		1/2		
	کہ	6.	15	Sand = 80%  graved = 15%  5ist = 5%	
ju)	, N		1/3	Sand = 90% gravd = 5% 51+=5%	
P ( )	N		13	poorly graded sand w/silt-pale brown (104R 6/3) loope,  Sinn-sand = 96%: F=40% M=60% trace conserand  SA-SP(atz, feld, lith, caliche); silt-10% Non plastic  trace gravel to 4z" (lith)  Frace clay as rodules  brown (7.54 & 5/4)	
P	J			trace clay as nodules 5/4 5/4 5/4 5/7-158 SAA Sand = 95% Silt=5/2	
4229 20	1.b \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	4		157-158 SAA Sand = 95% Silt=Sig 158-166 FENOVALTO Hace grave 1 - no Hace clay for sampling	No.
	4			5	
30 5743 /	3 1 8	V B M	No.	clay-yellowish brown (10 YR 5/4) med. stiff, med. dense med. plasticity - mottled throughout to light gray (10 y R 7/2) mottled areas fizz with acid - secondary calcium carb. present	
Additional Com	(10)	PR 6/3 brownish		Also contains staining - brownish yellow 5. Mos black staining in some places this ow staining coats/surrounds calcium conbornate moto Partial Complete	O Hiry
AA = Same as	Above Qtz	z = quartz	= mine	Fld = feldspar Y = Yes N = No/None ology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = t	hermal conductivity
impies. v - ve	Calebb, I	III, M	L	lar, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

				S	DN.	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kir		FF	11 -				Project Number: 62735DM02.1017 Date:	3 9
Boring/Wel	1 ID:		KATB	-	10	6V	Logged By: J. Messengel Page 17	of 34
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
<u> </u>			P,V,B,M	1	11	161	SAA	1
(CL) 421	60	1			1	162	162-166 removed for sampling	
		Y		1	1		*	
					7	163		-
	323	1		6	1	164		
		4	and a recovery country for the factories		1	165		
	V	7		V	1	166		
SP		N			11111	167	poorly graded sand - pale brown (1042 43) lunger SLM - sand = 95%: F=60% M=40% trace coarse send sa-sp (atz, feld, lith, caliche); silt=5% non plastic - trace gravel to 3/8" (17th)	
38	29.4	N			11	168	5.0000 5.0000 5.0000	
51)	-	N			1	169	17.5 VR 5/2 - med - skit/med dense/med plastilly interboedled w/sec calcium carbonaite stringers  - 168.8-169. SAG. @. 166-167 - trace grave to 5/8"	
9	V	2		V	11/1	170	5.oden	
Additional	Comme	nts:						
								₹ , 4
Recovery:						Pa	rtial	
SAA = Sam	e as Abo	ve	Qtz = quar	tz M-		nowal	Fld = feldspar Y = Yes N = No/None  ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = tl	permal conductivity
							r, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	conductivity

Project Number: 627350M02.1017 Date:    Doring Well ID					S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Soil Description  - soil type; Munsell color; density (primarily correspondingness) & plasticity (primarily fine); moisture content  - so and cliculus grain size %, fine, medium, coarse, etc.)  - sand dimerology  - agricularity from moisture  - sand minerology  - agricularity from moisture  - sand minerology  - agricularity from minerology  - agric	Project: Kirtl	and B	FF	1			- /		<u>12</u>
- soil type; Mansel color; density (naminary) coarse) consistency & plasticity (primary) fine; motivare contents - % sand (include grain size %; fine, medium, coarse, etc.) - % sand (include grain size size size size size size size size	Boring/Well l	D:		KAFL	5 -	1	061		of 32
13		Temperature (°C)	UV fluorescence	Samples collected	Core Run	_	-	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	1,540,24,250
17.5   17.5	70 4338	1	1		1	11	170	SAA	
Su)  Sand = \$528 gravel = 102 clay = 578  as nodules  Sold = \$528 gravel = 102 clay = 578  as nodules  Sold = \$538 gravel = 102 clay = 578  sold = \$538 gravel = 102 clay			الم _ كو _					171.5 - 171.8 - vell graded sand ov/grave   - Pale Grown (10 98 6/3)	
Su)  Sand = \$520 gravel = 102 clay = 526  as nodules  Sold = \$520 gravel = 102 clay = 526  as nodules  Sold = \$520 gravel = 102 clay = 526  as nodules  Sold = \$520 gravel = 102 clay = 526  Sold = \$520 gravel = 102 clay		l	h		1	11		Plasficity - a I tened center reacts w/acid - sec. cal. canb.	
SAA - trace clay - sit = 5% nonplastic  south  Poorly gladed sand white - yellowish brown to the 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 sit - 40 look, 51M - sand - 10% - 40 sit - 40 look, 51M - sand - 10% - 40 sit - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M -		78k			6	1	173	-142-174-SAAC171.5-171.8	
SAA - trace clay - sit = 5% nonplastic  south  Poorly gladed sand white - yellowish brown to the 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 sit - 40 look, 51M - sand - 10% - 40 sit - 40 look, 51M - sand - 10% - 40 sit - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M - sand - 10% - 40 look, 51M -	SW	1	N		1	1		Sand = 85% gravel = 102 clay = 5%	
Additional Comments:    Partial						1		as nodules Sodor	
Additional Comments:    Partial   Complete   Partial   Complete   Partial	Sa		N	-		11		SAA - trace clay - silt=5% nonplastic	
Additional Comments:    Recovery: None	Sw	¥	N	enter a facility of a substant	V	11	176	SAD	
Additional Comments:  Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	570		N			1	177		
Additional Comments:  Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	58×	36.1	N	THE STATE OF THE PARTY OF THE STATE OF THE S	4	11/1	178	loose, 5LM - sand = 90%: F= 50% M=50% trace coarso fand 5A-SE (012, feld, lith, caliche); sitt=10% Nonflathic - trace gravel & 1/2" (1:th) 6.oder	
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	5P2		N			1111	179		
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Additional Co	mmer	its:			•			
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity							_		***
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Recovery: N	Vone					Par	ial Complete	
	SAA = Same a								
IN - NORMICH, ON - ORDINORIUGH, OA - ORDINARI, A - AREMAL, A F - YOU FING, F - FING, WE WIGHTON, C - CHAINE, C - CHIEVE									ermal conductivity

EA	SONIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF Boring/Well ID:	KAFB - 106	Project Number: 62735DM02.1017 Date:  Logged By: J. (Nessenge) Page Z(	of 32
PID Reading (ppm)  Temperature (*C)  UV fluorescence	Samples collected  Core Run  Recovery  Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	Well
	S 0 2 0	% fines (silt/clay)	Details
3578	4 190	SAM @ 171.5-171.8 sand=90%	
אן ן פיי	181	SAM @ 171.5-171.8 sand = 90%  81 and = 5% up to 1/2" (atz+1:th)  5:1+=5% nonplastic 5.00	
83) N	182	5	
5w) N	6 103		
334/	184		
(3) N	185	SAA@ 180-181 Sand= 95% 519+ 566	
SW) N	186	9. odes	
	187		
dditional Comments:	10	POOTly graded send - pale brown (10426/3) loose  SLAN - Sand= 100% F = 40% M=60% SA SE  Cots, feld, lith, caliche) trace coarse  Sand  F.odor	
dditional Comments.			Halmin
ecovery: None AA = Same as Above	Par Qtz = quartz	tial Complete  Fld = feldspar Y = Yes N = No/None	d My many
<u> </u>		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = th	ermal conductivity

		S	SO	NIC C	Project Number: 62735DM02.1017 Date:	
ect: Kirtlaı		1/200		101	Logged By: J. Messervel Page 22 of 32	
ng/Well II	):	KAAB	-1	OV	Soil Description	
PID Reading (ppm)	Temperature (°C) UV fluorescence	Samples collected	Core Run	Recovery Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details	<u>s</u>
9	N				SAT @ 184-185	
			1	189	189-189.5 - SAAC 187-188 Sand=95% Silf=56 nonplestic	
3463	0			190	189.5-190-5AA@ 184-185 Sand=65% Sitt=5% gravd=308 ypto 13/8" Qtz+lith 190-190.5-5AA @ 187-188-Sand=85% gravel < 15% up to Z" (atz+lith)	/
	N			191		
s)—	34.6			1	gavel = 30% up to 2" (atz, lith, caliche)	
P			1	19:	\$40192.41	/
એ	N		10	18.	SAA@ 190.5-191.5	
	N			19	Sand = 60% grave = 30% grave = 30% Grave = 10% Grave =	
L	N	2016 gg-12-2016 2016 2016 2016 2016 2016 2016 2016			1.000	/
(A)	N		V	19	GAA @ 187-188 Nace coarse sand frace gravel to 11/4" (5. olis) trace gravel to 11/4"	
sw)	33.4 N		1		well graded Fand w/gravel - pale brown (1018 6/3) 1008e, SIM - gard = \$5% F= 30% M=60% (=10% 1008e, SIM - gard = 85% F= 30% M=60% (=10% 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 85% F= 30% M=60% (=10%) 1008e, SIM - gard = 10% (=10%) 1008e, SIM - gard = 10% (=10%) 1008e, SIM - gard = 10% (=10%) 1008e, SIM - gard = 10% (=10%) 1008e, SIM - gard = 10% (	/
Additional	Comments:				also contains staining brownish yettow (1011-6/3)	
					in some places this grain sorroyings careful construction	
Recovery:	None				Partial Complete	
		Qtz = qua	5		Fld = feldspar Y = Yes N = No/None  Fld = feldspar Y = Yes N = No/None  rology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduction of the state of the stat	

N. H. I.PEE	SONIC CO	Project Number: 62735DM02.1017 Date:	
oject: Kirtland BFF ring/Well ID:	KAFB-106VI	Logged By: J. Messenge Page 23 of	32
G .	mples collected re Run covery pth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity orimarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	Well Details
	198	% fines (silt/clay)  SMA but more gravel  Sand = 753  gravel = 202  5.4 = 52  SAA - Sand = 80% F= 30% M= 50% C= 202  gravel = 15% up to 144"  Silt = 5%  5.00  5.0	
W 33.4 N	41 198		
5ND V N	200	199.8  poorly graded sand w/silt - light brownish grav  riogr 6/2) losse, SLM - sand = 902: f=50% M=502  rtrace course sand - 50.81 (0to, feld, 1:th); sitt=10%  rtrace course sand - frace gravel to 12" (1:th)  SMA @ 198-199	
3251 / N	76)	(5.0do)	
24.2 N	4 202	senoved for supplying	
	203	4	
XY	204	SAM @ 197-198	
30.4	205	7.0 YR 5/2) med still med danse/med planting - black Staining on outside	
ditional Comments:	206	clasely silt - 6500 10% (4.542-712) 20th nonplastic silt-85% 10% (205, 25) (5.000)	
		Complete W	
covery: None A = Same as Above Qtz	z = quartz	Fld = feldspar   Y = Yes   N = No/None	
AA = Same as Above Qtz Samples: V = VOCs/EDB; P	P = TPH; M = minerolo	Fld = feldspar Y = Yes N = No/None  gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the  A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	rmal conductivit

ct: Kirtland BFF  ag/Well ID:    Comparison				(	so	NI	C C	ORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date:	
Sould   Source   So	ject: Kirtl		F	1100	,		A / 1	The standard Dags 744 of	32
Soll types, Manusel Color, density (primarily coarse) consistency & plasticity (primarily fine); moisture content  - % sand (include grain size %; fine, medium, coarse, etc.)  - % sand minerology  - % gravel  - % gravel minerology  - % gravel  - % fines (alliclusy)  - % fine	ring/Well I	D:		KATE	-	10	96 V	Logged Dy. D.	
1	USCS Son 19pe PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	- soil type; Munsell color; density (primarily coarse)/consistency & plasticity primarily fine); moisture content - % sand (include grain size %; fine, medium, coarse, etc.) - sand minerology - % gravel - gravel minerology - angularity/roundedness - % fines (silt/clay)	
1	14		1			11	606	SAMT S.odor	
208.6 gravel = 40% sand = 38 sill =	.0	204	J		6		208	poorly graded sand pale Grown (1088 6/3) 10039, SLME sand = 95%: VF = 20% F = 70% M = 10% SA-SR (atz feld, lith, calicha); sitt = 5% nonplastic trace	
Partial Partia	i)	7	<b>/</b>			1	201	(104 6/2) 10058 51M - 5and = 65%: f=206 M=606 C=20% 5A-5R (Q12, fill, lith, caliche); gravel = 20% up to 2"(11th, Qt2); silt=5%  (\$.000)  (\$208.6 9ravel = 40% sand = 55% silt=5%	
Additional Comments:    Partial	Ties .		N		V	111	210	black staining on gravelo 208.6-209 on gravelo 308.6-209 on gravelo 208.6-209 on gravelo 208.	
SAA @ 206.75 - 207.8 trace coarse sand trace gravel to 1" (lith realishe) 213  Additional Comments:  Recovery: None  Partial  Complete  N=No/None	281 281	21	N			1111	211	SAA Sand = 75 % 900 vol = 20 % 51 H = 5 %  5. dog	
Additional Comments:    Complete   N= No/Non	(W)		N			1	21		t
Additional Comments:  Recovery: None Partial Complete  N=No/None	SP	28:	47				21	SAA @ 206.75 - 207.8 trace coarse same trace gravel to 1" (lith + caliche) 5.odos	
Recovery: None Partial Complete  N = No/None	5		N			1	21	4	
Recovery: None Partial Complete  N = No/None	49		N			V .	2	5	
Recovery: None N=No/None	Additiona	u Comn	ients:						
Recovery: None N=No/None								Complete	
SAA = Same as Above Otz = quartz Fig = reluspar Fig	Recovery	: Non	e 🔲				_	$V = V_{00}$ $N = N_0/N_{00}$	
SAM = Same as Above Qua quantum (Appendix Appendix SAA = Sa	me as A	bove	- The State of the	- C - C - C - C - C - C - C - C - C - C	0.65	200	P Listorie: W = moisture analysis: G = geotechnical; UV = ultraviolet; T =	thermal conductivity	

ject: Kirtlan	d BFF		Project Number: 62735DM02.1017	7 Date: Page <u>75</u> of <u>3</u> 2
ring/Well ID	11/1/	B-106V1	Logged By: J. Messengel	Page 63 01
a l	Cemperature (°C) UV fluorescence Samples collected	(primarily fine) % sand (inclu sand minerole % gravel	rology	Well
	am 7 f	Core Recover w fines (silt/		Details
2165 W 2165	N P, V	215 SAA to	215.5° 210-211 sand = 70% y graved = 30% y	
1459	27.3 N	213	Sand = 75%; F=30% M=6  gravel = 70%  sand = 85%  gravel = 10%  gravel = 5%	0% C=10%
5W)	M		hand/very dense/	
3491 SP	26.\ 26.\	21 221	sand= 90%: F=25% M= gravel= 5% up to 1" (1.th) 5.11 = 5% trace coarse sand	realishe)
5P (3P)	X N_	223 will grad Sand = 90	/ to 272.8 led sand - light gay (1042 7/2) 6: 6=1020 M= 70% C=20%: 0% up to 1" (caliche)	loose, surge sa-se (califortia)
Additional	Comments:	1 SEY SWA	(a) 1.10-521	S.oder)
Recovery:	None	Partial H	Complete Mil	No/None

EA	S	ONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BF	F	151	Project Number: 62735DM02.1017 Date:	of 32
Boring/Well ID:	KAFIS	-106		01
PID Reading (ppm) Temperature (*C)	Samples collected	Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
50		1 223	SAH V 224.25	
300	N	725	well graded sand of grave (- Pale brown (1042 6/3) 10050, SLM - sand = 80%: F=18% M=70% C=20%; 5A-57 (atz, feld, lith, caliche) graved = 15% up to 1" (atz, lith); sitt=5% nonplastic g.odo? 2125.4-125.6-clay-brown (4.548 5/3) med-shift/dune SAN @ 224.25 - 225.4 sand = 90% silt=5% graved = 5% silt=5%	
(Fin)		226	9 ravel = 58 sitt = 58	
305		227	Side	
50) 1			1 10 227.5	
sp)	N	228	SAME 220-22 ( trace coarse sound sound	
FP)	N	221	5% silt	
(Su)		234	SAA @ 224,25-225.4 trace clay anoduled	
5P 2154 /	N	23	poorly graded sand w/silt - brown (10 4 5/3) loose sem - sand = 90 %: VF = 20% F = 30% M = 50% as shi s sA-sR (atz, feld, lith, caliche); silt = 10% nonflastic sidder	
ML 34.4	N	71 233	clayer sit - brown (1088 5/3) soft, SLM (1088 5/3) soft, SLM (1088 5/3)	. ,
SAN	h	72	SATE 230-231 trace course sand	
Additional Commer	nts.	1		
Additional Commer	its.			
Recovery: None			ertial Complete  Fid = feldspar Y = Yes N = No/None	
SAA = Same as Abov	ve Qtz = quartz	• • • • • • • • • • • • • • • • • • • •	Fld = feldspar Y = Yes N = No/None logy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = t	hermal conductivity
Samples: V = VOCs	EDB; P = TPH; N	yı = minero	logy; B = biologic; W = moisture analysis; G = geotecnincar, G = unitariote; T ar, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

	SONIC CORING BU	Project Number: 62735DM02.1017	Date.
ect: Kirtland BFF	KAPB-106V1	Logged By: J. Messenger	Page 24 of 32
ng/Well ID:		Soil Description	
PID Reading (ppm)  Temperature (°C)  UV fluorescence	(primarily fine): % sand (inclu sand minerole % gravel gravel minerol angularity/ro	unsell color; density (primarily coarse)/consistent; moisture content ude grain size %; fine, medium, coarse, etc.) logy cology coundedness	Well Details
W) 34.9 N	234 Frace	124.25 - 225.4 sand = 85 gravel = 10 clay-clay coats gravel Sand = 75% gravel = 20% op to gravel = 5%	S.odo
	235	gravel = 20% . op to	172
N	236	JM 235.8	+ 5m
n)   N	SARC		s.odos
25.7 N	11 232 SMA @	234 - 235.8 sand=60% silt = 5% gravel = 35%	2 of 11/8"
Sú) A			5 /
sw) N	240	Count = 80%	<u></u>
6831	241	gravel: 15% 5:(+=5%)	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
5 m	51 5/14	4@ 252-233	
Additional Comments	S:		
	Partial H	Complete	
Recovery: None		N N N N	None

	SONIC CORING BO.	RING/WELL CONSTRUCTION	Date:
ject: Kirtland BFF		Project Number: 62735DM02.1017 Logged By: J. Wesserge	Page 28 of 32
ing/Well ID:	KAFB-106VI	Soil Description	
PID Reading (ppm) Temperature (°C) UV fluorescence	(mimorily fine)	sell color; density (primarily coarse)/consisten moisture content de grain size %; fine, medium, coarse, etc.) gy logy ndedness	Well Details
m) N B) 32.7 N	37.1	227.5 - 229	) oder
(a) M	1 245 SAPA	trace clay as nodules	V 4
5P)   N		led sand - light brownish gray  1 - Sand = 95%: F=25%  12, feb, lith, calithe); gravel = 5%  ith.	(1012 6/2) M=602 C=158 B up to 12" 5-0001
Sw) N	249	@ 245-246	
Additional Comments:	[ \\251 \\	trace coarse sand	aller
Additional Comments.			
	111	Complete	
	Partial H		
Recovery: None		ar Y = Yes N = No ogic; W = moisture analysis; G = geotechnical; U or VF = Very Fine, F = Fine, M = Medium, C =	None

	SONIC CORING	BORING/WELL CONSTRUCTION Project Number: 62735DM02.1017	Date:
ect: Kirtland BFF	11.	Logged By: J. Messergel	Page 29 of 32
ing/Well ID:	CAFB-106V1	Soil Description	
PID Reading (ppm) Temperature (*C) UV fluorescence	(primarily fi % sand (in sand mine % gravel gravel mi angularity % fines (s	Munsell color; density (primarily coarse)/consiste ine); moisture content nclude grain size %; fine, medium, coarse, etc.) erology inerology y/roundedness silt/clay)	Well Details
P) 7263 N	257 SAA	10TR 5/2	5
24D N	P,V 257 Cemored SAA-@	for sampling   Pale Grown (101 247-248 Pale Grown (101 251-252	R 4/3)
	SAA	@ 245-246 trace coarse	sand S.odor
5P 24.3	257 SMA	+ @ 230-Z31	3
5è)	258 SMA	( 265-25b	3
Additional Commen	N Zuo		\$ //
		Complete	
Recovery: None		N = N	o/None
	F14 - fo	eldspar Y = Yes N = N biologic; W = moisture analysis; G = geotechnical; ngular VF = Very Fine , F = Fine, M = Medium, C	The same of the sa

	SONIC CO	Project Number: 62735DM02.1017 Date:	
oject: Kirtland BFF oring/Well ID:	-106V1		of 32
	:	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity imarily fine); moisture content	
PID Reading (ppm) Temperature (°C) UV fluorescence Samples collected	S8 :	% sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology	
PID Resulted Temper UV fluo	Core F Recov Depth	angularity/roundedness % fines (silt/clay)	Well Details
4649 N	260	MARQ 255-256 grayish Grown Nace coarse sand grayed to 3/8" 104R 5/2 Salor (lithies)	
	261	(lithies)	
	262		
E IN		SMARQ 230-231 grayish Grown 104R 572	
28.1	0 263	104R 57Z	
	264		
	265		
m l			
	1 266	lay - blown (7.54R ATG) hard, dense, dry med. plasticity - black staining anound clay got ontside - secondary calcium consonate throughout that fizzos w/actal 267-267.5 clay is alivagray (54 5/z) (3.068	
	267	that fizzes w/ acid solivaging (54 5/2) 3.008	
26.4	41	267.5-268 SAA @ 266-267 Wrown (7.58R 3/2)	/
D   N	261	seemdary calcium carbonate (Fizzes) s.oder	$\times$
Iditional Comments:			
		THE THIE	
ecovery: None  AA = Same as Above Qtz = qu	Partia artz F	dd = feldspar Y = Yes N = No/None	
A Same as Above Que - qu		to the second of	ermal conductivity

EA				SC	N	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl		FF	1)	1		14/	Project Number: 62735DM02.1017 Date:	of 27
Boring/Well	D:		KAR	19.		106		of 52
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	sãq	Soil Description  - soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  - % sand (include grain size %; fine, medium, coarse, etc.)  - sand minerology  - % gravel  - gravel minerology  - angularity/roundedness  - % fines (silt/clay)	Well Details
My	26.7	N		145	11/1	269	Clayer s.H — brown (7.54R 5/3) both, nonplashed silt = 85% clay= 15% s.ador	
(L) 1788	1	N		*	11	271	clay - brown (7.582 5/3) hard, dense, dry low to med-plasticity secondary calcium carbonate staining froughout - to white (7.542 8/1) (5. alor gravel to lobble size catiche present)	
(i)		N	PN		1	272	gravel to cottole size catiche present	
Ci	35.4	N		5	1111	273		
(ci)		N			1	274		
Ci)	V	N			11/1	275	silts and - brown (75 KR \$/3) soft to hard silt = 10% nonplastic, soft sec. Clay = 90%, soft to hard - falcium carbonale stains clay = 90%, soft to hard - falcium carbonale stains	io
cv	1	N		1	1	726	SANA	
(0)	283	2		6	111	24:	clay-10000 (7.542 5/3) very still, very dense dry to 52M - secondary calcium carbonate staining - med. plasticity (5.000)	
CV					1	271		
Additional	Comme	ents:						
				_	-			
Recovery:	None					Pa	rtial Complete	
CAA - Som	a ac Ah	ove	Qtz = qua	rtz			Fld = feldspar $Y = Yes$ $N = No/None$	
Samples V	= VOC	e/FD	B. P = TPH	: M	= m	inero	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T =	thermal conductivity
R = Rounde	d, SR =	Sub	rounded, S.	A = 5	Suba	ingul	r, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Grave	ı

	SONIC CORING BORING/WELL CONSTRUCTION LOG  Project Number: 62735DM02.1017 Date:	
ect: Kirtland BFF	Logged By: Page 32 of 32	
ing/Well ID:	Soil Description	
PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details	
28.3	219 Jayon (104R 5/3) soft, nonplastic 5LM silt - brown (104R 5/3) soft, nonplastic 5LM silt = 70% clay = 30% as nodules (rellowish brown 104R 5/4)  280 med. skitt / med dense / med plasticity  Spitt @ Jan clay - Yellowish brown (104R 5/4)  Very skitt / very dense / med. plasticity  Sent dry to SLM  281 dry to SLM	
3681	Spit & Jen clay - yellowish brown (10 (R 5/4) very still / sery dense / med. plasticity (5.0der) dry to SLM	
10) M39 1	281 0/29 78  Silty sand w/clay = brown (104R 5/3) /oose SCM  silty sand w/clay = brown (104R 5/3) /oose SCM  sand = 752 yr = 202 F = 602 M = 102 50 -50 GHz feld, life, silt = 15%  sand = 752 yr = 202 F = 602 M = 102 50 -50 GHz feld, life, silt = 15%  sand = 102 if = 102 M = 502 C = 402 50 -50 GHz feld, life, the gradel = 30% up to 21 (atz+lith)  arable = 30% up to 21 (atz+lith)	X
6W) ]	282.5-283 SAA - Sand=60% P=1060 M-750Color) 285 gravel = 40% up to 2" (Q+2+1i+h) 5.0001	
5w) 1363	283.8 SAA @ 281 - 281.5 282 Sand = 858 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1520 grand = 1030 grand = 1520 grand	
3P. 3M /160	Sand = 908 UF = 20% F=50% M=30% 54-5R (are, feld 17th); silt = 10% non plastic	X
	1D of sonic coring @ 285 f bgs on 12-19-18	
	Notice Bestonie Chips: Sund 10/20 Promed Sond	
Additional Comments:		
Recovery: None	Partial Complete	
Daggrand None	V = Ves N = No/None	

	3							BORING/WELL CONSTRUCTION LOG	
	: Kirtla			4				Project Number: 62735DM02.1017	
	g Comp	any:	, (	ascag	6			Start Time/Date:	
Lead I			409	SONIC	rqu	ez	_	Completion Time/Date:	
	g Metho	od:	- 1	SONIC		,		Final Depth:	
	Diame	ter OI	): 	100	in	5	2	Bit Type and Outer Diameter 7-inch 6.7	. 4.70
Boring	/Well I	D:	K	AFB-1	06	V	_	Logged By: J. Messenger Page 1	of 32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
<u>(</u>	numprosessance for give be	oresto il resto il r	-gire grangies d	The second secon	o becings con-	o) icaglingin		0-8' Well graded sand w/gravel and cobbles  F-C gravelo to 1.5" SR  Grown, SLM  cobbles to 4" SR	г.
(3)	oncupacyonal transfer by	layanes likelikensys i vo	obichia sociale		W. C. State Washing	************	2	cobbles to 4" SR	_
52				RECOVER			3		
		- Dodge Henry		SINO		· Alvebra	4		
3	)			UD SAMPLE			5		
(3)				IIFE - NO			6		
Sw				HYDROKA NO	e d'estrier :		7		
53)				V			8		
Additio	onal Co	mmen	ts:						
Recove	ery: N	one					Part	al E Complete	
	Same a:		/e	Qtz = quart	z			Fld = feldspar $Y = Yes$ $N = N_0$	
Sample	s: V = V	VOCs/				min	erolo	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	ermal conductivity
								A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = gravel	

	<b>S</b>				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
_	t: Kirt		FF	1/100		11	17	Project Number: 62735DM02.1017 Date:	
Boring	/Well	D:	_	KAPB	-1	06	Y		of <u>3</u> 2
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	ec Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
	**********		*******	-	2		9		
					V	-	10		
mî)	1730		N		70	11/1	11	Clayer Sitt - yellowish red (54R 5/6) soft, SLM sitt: 90% nonplastic; clay: 10% nonplastic Notes	
(5C)	3		Ŋ			11/11	12	Clayer sand - yellowish sed (5/R 5/6) 10058, sem Sand: 70%: VF = 10% F= 20% M= 50% C: 20% SA-5R (atz, feld, lith); clay: 15% soft, nonplastic; sixt: 10% nonplastic grave 1: 5% up to 3/8" (0tz +1ih)	
50		Z3.0	2		16	11	13	Clay-reddish Grown (5 YR 5/4) soft formed. still trace sand med. plastics +9  (@ 13.5' silty clay w/trace sand	
(cr)		<b>‡</b>	Ŋ	3100000		1	14	clay: 80% 5:14: 20%	
CV	**************************************		h			1	15		
(i)		V	2		V	1	16	Clay: 70% 5ilt: 10% 5ard: 20% 5A-5R (Q+2, Feld, 1ith) F: 20% M= 40% C= 40%	
ML		145	4		5	11	17	AA @ 10-11' silt: 70%  med plasticity clay: 20%  fand: 10% SA-SR Cate, feld, lither  F= 30% M= 30% C= 40% no odon	)
Additio	nal Co	mmen	ts:						
Recove		one			_	-	Dom	iol H	
Recove		one S Abov	e (	Qtz = quartz	,		Par	ial Complete Fid = feldspar Y = Yes N = No/None	
						min		ty; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = ther	mal conductivity
								A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	conditioning

			1313		S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: I Boring/W			FF	KAFE	1	F 1	V	Project Number: 62735DM02.1017 Date:	. 20
Boring/ w	ven n	):	П	MILE	-/	16	V		of <u>32</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(Ny			1			1	14	SAA.	
Sc	2	4.5	Ŋ			1	19	SAA @ 11-12.5' Sand: 60% SCM Clay: 20% SIH: 20%	
SA)			4	post (minor monos and minor mo	51		20	SAA SANA: 50% SLM 5:1+: 30% clay: 20%	
M) 38	4.0	V	N		\ \	1	21	SAIR @ 16-17'	
ML			N	Nettick and the second	1	1111	22	SAA 5:14: 70% (5 YA 5/4) reddish 610 Un clay: 25% (5 YA 5/4) reddish 610 Un Sand: 5% med. plasticity 52M	
M)			N			1	23	Pr	
ML	2	4.1	4		155	11/1	24	No on	
ci)			لم			1	25	Clay - reddish brown (5YR 4H) soft, med. plasticity clay = 75% 5it: 25% no odn SiM	
ML			4			1	26	silt-rellish brown (54R \$13) soll low plasticity silt: 80% clay: 20% (NO obor) 56M	
Additiona	l Con	nmen	ts:			1			
2 2022	, NT	ma T					D.		
Recovery: SAA = Sai			e O	tz = quart	z		Par	al Complete  Fid = feldspar Y = Yes N = No/None	
			_			min		y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	rmal conductivite
Round	ded, S	R = S	ubrou	inded, SA	= Su	bang	ular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	conductivity

	State of the last				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project:			FF	VATO				Project Number: 62735DM02.1017 Date:	
Boring/	Well I	D:		KAFB	-	10	61	Logged By: J. Messenger Page 4 of	132
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
		1			1	11	26	SAA - silt: 60% low plasticity	
			1			111	27	SAA silt: 60% low plasticity  clay: 40% soft to very stiff  No oder SIM	
my			لم			1	28		
(N)		24.4	h		51	11/1	29	SAN w/trace sand yellowish red (542 46) soft to stiff NO order SLAN	
ML	1422		1			11/1	30	JAM w/ Have gravel up to 11/4" no odore	
	.219	V	h		V	11/1	31	SAA @ 29-301 (SLAL)	
0)	*************		N		1	11/1	32	silty clay - brown (7.5 92 5/4) sem, soft to med- still clay: 60% sitt: 40% trace sand no odor med-plasticity	
CL		27.4	2)			11	33	O MOTO	
MI			لم		5	1	34	SAA Q 29-311	
MY			Ŋ			11	35	reddish Grown (54R 5/4) no odor)	
Addition	ıal Co	mmen	ts:		73.7				*1
Recover	y: N	one [					Part	al Complete	
SAA = S			e Q	tz = quart	z			Id = feldspar Y = Yes N = No/None	
								y; B = biologic; $W$ = moisture analysis; $G$ = geotechnical; $UV$ = ultraviolet; $T$ = therm	nal conductivity
R = Rou	nded,	SR = S	ubrou	ınded, SA	= Su	ban;	gular,	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	

EA				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtla		F	1/0-	^	_		Project Number: 62735DM02.1017 Date:	
Boring/Well II	):		KAF	<u>s-</u>	10	64		32
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
CL)	44	1		5	1111	36	soft to still, med. plasticity true sosm clay: 75% siff: 25% sand 5% odes	
(cv)	1	N		1	11/1	37	SAA @ 35-36' clay: 60% 5.H: 40% (SYR 4)4) Soft to med. still (No other	
		J			11/1/1	38	SAA @ 29-30' Yellowish red (542 5/6) trace gravel up to 3/8" trace sand	
m	7.4	١		5	1111	39		
M		el			11	40		3
373.6	V	N		V	111	41	SAA no trace gravel no odes	
My		Ŋ			11111	42	(weak odos)	
(A)	4.4	N		5	11	43	SINA @ 31 SON HOLE GRAVEL TO YZ "  5;H=50% Hrace gravel to YZ "  5;H=50% Olay = 40% (Qrs, Od, 1;Hh) 5A-5R  Sond=10% F=38% M=50% C=20% (Qrs, Odn present)	
ML		N			111	44		
Additional Cor	ment	s:					· · · · · · · · · · · · · · · · · · ·	
					_			
Recovery: No	ne [					Par	ial Complete	
SAA = Same as	-	Qt	z = quart	z			Fld = feldspar Y = Yes N = No/None	
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = there	nal conductivity
R = Rounded, S	R = Su	brou	nded, SA	= Su	ban	gular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

E	2	1.0			S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Boring/			FF	Vac	,	IAI	1/2	Project Number: 62735DM02.1017 Date:	
Boring/	well	D:		FAFE	2~	106	00		f_32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
NU		24.4	4	month of the state	5		45	SAA SIT = Sight  SIA SIT = Sight  Clay = 30%  Sand = 20%  Trace gravel up to 1/2"	
mb)		V	h		Į,	1	46	Strong plot	
Mr			N	avail de la constitución de la c		11/1	47	3 AD 6 50 WA (7.5 YR 4/4)  5ilt: 60%  clay: 30%  5nod: 10%  5trong adon	
my			لر	***************************************		11	48		
ML		22.7	N-		5	1	49	SAM @ 44-45' Feddish brown strong	Tel
m)	7.6		7			11	50	S Soder	
ML	1701	V	4		1	11	51	<u></u>	
My		<b>\</b>	4	1-		1111	52	STAR 5:11: 65% reddish brown sand: 25% reddish brown clay: 10% trace gravel 61% s. odor	
ML		28.4	Ŋ		5'	11	53	SAA 5:14: 75% reld'sh soud: 20%: F:60% M:40% trace coarse sand brown clay: 5% trace grave 1 to 3/8" (5.000)	
Addition	nal Co	mmen	ts:						
Recover	rs/· N	lone [				-	Par	ial Complete	
SAA = S			e C	tz = quart	z		_	ial Complete  Fld = feldspar Y = Yes N = No/None	
100 100 100					_	min		y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = there	mal conductivity
								A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

EA	SONIC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	2.4	Project Number 62725DM02 1017	
Boring/Well ID:	KAFB-106V	Logged By: J. Messangel Page 7 of 32	
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence		Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness	ell tails
ML N	54	SAA Silf=80% reddish brown sand=158 clay=5% Silf=80% Silf	
ML 23.4 N	51 65		
Mr) I N	56		
m) / b	57	SAA sitt - TM trace gard to +3/8 1/2" silt = 90% ( Sand = 10%	
Wr) N	58		
mc 25.0 N	5 59		
mu d	60		
my 3239 N	V 61		
5M 1 N	5' 62 5	114 sand - brown (4.5 YR 4/4) loose, SLM  Fand = 80%: F= 20% M= 60% C= 20% (2+2, feld, lith)  A-SP; silt=15% nonplastic  Wavel= 5% up to 14" (Qtz+1:th)  S. oder	
Additional Comments:		A shall fair and	
Lecovery: None	Days!-1		
	Partial tz = quartz Flo	1 Cli	
		d = feldspar Y = Yes N = No/None ; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductive	
= Rounded, SR = Subrou	nded, SA = Subangular, A	= Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ity

EA		ONIC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		1411/2	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-	106 V C		
USCS Soil Type PID Reading (ppm) Temperature (*C)	Samples collected	Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Details	
8m		63	well graded fond with gravel and silt - brown (2548 5/4) louse, SLM. Sand: 80%: F=10% M=708 C=20% saise (Qtz, feld, 1.174); gravel = 10% up to 1" (Qtz+1.144); silt=10% Non plastic	
5m / 251		64	S. odoc	
5m	5	65		
NV A		166	silt with on clayer silt - ceddish brown (542 5/4)  1005e to very dance, soft to hard; silt = 90% clay= 10%  5. odor	
Sid A		67	SAA Q 62-63'	
ML)		68	SMA @ 65-66' Suff, non plastic	
ML) 23.2 M	5	69		
STO N		70	5. It with sand - reddish brown (548 5/4) loose, SLAN 5. It = 60% nonplestic; sand: 40% : VF = 30% F = 30% M=30% C=10% SA-SK (042, feld, 1.4h)  8. odor	
2359 N		71	FIRM - 51H = 80% sank=10% clay=10%  trace gravel up to 2"  5. odor	
Additional Comments:				
Recovery: None		Part	A RILLO	
SAA = Same as Above			Fld = feldspar Y = Yes N = No/None	
			gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	

EA	į.			SC	)N	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Ki			1000	-	In		Project Number: 62735DM02.1017 Date:	. 70
Boring/We	ll ID:		LAFB	-	0	OV		f <u>32</u>
USCS Soil Type PID Reading (ppm)	Temperature (*C)	UV fluorescence	Samples collected	Core Run		são	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
my		Ŋ			1	72	5ilt - 6 rown (7.584 \$44) loose, soft, nonplastic, sem 5ilt = 10% clay = 10%	
Me		N			11	73	SAA - soft to stiff 5. odlore	
my	24.4	7		5	11	74	Spril 71-72 the frace sand In with sand soft sit = 70% clay = 10% sand = 20%: VF = 20% (1ith) For 20% M = 60% trace (oarse sand - trace gravel to 1/2	
ML		N			1	75	SAM 5. odor	
ML	V	Ŋ		Y	11	€.	SAA: 5:1+ = 70% sand = 20% day = 10% trace gravel to 1/2" (5.0 200)	4.4
ML	1	N		1	11	77		
MC)	28.9	N			1	78	trace gravel to 11/4"	
hij		N		5	1	79		
ML		N			1	80	silt = 75% sand = 15% ) Cloy = 10%	
Additional	Commen	ts:						
		-				-		
Recovery:	None					Par	ial Complete	
SAA = Sam	e as Abov		tz = quart				Fld = feldspar $Y = Yes$ $N = No/None$	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = ther	mal conductivity
R = Rounde	d, $SR = S$	Subrou	nded, SA	= Su	ban	gular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

MIL  N  88  SM  N  887  Silty Sand — Feldish brown (SYR 5/4) loose, SLM  Sand = 68 of 50 yr = 30% pr = 30% c=0%  SM SAN = SR (Qtz, Feld, 11th); silt = 35% non plantic; etay= 5%  Thace gravel to 1" silt = 25%  Clay = 10%  Gard to 1" silt = 25%  Clay = 10%  Gard to 1" silt = 25%  Clay = 10%  Gard to 1" silt = 25%  Clay = 5%  Clay	EA	SONIC C	CORING BORING/WELL CONSTRUCTION LOG								
Soil Description  Following Control Consistency & plasticity  Comments:  Soil Description  Following Control Consistency & plasticity  Committed fine), moisture content  - soil type: Munsell color: density (primarily formary course)/consistency & plasticity  Committed fine), moisture content  - sand minorology  - sand lob  clay = 1550  SAR   - sand lob  clay = 1550  SAR  - sand lob  clay = 15		101/2									
By Design of the principle of the princi	Boring/Well ID:	5-106 V 6									
SAA Same as Above Qtz = quartz  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Partial  Recovery: None  Recovery: None  Recovery: None  Recovery: None  Partial  Partial  Recovery: Mone  Partial  Recover	3254   P,Y	Core Run Recovery Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details								
My 22.6 N 5 84  MY SAM - Sand = 108  Hace coasse sand  N SAM - Sand = 108  Hace coasse sand  N SAM - Sand - Grahish brown (SYR 5/4) loose, stan  Sand - Sand - Grahish brown (SYR 5/4) loose, stan  Sand - Sand - Sand - Sand - Sand M - 302 C - 102  Sand - Sand - Sand - Sand M - 302 C - 102  Sand - Sand - Sand - Sand M - 303 C - 102  Sand - Sand - Sand - Sand - Sand M - 303 C - 102  Sand - Sand - Sand - Sand - Sand M - 303 C - 102  Sand - Sand		(8)									
My 22.6 N 5 84  MY SAM - Sand = 108  Hace coasse sand  N SAM - Sand = 108  Hace coasse sand  N SAM - Sand - Grahish brown (SYR 5/4) loose, stan  Sand - Sand - Grahish brown (SYR 5/4) loose, stan  Sand - Sand - Sand - Sand - Sand M - 302 C - 102  Sand - Sand - Sand - Sand M - 302 C - 102  Sand - Sand - Sand - Sand M - 303 C - 102  Sand - Sand - Sand - Sand - Sand M - 303 C - 102  Sand - Sand - Sand - Sand - Sand M - 303 C - 102  Sand - Sand		82	Coated with secondary (5. odor)  (calcium canbonate (fizzes)								
MIN SAM — Sand = 10%  Hace coasse sand    SAM — Sand = 10%   Hace coasse sand		83									
Additional Comments:    SAM	My 22.6 N	5 84									
SAM SAM as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	MÎ N	65	SMA - Sand = 106 trace coarse sand								
Additional Comments:    Partial   Complete   DISVISED   SAA = Same as Above   Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None	my V	186									
Additional Comments:    Sand	ML	87	5 SAM								
Additional Comments:    Recovery: None	SM) IN	7	Silty sand - seddish brown (SYR 5/4) loose, sem Sand 565 165% NF: 30% F: 30% M: 30% C=10% SA-SR (Otz, feld, lith); silt = 35% non plantic; etay: 6% 5M trace gravel to 3/8"								
Recovery: None Partial Complete DISTIBLES  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	5m 679 N	7 XX 89									
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Additional Comments:										
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	00-11 415711900										
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity			3111/								

				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG			
Project: Ki			1-1				Project Number: 62735DM02.1017 Date:			
Boring/We	11 ID:	K	APB-	11	96	17		32		
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details		
	1			Ī	<b>***</b>	89	porty graded sand w/silt - yellowish brown	Details		
5P- 220 5M	64.9	N	(10 to 10 to	131	%XXXXX	90	forthy graded sand w/silf - yellow, sh brown  (104R 5/M) lorse, sem; sand = 85% vF 40% F= 40%  M=20% trace coarse sand; silf = 10% nonplashic  Sclay = 5% soft goaplastic, grave 1 = 5% up to 3/8 (Qtz)  SA-SR - Sand (Qte, feld, lith)  (5.000)			
				Y	X	91				
9- 5My		Ŋ			11	92	SAA-Pale brown (104R 6/3) 5. ofor			
(5P)		N	2000 POOR SERVICE SERV		1	93	Goorly graded sand - yellowish brown (1048 5/4) loose,  51M - Sand = 95%: VF = 40% F = 50% M=10% SASR (4+2, fold, 1.4m); silt = 5% soft, nonplastic - trace gravel  to 1" (1.4lis)			
<b>R</b>	24.7	N		5	1	94	S. odop			
( <del>4</del> )		N	N.C. STATEMENT OF STREET		1	95	SAA @ 92-94 trace compe sand 307  (S.oder)			
98		N		V	1	96	5			
58° 50		N		1	<b>*</b>	97	Poorly gladed Sand with clay - light brownish gray (10 YR 6/2) loose, 52M - Sand 90%: VF = 30% F=50% M=20% SA-SK (242, Feb, lith); clay: 10% 50 ff, acoppleshic trace coarse Sond Well graded Sand - Ale brown (1084 6/3) 10058, SLM			
SW	59.9	N		41	<b>*</b>	98	Well graded sand - pale brown (108 6/3) 10058, SLP sand = 85%: VF = 20% F=90% M=20% C=10% SA-SP (extr., feld, lith); graved = 10% up to 5/2" (atzt 1. thics); elay = 5 % sof, non plastic 5.000			
Additional	Commer	its:					a de la la la la la la la la la la la la la			
-	96-98 1/3 hicked									
Recovery:	Recovery: None Partial Complete									
	SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None									
	Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity									
R = Rounde	R = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel									

EA	SONIC CO	RING BORING/WELL CONSTRUCTION LOG
Project: Kirtland BFF	2 - 101.12	Project Number: 62735DM02.1017 Date:
Boring/Well ID:	3-10642	Logged By: J. Messengel Page 12 of 32
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	covery pth, ft bgs	Soil Description oil type; Munsell color; density (primarily coarse)/consistency & plasticity imarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) and minerology % gravel gravel minerology angularity/roumdedness % fines (silt/clay) Well Details
	78	NO RECOVERY
5P 1278 A N	100 To	- tot filen for snopling) I'm poorly graded sand-grayish own (1042 7/2) losse, sem; sand = 95%: F=80% 1=10% VF=30% SA-SR (ats, fold, lith); sitt = 5%
547.1 SP) N	101 105	To the for sorting on poorly graded sand-grayish own (1098 5/2) losse, sem; sand = 95%: F=80% 1-10% VF=30% SA-SR (ats, fold, lith); sit = 5% on plastic — trace gravel to 11/2" (lithics)  WHA — light brownish gray (1098 8/2)  Sond = 90%: VF: 20% F=80% M=20° trace coarse gand gravel = 5% up to 1/2" (lithics)  (5. odd)
3P 39.8 N	5 103	sond = 90%: VF: 20% F= 80% M= 20° trace coarse silt: 5% gravel: 5% VP to 1/2 " (lithics) (s. odd) 2-104 taken for sampling  SAA as 101-102' no trace gravel  5.000
ST X N P,V	104	San A 100-1111
5° 48.5 N	V 105	SAR @ 100-101' no trace general 5.000'
58 N	106	clay = 5% soft, non plastic modules Grown 7.5 in 5/3
mg 134.8 J	5 107	106.4 Silf-light yellowith brown (WYR G/4) soft, sem silf-100% non-plastic
Additional Comments:	*	as in a fair No
		98-100 NO RECOVERY
Recovery: None	Partial	Complete Ce covery
SAA = Same as Above Qtz = qua		= feldspar Y = Yes N = No/None
		B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

EA				S	NC	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kir			1000	,	A.,	10	Project Number: 62735DM02.1017 Date:	
Boring/Wel	1 ID:		LAFB.	-10	06	V		of <u>30</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run		Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
MI)	37.8	7	construction (1911) (1911)			108	Clay-brown (2.5 YR 5/4) med stift to very stift  Clay-brown (2.5 YR 5/4) med stift to very stift  Med. plasticity	
(4)		N		5	1	109	Sodon Sodon	
59	V	N		V	1	10	SAA @ 105-106.4) 5. odon	
1972	1	N		1	11		Clay conting gravel an between clay + gravel is a thin conting of secondary calcium Canbonate (fizzes)	-
ML		Y			11/1	112	<b>√</b>	
ND	25.4	N		5	11111	113	clayey silt - brown (7.548 5/4) so ft to med. still low plasticity: silt = 80% clay = 20%	
MU		N				114	clayey silt - brown (4.59K 5/4) so tt to med. stilt low plasticity: Silt = 80% clay = 20%  5. It - light yellowish brown (104R 6/4) so & non plastic silt = 95% clay = 5% 5. o dor	
MU	V	N		1	111	115		
ML 1805	254	N		15	1111	116	clayer sitt - brown (4.5 9R 5/4) soft to med. still medium plasticity silt = 70% (5.000)	
Additional (	Commer	ts:						
			COR	Car	M A	1	Colon )	
Recovery:	None	-	SAB =	391	rie	Par		
SAA = Same		e (	Qtz = quart	z			Find $=$ feldspar $Y = Yes$ $N = No/None$	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = then	rmal conductivity
R = Rounde	1. SR = 5	ubro	unded, SA	= Su	ban	gular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

oject: Kirtland BF				Project Number: 62735DM02.1017 Date:	
ring/Well ID:	KAFB	-11	94.V7	I ogged Ry: 1 000 \$500 Page 144	of 32
ring/Well ID:	KATE		)6 V C	Soil Description  Soil type; Munsell color; density (primarily coarse)/consistency & plasticity	of 3 4
PID Reading (ppm) Temperature (*C)	UV iluorescence Samples collected	Core Run	Recovery Depth, ft bgs	(primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
2075	J		117	SAA JM SAMPLED  Clay-brown (2548 5/4)  Solvery shift, very danse  med. plasticity	3-
	J P, Y		118	1 ight yellowish (1) 18 (13)	
1509 25.4	J	51	119	SAA @ 115-116' Sit = 902 clay = 10% sof, low plasficity 5.000	
	V	V	120		
1724	Y		121	SAMPLING	
	1		122		
29.0	7	6	123		
	/		124		
	J	V	125	clay-brown (75 YR Shy) very still, very dense med plasticity  5. oden	
ditional Comments	3:				
covery: None			Par	1 222	
A = Same as Above				Fld = feldspar Y = Yes N = No/None gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	

	7.				SC	)N	IC C	CORING BORING/WELL CONSTRUCTION LOG	
Project:	_		F	Nell	10		7	Project Number: 62735DM02.1017 Date:  Logged By: (1) (Vessenge) Page 15 of 32	
Boring/\	Well I	D:	K	APB"	101	οV	6	Logged By: J. Messengel Page 15 of 32  Soil Description	
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness	Well etails
3			.(			1	125	SAA	
CY		1	h		V	11	126	\$	
		1	N				127	SAA. @ 126-12651 cobbles+ gravel of secondary calcium canbonate (catiche) clay coating caliche (fizzos) 5.000	
(ci)		26.4	N			1111	128	SAA @ 125-126   Mod. stiff, mad. dease med-plasticity med-plasticity s. odo?  Silt - 600m (7.5 / R 5/3), soft, norplastic s. odo?  Silt - 600m RAD, soft, nonplastic s. odo?	
(n)		1	N		4	1	129	Silt - brown (7.5 1 8 5/3), soft, norplastic sodor silt - brown & AD, soft, nonplastic & odor	
EL SES	)		N		V	1	130	129.5)  Foothy graded sand w/silf - brown (10/R 5/2) loose, simplified sand = 85%: VF: 20% F=65% M=15% said (412, fell, 14)2	
(SP)	904	1	٢		7		131	SAA sand = 95%  silt = 5%  no trace coarse sand; no clay (5.odor)	
(SP)	ike silit	24.3	7			11/1/	132	5	
50		1	1	an januar kanan kanan kanan kanan kanan kanan kanan kanan kanan kanan kanan kanan kanan kanan kanan kanan kana	6	1111	133	\$	
5P 5P			N			1/1/	134	SAA @ 129.5'-130' 58 day as rodules  rotrace coarse sand  5.000	
Additio	onal C	omme	nts:		<u>.</u>	17	1		
Dagger	2477	None					p.	urtial Complete	
Recove	Same	None as Abo	ve	Qtz = qua	rtz			Fld = feldspar Y = Yes N = No/None	
Sample	s: V =	= VOCs	/EDI	B; P = TPF	I; M	= m	inero	logy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con-	ductivity
$R = R_0$	under	SR =	Subi	rounded, S	A =	Suba	ngul	ar, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	

EA				SC	)N	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kir		F	INED		1	×1	Project Number: 62735DM02.1017 Date:	f 32
Boring/Wel	ID:	- 14	AFB		Ü	2 V 6	Logged By: J. Messey Page 6 o	120
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SP.	24.7	N		6	111111	134	SAA @ 129.5-130"  90% sand Krace coarse send les  1026 sit trace clay ap notures  sodor  well 9 anded sand - 6 rown (104 R 5/3) loose, 5 LM  Sand = 90%: F = 20% M = 70% C=10% 5A-5R  (atz, fell lith); silt=5% nonplastic; gravel = 5% up to 144"	
Sw)	1	4		V	1	136	(Qtz + Qth)	
Sw		N			11	137	SAA sand = 80% up to 144"  gravel = 15% up to 144"  5:1+ = 5%  5. oded	
5P)	30.3	N		4	11	138	poorty graded sand - 618wn (64R 5/8) losse, SLM sand = 95%: F= 70% M= 362 Hace crosses and sp. 5p. (atz, feld, lith); 5% sift nonplastic Hace gravel to 3/8" (atz+lith)	
58 58m	-	N			1	139	5AA @ -134 +135 + 3m 122.5 - 1301  yith trace gravel to 3/8" (atzrlith)	
5w)	1	N		V	1	140	well graded sand sAA @ 138-136  Start = 75% 514=5%	
my 22		Ŋ			1	141	SAAT @ 115-116 Silf= 70% Soft low plashicity clay= 30% low plashicity  (mildly mottled to a very 5. odos)  Pale 610WN (10812 7/3)	
ML	295	N		6	1	142	)	
ML		N			111	143	to 142.8 1 silty clay - very pale 6 rown (10 YR 7/3) very dease + still	
Additional	Comme	nts:			17		mothed throughout to brown (7544 5/4)	
							Clay = 60 % sitt = 402	
Dagara	N					Da	rtial Complete	
Recovery: SAA = San	None le as Abo	ve	Qtz = quar	rtz		га	Fld = feldspar   Y = Yes   N = No/None	
Samples: V	= VOCs	/EDI	B; P = TPH	; M	= m	inerol	ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = th	ermal conductivity
R = Round	ed. SR =	Subr	ounded, SA	1 = 5	Suba	ngula	r, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	

					S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project:			FF	10.0	4.5		12	Project Number: 62735DM02.1017 Date:	
Boring/	Well I	D;		AFB-	10	61	0		of <u>32</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run			Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
(cr)			N	В,М,		1	143	SAA S.odec	
		29.5	4	Therm.	6	1	145		
		V	4		V	1	146		
SP- SM			N			1	149	SAA @ 134-135'  S. oder	
sw)			N			1	148	5.0dol 5AAR 135-136' gravel 52 up to 21/4" 5.0dol	
SW		31.1	N		4	11/1	149	I gravel 10% to 2"	
56)		V	N		1		150		
(A) !	806	1	N		1		151	SAAR @ 137-138' Sand = 90%: F=40% M=60%  grand: 5% up to 2 3/8" (atzxlith)  silt: 5%	
52)		27.4	N		6	1	152	Well graded sand w/gravel - brown (10 12 5/3) losse SLM: Sand: 75%: F= 25% M= 60% C=15% SA-SR (0+2, feld, 1:th): gravel = 20% up to 2"(0+2+1ith) Silt = 5% nonplastic and caliche (5.000)	
Addition	nal Co	mmen	its:						
1	eiM.	Cont	-	+ Valan	1			why Andrew	
Recover		Vone	-	Theima	1	pn(	Par	tial Complete	
SAA = S	-		/e	Qtz = quar	tz			Fld = feldspar Y = Yes N = No/None	
							ierolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	rmal conductivity
								, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	

EA	so	NIC C	ORING BORING/WELL CONSTRUCTION LOG
Project: Kirtland BFI	F	10	Project Number: 62735DM02.1017 Date:
Boring/Well ID:	KAFB-18	16V2	Logged By: J. Nessergel Page 18 of 32
	Samples collected	Recovery Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
Sur CL	J	153	san to 152.5'  (lay - yellowish brown (wir 5h) still, dense, med. plasticty  clay = 75% sitt = 25%
5W 27.4 A	J 6	154	SAA @ 151-152' sand = 90%  \$ilt - 5% up to 11/2"  gravel = 5% up to 11/2"  Sode  SAA @ 152.5 brown (7.548 5/3) still to very still  dense to very dense 100% clay (to 154.5")  silty sand - yallowish brown (1048 5/4) loo se, sem
Sin I		155	Sand = 85%: VF = 80% F=45% M=25%. SA-SR  (atz. Gill lith); silt = 15% non plastic  (att) Sand = 65% w/ Hacl Coarse sand
5M 26.2		157	to 157.8 with silt
5143 M		1-1	
20.8 M	P,V 1,5	160	poorly graded sand-pale brown (10xx 6/2) loose, sim
Additional Comments:		161	poorly graded sand-pale brown (10xx 6/2) loose, sem  sand = 90%: F=60% M=40% trace coarse sand  sn-sk (atz, feld, 1th); gravel = 5% up to 10 (atz+1.th)  sit = 690 non plastic  s. dos
Recovery: None		Parti	al Complete
SAA = Same as Above	Qtz = quartz		Tld = feldspar   Y = Yes   N = No/None
			y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
R = Rounded, SR = Sul	brounded, SA = Sub	angular,	A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel

EA			S	NC	IC (	CORING BORING/WELL CONSTRUCTION LOG
Project: Kirt			. 17	7.1	9	Project Number: 62735DM02.1017 Date:
Boring/Well	D:	KAFB-	-16	164	6	Logged By: T. Messeyel Page 19 of 32
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV iluorescence Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Well  Details
58) (	20.8	N M	5	11/11/	162	SAA WI a sue sand faction + trace clay
(5W) 1944	253	V	V V	MILL	163	SAA - 90%: F = 50% M = 40% C=10%  5. odo
99		)		11	164	SAA @ 160-161 & no gradel 95% sant 5% silt afor present
SP)		7		11	166	5. odor
<b>99</b>	30.9	٨		11	166	
58)		1	7	1111	167	
4		١		11	168	
		<b>/</b>			169	SAMPLED
Additional Co	omments	3:	V	11	170	
ruumonai Ci	,mmonts					
Recovery: 1					Par	titti
SAA = Same a				min		Fld = feldspar Y = Yes N = No/None gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
						Garage Ga

			S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
roject: Kirtland	BFF	1/1000		10		Project Number: 62735DM02.1017 Date:	
oring/Well ID:		KAFE	-	10	6 Y 6		of 32
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected	Core Run		Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
W 2406 A	2				170	well graded sand - pale brown (10 YR 6/3) 1006e, 52M y caliched sand 90%: F=40% M=50% C=10% SA-SR (atz. feld, lith) clay: 5% nonplastic; gravel =5% up to 1" (atz. lithies) clay conts to 170.8' calicha is sand (2.000 ?) gravel clay - brown (2.5 YR 5/4) soft, med plasticity clay = 90% 10% gravel up to 1" (1.thics + Qtz)	
النا	N				172	5AA @ 170-171 (5.000)	
15:	1			1111	173	SMA@ 170-171 sand 90%: F=308 M=502 C=202 no clay gravel 5% upto 1" silf =5% nonplash? S. adol	
	Ų		6	1111	)74	SAA@ 170-171 silt 5% no clay	
w)	N			1	175		46
3	N		V	1111	176		
) 1	N		1	11	177	SAR	
28.	N	nethania terangan kentuan kentuan kentuan kentuan kentuan kentuan kentuan kentuan kentuan kentuan kentuan kentu	4	11	178	poorly gladed sand w/sitt - yellowish brown (1041 5/4) loose, SLM - sand = 90% F= 55% M=45% SA-SR (Qtz, feld, lith, caliche); silt = 10% nonplestic  5.000	
1 26.3	N	Transfer (sometime transfer to the sound to		1	179		
dditional Comme	ents:			• • • • • • • • • • • • • • • • • • • •			
ecovery: None	П				Part	ial Complete	
COLVETA TARRE			-			1 8333	
A = Same as Abo	ve Ç	tz = quartz	Z			Fld = feldspar   Y = Yes   N = No/None	

E/	Contract Con				S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project:				100	10	x/	19	Project Number: 62735DM02.1017 Date:	
Boring/\	Well II	);	_	LAFB-	10	00	16	Logged By: J. Messengel Page 21	of 32
	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
58-		(				1	179	16	
CM		26.4	N		45	1		SAA S.odor	
50°		1,	•		j	1	180		N
0 2	385	V	41000		术	1	180		-
SIN =	202	V	N		1	1	181	SATA	
SW			2)			1		SAA(@ 172-173	
		1			#	1	182		1
33	2	4.4	N		6	1	183		
(SV)			N			1	184		
SW			Ŋ			1	185		
500		V	4	3 -	V	1			
<b>A</b>		1	7		1	1	187	goorly graded sand - brown (10 YR 5/3) loose, SLM sand: 95%: F= 45% M= 55% trace coarse sand SA-SR (Qtz, feld, lith, caliche); silt = 5% nonphastic 5.000	
3P)	9	H!	N		31	11/1	188		
Addition	al Cor	nmen	ts:		ــــــــــــــــــــــــــــــــــــــ				II.
Recover	v: N	one [			-	_	Par	tial Complete	
SAA = Sa	ame as	Abov		Qtz = quart				Fld = feldspar $Y = Yes$ $N = No/None$	
			_			_		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = tl	hermal conductivity
Z = Ronz	nded S	N = C	nhre	unded SA	= 51	hor	anlar	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

EA		S	ON	IC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland B	FF	100	/ \1	1	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB-	10	67	0	Logged By: J. Me Sseryer Page 22	of <u>32</u>
USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected	Core Run		Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SP 24.1	N	34	11	189	SAMA trace gravel to \$8" s.odor	
	Ŋ			190	SAA @ 188-189 no silt -100 & sond w/trace gravel	
GP = 2687	N		STURBED	191		
5W)	N		K- 01.	192	well graded sand with gravel and silf - 60wn (1092 5/3) 10000, SLM - sand = 56%: F= 25% M=50% C=25% SA-SR (Qtz, feld, lith); gravel = 40% up to 2" (Qtz+lith) Silf 50% nonplastic 5.0000	
28.8	Ŋ	7	1	193	silt \$2 nonplastic (s. odo)  sand = 65% (etz, feld, lith, caliche)  gravel = 30% (etz, lith, caliche)  silt = 5%	
500	N		11	194		
	Y		1	195	Removed for samplings	
	Y	V		196		
5W 302	7	个21	1111	197	SAA @ 192-194' sand: 65 %  gravel: 30 %  gilt: 5%  5-0do	
Additional Commer	nts:					
Recovery: None				Par	ial Complete	
SAA = Same as Abov					Fld = feldspar $Y = Yes$ $N = No/None$	
					gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = th , A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ermal conductivity

	<b>5</b> /3	SONIC CORING BORING/WELL CONSTRUCTION LOG
Soil Description  Soil Description  Soil Operation  Soil Opera	ject: Kirtland BFF	Project Number: 62735DM02.1017 Date:
Sand   1921   1942   1943   1944	ing/Well ID:	
30.2 N 2 198 SAA @ 192-174' Sand = 80% [5.0dot]  199 SAA @ 192-174' Sand = 15% [5.0dot]  199 Sand = 70% [10/18 6/3] 91 so 21/2' [5.0dot]  200 Sand = 35% = 70 to 21/2' [5.0dot]  N 203 Sand = 75% = 70 calibe gravel = 20% up to 11/2'' [5.1t = 5%]  204 Sand = 75% = 70 calibe gravel = 20% up to 11/2'' [5.1t = 5%]  205 Sand 3n.	PD Reading (ppm) Temperature (*C) UV fluorescence Samples collected	soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (stit/clay)  Well Details
3331  N  200  Sand = 75% op to 21/2"  Sit = 5%  Sand = 85%: F=30 % M-60 % C=10 %  Gravel = 10% op to 2"  Sit = 5%  Sand = 75% or no caliche  Gravel = 20% up to 11/2"  Sit = 5%  Sond 3n.	30.2 N	2 3. odot
328 N  32		199 SAA @ 192-194 Sand = 80% 104R 6/3 grand = 15% 5ilt=5% 5.0doc
328 N 8 22  Sand: 85%: F=30 % M-60 % C=10 %  Jand: 10% op to 2"  Silt: 5%  Sand: 7525 - no caliche  gravel = 20% up to 1½"  Silt: 5%  Sand 3n.	9     1	200
Sand: 85%: F=30 % M=60 % C=10 %  gravel: 10% up to 2"  sitt: 5%  204  Sand: 75% - no catiche  gravel: 20% up to 11/2"  silt: 5%  Sand 3n.	B331 N	
204  Sand = 7525 - no caliche  gravel = 20% up to 1½"  5ilt = 5%  Sand 3m.	32.8 N	8 22
Sand = 75% - no caliche  gravel = 20% up to 11/2"  5ilt = 5%  Sand Jn.	)	Sand = 85%: F=30 % M=60 % C=10 %  gravel = 102 up to 2"  sitt = 5%  sodor
Sand 3n		204
1 1 206	5)   N	Sand = 75% - no catche   gravel = 20% up to 11/2"   silt = 5%
nal Comments:	A V N	
	ditional Comments:	
ery: None Partial Complete	covery: None	Partial Complete
		rtz $Fld = feldspar$ $Y = Yes$ $N = No/None$

	3				S	ON	VIC	CORING BORING/WELL CONSTRUCTION LOG	
Project:	_		3FF	VACO		16	711	Project Number: 62735DM02.1017 Date:	
Boring/	Well	D:		FAFB	-	10	6 Y		of 32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
93			2)		1		206	5AAT @ 204-206' sand-65% growd:30% up to 15/8' 5ilt:5% 5-0000  5AA @ 202-203' caliche present	
350)			N				208	SMA @ 202-203" caliche plesent	
5W)		243	N			1	209	saa s	
50			N		6		210	poorly graded sand - pale brown 104R 6/3) loose, SLM sand = 85%: F = 50% M = 50% trace course sand sA-FR (Qtz, feld, lith, caliche); gravel = 10% up to 1" (qtz+1ith) silt=5% non plastic	
SP) 3	351		N			1	211	5AA @ 209-210' gravel up to 1 2/8" (0/2, 1.74, calibe)	
58)		V	N		V	1111	212		
9		1	N	Contract of the Contract of th	1	1	213	SAM - trace coarse sand + trace gravel to 11/2 5.000	
50	2	56	لم		31	1	214		
			Y		V	1	215	Removed for sampling	
Additiona	al Cor	nment	s:						
Recovery	: No	one [				-	Parti	al Complete	
			Q	tz = quartz				Id = feldspar Y = Yes N = No/None	
amples:	V = V	OCs/E	DB;	P = TPH; N	vI = 1	min	erolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	rmal conductivity
= Roun	ded, S	R = S	ubrou	nded, SA =	= Sul	oang	gular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	- vondavarity

		CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland Bl Boring/Well ID:	KAFB-106V	Project Number: 62735DM02.1017 Date:	20
USCS Soil Type PID Reading (ppm) Temperature (*C)	Samples collected  Core Run  Recovery  Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
58) 31,2 31,2 59) 2552 1 2533	216	Sant @ 209-210'  Sant = 85 g: F= 45% M= 55% trace of growel=10 % up to 15%" (atz+lith)  Sant = 5% for example of sant for a sant for sand for filt = 5% for for gravel  Sant = 95% frace coarse  Sant = 95% frace coarse  Sant = 95% frace coarse  No gravel	
2233 A 22,0	N 51 218	SAA @ 216-218	
(P) 3087 X	220	foorly graded sand - light yellowish brown (184R 6/4) louse, SLM - sand = 95%: F=80% M=20% frace coarse sand sn-se (dtz.feld, lith, caliche); sitt=5% nonplash trace gravel to 4z" (atz) well graded sand - yellowish brown (104R 5/4) louse, SLM	
5w 345	V 6 223	well graded sand - yellowish brown (10 YR 574) losse, SLM  SAND = 862 F: 40% M=50% C=10% SA-SR (Assisted,  1ith, caliche); 15% avel up to 2" (Aszilith); 5% sitt nonplastic  well g. band w/gravel  6.0003  6222.5 Sand = 70% gravel = 25%	
Additional Comments	224	(0 223.5 : poorly graded sand w/sitt - brown (lote 5/3)  100 be, sen- sand = 90%: VF = 21% F = 70% M = 10% sa-sp  (0 to; fely lith, caliche); sitt = 5% nonplastic; clay = 5% soft, nonplastic  exist as small clay nodules  (a)  (a)  (b)  (c)  (c)  (c)  (c)  (c)  (c)  (c	
Recovery: None SAA = Same as Above		ial $\square$ Complete  Fid = feldspar $Y = Yes$ $N = No/None$	
Samples: V = VOCs/E	DB; P = TPH; M = minerolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = therm	al conductivity
R = Rounded, SR = Su	brounded, SA = Subangular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

	2				S	ON	IC	CORING BORING/WELL CONSTRUCTION LOG	
Project:				1			7	Project Number: 62735DM02.1017 Date:	
Boring/	Well I	):		LAFB	-1	06	V2	Logged By: J. Messenger Page 26	of 32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SP)	4	45	7		6		224 225	graver minerology angularity/roundedness % fines (silt/clay)  SAA - 95% SAN ; 5% SIH - trace clay Hace gravel to % (lithic)  S. o dor	
(3)	,	*	1	(1) Officer Company	X	1	228	5AA & 221-222' - Yellowish brown (104/2 5/8) F= 30 % M= 45 % (= 25 %	
			2	- 10 1 10 1 10 1 10 1 10 10 10 10 10 10 1			227	@ 226.8 = AA @ 221-222' (10 YR 5/4) F=402 M=502 Sand = 908 gaves = 52 Clay = 58 as bles C= 10 2 5AA @ 224-225' (5.000)	
SB	.,		7			1	228		
98			M			1	229		
(3)	3	2.2.	<b>V</b>		101	1	<i>23</i> 0	5AA 221-272' Sand = 65% grave = 30% 5.14-5% (S.010) 289.5 Clay-brown (7,6 4R 5/3) med. 5t.tt, meddense med. plastic (5.00)	
SW)	9/2		N			11	231	5AA @ 229-229.5	
30			N			11	232		
<b>69</b>			N				233		
Addition	al Con	men	is:						
Recover	v· No	ne 「					Part	al Complete	
SAA = Sa			e (	Qtz = quartz			_	$\begin{array}{c cccc} \text{ al} & & & & & & \\ \hline \text{Id} = \text{feldspar} & & & & & \\ Y = Yes & & & & \\ N = \text{No/None} & & & \\ \end{array}$	
						min		y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	rmal conductivity
R = Rour	ided, S	R = S	ubro	unded, SA =	- Su	bang	gular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

E					S	ON	IC	CORING BORING/WELL CONSTRUCTION LOG	
	t: Kirtl /Well l			1000				Project Number: 62735DM02.1017 Date:	
Boring	y well I	D;	_/	AFB	-/	06	V 2		of 32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
h		f				11	233		
Su		2			10	1	234		
	3	2.2			ľ	1	- 2 -		
SW	)	1			V	1	235	(SAA) sand= 75% grave= 15%, silt-5%, clay=5% gravel up to 11/2" (ate + lith) 5. odor	
500		1	J		1	1111	237	SAA) @ 235-236 = 30% M=40% C=30% ( 5. odo1)	
52)			N			1111	238		4
SW	4	2.9	Ŋ		10	1	239		
50)			J			1	240		
5W		/	J			1	141	SIAA) Sand = 85% F= 25% M=60% C=15%  gravel = 10% op to 11/2"  5:1+>5%  5. ode	
SM		1	J		V	1	42		
Addition	al Con	ments							
	-					-			
Recover	y: No	ne 🗌					Parti	al Complete	
SAA = S				= quartz				Id = feldspar   Y = Yes   N = No/None	
Samples:	v = V0	CS/EI	DB; P	= TPH; N ded. SA =	l = r	nine	rology ular	r; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	rmal conductivity
***	, 53				Vul			- ring mai, rr - very rine, r - rine, M = Medium, C = Coarse, C = Cravel	

	<b>S</b>				S	ON	IC	CORING BORING/WELL CONSTRUCTION LOG	
Project				1000				Project Number: 62735DM02.1017 Date:	
Boring	/Well	D:	-	LAFB.	-/0	6 V	-		of 32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5 <del>9</del>			b			11	243	FOOTH sorted sand - pale Grown (104R 6/3) loose SLM snad = 90%; F = 90% M = 10% trase coarse sand sask (arz, Reld, lith, caliche); silt = 5% nonplastic (lay = 5% exists as nodules (brown 7.5 x R 5/3) soft SAA - light yellowish Grown (104R 6/4) loose, SLM sand = 90%; F = 50% M = 50% trase coarse sand 5% silt SAB) 5% clay (SAB)	
SP)		129	N		101	11	244	sand: 90%: F: 50% M=50% trase course sand 5% silt SMD 5% clay (SAD)  5. odor	
\$P)			N			1	745	SAA?	
5P2 5P2 50		V	N.		V		246	SAA sand = 85% SAA clay=10% nodules up to 21/2" brown (7.54R 5/3) soft to very still, very dense; silt=5%	
33			2		1	1	247	SAA@ 243-244 (S.oder)	÷
SP		24.5	N				248	SAA @ 242-243	
SP		+	7		4	1111	249	SAA @ 247-248 S. odor	
54			N		V	1	250	cray - light brown (2.5 YR 6/4) soft to very stitt and very danse - med. prasticity  SAA @ 243-244 for 3/8" (atz+lith)  trace gentle for 3/8" (atz+lith)  5.0000	**************************************
58)		18.5	N		16	1	251	SAA	
Additio	nal Co	mmen	ts:						
Recove SAA = S	Same a s: V = V	S Abov	EDB;	Qtz = quart: P = TPH; l	M =	min	erolo	Fld = feldspar Y = Yes N = No/None  ty; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = the	ermal conductivity
R = Rot	ınded,	SR = S	ubro	unded, SA	= Su	ban	gular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

	The same of the sa				S	ON	NIC	CORING BORING/WELL CONSTRUCTION LOG	
	: Kirtla			1000				Project Number: 62735DM02.1017 Date:	
Boring	/Well I	D:	-	LAFB.	-101	Vd	7	Logged By: T. Messenge Page 29	of 32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery		Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SP			h			1	251	(SAA)	
3			5			1	253		
3	3507	28.5	N		6	1	254		
6			J	P, V		1	255.		
<b>3 3 3 3 3 3 3 3 3 3</b>	334		N		V	1	256		
SP		1	Ş		1	100	257	SAAC 242-243 (OTR 6/3) Grown trace gravel to 3/8" (ith total)	
50	2	6.0	1		y!	1	258		
30		) ^	5			11	259		
48)	,		)		V	1	260		
Addition	al Com	ments:							
Recovery			0	tz = quart	z		Parti	1 800	
						mine	rolog	ld = feldspar Y = Yes N = No/None y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = ther	mal and death
R = Roun	ded, SF	R = Sub	rou	nded, SA	= Sul	oang	ular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	mai conductivity

	2				S	ON	NIC	CORING BORING/WELL CONSTRUCTION LOG
Project:				100	-			Project Number: 62735DM02.1017 Date:
Boring/	Well I	D:	K	AFB-	-/	06	Y	Logged By: T. Meserve Page 30 of 32
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
A 3	707	A	1		1	1	260	
5B (5W) (5B)			ととと				261	Well graded sand - light brown (7.5 % 6/4) loose, sun sand: 85%: F= 20% M= 70% C=10% SA-SR (ore fear lithius, coliche); gravel = 5% up to 1" (ithrealiche) 5 it = 5% nonplastic; clay = 5% as nodules (strong brown 75/R %)  Sonar @ 260-261  S. odor
		1				1	263	
SP		23.4	N	atturbres and to access	6	11	264	
39	÷		N			11	265	
58		V	N		4	1111	266	Warnel
50)			N			1	267	well gladed sand - yellowish 610wn (1042 5/4) 10054, 52 M sand = 70%: F=35% M=45% C=20% sa-sa (arz & 4) lith) gravel: 30% up to 2" (atz+1ith) 5.000
SM)	2	95	M		4	1		267 - 2674' - 5: Ity sand - Tellowish Gown (1048 5h) loose 51M - Sand = 85%: VF : 20% F = 75% M = 5% SA-SR (072 feld, 11th) 51T = 15% nonflastic 287.4' 5AM @ 266-267: Sand = 85%: F=10% M = 75% C=15% SAM @ 266-267: Sand = 85%: F=10% M = 75% C=15% SAM @ 266-267: Sand = 85%: F=10% M = 75% C=15%
<u>C</u> 9								with gravel - brown (75 th 4/4) loose moist; sand = 60%  F= 10% M= 60% (= 30% 5A-5E (ato, talk, lith); gravel = 40% 35%  of to ['4' (ato+17h) ; sift = 5% non plastic and which m
Additiona	l Com	ment	s:					68.8 - 269 = SAB@ 278.5 - 279: Clay: 60%
-								clay notifed 3ABC 275-276 silt=40%
Recovery	: No	ne 「			_	_	Part	al H Complete Strong ador (Sa)
		_	01	tz = quartz		_		al Complete and sitty clay Id = feldspar Y = Yes N = No/None
						min		y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
t = Round	ded, SI	R = St	brou	nded, SA =	= Sul	oang	ular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

SONIC CORING BORING/WELL CONSTRUCTION LOG
Project Number: 62735DM02.1017 Date:
Logged By: J. Messenger Page 31 of 32
Soil Description  Well  Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology % fines (cilt(clos))  Well
Details  Details  Details  Details  Details
270 SAB @ 290-271 Strong also
(1) 763,3 A N P, V A Clay- brown (7.5 PR 5/3) very stitt to hard, very dense med. plasticity oder present
$(\hat{C})$
23.9 N 51 223
SPAT - Medium still - clay is mothed to light gray (1042 7/2) - mothing fixes from acid and is bright under UV light indication of secondary calcium carbonate weak adoit
28.4 N 5 276.31  28.4 N 5 276.31  21.3-274.7 SAB@ 278.5-279  clay=606  514 = 40%
278 SAA @ 270-271
Additional Comments:
Recovery: None Partial Complete
AA = Same as Above Qtz = quartz Fld = feldspar V = Vas
amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  E = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

			SONIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl:				Project Number: 62735DM02.1017 Date:	
Boring/Well I	D:			Logged By: Page 32	of 32
	Temperature (°C) UV fluorescence	Samples collected	Recovery	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily fine); moisture content % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well
CY 122.8		1	1 27	8 SMA @ 270-271	Details
	784	5		- 278.5-279 - 5ity clay - yellowish brown (1048 5/4) odds clay=60% SAA @ 2+0-124 fit=40% soft + nonplastic	
CL 702.2	1 2		28	5A4@ 270-271 Sto 279.8 weak odos	<b>&gt;</b>
5M 2313	65 N		28	24.8 - 281 - 3:14y sand - wrown (1048 5/3) loase, sum sand = 70%: 45= 30% F= 65% M=596 54-58 (012, feld, lith) 5:4=30% nonplastic weak often	
(SW) 71.3	N		28.	5AA @ 266-267 sand = 70%: F=25% M=60% C=15%  gravel = 25% up to 25/8" (atz. lith, caliche) T  sit = 5% amplostic Moist caliche  masand	
50	1		28:	weak	
25.5	4,3 1	- 6	284	283.4-284.8-SAA but larger fine sand fraction sand = 80% F=30% 35% M=45% C=20% - silt=5% gravel = 15% up to 2" (etc., fith, caliche)	
500	N_		285	proofly graded sand w/silt - Pale brown (1048 6/3) loose, SLAN sand = 40% : VF = 20% F= 60% M= 30% SM-SR (242, Feld, lith) silt = 10% norplastic weak adds)	
34.0	N		286		
500	N		284	EATA) @ 186.7' brown (1048 5/8) silly sand clay present 558 as a sheles (1048 3/4)  dark gollowish Grown weak ador	
Additional Com	ments:	1 - 1	1001	dank gollwarsh Grown weak not	
				TD = 287 4 bgs	
Recovery: Non	ie 🗍		Par	ial Complete	
SAA = Same as A		z = quartz		o mpice	
Samples: $V = VO$	Cs/EDB; P	= TPH; M = 1	ninerolo	gy; B = biologic; W = moisture analysis: G = geotechnical: IIV = ultraviolate T = 4b	mal as de at te
R = Rounded, SR	= Subrour	ided, SA = Sub	pangular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	mai conductivity

	2						]	BORING/WELL CONSTRUCTION LOG	
Project			_	<u>, -</u>				Project Number: 62735DM02.1017	
Drillin			C	ascade				Start Time/Date:	
Lead D			Roge	r Rodri	que	2		Completion Time/Date:	
Drillin			v	SONIC'				Final Depth:	
Casing				8-inc	-4			Bit Type and Outer Diameter 7-inch	
Boring	/Well I	D:	1	(AFB-	106	24	7	Logged By: J. Messenger Page 1	of <u>58</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity (primarily % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
30	tog foliogija wybakto wo do k	1373a483345434645aa		1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t 1000 t	on summer.	mutani ke	1	0-8: Well graded sand: F=100% trace fine growel (Feld+lith)	
<b>E</b> D	o de la composición dela composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición dela composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la compos		el avelenanja ja	160;			2		
5w)	ann haife na na na	unny krystayy tee	e established (e	s corrected;	e San Maria de la composição de la compo		3		
SW)	www.www.	and to derive makes		NO SAMPLE READINGS	Con Manager Age by		4		
Sw				FE- A			5		
Św)	and growing the facility of East	m101000-1041-6	. secondaria	HYDROKNI NO MEADS	5. (deservice)		6		
SW	MIT OF THE SECTION ASSESSMENT	тенцизипан	espieres (espiere				7		
500				V			8		
Additic	nal Co	mmen	its:						
Recove	rv: N	one			-	I	Parti	al Complete	
	Same as		/e (	Qtz = quart	tz	- 1	-	Fld = feldspar Y = Yes N = No	
						minar		ty; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	and the
								A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = gravel	uncuvity

				SO	NIC	$\mathbb{C}$ $\mathbb{C}$	ORING BORING/WELL CONSTRUCTION LOG		
	Kirtland	BFF	111-0	7.6	/ -	./-	Project Number: 62735DM02.1017 Date:	=1.5	100
Boring/	Well ID:	_	KAFB	-10	62	47		of <u>58</u>	
USCS Soil Type	PID Reading (ppm)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	V De	Vell tails
(ci)		N			11	9	% fines (silt/clay)  clay w/sand - brown (4.5 YR 8/3) soft - med. still  Med. plasticity - clay = 90% - sand = 10%: F=40% M=40%  C=20% (Gtz, feld, lith) SA-SR - trace gravel up to 38% (lith)  no oldst		
(ci)		h			1	10	SAA w/sitt: clay: 70%  Sand: 10%  Sitt: 20% nonplastic (Sum)		
Ci	0.3	Ŋ			1	<u> </u>	SAA w/awie silt clay = 50% 5ilt = 40% Sand = 10%		
(Cr)	26	20		81	1	2			
mi)		4			1	3	silt w/clay: reddish brown (54P 5/4) soft, low-med  plash city - silt= 65%; clay = 302; sand = 5% F-M  (Atz, lish) sA-SR slightly mottled to pink (54R 7/3)  TXN w/acid-sec. calcium consonate  (6LM) no odos		
me		N		9	1	4			
MC		N			1	5	SAA w/ Hace gravel to 3/8" (1:th) (52,40)		
ML	V	N		V.	1	6	SAA WMORE sand 6:11 = 70% clay = 20% 5 whd = 10% 5 LV4)		
MY		8 8		7'	1	7	5AA 600WA (7.58R 5/3) Silt = 75% SLY4) clay: 10% sand = 15%		
Addition	al Comm	ents:							
Recovery SAA = Sa	me as Ab	ove	Qtz = quart				Fld = feldspar Y = Yes N = No/None		
R = Roun	ded. SR =	Subre	unded SA	1v1 = 1 = Sub	umer	olog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	luctivit	у

EA	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	
Boring/Well ID: KAFA		f 58
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
mi N	18 SAA trace grand to 1/2" Sim	
ML 22.8 N	4 SAIA W/less clay + sand silt = 903 (no for silt)  19  19  10  10  10  10  10  10  10  10	
mi N		
mL) 0.5	Silt - strong Grown (4.5 YR 5/6) 100% silt Monplastic and soft trace x-M sand frace Mottle sAA	
mi) I	122 Jace Marie Mar	
ML) 22.8 N	SAA	
mc)   N	24	
mi) I	Clagor sift w/sand - brown (7.5 YR 5/3) soft - med. still low plasticity - sitt = 75%; clay = 10%; sand = 15% F: 60% M=40% (atz, lith) sA-52 no odos	
m N	V 26 SAA @ 20-21' brown (2.5 YR 5/8) SLM	
Additional Comments:		
Recovery: None  SAA = Same as Above Qtz = qua Samples: V = VOCs/EDB: P = TPF	Partial Complete  artz Fld = feldspar Y = Yes N = No/None  H; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	
R = Rounded, SR = Subrounded, S	SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	etivity

		SONIC CO	ORING BORING/WELL CONSTRUCTION LOG							
Project: Kirtland			Project Number: 62735DM02.1017 Date:							
Boring/Well ID:	KAFB	-106247		of <u>58</u>						
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence Samples collected	re Run covery pth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details						
	N	26	trace silt and F-M sand  SLM							
Cy Cy	N	28								
(ci)	N	29								
(CL) (0.2)	N	30	clared 6"H - locama la 500 5h De G and 51"G							
MY 22:	2 N	31	clayer silt - brown (4.54R 5/4) soft-med. shift , low plashicity, SLM silt=85% clay = 15% trace fine sand							
mi)	N	32	SAA 5:1+= 90% clay= 10%							
(i)	<i>N</i>	33	SAA (a) 26 - 28'	* - w						
(a)	N	34								
(Ci)	N	35	<b>\</b>							
Additional Comm	ents:									
Recovery: None										
SAA = Same as Ab			Fld = feldspar Y = Yes N = No/None							
			gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con A = Angular, VF = Very Fine. F = Fine. M = Medium. C = Coarse. G = Gravel	auctivity						

	DEE	BOILTE	CORING BORING/WELL CONSTRUCTION LOG	
oject: Kirtland I oring/Well ID:		3-101-04	Project Number: 62735DM02.1017 Date:	55
I I	KAPE	3-10624	Logged By: T. Messenger Page Soil Description	of <u>58</u>
PD Reading (ppm) Temperature ('C)	UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel	Well
A E E	Sa G			Details
22.2	. N	35	clopen silf w/sand - yellowish red (548 5/6) Soft,  SLM, low plasticity: silt = 80%; clay = 10%  Sand = 10%: F=60% M=40% trace course sand (atzfeld lit)  SAUSP NO odor  Clay w/sift + sand - light Grown (7548 6/4) Soft - med. stift  med. plasticity - clay = 65%; sand = 25%: F=40% M=45%	
	1	37	( trace gravel to 3/8" Sec. Cal. conboarde ( )	
)	٨	39	SAA (SLA)	
0.626.3	N	10 40	SAA W/ less silf+sand (med. still)  Clay= 90% 50 each  Still highly afforded in mother (sum)  Silfy sand w/ clay) - brown (7.54R 5/3) SAM, soft	
	N	41	Silty sand w/clay - brown (7:54R \$/3) SIM, soft  Sand = 60% (F=30% M=40% C=15% (atz, feel, lith) SA-SR  silt = 30% nonplastic; clay = 10% towpt=5m VF=15%  mod. motiled to pinkish gray (7.54R 7/2) Fin w/acid s.c.c.  No polor	
3	Ŋ	42	\ \ \ \ \	
	N	43	50A w/less clay sand: 80% 5:14: 15% clay: 5% Hace gravel to 3/8" (1.4h)	
Iditional Comme	nts:	44		
COMMIC				
covery: None A = Same as Abo	ove Qtz = qu		rtial Complete  Fld = feldspar Y = Yes N = No/None	

				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kin							Project Number: 62735DM02.1017 Date:	12
Boring/Wel	l ID:	K	AFB-	10	60	247		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
5M	26.7	N		1	1	45	SPA @ 45-4 ( slightly mothled  trace gravel up to 12" (lith + Qtz)  Sand = 75%: F= 30% M= 60% (-10%  Sit = 20% on 15%  Clay= 10%	
sni)	*	لو		1	111	46	V	
Ć)		Ŋ			1	47	Sandy clay - Grown (7.5 YR 5/8) med. stiff med. plasticity  SIM - sand Im clay = 70%; sand = 30%: VF = 20% F = 20%  M = 45% C=15% (Ot=feld, life) SA-SR  Trace silt	
<u>cy</u>		1			1	48		
Cu		N			1	49	SAA w/more silt clay: 60%  low plasficity sand: 25%  silt=15%	
	199	N		/o'	1	50	5:14 w/sand - Grown (7.5 if 5/4) soft, SLM 5:14 - 90% nonplastic; sand = 20%: VF= 20% F= 50% M= 30% trace coanse sand (Qfz, fold, lith) SA-SR trace gravel to 1/2" (1:th) trace clay	
My (0.4		N			1	51		
ML)		Ŋ	e was was seen year		1	52		
ML)		N			1	53		
Additional (	ommer	its:						
Recovery:	None					Part	ial Complete	
SAA = Same			z = quart	_			Fld = feldspar   Y = Yes   N = No/None	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con $A = Angular VF = Very Fine F = Fine M = Medium G = Coore G = Gravel$	ductivity

CU  N  Sandy clay w/sit+ - brown (7.5 YR 94) Med-shift, low plasticity, SLM - clay: 50%; sand: 35%; v=20% Fisher: 0%;  F: 20% M: 40% C=20% (270, Fish, 18th) 5A-5R; sit+=10%;  Sty gravel: 5% up to 1/2" (212+1)th) mod. mattled to man an adort pink (7.5 YR 7/3) w/acid  SAA (2 49-50'  SAA (2 56-54' clay: 70% 5lightly  Sand: 25% mothled  Sit+= 5% mothled  Sit+= 5% mothled  Sit+= 5% mothled  CU  N  Drown (7.5 YR 5/3)  Clay: 75%	EA			SC	INC	CC	ORING BORING/WELL CONSTRUCTION LOG				
Soil Description  Soil Descrip								~			
SAA—Same as Above Quz = quartz    Sandy clay which for the clay = 5% for the clay =	Boring/We	11 ID:	KAFR	3-10	160	247	Logged By: T. Messenger Page	of 58			
19.9   10   55     SAA @ 39 - 40   highly mottled	USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence Samples collected	Core Run	Recovery	Depth, ft	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness				
SAA & 39 - 40 highly moffled  [CL]    SAA & 39 - 40 highly moffled   Fan what	ML		U		1						
Sandy clay w/s; H - brown (7.542 514) Med-shift, low plasticity, 52m - clay: 50%; sand: 35%; vs-20%.  From Clay: 50%; sand: 35%; sand: 35%; vs-20%.  From Clay: 50%; sand: 35%;	ML	19.9	N	6	1	55					
CU  21.5  Do SAA Q 56-54'  Clay = 70%  Sind = 25%  Anothed  trace gravel to 38%  From (7.5 4R 5/3)  Clay = 75%  Sand = 20%  Sith = 5%  Have gravel to 32%  Have gravel to 32%  Sith = 5%  Have gravel to 32%  Have gravel to 32%  Have gravel to 32%  Have gravel to 32%  Have gravel to 32%  Have gravel to 34%  Have gravel	CL	V	1	V	1	56	SAA @ 39-40' highly mottled tan wholed sec.c.				
CU  21.5  Do SAA @ Share @ Sh - SA' clay = 70% slighty Sand = 25% not filed  trace gravel to 38"  brown (7.5 YR 5/3)  Clay = 75% Sand = 20% Sith = 5% trace gravel to 1/2"  Additional Comments:  Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz  Fid = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	CG)		,		1	57	Sandy clay w/silt - brown (7.542 5/4) med-still, low plasticity, SLM - clay: 50%; sand: 35%: VF=20%, F: 20% M=40% C=20% (Qto, feld, lith) SA-SR; Silt = 10%; gravel = 5% up to 1/2" (Qto-lith) mod. mattled to a codor				
Sand = 5% no filed    Sand = 5%   No filed   Sand = 20%   Sit = 5%   Sand = 20%   Sand =	ML		N		1		(				
Additional Comments:    Clay = 75%   Sand = 20%   Sift = 5%   Frace gravel to 1/2"	cu	21.5	N	10	1	59	Fand: 23 to the				
Additional Comments:    Recovery: None	(i)		٨		1	60					
Additional Comments:    Recovery: None	(c) 0.9		N		1	61	clay = 75% sand = 20% 5:1+ = 5% trace gravel to 1/2"				
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity					1	62					
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Additional (	ommen	ts:			_					
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity											
SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Recovery:	Recovery: None Partial Complete									
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity							Fld = feldspar   Y = Yes   N = No/None				
	Samples: V =	= VOCs/I	EDB; P = TPI	I; M =	min	erolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity			

				S	NC	IC C	ORING BORING/WELL CONSTRUCTION LOG	
_	t: Kirtla						Project Number: 62735DM02.1017 Date:	m
Boring	/Well II	D:	KAFR	3-10	260	247	Logged By: T. Nessenger Page	of 50
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV Iluorescence Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
MI	)	ı	ı		/	62	SAA @ 49-50 brown (7.5 YR 5/3)  soft-med: silt= 75% gravel to 12"  no other  clay=10%	
ML)	,	1.5	,		1	64		
mg				10	1	65	SAA Soff-med. Still low-med. plasticity silt = 85%; vf = 202 F = 40% M=406 sound = 10%; vf = 202 F = 40% M=406 close 5%	
mL			N	V	1	66	SAA Soft - low plasticity  5.1+ = 65%  5.1+ = 65%  5.2 K=30% M=60% C=10%  5.14=5%	-
ML		1	)		1	67	SAA @ 64-65'	
Ci			1		1	68	SAA @ 56-57 w/less stay Im Sand  SF.K. V. St.K. clay = 70% VF=20% F:35% M=40% C=5%  M. plasticity sand = 20% VF=20% F:35% M=40% C=5%  SAA @ 65-66 Silt=75% trace gravel to 3/8"  Soft-M. St.K. Sand=20% trace gravel to 3/8"  Soft-M. St.K. Sand=20% trace gravel to 3/8"  Soft-M. St.K. Sand=20% trace gravel to 3/8"  Clay = 616WN (75 YR 5/4) St. f., med. plasticity, SLM  Clay = 100% trace F-M Sand  Lay = 100% trace silt	
ML	2	2.4	/	10	1	69	SAA @ 65-66 5:17-75% trace gravel to 78" {  50ff-10. 5till sand= 20% trace gravel to 78" {  10m plas. sand= 5%	
cù		N			1	70	Clay - 610Wn (75 8 5/4) Stiff, med. plasticity, SLM Clay = 100% trace F-M sand trace silt	
ci	1.11	N			1	71		
Additio	nal Cor	nments	:					
Recove	rv: No	one [	1			Part	ial Complete	
	Same as		Qtz = qua	artz			Fld = feldspar Y = Yes N = No/None	
				H; M =	mi		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
							A = Angular, VF = Very Fine, F = Fine M = Medium, C = Coarse, C = Cravel	

EA		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland B		1010111	Project Number: 62735DM02.1017 Date:	121
Boring/Well ID:	KAFB-	106247		of 50
USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
cy	1	1	V to 71.5'	
ML	V	72	SAA @ 68-69 504 - low plasticity  5ilt=85% Sand=10% clay=5%	
SM)	J	73	silty sand - yellowish 6 rown (10 12 5/4) soft, loose SLM sand = 70%: VF = 20% F = 20% M = 50% C= 10% (atz, feld, lift) sA-5R; silt = 30% nonplastic trace gravel to 3/8" (lith)	
ML 22.4	1	10 74	silt - brown (7.548 5/4) soft, SLM silt = 100% nonplastic trace F-M sand 2 to 73.75' SAA @ 72-73 Garm Nacc graved up to 2"	
sn)	N	75	SAA @ 72-73 Basm Nace gravel up to 2"  SAA Sand = 852; F= 30% M=50% C=20%  Sitt= 15%  Hace gravel to Z"(Qtz+(ith))	
Sin)	N	7-6		
	Ņ	77	SMA @ 69-701	
5W <sup>2</sup> 5M 327	d	78	foorty sorted sand w/s: It - brown (2.5 92 5/2) loose sin - Sand = 85%: F= 35% M= 50% C= 15% (atz, feld, lith) SA-SR; 5: It=10% nonplastic gravel = 5% up to 3/4" (atz rlith)	
SM)	\	79		
m)	N	80	S 100% Sitt F-Gand S	
Additional Comment	s:			
Recovery: None [ SAA = Same as Above Samples: V = VOCs/E			ld = feldspar Y = Yes N = No/None	
= Rounded SR = Si	brounded SA =	- minerolog	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine	luctivity

		SON	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland B				Project Number: 62735DM02.1017 Date:	a.
Boring/Well ID:	KAFB	-1060	247		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence	Core Run Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
0.8		11	80		
MD	V		81		
	h		82	Clay - reddish Grown (5YR 4/4) very stiff, med. plasticity (clay = 90% sift=10% (2000)  2 to 87.75  SAA @ 79-80'	
mi) 32.2	N		83	SPA @ 79-80'	
ML	M	10 \	84		
ML)	٨		85		
ML)	N	V \	8,6		
MC 1	NA PARTIES		87	SAA trace F-persond	
mc) 34.5	1	181	88	Clayer silf - 610wn (7.5 YR 5/4) soft-med. still Nobel low plasticity - silt = 80% ; clay = 20% trace F-Msand slightly mottled to light brown trace F-Msand slightly mottled to light brown and pinkish gray (754R7/2) Txn Wacid	
MO	V		89		
Additional Comment	s:				
Recovery: None [	0	t	Part	1 100	
SAA = Same as Above Samples: V = VOCs/F				Fld = feldspar Y = Yes N = No/None  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	- A
				A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	uductivity

EA			SC	N	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl:			,	. /	- 17 -	Project Number: 62735DM02.1017 Date:	
Boring/Well I	D:	KAFB.	-10	160	247		of 58
USCS Soil Type PID Reading (ppm)	Temperature ('C)	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SA) 0.9				1	90	Silfy sand - 6 rown (7.5 YR 5/3) /005e SLM  sand = 65%: YF=26% F=35% M=35% C=5% (4=2. fild, lith)  SA-SR - trace grave to V2" (lith+0tz); siH=35% nonplastic  no oder)	
(ci)	A			1	91	clay-600wn (7.54R 5/4) still, SLM, low plasticity clay = 100% slightly method to pinkish gray (7.54R 7/2) (kn w/acid - trace silt and F sand	
(CL)	a			1	92	trace gravel to 3/8" (lith)	
Ĉ9	34.5 N		10	1	93	SAA W/siH+sand clay= 82% siH= 10%: VF=20% F=55% M=25%	
(CD)	N			1	94		
(u)	<i>(</i>			1	95	clay = 70% 5:1+ = 20% sand = 10%	
MC	V J		V	1	96	silt - brown (2.54 = 5/4) soft-med. still, low plasticity SLM - 5ilt = 70%; clay = 20% trace fine sand	
ma	N		1	11	97	SAFA Silt=100% highly motiled to white (4.5 YR 8/1) Fan W/acid (5.c.c.) dry-SLM no trace sand	
my 3	8.7 N		81	111	38	saa - dry	
Additional Cor	nments:						
Recovery: No	11/2	Qtz = quart	,		Part		
		-	_	min		Fld = feldspar Y = Yes N = No/None  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	A t.
						A = Angular, VF = Very Fine $K = \text{Fine } M = \text{Medium } C = \text{Coarse } C = \text{Crossel}$	lauctivity

Ing/Well ID: (AFE - 106047   Loggod By: T. Messenger Page / Log of SX Soil Description - soil type; Munsell color; density (primarily course/consistency & plasticity - sand finched grain size %; fine, medium, coarse, etc.) - sand micrology - sa		SONIC CORING BORING/WELL CONSTRUCTION LOG	
Soil Description  **Soil Description**  **Soil Spee: Minusell color, density (primarily coarse, etc.)  **Soil Spee: Minusell color, density (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse)  **Soil Spee: Minusell color, density (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (primarily coarse) (	roject: Kirtland BFF		
SAT - not motified SLM    100   103.75' SAAQ 100-101' S. motified   100   103.75' SAAQ 100-101' S. motified   100   103.75' SAAQ 100-101' S. motified   100	Boring/Well ID:		of <u>58</u>
100   Spat - 100   Sum	USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SPA - 100 - 101 SIGNAY mottled  SPA - Not mottled SLM  102  SPA - Not mottled SLM  103  SPA - Not mottled SLM  104  SPA - Not mottled SLM  105  SPA - Not mottled SLM  106  SPA - Not mottled SLM  107  SPA - Not mottled SLM  108  SPA - Not mottled SLM  108  SPA - Not mottled SLM  109	NI /		
SAR - Not mottled SLM  N  N  N  N  N  N  N  N  N  N  N  N  N	ng v		
SAA - Not mottled SLM  103  104  105  106  106  107  106  107  106  107  106  107  107	N N	SAA - 100% 5M 5:11- 90% 5lightly mothed clay= 10% 5lightly mothed	
N	1L) 38.7 N	102	
SAA @ 100-101 dry- SLM highly mottled to white (1098 %)  Strong xxx w/acid  Silty clay - brown (2.5 YP 5/3) very stift low-med plasticity - clay = 80%; sit = 20% slightly mottled to white (2.5 YR 8/1) strong xxx w/acid  wery: None Partial Complete  Same as Above Qtz = quartz  Partial Complete  N=No/None	AL N		
38.5 N   12   106  Silty clay - brown (7.5 YP 5/3) very stift, low-med plasticity - clay = 80%; silt-20% slightly 5LM mottled to white (2.5 YR 8/1) strong rea water as above Qtz = quartz   Partial   Complete   Same as Above Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None	W N	1/04	
38.5 N   12   106  Silty clay - brown (7.5 YP 5/3) very stift, low-med plasticity - clay = 80%; silt-20% slightly 5LM mottled to white (2.5 YR 8/1) strong rea water as above Qtz = quartz   Partial   Complete   Same as Above Qtz = quartz   Fld = feldspar   Y = Yes   N = No/None	N N	highly mottled to white (1098%)  Strong rxn W/acid	
itional Comments:  Divery: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	b) 38.5 N		
overy: None Partial Complete  = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	<b>b</b>	plasticity — clay = 80%; sit+ 20% slightly 5LM mottled to white (2.5 YR 8/1) strong ran wacid	
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None	dditional Comments:		
= Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None			
	ecovery: None		

E					SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	t: Kirtla			1-0	11	1/	11/7	Project Number: 62735DM02.1017 Date:	rd
Borms	/Well II	): 	K	AFB-	10	60	147		of <u>58</u>
USCS Soil Type	PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
(CL)			Ŋ			1	108		
(cr)			V			1	109	SAA trace F-M Sand	
(CV)			þ			/	110		
(i)	0.8		N		12	1	///	clay = 90%; silt=10% very still - hard dry-sem highly mottled	
Ch	2	8.5	N		1	1	112	111-112 brown (7.592 5/4)  52 M slightly mottled	
MU			١			1	113	SMA @ 160-101' brown 5/4 / HACE F-M SANT GASTR 5/4	
MU			1			1	114		
mi		٨		er of an analysis of the		1	115	SATA - trace F-C sand slightly nottled to pinkish gray (7.5 YR)	
ML	\	1			V	1	116		
Additio	onal Con	ments	3:						
							-		
Recove	ery: No	ne [					Part	ial Complete	
	Same as			= quart	_			Y = Yes   N = No/None	
								gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cone A = Angular VF = Very Fine, F = Fine, M = Modium, C = Cooke, C = Crowl	ductivity

EA			so	NIC	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtla						Project Number: 62735DM02.1017 Date:	~
Boring/Well II	D:	KAFB-	10	62	47	Logged By: T. Messenger Page 14	of 58
USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
(ML)	1 1		1-2	1	17	SAA - SLM trace F-Msand (moder)  not mottled silt- 90% soft - still ym  clay = 10%  SAA but med. still - still	
mo	N		V	1	118		
My	1				19	SAA - soft-med. shift brown (7.5 YR 5/3) (SLM) low-med. plasticity	
ml)	له	P,v, Foc			20		
Mc 2	12 1			1	21	SAA - no trace sand	
ML	1/	********	6	1	22		
mo	٧			1	23	Silf-95% low plasticity clay: 5% no trace sand	
MD	N		V		24		
mu s	4.62		6	1	25	SAR - increasing clay fraction down sit = 852 med. plasticity clay: 152 med. still sun	
Additional Con	nments:				-		
Recovery: No SAA = Same as Samples: V = V R = Rounded, S	Above OCs/EDB	Qtz = quartz s; P = TPH; N	M =	miner	olog	al Complete  Id = feldspar Y = Yes N = No/None  y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con  A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: K			. 1 - 0				Project Number: 62735DM02.1017 Date:	e/
Boring/We	ell ID:	1 1	(AFB-	10	60	47	11.150551/6.	of 50
USCS Soil Type PD Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
my		)			1	126	( SAA - Silf - 75% (SLM) (	
(i)		N			1	127	clay - brown (7.5 YR 5/3) med. shift, med. plasticity clay = 80% 5.1+ - 20% Sura nodor	
(cy	24,6	a)		16	1	128	@ 127.75' SAA W/ Sand Clay = 80% 5:14 = 10% Fand=10%: VF=20% F= 45% M=35% (GFZ, Fold, 1846) SA-SR	
(c)		N			1	129	SAA @ 126-1271 clay= 90% (Sum)    Slightly mobiled to pinkish white  (7.5 YR 8/2) Fra Wacid (s.c.c.)	
CL	V	N		V	1	130	SIM	
my !!!		N			1	131	5ilt-6rown (7.542 5/4) soft, SLM Amplastic silt=95%; clay=5% trace fine sand SLAD	
ML	34.8	N		1	1	32	SAA W/more clay / plasticity brown (7.542) silt=85% / Sum  Sum  Sum  Sum  Sum	
ML		<b>N</b>	e X V V de and R Legis en		\	33	brown (7.542) silt=85% low plasticity  brown (7.542) clay=15% Sum	
ML		N			1	34		
Additional	Commer	its:			_	-		
Recovery:						Parti	al H	
SAA = Sam			z = quartz				V = V = V = V = V = V = V = V = V = V =	
Samples: V R = Rounde	= VOCs/ ed, SR $=$ S	EDB; F	P = TPH; I	M = 1	mine	rolog ular.	y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal contact $A = Angular$ , $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$ , $C = Crayel$	ductivity

EA			SC	INC	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Ki						Project Number: 62735DM02.1017 Date:	m
Boring/Wel	l ID:	KAFE	3-10	160	247		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence Samples collected	Core Run	Recovery	-	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
(i)	34.8	<b>N</b>	6	111	135	SAA W/ More clay  Silt = 65%  Silt = 65%  Clay = 35%  Clay = 35%  Clay = 35%  Marid Swiparid  Clay = 35%  More clay highly mothled, hard, dry be  135-136 = clay - 6 rown (4.5 th 5/3) very stift 5 mm  med. plasticity skightly mothled to white (4.5 th 9/1)	
(ci)	Ž.	/		1	136	Clay - SAA - med. plasticity  (356 clay   soft - med. still  golo sill trace F-M sand no mothing)	
(ci)		N			138	SAA but med. shift - shift  SAA  O 159 O CL-MI interface clay is pale olive no rxn w/acid (54 6/3)	
ML 0.7	32.9	N	6	1	139	1891 - siltw/clay-brown(25 (P Sy) soft-med. still low plasticity - silt=802; clay=202 SLM	
Ĉ)		<b>M</b>		1	141	clay-brown (7.5 YR 5/3) hard, dry, nonplastic highly mottled throughout to white (7.5 YR 8/1) brighty son strong rkn Wacid (s.c.c.)	
CU	X	N	*	1	142	clay w/silt - brown (7.5 YR 5/3) med shift, med plasticity SLM - clay = 80%; silt = 20%	
Additional	28.7 Commer	nts:	4		143	SLM - clay = 80%; 5.14 = 20%	
Recovery:	None				Par	cial Complete	
		ve Qtz = qu	ıartz	_		Fld = feldspar Y = Yes N = No/None	
				= mir		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor	nductivity
D - Dougle	1 CD - 0	bobanadad	C 4 - C			A - A - Color VI - V - V - First F - First W - W - Color Col	

			SC	ONIC (	CORING BORING/WELL CONSTRUCTION LOG	
Project: K			-1	-1 -1/-	Project Number: 62735DM02.1017 Date:	0.1
Boring/W	ell ID:	KAI	-B-10	16247		of <u>5</u> 8
USCS Soil Type	The reading (ppm) Temperature (*C)	UV fluorescence	Samples conected Core Run	Recovery Depth, ft bgs	gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
ML		N B,	M	143	silt w/clay - brown [3.5 1 8 5/4) soft, SLM low plasticity - 5.1 t - 80%; clay = 20% odor	
	28.7	N }	1	149	144-146' not logged - sent for thermal conductivity sampling	
<		h	V	146		
(ML)		2		147	SAA @ 143-144' - silt=95%  soft, nonplastic clay: 5% SLM  7.54R 54	
(ML)		<b>V</b>		148		
MY	35.6	·/	6	149	SAA to 149.25'	
(ci)		N		150	mottled to pinkish gray (7.54R 7/2) strong ran w/acid (s.c.c.)	
ML)		<b>J</b>		151	mottled to pinkish gray (7.54R 7/2) strong Fan w/acid (s.c.c.) \ 149.8' - 152' - clargey sift - 6 rown (7.54R 5/4) toose, gm 808, SLM, nonplastic  Silt: 90%	
mi		7	V	152	clay: 10% as notates tchunks minor mottling in clay chunks to pinkish gray (7.54 7/2) (xn wlacid (s.c.c.)	
Additional	Commen	ıs:				
Recovery:	None			Par	tial H Complete	
SAA = Sam	Part of the second	e Qtz=	quartz	ran	$ \begin{array}{ccc} \text{tial} & & & & \\ \text{Eld} & & & \\ \text{Fld} & & & \\ \text{Fld} & & & \\ \text{Fld} & & & \\ \text{Fld} & & & \\ \text{Fld} & & \\ \text{Fld} & & & \\ \text{N} & & \\ \text{No/None} $	
			•	minerolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	Inctivity
					A = Angular VF = Very Fine F = Fine M = Medium C = Coorse C = Coorse	ucuvity

	3			SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG		
	Kirtland						Project Number: 62735DM02.1017 Date:	cc/	
Boring/	Well ID:	K	AFB-	10	60	247		of 58	
USCS Soil Type	PID Reading (ppm) Temperature (*C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details	
(ML)	\\	N			1	153	trace F. sand day= 20%		
(eu)	29	N		4'	1	154	SAA W MORE Clay  Silt: 80%  Silt:		
(ci)		N		1	1	155	SAA-still-very still (SLA)		
CL	y	N		V	1	156			
(i)	1	N		1	1	157	SAA - Stiff; Med-plasticity stightly mothed to sim white (7.5 4R 0/1)		
(ci)		J	inhanc a 1 i i i i a c		1	158	Strong TKA Vacid (S.C.C.)  @ 157.6' - silty clay - 60wn (7.54R \$73)  V soft, sum, low plasticity clay = 70%; + 30% V		
MY	263	5 1		6	1	159	SAA - Stiff; Med-plasticity  stightly mothled to Sim  white (7.5 YR 0/1)  Strong TKA V/acid (S.C.C.)  @ 157.6' - silty clay - 600wn (7.5 YR \$73)  V soft, Sim, low plasticity clay = 70% = 30%  SAA @ 152-153' Sim  trace f-M sand soft  trace gravel to 3/8" sit = 80%  (1ith)		
My		N			/	160			
MU	nal Comm	N ante:			1	161	Sandy Silt - Drown (7.5 'R 4/3) med. stiff SLM low plasticity - 4 ilt = 90%; sand = 10%: VF= 25% F= 50% M= 25% trace coanse sand (atz, feld, lith) stip trace gravel to 1/2" (arz+lith) no odor		
Addition	uai CUIIIII	сшіз.		_					-
	y: None					Par	1 600		
	ame as Ab		= quart	_			Fld = feldspar Y = Yes N = No/None		
Samples	: v = vOC	S/EDB; P	= 1PH;	[V] =	min	erolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal com	ductivity	

ing Well ID:    CAFB - 106247     Logged By: T. Messenger   Page 17 of 56		1222	SONIC COR	ING BORING/WELL CONSTRUCTION I	LOG
Soil Description			ER 18/21/7	Project Number: 62735DM02.1017	
Solitype; Munsell color; density (primarily coarse)/consistency & plasticity	oring/Well L	D: KAI	106297		Page / 9 of 50
JAA W/1855 gravel - pale brown (10/R b/3) SLM  10048 sand = 80 b: F=45 b m=452 c=102  JAA W/1855 gravel - pale brown (10/R b/3) SLM  10048 sand = 80 b: F=450 m=452 c=102  JAA SAND = 75%  JAA SAND = 75%  JAA SAND = 75%  JAS SAND = 25%  F, V, FOC  SAND SAND = 45% C=15%  Has sand: F=40% M=45% C=15%  Has sand: F=40% M=45% C=15%	USCS Soil Type PID Reading (ppm)	Temperature ('C) UV fluorescence	Core Run Recovery Depth, ft bgs	il type; Munsell color; density (primarily coarse)/consisten sand (include grain size %; fine, medium, coarse, etc.) nd minerology gravel avel minerology gularity/roundedness fines (silt/clay)	Well Details
SAA Sand = 75% gravel = 25% trace sitt  N  N  N  N  N  N  N  N  N  N  N  N	(M)	6.5 N	6 Sa 9-	avel = 35% up to 1" (Orz + that lith) s	SA-SR No oten
SAH sand: F=40% M=45% C=15%  145  145  146  146  146  146  146  146			163	JAH wiless graved - pale brown (104) 1004e sand = 80%: F=45% M=45% gravel = 23% up to 11/2" (Qtz+1) trace silt	2 6/3) SLM 2 e=102 (ih) no o dor
hrace sift	W)	7.5 0	4 164		
		J P, V,		SAH sand: F=40% M=45% Hace sift	C=15%
gravel = 66% up to 2'4" (qtz+ lith)  Sand= 40%: F= 30% M= 55% C= 15% (0+2, fe (1, lith) SA 5R  167 Hace Silt	w	N	166		
	(A)	N	167	named = 66% up to 214" (atz + lith)  Sand = 40%: F= 30% M= 55% C= 15% (atz fe  trace silt	(1, lish) SA SR
SAA @ 162-163' Sand=90% gravel=10% up to 1"	3		10 \ 168	SAA @ 162-163' Sand: 902 up to	/" \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
24.7 Sand = 75% y to 1"  169 (610WN (10 TR 5/3) gravel = 25% 4 to 1"		4	169	5KA Sand = 75% 4 to 610WA (10 TR 5/3) gravel = 25% 4 to	1"
)   170	3	al	170	*	
litional Comments:	dditional Cor	nments:			
overy: None Partial Complete	COVERY N	one	Dortin1	Consilate	
overy: None Partial Complete  L = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None				1 200	
ples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity					

		SONIC C	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland E			Project Number: 62735DM02.1017 Date:	-/
Boring/Well ID:	KAFB	-106247	711 2022 1/2	of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
50.6 5P	J	171	SAA (2) 167-168 pole brown (1012 6/3) no oder)  \$ to 170.5 sand= 90% genicl= 52 silf= 52  poorly graded Sand w/silf-pale brown (1044 6/3)  too 5e, SLM - Sand= 90%: F= 70% M= 30%  (atz, filh, lith) SA-SR — silf= 10% non plastic  171.5'	
SW)	N	172	SAA @ 170-170.5'  171.5'  5AA @ 170-170.5'  172-172.5' SAA @ 170.5-171.5'	
500 1017	N	173	SAA @ 120-120.5' 172-172.5' SAA @ 170.5-171.5' (SP)  SAA @ 120-120.5' SAA @ 170.5-171.5' (SAA @ 170.5-171.5')  SAA @ 170-170.5' SAA @ 170.5-171.5' SAA @ 170.5-171.5' (SAA @ 170.5-171.5')  W @ 171.5-172' SAND = 86%  grand = 20% up to 1'	
Sw)	N	174		
500)	N	175	SAA @ 172.5-173' (SW) U/gravel  Pale 6500^ (1042 6/3) 1005e, SLM  Sand= 906: F=406 M=50% C=10%	
50	٨	176	graved: 10% up to 3/4" (atz + lith) trace silt	
SP)	4	17-7	poorly graded sand - pale brown (1049-6/3) losse SLM sand = 95%: F: 40% M=60% trace coarse sand (042, feld, lith) SA-SR; gravel = 5% up to 1/2" (0+2-1)th trace silt (no odor)	
SW) 29.4	h	178	SAA @ 172.5 174' - 176'  Sand = 90%  Sand = 90%  Gravel = 10%  SAA - grayish brown (104R \$/2)  Sand = 75%  Sand = 75%  Sand = 25% up to 2"	
50)	M	179	SAA - grayish brown (104R \$/2)  sand= 758 grave= 25% up to 2"	
Additional Commen	ts:			
Recovery: None [ SAA = Same as Abov	re Qtz = quar	Pari	1 100	
			Fld = feldspar Y = Yes N = No/None gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	America 11
			A = Angular, $V = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$ , $G = Gravel$	uucuvity

				SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Ki			11-1				Project Number: 62735DM02.1017 Date:	~/
Boring/We	IIID:	K	AFB	-10	60	47		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SW)		þ			1	179		
(F) (0.1.		N			1	181	Poorly graded sand - light grayish Grown (104R6/2) loose, SLM - sand = 90% F=60% M=40% frace Courses and Catz, feld, lith ) SA-SIZ - SiH = 5% nonplastic gravel = 5% up to 1" (atzx 1.7th)  SAA W/o gravel  (	
9		1			1	182	SAA W/o gravel	
9	29.4	, V		10	1	183		
<b>A</b>		N			1	184	pale brown (104R 6/3)	
58)		N	í		1	185		
SW	V	N		V	1	186	well graded sand - pala Grown (104R 6/3) losse sim - Sand = 90% F= 30% M= 55% C=15% SA-SP (otz, feld, 17th); grand - 10% up to 5/8"(atz+1ith) (10 Mor) trace sit	
500)	706	N		1	1	87	SMA Sand = 85% gravl = 15%	
5m)	20.0	N		10	1	158		
Additional	Commer	its:						
Recovery:	None					Part	ial Complete	
SAA = Sam	e as Abov		z = quar			1	Fid = feldspar $Y = Yes$ $N = No/None$	
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
x = Rounde	d. SR = S	ubron	nded SA	= 511	hand	mlar	A = Angular, VF = Very Fine F = Fine M = Medium C = Coarse C = Cravel	

EA			SONIC	CORING BORING/WELL CONSTRUCTION LOG	
Project: Ki			0 101 011	Project Number: 62735DM02.1017 Date:	
Boring/We	II ID:	KAF	B-10624		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature ('C)	UV fluorescence	Core Run Recovery Denth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	1		189		
Sid		N	18	SAA @ 181-182' pale brown (109R 6/3)	
\$		<b>y</b>	190		
50 O.1		Ŋ	191		
SP)	30.5	N	19		
90	29.5	N	193	SAA - No Gravel trace clay	
sm)		þ	194	poorly graded sound w/sitt - Grown (7.542 5/2) loose SLM - Sand = 902: VF= 252 F= 552 M= 202 (Gfz, fald, lith) SA-SR; Sitt = 102 nonplastic	
5P 5M		N	195		
50	V	N	196	Poorly graded sound - light brownish gray (108/2 6/2)  loose, SLM - sand = 100%: F=80% M=20%  (atz, fold, liths) SA-SF trace silt	
30	24.7		10 197	SAA - sand= 1002 F= 45% M=552  Hace coarse sand frace gravel to 1" 56 (ate lith)  Hace silt	
Additional	Commen	is:			
Recovery:				rtial Complete	
SAA = Sam			77.17.21.12.1	Fld = feldspar Y = Yes N = No/None	
				ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal com r, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ductivity

EA	SONIC CORIN	G BORING/WELL CONSTRUCTION LOG
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:
Boring/Well ID:	(AFB-106247	Logged By: T. Messenger Page 23 of 58
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence	Samples collected Core Run Recovery Betth, ft bgs & sus Bull % & line Recovery Betth, ft bgs & sus Bull & & sus Bu	Soil Description  ype; Munsell color; density (primarily coarse)/consistency & plasticity and (include grain size %; fine, medium, coarse, etc.) minerology avel el minerology larity/roundedness well les (silt/clay) Well Details
N	198	-@197.75 SAN @ 195-196' (10dor)
3P N	199	
500	well Sun (Q12, 200 (Q1	graded sand - Pala brown (1042 6/3) loose n - sand = 902: F=202 M= 7020 C=1020 , feld, lith, caliche) SA-SR; gravel=102 up to 11/4" tz+lith) = and caliche) trace silt
0.5 N	201	200.25 - 200.5' light brownish gray (10 YR 6/2
24.7 N	202	
500 1	203	no caliche.
SW)	204	to 203.75'  5AA - SANJ = 100% Hrace grand to 3k" + Hace SIF
SP) N	Foorly SLM (atz,	5AA - sand = 100% trace graved to 3/8" + Hace silf  y graded sand - pale Grove (104 p. 6/3) 1005e  = Sand = 100%: F = 70% M= 30% trace coarse sand  feld lith) SA-SR trace grave to 3/8" (lith) now  + caliche
5P N	206	
Additional Comments:		
Recovery: None		Complete
	tz = quartz Fld = feld	
		piologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity

EA				SC	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kir		FF	1:1-2				Project Number: 62735DM02.1017 Date:	
Boring/Wel	1 ID:		KAFB-	10	60	47		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	1		- 01	1	-	206		Details
5P)		لم			11	207	brown (108	
SW		N	P, v, B, M		1	208	well graded sand - Pale Grown (104R 6/3) loose SLM - sand = 956: F= 25% M=65% C=10% (Q+z, feld, 1.4h) SA-SR; clay = 5% as nodules - 6 rown (A.54R 5/4) Asaplasm/ow plasticity, med. still no over trace gravel to 3/8" (11th)	
5P 0.8	23.5	1		17	1	210	ga 204-210 SAA ( 704-205 no caliche 1ight 610WAIN)	
5C)		M			1	211	Clayer sand - gray is & Grown (1048 5/2) loose sem  sand = 85%: VF = 302 F = 502 M=202 (ate, feld, lith)  3A-SE; clay = 15% as notales - reddish Grown (5485/3)  med. shift - low plasticity  clay = 5AA w/more clay - sand = 75%: VF=206 F=352 M=256  Clay = 25% SAA 20% 65% 25%	
CF		<b>N</b>	********		+	212		
(C)	V	7		V	1	213.	san- grayish brown (2.57 5/2) roll of med. stiff - stiff sem sum sum	
CL	19.6	2		1111	1	214	SPA - clay - light brownish gasy (2.54R42)  soft-med. still SLM (Nodo)	
SPS	19.6	N		个ではし	11	215	poorly graded sand w/silt - pale brown (1048 6/3) 1005e SLM - sand = 90%: VF = 30% F = 70% trace med. sand (atz, feld, lith) SA-SK; silt=10% non plastic	
Additional (	Commen	ts:						
Recovery: SAA = Same		/e	Qtz = quartz	7.		Par	tial Complete  Fld = feldspar Y = Yes N = No/None	
					min		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
							A = Angular, VF = Very Fine . F = Fine, M = Medium. C = Coarse, G = Gravel	- activity

ject: Kirtland I	FF		1110	CORING BORING/WELL CONSTRUCTION LOG Project Number: 62735DM02.1017 Date:	
ring/Well ID:	KAFB	-10	624		f 58
Img/ well ID.	KALE	10	007	Soil Description	f <u>58</u>
PID Reading (ppm)  Temperature (*C)	UV fluorescence Samples collected		s	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology	
PID Reading (pl	UV fluorescence Samples collecte	Core Run	ery ft bgs	% gravel gravel minerology	
D B G	ld m	re l	Recovery Depth, ft	angularity/roundedness	Well
	S c	ပိ	8 Q	% fines (silt/clay)	Detail
19.6	N	2	1213	6:144 sand - 6:00 (10 / 5/2) 1005e, SIM - sand= 70%: 18=40% F=60% SR-SR (atc, fetd, 1:14); SIH= 30% Nonplastic no odos	
2		1	21	to 215.51 (no and)  Sandy clay - brown (10 YR 5/8) SLM - sand In Clay : 70% very still  10 w plasticity; sand = 30%: VF = 50% (etafold, lith) SA-SR  10 w plasticity; sand = 30%: VF = 50% F = 50% (etafold, lith) SA-SR  10 clay = 50% (etafold, lith) SA-SR	
	ر		21:	clayer sand - brown (for 8/3) loose, SLM sand = 70%: F= 40% M=60% trace coase sand (attifild, it, caliche) trace grass to 1/2" (1.th, caliche) SA-SR; clay = 30% sof, Morphastic	
	N			clay-light brownish gray (1042-6/2) SLM, still - very still low plasticity.  @ 219.75' SAA but soft to med. still Nodoe)	
			218	@ 219.75 SAA but soft to med. still	
	N		21		
26.0	لو		220	219-219,25' SAA but still-very still-light brown (7.5 YR 6/3) 219.25-220' SAA but soft-med. still (light yellowish brown-10 YR 6/3)	
0.3	N	10	72	1 22125 on 40 221,50	
	N		22.	well graded sand =/gravel - 6 rown (10 1/2-5/3) loose ( sim - sand: 70%: F= 40% N= 50% (-10% (ato, Rid, 1.7h))	
٥	7		27:	well graded gravel w/sand-pale brown (1042 6/3) 10058, SLM gravel = 90% up to 144" (atz, lith); sand = 30%; F= 206	
	لم		229	poorly graded sand - pale brown (10 YR 6/3) loose, 5 LM fand = 90%: F= 402 M=60% trace course sand (arz, feid, 1.th)  gradel: 10% up to 5/8" (atz+lith) SA-SR Hace gilt	
ditional Comme	nts:				
covery: None			Pa	rtial Complete	
covery. Ivone					

EA		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland B		12.1 2.1	Project Number: 62735DM02.1017 Date:	-/
Boring/Well ID:	KAFB	-106247		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
FN)	N	224	well graded sound - pale brown (1042 6/3) loose, sem  Sand = 75%: F= 20% M= 70% C=10% (arz field, lith) stag  gravel = 25% up to 1/8" (atz+lith) trace silt no oden	
5in 26.0	ħ		= 224.75-225,5 - 5AA w/less gravel: sand= 90%  gravd=1020  clong as chunks + nodules gray is h Grown (1012 5/2)  B225.75' SAA w/less gravel + clay: sand= 85%; gravel=5%; clay=10%	
Su	N	227	\$AA @ 224-225' sand = 85%: F=35% M=55% C=108 (a+z, feld, lith, caliche); gravel = 15% up to 11/8"(q+x+lith) sa-sp- trace sitt	
GW)	r	728	SAA@ 222.25'-223.25' gravel=60% sand=40%	
560	٧	229	SAA @ 226-227.5' gravel up to 11/2"  No caliche in sand gravel  Pale brown (10 YP 6/3)	
500 26.7	N	IN	- 229.25 - 229.5 SAA @ 228-229" - 229.25 - 229.5 SAA @ 228-229" - 229.5-230 - SAA: Sand = 95% gravl=5% caliched in Sand	
5w) 0.5		231	- 229.5-230 - SAM: sand = 95% gravel = 58 caliched of SAA @ 224-225' Sand = 45%: F=20% M=65% C=15% (Q+2, feld, lith, Caliche)  gravel = 25% (Q+2, lith, caliche) up to 11/4"	
500	N	232		
Sw	N	233	SAA: Sand = 85%  gravel = 15% up to 2"	
Additional Comment	s:			
Recovery: None [SAA = Same as Above	e Qtz = quar	Part	1 1	
			FId = feldspar Y = Yes N = No/None y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	duotivity
			A = Angular, VF = Very Fine $F = Fine M = Medium C = Coarse C - Croyol$	ductivity

EA		SONIC CO	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtla		-1 101 -11-	Project Number: 62735DM02.1017 Date:	
Boring/Well II	D: KAF	B-106247	Logged By: T. Messenger Page 27	of 58
USCS Soil Type PID Reading (ppm)	Temperature (*C) UV fluorescence	Core Run  Recovery  Depth, ft bgs	Soil Description soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5w)	J <sub>A</sub>	234	233.25 - 234' sand = 65% gravel = 35%  Q 293-233.25 - 234' sand = 75% gravel = 25%  - @ 233.25 - 234' sand = 75% gravel = 25%  SAA - 5W - pale brown (101/R 6/3) (no caliche)  Sand = 80% gravel = 15% sitt = 5% plastic  234.5 - 235' - SAA W/trace silt (no caliche)	
5w) 1	16.7 ~	235	234.5-235' - SAA W/trace silt As caliche	
500	N	236	235-236' SAA - sand= 75% no liche gravel = 25% caliche trace sitt	
SW)	N	237	SAA - grayish brown (10YR 5/2)  sand = \$550 trace 5ilt  poorly sadd 5and - and brown (10YR 6/3) (450 (10))	
(51)	N	238	poorly graded sand-pale Grown (104R 6/3) (00 SR, SLM)  sand = 95%: F= 70% M=30% (9tz, feld, 1.th) sh=SR  sit = 5% non-plastic	
37) 3	0.6	239	( CAA . CAMA C(00)?: E = 40% M=60?	
39)	N	240	SAA · Sand = 1002: F = 40% M=608 trace sitt	
54) 1.3 520)	N	241	well graded sand w/gravel - Pale Grown (104/2 6/3) loose	
Additional Com	ments:	242	well graded sand w/gravel - Pale brown (10 YR 6/3) /000 R 8 LM - Tand = 80%; F: 30% M=60% (=10%) (QTZ, feld, 1.th, caliche) SA-SR; gravel = 20% up to 1/8" (QtZ, 1.th, caliche) frace 5.14	
Recovery: No		Parti		
SAA = Same as $Samples: V = V($			ld = feldspar Y = Yes N = No/None y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cor	
			A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Crayel	auctivity

Project: Kirtland BFF Project Number: 62735DM02.1017 Date:
Boring/Well ID: KAFB-106247 Logged By: T. Messenger Page 28 of 58
Soil Description  Soil Descrip
5W) 30.6 10 244 5AA - sand= 886: F= 202 M=602 C=202
SW N SAA - Sand = 70 % gravel = 36 %
Sw 246
SW N SAH - Sand = 85% Hace sitt gravel = 1860   SAA W/more 5.1t gravel = 15%   SAA W/more 5.1t gravel = 15%   Sand = 80%   Sand = 80%   Sand = 80%   Sand = 15%
SMA W/more 5.(+ of sand=800)  SMA W/
Sound = 15%  Squard = 15%  Squard = 15%  Silt: 5% Nonplastic  Silt: 5% Nonplastic  Silt: 5% Nonplastic  To 248.25' = 248-248.25' SAA gand=60% grawl=35% silts  Poorly graded sand = 15.74 Siown (10 YR 5/3) loose, sum  249 Sand = 15%  Sand = 15%  Poorly graded sand = 15.74 Siown (10 YR 5/3) loose, sum  (atc, feld, lith) SA-SE; silt=10% Nonplastic no long  (atc, feld, lith) SA-SE; silt=10% Nonplastic no long  Signard = 15%  Sand=15%  Nonplastic  To John  Office feld, lith) SA-SE; silt=10%  Signard = 15%  Silt=10%  Nonplastic  No long  Office feld, lith) SA-SE; silt=10%  Silt=10%  Nonplastic  No long  Office feld, lith) SA-SE; silt=10%  Of
250 S
Additional Comments:
Recovery: None Partial Complete  SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None
Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity R = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel

				SC	NIC	$\mathbf{C}$	ORING BORING/WELL CONSTRUCTION LOG	
	: Kirtlan	BFF	1/1-1		. / -	./-	Project Number: 62735DM02.1017 Date:	101
Boring	/Well ID:		KAFB.	-10	62	47		of <u>58</u>
USCS Soil Type	PID Reading (ppm)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
58)		V			/	252		
38		١			/	253		
50	34	.5 N		10	/	254	5AA: Sand=952: VF=202 F=852 M=152	
30		N			1	255	SAA w/ trace coarse sand it (are-lith)	
9		N		Y	12	256		
SW	/	, 1		1	1	157	well graded Sand W/gravel - yellowish brown (501R 5/4) loose, SLM - Sand - 40%: P-20% M=60% C-20% SA-57 (atz, feld, 1.th); gravel = 30% up to 2" (atz+lith) trace clay as nodules - brown (7.54R 5/3)	
5W)	44	b N		1	1	58	5AA - Pele 610WA (10 YR 6/3) - @ 257.75 - 258' SAA W/ Hace 5.14	
5W)		N	k one y very and norm	10	1	99	SAA @ 254-255' pale Grown (104R 6/2) sand=95%	
51)		N			1	260	SAA @ 254-255' pale Grown (104R 6/2) sand=95% Ly w/trace clay as nodules gravel=5% brown (754R 5/3) - 259.5-260' - sand=90%; gravel=5% Silf=5% norplastive	
Additio	onal Comr	nents:						
				_				
Recove	ery: Non	e			-	Par	ial Complete	
	Same as A		Qtz = quar	tz			Fld = feldspar Y = Yes N = No/None	
Sample	s: V = VO				mine		gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	aductivity
							A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Gravel	

				SO	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: K			11=0	10	/ -	11/-	Project Number: 62735DM02.1017 Date:	
Boring/We	EII IID:	<del>- K</del>	AFB-	10	60	147	8.7	of <u>58</u>
USCS Soil Type	Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SP 0.	6			1	1	260		Details
(CD)		N N			111	262	SAA w/Ande clay - brown (16 YR 5/3) (rodor)  frace u seek sand = 90%  260-280,251 gard = 5% Invaluation as notules & AA  260.251 - 262 - brown (10 YR 5/3) Stiff, SLM  Clay = 100% - med. plasticity  - @ 261.75 - 2621 SAA but soft w/sand + sitt plasticity  clay = 80%; sit = 10%; send = 10%: VF = 40% F = 60% (at x fell, 1 ith) sA - SR  to 262.25'	
CL)	44.6	N			1	263	262.25-263.25' SAA @ 260.25-261.75'  Clay = 10672 Very still  low plasticity  No dos	
		N	***********	10	1	264	5: Hy clay - 6 rown (10 YR 5/3) sof, SLM, Iow plasticity    clay = 80% 5: H = 20% frace VF - F sand  to 264.25'	
5Pm 3A)		7			1	265	poorly graded sand w/silt - yellowish Grown (10 YF. 5/4)  losse, Shm - sand = 90%: YF = 20% F = 70% M=10%  (atz, feld, 1.th) SA-SP; silt = 10% nanplastic trace clay  poorly graded sand - Pale Grown (10 YP 6/2) losse, Sim  Sand = 95%: F=45% M=55% trace coarse sund  (atz, feld, 1.th, caliche) SA-SP; silt = 5% non plastic	
	1	N		X	1	265	(otz, feld, lith, caliche) SASR; silt=5% non plastic no oduly trace grave 1 to \$18" (17th)  clay - pale brown (104 P 6/3) to very pale 600wn (104 P 7/2)  hard, SLM, non plastic - no odor clay = 100% (xn to acid throughout roduly	
(CV)	35.8	N		16	1	768		
Additional	Commer	N ats:			1	269	nonplastic, SLM clay = 85% trace F-Mand silt 15%	
Recovery: SAA = Sam	e as Abo		z = quart				Fild = feldspar $Y = Yes$ $N = No/None$	
							y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	luctivity

roject: Kirtland	RFF	Some cold	NG BORING/WELL CONSTRUCTION LOG  Project Number: 62735DM02.1017  Date:	
oring/Well ID:		8-106247		58
USCS Soil Type  PID Reading (ppm)  Temperature ('C)		covery covery ptth, ft bgs siz ios ios ios ios ios ios	Soil Description  I type; Munsell color; density (primarily coarse)/consistency & plasticity sand (include grain size %; fine, medium, coarse, etc.) ad minerology gravel svel minerology gularity/roundedness	Well
	Sa G		fines (silt/clay)	Details
0.7 12) 0.7	N N	271 - Z	40 269.75  ay - readish Grown (7.5 YR 5/4) soft to med . Stiff, SLM  fow plasticity — trace F-C sand (caliche) track,  Mey silt-brown (7.6 YR 5/2) soft, nonplastic  m — silt=70%; clay=20%; 10% F-M sand  = 70% M=30% (atz, feld, lith, caliche) SR-5A (270-270.78)  70.25 - 270.75' - silty sand - brown (7.5 YR 5/2) SLM lowe  nd=70% VF=20% F=70% M=10% (atz, feld, lith, caliche) SA-5R  11=30% nonplastic  70.75 - 272' — well graded sand — pale brown (8 YR 48)	
	8 N	270 (or.	1+ = 30% nonplastic 70.75 - 272' - well graded sand - pale brown (104.643) 05e, SLM - Sand = 90%: F=25% M=55% C=20% SA-SF- act 2, lith, feld, caliche); graved = 10% up to 1" (atz, lith, caliche) sitt y  located sitti 5: H=75%; clay = 25%	
	N	274	SAA but soft - med.s.f.f.	
	N	275	SAA @ 272-273	
V	h	276	SAA @ 273-274 silf=70% clay=20% Sand=10%: VF=60% p=40% (qtz, feld, lith) SA-SP V	
(i) 30%		277	y-brown (2.54R 5/3) very still, 8LM - low plasticity slightly mottled to white - 7.54R 8/1 - strong (xn wasid (s.c.c.)  6277' moderately mottled in mottling highly mottled brown (1,54R 5/2) highly mottled brown (1,54R 5/2)  highly mottled brown (4,54R 5/2)	
	<b>N</b>	278	inighty mottled brown (7,5 4/2 5/2)	
Iditional Commo	ents:	1-1 7-0	MANAGER AND THE PARTY OF THE PA	
iditional Comm				
iditional Comm				
ecovery: None		Partial	Complete	

	SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	1-0
Boring/Well ID:	(AFB-106247	Logged By: T. Messenger Page 32	of 58
USCS Soil Type PID Reading (ppm) Temperature (**C) UV fluorescence	re Rur covery pth, ft	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
	278	SAA - very strongly nottled to white (7598/1) Very strong for wacid (s.c.c.)  Lard — dry, nonplastic odor  SAA @ 277,51	
0.3	280	SAA @ 276' - clay - low plasticity, still, SIM	
	281	SAA @ 276' - clay - low plasticity, stiff, SIM Slightly mottled  @ 281 3AA - clay = 180% AH - 20% JM  Weakly mottled SLM	
(c) 30.4 J	282		÷
<u>(3</u>	284	283.75' SAA@ 280.25'	
CL) N	285	SAA - very stiff - low plasticity moderately matthed	
CL V N	286	san-med.still-still clay=85% no odo?  no mothling silt=15% no odo?	
(c) 46.4 N	8' 287	SMA@ 278-279'	
Additional Comments:			
		Id = feldspar   Y = Yes   N = No/None	
		y; B = biologic; W = moisture analysis; G = geotechnical; $UV = ultraviolet$ ; T = thermal cond A = Angular, $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coorse$ , $C = Croyol$	luctivity

EA	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	61
Boring/Well ID: KAFR		58
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
(0)	287 Clay-6 rown (10 YR 5/3) soft-med. stift, sum 1 low plasticity Clay: 85% silty clay silt: 15%  288	
Cu J	SAA @ 280.25'-281'V.Stit, SLM low plasticity  Slightly mothled to white  (10428/1) (xm w/acid	
(U)	790	
(2) 46.4 N	Clay-dank grayish Grown (107R 4/2) v. stift, sem / /ow plastic. try, weakly mottled to very pale Grown (104R 8/2) weakly mottled to very pale	
Ci N	291.5' no mottling - silty clay SAAQ287'	
Ci) N	293 V	
ci N	V 294 & 280-291' dry to SLM	
(Cc) 1 N	SAA moderately mottled hard dry	14 to
	296	
Additional Comments:		
Recovery: None	Partial Complete	
SAA = Same as Above Qtz = qu	1 1111	
	H; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conduction $A = Angular$ , $A = Angul$	ctivity

		SONIC CORI	ING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland			Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFE	3-106247	Logged By: T. Messenger Page 34 of 2	58
USCS Soil Type PID Reading (ppm)	UV fluorescence Samples collected	Core Run Recovery Bepth, ft bgs Gus Bus -	fines (silt/slav)	Well etails
Ĉb C	N	294	no mottling, dry, hard	
cy	J	248		
(3)	لو	299		
(2) (3) (0.8) 41	N g	Foor Sun Cars	to 299.25  rly graded sand-grayish Grown (107R F/z) loose, SLM  and 952: VF=252 F=65% M=102 trace coarse sand  s, feld, lith) 54-52; 5: H=5% Nonplastic	
50.8	<b>.</b>	301	54A U/genvel 908 sand 5% silt 5% genvel to 1"(Otz+lith)  9301-301.75' light gray fork =/1)  301.25-302'-light Grownish gray (1042 6/2)	
30	N	302	<b>)</b>	
54)	N	303	SAA w/ trace gravel to 1" (lith)  sand: 95% silt: 5%	
50	N	304		
39	N	305		
Additional Comm	ents:			
Recovery: None		Partial	Complete	
SAA = Same as Al			feldspar Y = Yes N = No/None	
			= biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductiv	ity
			Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, C = Gravel	

EA	SONIC CO	RING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	
Boring/Well ID: KAF	B-106247		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  gravel  gravel minerology  angularity/roundedness  fines (silt/clay)	Well Details
GW 469 N	305 0	well gladed gravel w/sand - Grown (104R 5/3) loose, Sum gravel = 70% up to 23/8" (atz+lith) gard = 30%: F=20% m=40% C=20% (atz, feld, lith)	
500)	306	uell graded sand w/gravel - 1:34t browaish gray (1078 4/2) lowse, sign - sand = 60%: F= 15% M=60% C=25% lowse, feld, lith); gravels 40% up to 1'/4" (atz+lith) sA-SR trace clay  According	
	364	SAA (2) 305 306' - light Grown. sh gray (104R 6/2)  gravel = 65% of to 14"  sand = 35%	
53.0 N	310		
GW 0.5	311	5AA - brown (104P 5/3)  grand = 70% up to 1/2  Fand = 30%	
6W N	312	SAN	
	3/3	SANT  312.75 - 313.5' - light gray (10 TR 7/2)  -312.75 - 3141 - gravel = 758 up to 1/2"  5 Ath  313.5-3M' - pale 6 rown (10 4P 6/3)	
Additional Comments:	314	313.5-341 - Pale Grown (104P-6/3)	
raditional Comments.			
Recovery: None	Partia	1 200	
SAA = Same as Above Qtz = q		d = feldspar Y = Yes N = No/None	
		; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con-	ductivity

		ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF		Project Number: 62735DM02.1017 Date:	,
Boring/Well ID:	KAFB-106247		•
USCS Soil Type PID Reading (ppm) Temperature (*C)	Samples collected  Core Run  Recovery  Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)  Det	
5w 53.0	315	I growel: 52 up to 1/2" (aterlith) SA-SR - Frace sitt	
500	316	315-315.5'-poorly graded sand - pale brown (10/2 48) loose, stand sand = 1002: F: 70% M=30% trace coarse sand - trace gravel to 1/5" (atz) lith) 4 (atz, feld, lith) sansk  515.5-316 - SAA @ 314.5-315'-sand: 70% grave): 30% up to 2"	
500	317	\$ to 316.75'	
5P) 1		(@317.5'-318'- light gray (1078 7/2)  3M Sand -986 Sand: 85 %  3 Favel: 10% up to 2" sitt: 5% Nonplastic	
3	3,19	SAA W/more gravel  Sand = 706  gravel = 25% up to 11/2"  Sitt = 5%	
59) 53.1 N	1320	SAH Q 314.5 - 315' - pale brown (1048 6/8) Sand = 85% grased = 15%  Frace cobble to 3 18 11 - 11th	
500	32/		
3M) 1	322	well graded gravel w/sand - pale 6 sowr (104R 6/3) looze  SUM - gravel = 80% up to 25/8" (Qtz + lith)  Saind = 20%: F = 30% M = 50% C= 20% (Qtz + fell, lith) SRSR  trace silt  No. 200	
Additional Comments:	373	SAA - trace coloble to 31/2" (1.th)	
raditional Comments.			
Recovery: None SAA = Same as Above	Part  Otz = quartz	1 100	
		Fld = feldspar Y = Yes N = No/None gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivit	v
		A = Angular, VF = Very Fine F = Fine M = Medium C = Coarse C = Cravel	J

		SONIC C	CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland			Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB	-106247	Logged By: T. Messenger Page 37	of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence Samples collected	Core J Recov Depth	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5W 5W	N	323	well graded Fand w/gravel - light brownish gray (10 YR 6/2) 1005e, 5LM - Sand = 708: F= 207 M= 70% (-10% (atz. feldy) 1. th) growel = 25% up to 13/4 (atz. flith) silt= 5% nonplastic  C@123.75'  SAA @ 315-315.5' - light grayish brown (10 YR 6/2)	
59 53.	NN	325	SAM @ 315-315.5'-light grayish brown (104R 6/2)  SAM = 85%  Grand = 10% up to 1"  Six = 5% non-plastic  @ 2015-SAM W/ back Benied to 2" + throws Sitt	
7) 19)	N	326		
(GW) 1	N	327	grave w/ sand SAA@321-328 light Grownish gray (1088 6/2) trace cobble to 4" (1ith)	
	M	328		
(6 NO) 36.	N	329	SAA w/less gravel gravel = 652 sand = 15%	
GM	N	330		
6W)	٨	331	well graded gravel = 15:1+ - 1:94+ gray (107R 7/2) 10058, 5LM  gravel = 50% up to 2 1/4" (et 2 + 1:th); 5and = 40%: F=40% M=50%  C=10% (Q+2, feed, 1:th) SA - SK; 5:1+:10% Nonplastic	
SP Additional Comm	N ents:	3332	C=10% (Q+2, feld, 1:th) SA-8K; sil+:10% Nonplestic  (+0 331.5 As odo)  Clay-Grown (3.572 5/2) dry, 10W plasticity, hard  An odo?  SAA (0 323 75 - 325 5 5 5 and = 90%	
			gravel: 5% 4 to 5/8"	
D			silt + 5%	
Recovery: None	ove Qtz = quar	Par	1 800	
SAA = Same as Ab Samples: V = VOC			Fld = feldspar Y = Yes N = No/None egy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conc	Inativity
			c, A = Angular, VF = Very Fine . F = Fine, M = Medium, C = Coarse, G = Gravel	incuvity

EA			SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl					/ -	Project Number: 62735DM02.1017 Date:	
Boring/Well	ID:	KAFB.	-/0	60	247	822	of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
500	l l			1	333	SAA @ 323 - 323.75 ft M=60% C=15% Address To 1" M=60% C=15% Address To 1" Address To 1	
	36.1		1	1	334	SAA @ 321.75-322 / to 333.25'  provid graded sand — pale brown (10 YR 6/3) loo so 5 LM  sand = 90%: F=20% M=70% (=10% (4tz, feld, 14th)  graviel = 10% up to 1/8" (Qtz+1ith)	
SW)	N		1	1	335	( SAA - brown (10 4 R 5/3) gand = 80% grast = 20%	
50)	V		V	11	33,6	Foorly graded sand-pale brown (104R 6/3) 1005e, SIM - SAND=100% F=35% M=65% Hace coarse sand + gravel to 3/8" (atz+1ith) SA-SR J	
(F)			1	1	337	SAA W frace silt	
9	ارم			1	338	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
5M)	29.1		10	1	339	5AAQ 333.25-3341 sand = 70%  grand = 30%  frace sitt  SAAQ 335.75-336'- light gray (10xR 7/2) v  trace course sand a grand to 10 (atz-1.th)	
7	الما			1	340	trace course send a grave to 10 (dt2-1.4h) - @339.5-340' SAA- Pale Grown (1542 6/3)	
58 0.8 (5W)	N			1	341	SAM @ 338 - 338.75° brown (10 YR 5/3)	
Additional Co.	mments:				11	31111 C 3/3)	
			-				
Recovery: N					Part		
SAA = Same as		Qtz = quart				Fld = feldspar Y = Yes N = No/None	
						y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond A = Angular VF = Very Fine E = Fine M = Modium G = George G = Grand	luctivity

			SC	N	CC	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirt			,	- /	/ =	Project Number: 62735DM02.1017 Date:	a
Boring/Well	ID:	KAFB	-/0	160	247	The state of the s	of 58
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5¢)		N .		1	341	clayey sand w/gravel - brown (1042 5/3) loose, SLM (NSO) Sand = 70%: F= 20% M=65% C=15% (etz, feld, lith); ODOR gravel = 10% up to 1/8" (etz+lith) GA-SE; clay= 20% as nodules * chunks - brown (7.5 YR 5/3) still; med. plasticity poorty graded Band of clay = light 6 rounish gray (cotr 6/2) loose, suparand=90%: F= 40% M=60°H (ets, feld, lith) sq-52; clay=10% norplastic (342.25)	
(cv)		Ŋ		1	343	clay-olive gray (54 5/2) SLM, Still (odo)	
a	29.1	Ņ	10	1	344		
5M		N		1	345	SAA@ 342-342.25' but w/silt - sand=903 L to 349.5'  SAA@ 342.25 - 344'	
50	V	N	y	1	346	Poorly graded sand - grayish Grown (164R 5/2) 1005e, sign (erz. field, lite) sand = 195%: VE=15% F=40% M=45% trace coarse sand (erz. field, lite) sanse; silt=5% nonplastic - trace grade 1 to \$18" (lite)	
SP)		<i>J</i>		1	347	SAA(0 335.75 - 336  346.5-347.25 - 226( graded gravel w/sand-light brownish gray (1048 6/2) loose, sym - gravel = 65% up to 2" (atz+lith)  sand: 35%: F=202 M=65% C=15% (atz, feld, lith) SA-512  no odor	
523)	48.2	J		1	348	Well graded Sand (gravel - light 600 wish gray (10 /2 6/2) 1005e, SUR Sand = 702: F=15% M=65% C=202 SA-52 Cotz, feld, ith); gravel = 302 up to 218" (Qtz +1ith)	
SW		V	10	1	349	SAA W trace silt graval op to 15/8"	
SW		N		1	350		
Additional Co	omment	s:					
Recovery: 1					Par	1 DIV	
SAA = Same a						Fld = feldspar Y = Yes N = No/None	
						gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	luctivity
Roungea.	0 - 10	aprounded, 5/	1-0	1111231	PHIAR	A = Angular, $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $C = Coarse$ , $C = Cravel$	

E					S	ON	IC C	CORING BORING/WELL CONSTRUCTION LOG	
_	t: Kirt			111-0		- /	/-	Project Number: 62735DM02.1017 Date:	-:/
Boring	g/Well	ID:	- /	KAFB	-/0	26	247	(1.1.1000116.	8
USCS Soil Type	PID Reading (ppm)	Temperature ('C)	UV fluorescence	Samples collected	Core Run	Becovery	Depth, ft bgs	gravel minerology angularity/roundedness	Well etails
500)	1.1		<b>y</b>			/	350	350-350.5' sand= 95%; grave= 5% up to 1"  350-351 SAA No trace sitt	
(5)			N			1	352	351-351.5' sand = 25%; gravel = 15% op to 21/4"	
SW			N			1	353	grand = 90%: F-25% M=65% C=10% pale 610wd grand = 10% up to 1" trace 5.14 (108R 6/3)	
ŚW		48.2	N		10	1	354		
50	or or or or or or or or or or or or or o		Ŋ			1	355	Sand = 85%; gravel = 15% up to 11/2"  light Gowaish gray trace silt  GOTR 4/2)	
SW)		V	J		V	1	356	355.5-356' no trace sitt	
53)			N			1	357	126725	
50		38.1	~		10	1	358	\$ 357.25' \$ 5AA@ 345.5-346' light Grownish gray (104R 6/2)	, sin
59			N			1	359		
Additio	nal Co	mmen	ts:						
							-		
Recove							Part	tial Complete	
SAA = S				z = quar		2.1.4		Fld = feldspar   Y = Yes   N = No/None	
R = Rou	v = v	SR = S	ubrou	nded SA	= Sn	han	erolog onlar	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductive $A = Angular$ , $VF = Very Fine$ , $F = Fine$ , $M = Medium$ , $G = George G$	ity

				SC	NI	CC	ORING BORING/WELL CONSTRUCTION LOG	
	Kirtland B	FF	111-1		. ,	/ -	Project Number: 62735DM02.1017 Date:	
Boring/V	Well ID:		KAFB-	-10	60	247		of <u>58</u>
USCS Soil Type	PID Reading (ppm) Temperature ('C)	UV fluorescence	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
50	_			1	1	359	\$ to 359.25' no alor	Details
5W)	.1	/			1	360	SAA @ 354-355'	
SM		N	~~~~~		1	361	5ilty sand - Pale brown (1048 6/3) loose, SLM sand = 70%: 4F = 35% F = 55% M = 10% (atzfeld, lith) SE silt = 30% nonplastic	
SP- SM		J			/	362	SAA w/less silt - light yellowish browylo 1R 44) loose sim - sand=90%: VF=25% F=75% trace Med. sand (Qtz, feld, lith) SA-SE; silt=10% nonplastic	
59	38.1	N		10	1	363	SAA w/less silt - Pale Grown (10 (2 6/3) losses stan fund = 100%: F= 40% M=10% (ats, feld, lith) SA-SE trace silt	
SP		N			/	364	GAA - Sand=100%: F: 30% M= 70% trace coarse sand trace gravel to 1"(1.74)	
3P)		Ŋ	*******		1	365	this stoniphom is for 364-366'	
S89	V	N		Y	1	366	gravel w/sex	
BC		N	an der service of the service designation are re-		1	367	well graded fand or/gravel and clay - brown (1048 5/3) loose sum -gasted = 50% up to 21/2" (atz+lith); sand = 40% (109) F= 25% M= 55% C= 20% (atz, feld, lith) sanse Clay=16% as nodules + chunks - brown (7.5485/2) and brown (10485/3) very stiff, med. plasticity	
GC GC	40.1	N		10	1	368	brown (10 TR 5/3) very stift, med. plasticity	
Additiona	al Commen	ts:						
		-				-		
Recovery	: None					Part	ial Complete	
	me as Abov		Qtz = quart			_	Fld = feldspar   Y = Yes   N = No/None	
							gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity
K = Roun	ded. SR = S	ubre	unded SA	= SII	han	oular	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl		1 /6/ 0//	Project Number: 62735DM02.1017 Date:	
Boring/Well I	D: KAFK	3-106247		of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C) UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
KWY	1	1 \ 368	/	Details
(3) (3)	N N	369	SAR W/less clay and silt gradel = 50%; sand = 40%; silt=10%  clay - 600 un (7.58 5/3) sim, hard - 10 w plasticity  P to 369.25' Poorly graded sand - pale 600 wn (108 6/3)  Sim, loose - sand = 95%: VF=15% F=75% M=10%  Kace coanse sand (ato, feld, 1 ith); gravel = 5% up to 114" (1ith)  Sport 370.25' = 370-370.25' sand = 65% gravel = 35% up  San wimole gravel sand = 65% gravel = 35% up	
60		370	Race coarse same (archery trans, graves 5 of Frace Site	
6M)	N	371	Well graded gravel = 50% up to 2/2" (atz+1:th) sp - Sand = 35%: F=202 M=652 (=152 (atz+1:th) SP	
(gw)	1/6.1 N	372	Silt = 5% non plastic	
(SP)	V	37-3	SAA @ 369.25-370.25' Strece sitt	
<b>A</b>	J	374	373-374' SAA W/More gravel  Sand = 858  gravel = 152 trace silt	
(A)	1	345	SAA @ 370.25 - 372' - gravel = 75% up to 2"  truce sitt send = 25%: F-C SAA	
GM GM	Ų,	371	375-376' SAA @ 374-375  pave = 65% up to 25/8"  Sand = 35%: F=20% M=50% C=30% LOWA (104P)	
GW	T	10 377	Gravel = 55% up to 21/2"  5 and = 45%: F = 30% M = 60% C = 10%  no trace sit	
Additional Cor	nments:			
Recovery: No	North of Control	Part		
SAA = Same as		THE PARTY OF THE P	Y = Yes   N = No/None	
			$S_{XY}$ ; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	ductivity

	EA	SONIC CORING BOR	ING/WELL CONSTRUCTION LOG	
Solid   Perriphon   Perrial   Perr	Project: Kirtland BFF			ite:
Seconstrict   Seconstrict	Boring/Well ID: KA	1FB-106247	Logged By: T. Messenger Page	ge 4/3 of 58
State   Stat	USCS Soil Type PID Reading (ppm) Temperature (*C) UV fluorescence	Samd (include % sand minerology % gravel angularity/round % fines (silt/clay	Soil Description  ell color; density (primarily coarse)/consistency & plasticity grain size %; fine, medium, coarse, etc.)  gy  dedness y)	Well
385   SAN   385   SAN	(60)     N	377 SAM	- gravel=802 vp to 3"  sand=202: F=15% M=65% C=202  no trace sitt	<b>\  \  \  \  \  \  \  \  \  \  \  \  \  \</b>
1	GW N	379	gravel up to 21/2" trace cobble to 4"	
381-382 SAA - Pale brown (10 Yr 6) 2 Sand = 802: F: 302 M = 552 C: 158  Tand = 652 Very pale brown (10 Yr 7/2)  383  384  385  385  386  387  387  388  388  388  388  388	SW N	well graded  Sum _ sa  grave (= 3)	50.5 trace colle & 3 % "  5 and w/gravel - brown (104 & 5/3) 100  nd = 702: F: 202 M: 652 (:152 (Aton field)  020 ve to 3" (012) 15652	Se St.
Additional Comments:    Complete	500)	381-382 Sand= 76 382 Floral=	5AA - pale Grown (104R 6/3) 52: F=302 M=552 C=158 308 up to 13/4" trace silt	
Additional Comments:    Complete	500)	383	grand=65% very pale 6100 7/3) grand=30% (1042 7/3) 5:1t=5% nonplastic	
Additional Comments:    Complete	54)   1	384		
Additional Comments:  Recovery: None Partial Complete  AAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	500	385	*	
Recovery: None Partial Complete  AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	500	V 386 V		
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Additional Comments:			
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity				
AA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None amples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity	Recovery: None	Partial	Complete	
	SAA = Same as Above Qtz =	quartz Fld = feldspar	Y = Yes $N = No/None$	1-11
				ermal conductivity

	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	
Boring/Well ID: KAFB	-106247 Logged By: T. Messenger Page 44 of 5	8
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence Samples collected	$  \vec{S}   \vec{z}   = -\%$ fines (silt/clay)	Well etails
5W)   N	1386   light bownish gray (1088 6/2) 10050, SLM   SAND = 90%: F. 20% M= 65% C=15%   grave = 10% up to 1/4"     2887   eloq - 11947 6 10wn (7.548 6/3) SLM, hard, med. plasticity (387.25)     Lisell graded sund = 1/4 are = 1/4 forwar (1048-6/3) 10058     Sun - Sand = 70%: F226% M=502 (=252 (arz.filx, 1.44))     3888 grave = 25% up to 15% (4z.lith); clay = 5% nonplastic	
SP) /	L 388 < 1	
9W 1.5 36.3	289 Sand = 95%: VF: 202 F=606 M: 202 trace cooses sand (atz, field, 1ith)  L to 389.25' Hace gravel up to 13/8" (1ith)  well graded sand - SAA @ 387.06-387.25'  gravel up to 25/8"  gravel up to 15/8"  sand = 75%  gravel: 25% Hace silt	
9.W N	391 grand = 25% Hace sit	
5W) /	393 - 393.25' Sand = 75%; gnasel = 20% light gray (cork) sitt; 5%	
	7AA @ 388.5 - 389.25' - 5P - pale Grown (1081-6/3) Hace graves up to 1" time clay as nothing - red (2.58 4/8)	
Additional Comments:	SAA- no trace clay	
Recovery: None SAA = Same as Above Qtz = qua	Partial Complete  rtz Fld = feldspar Y = Yes N = No/None  l; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductive	vity

EA			SONIC	CORING BORIN	G/WELL C	ONSTRUCTION LOG		
Project: Kir					Project Num	nber: 62735DM02.1017	Date:	
Boring/Well	ID:	KAFB.	-10629	7	Logged By:	T. Messenger	Page 45	of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	Samples collected	Core Run Recovery		color; density (prain size %; fine,	il Description rimarily coarse)/consistency & medium, coarse, etc.)	plasticity	Well Details
50	363		10 2				<u> </u>	
(SP)		/	3	7	(5)/6	dan la la malia va		
SW	N		3	Sim - Sand (ara, feld, (ith); Wace silt + t	and organ = 85%: F: gravel = 15% tace clay a	el-pale brown (10 YR 25% M=60% C=15% up to 1%" (etz+lith) shodules — light dive (2.5	54-54- 610WA 7 5/3)	
30	la la		3	SAA @ 39	4-395 Soud=95 5:1+5	-light gray GOYR i	P(2)	
519	48.3	)	10 3	SAA @ 398- SAA @ 398- trace cobble	399' trace	gravel=10% sitt=:  gravel to 1/4" (lit sandragerei) comeated b  gand = 70%  gravel = 30% up to	somplastic	<u>x</u>
(0.3)	)    - 	!	4	1	Tac	e silt	1	
<b>39</b>	al		4	SAA @ 398 pale Grown (108 No Hace	5-399 ( 5 PC 6/5) ( F.H Su	and= 90%: F: 30% M. trace coanse sund wid: 10% up to 1%	= 70Z "	
9	W		4	402.75 CIN - brown	The second second	hard Sem somple	estic	
514	N		4	5AA 0 397 Hace	1-398' no chile to	hard, sem, nonple wace clay 4"(lith)	V	
Additional C	None			artial 🎞	Comple	te 💹		
SAA = Same	as Above	Qtz = quar	tz	Fld = feldspar	Y = Yes	N = No/None		
						G = geotechnical; UV = ultravi		ductivity
rk = Rounded	SR = Sub	rounded SA	= Subanar	A = Angular VF = V	ary Fine F - Fin	e M = Medium C = Coarse C =	Cuand	

		SONIC CO	RING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland		101 01/2	Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB	-106247	Logged By: T. Wessenger Page 46 of	58
USCS Soil Type PID Reading (ppm) Temperature ('C)	UV fluorescence Samples collected	covery	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
983	u l	405	1404.751 no trace cobble addr	
983	N	100	GAA Q 404-404.75	
\$P	4	407	Footly graded sand - pale Grown (10 YR 6/3) loose, SIM sand = 95%: F = 50% M = 50% (2+2, feed, 1 ish) SA-SR 5:1+2 5% Nonplastic	
W	N	408	well graded sand - pala brown (1048 6/3) 1005e, SLM Sand = 95%: F=20% M=60% C=20% (642, feldy 1.4h) gravel: 5% up to 1"(Qtz+lith) 5A-5R trace 5.7t	
· 1 41.1	Ŋ	409	5MA - Sand: 90% gravel: 10%	
	N	16 410	SPA Q 406-407' trace coanse sand light gray Sand=902 gravel=5% up to 1"(aterlith) silt: 5%	
0.2	N	411	Sand= 95% silt=5% trace graved to 1"  trace clay as nodules — dark redish brown (542 3/4)	
)	<i>I</i>	412	SAM - no trace clay or gravel Sand=100%	
	N	413		
dditional Commer	nts:			
ecovery: None		Partial		
A = Same as Abov			l = feldspar Y = Yes N = No/None	
Rounded SR = 9	Subrounded SA	= Cubangular A	B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu	ctivity

		SONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland B			Project Number: 62735DM02.1017 Date:	
Boring/Well ID:	KAFB	-106247		of <u>58</u>
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence Samples collected	Core Run Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
9		1 413	S SAA @ 411-412'	
(a) (3)	1	2)14	SAA@ 408-4091 no have sit (413.5-413.75)	
SP) 41.1	N	10 415	GAA - trace coarse sand trace gradel to 3/4" (lith)	
CV FD	h	4/16	clay - Grown (7.5 YR 5/3) hard -dry to SLAM strong run lowplasticity - slightly mottled to white (7.5 YR 8/1) w/acid (5.09)  SAA @ 414-415' The trace grave to 3/8"	
^	N	417	416-418 NORECOVERY	
mi) 51.2	N	418	Silt - light gray (1082 7/1) soft, dry, nonplastic sitt-100% - trace closes as notherles - dark brown very strong (xn wacid (1082 3/3)) odd)	
My	4	420		
MD 4.5	1	X 421	trace gravel + solbles of highly conenfed F-C sand -same color 1017, Same strong rxn w/acid	
m)	N	422		
Additional Commen	its:		A ala and hintly district	
			IN 10 000 Jughty Worth 6	elide \
Recovery: None		Part	tial Complete	urince)
SAA = Same as Abov			Fld = feldspar Y = Yes N = No/None	
			gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond. A = Angular VF = Very Fine $F = Fine M = Medium C = Coarse G = Gravel$	ductivity

	7			SON	VIC C	ORING BORING/WELL CONSTRUCTION LOG	
	Kirtlan					Project Number: 62735DM02.1017 Date:	
Boring	Well ID:		KAFB	-106	247	Logged By: T. Messenger Page 48	of <u>58</u>
USCS Soil Type	PID Reading (ppm)	Temperature (C)	Samples collected	Core Run	Recovery Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
MD			)		423	SAA - no trace gravel + collises + clay	
MU	5	1.2	)		424		
ML		N			X 425	( to 425.5'	
P		1		V.	426	foothy graded sand - light 6 rownish gray (10 YR 6/2) 100 SE, sim sand = 100%: F= 80% M= 20% (erzyfell, lith) SE trace gravel to 3/8"	
5P)		P	,		427	Q 427-427.25 - highly comensed F-M sand Strong Ten wacid — call che - white (7.5428/1)	
5P)					428	SAA @ 425.5-426 W/silt-pale Grown (10 TR 6/3) 1005e, SLM - sand= 90%: 80%=F M=20% (arz, feld,) th) 3A-SR - silt-10% nonplastic No frace gravel	
5M		- N		1	429		
58)	1.7	1		X	430	SAA @ 425,5-426' trace gravel to 1"	
My	nal Com	.3 N		5	431	SAA @ 418-419' 5:14-80% as rodules as Clay: 20% as rodules as }	
				A	0	18-226 highly disturbed calic	he)
Recover	ry: Non	-	Qtz = quar	tz	Part	ial Complete  Fld = feldspar Y = Yes N = No/None	
			-			ty; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con-	ductivity
R = Rou	nded, SR	= Sub	rounded, SA	= Sub	angular,	A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	

			SONI	CC	ORING BORING/WELL CONSTRUCTION LOG
Project: Ki			141		Project Number: 62735DM02.1017 Date:
Boring/We	11 ID:	KAFB	-1060	247	
USCS Soil Type PID Reading (ppm)	Temperature (°C)	UV fluorescence Samples collected	Core Run Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)  Well Details
mû		V		432	face F-C sand tace as above odes trace gravel to 1/2"
ML	65.3	N		433	1 to 432.75'
3D	63.	h	5'	434	SAA @ 425.5-426' prace gravel brown  SLM to 1"6 st  (433-435 not disturbed)
39	V	Ņ		435	
ML)		ol l		436	FAA @
5P)		4		437	Poorly graded sand - pale brown (1042 6/3) loose 51M Sand = 95% if = 202 F = 65% M=15% (atgfely 1:42) SASTE 5:11 - 5% nonplastic
59	21.2	,	6	438	438-438.25' SAA W/1855 silt + larger M. gand faction  Sand = 100%: F: 60% M: 40% trace coarse sand  Frace Silt
5P)		<b>N</b>		439	well graded sand - pale brown (104R 613) 1005e, SLM- sand = 95%: F. 30% M= 60% C=10% (atz, field, 15th) 5A5E gradel: 5% up to 2 /8" (1.7th) - to Im
(SW)		<b>N</b>		440	
Additional	Commen	its:	•	h	U30-432 hably tinhy took
				X	The state of the s
Recovery:	None			Part	
SAA = Sam Samples: V					Fld = feldspar Y = Yes N = No/None gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity
					gy, B = biologic; $W = \text{moisture analysis}$ ; $G = \text{geotecninical}$ ; $UV = \text{intraviolet}$ ; $V = \text{thermal conductivity}$ V = thermal conductivity $V = thermal conductivity$ $V = thermal conductivity$ $V = thermal conductivity$

EA	SONIC CORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtland BFF	Project Number: 62735DM02.1017 Date:	1.1
Boring/Well ID: KAFR		58
USCS Soil Type PID Reading (ppm) Temperature ('C) UV fluorescence Samples collected	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
5P N	1 440 (2 440-440.5' 5AA W/mo Fe gravel 35% up to 11/2" (441) 440.5-441 SAA Q-430.25-439! Gazel = 35% up to 11/2" (412+1:46)  Poorly graded sand - pale brown (10 48 6/3) 10058, SLM_ Sand = 100%: F: 40% M=60% trace course sand 9852 (45%; feed, 1ith); trace gravel to 1" (1ith); trace silt  442	
39 N 30 N	443  Very pale 6(own (10xp 7/3)  sand: 456 : F: 6020 M=4020  9570 5:14-520 nonplastic  SAA w/trace coarse sand  sand: 10020 trace 5:14  pale 65000 (10 xp 6/3)	
5P /	495 ) Pale 6 cown (10 YP 6/3)  SAA @ 443-444  446 V  Well graded sand - Pale 6 cova (10 YP 6/3) loo se SUM  Sand = 95%; F = 2520 M = 652 C = 108 (at 2, felly lith)  gravel: 52 up to 34" (at 2+1ith) 5A-5P	
	912 grave: 52 up to 3/4" (aterlith) SA-SR  SAA @ 441-442' trace gravel to 2"  Sand=95%	
Additional Comments:	Partial Complete	
SAA = Same as Above Qtz = qu:	4 600	
	H; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal condu GA = Subangular, A = Angular, VF = Very Fine , F = Fine, M = Medium, C = Coarse, G = Gravel	ectivity

PID Reading (ppm)  Figure (*C)  Temperature (*C)	KAFB-	106247	Project Number: 62735DM02.1017 Date:  Logged By: T. Wessenger Page 51  Soil Description	of 58
Î Î		100097		10
ading (ppm) ature ('C)	_			
PID Rea	OV iluorescence Samples collected	Core Run Recovery Depth, ft bgs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
31.2	U	9 449	S Codor	
0.3	U	450	well graded sand w/gravel - pale Grown (1042 6/3) loose sum - sand = 752: F = 40% M = 45% C=15% SA - (at 2, feld, lith); gravel = 25% up to 15/8" (at 2+1ith) SR	
) 555 N	J	31 452		
	V	453		
	J	454	frace clay as nodules - very drik grayish brown (rove 3/2)	
46.3	V	3' 455	SAA-NO trace clay light brownish gray  Sand: 852  Frank = 152 pp 6 14"  SAA - sand = 7502 pale brown (104 6/2)  gravel = 252 pp to 25/8"	
	/	456	V	A
34.9	)	457	SAA - light brownish gray (16 YR 6/2)  sand: 70%  grand: 30% up to 2"  trace cobble to 3 1/2" (1.7h)	
itional Comments		458		
tional Comments	··			
3.7				
very: None = Same as Above	Qtz = quartz		tial Complete  Fld = feldspar Y = Yes N = No/None	
			ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal col	nductivity

EA			SC	)N	IC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl Boring/Well I			- /	0/	21/7	Project Number: 62735DM02.1017 Date:	(4
Boring/Well I	w:	KAFB	-/0	160	297		of <u>&gt;0</u>
USCS Soil Type PID Reading (ppm)	Temperature (°C)	Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
SP)	1			/	459	SAA whose graded and 10 cabble sound= 40% cabble found= 30% cabble grand= 30% cabble grand= 30% cabble grand= 30% cabble grand= 30% cabble grand= 30% cabble sound= 30% cabble	
50) 5w) 0.7		J		1	460	SAA @ 458-458'  No colble  gravel = 30% up to 25/8"	
SW		v		1	461	(Sandy clay w/gravel - Pale olive (54 6/3) SLM, high plasticity very still - elay = 50%; gravel = 30% up to 2 %/ (ctr+tith) sand = 20%; F: 35% M = 55% (=/0% (atz, teld, lith) sand	
ED W	34.9	<i>y</i>	1	/	462	5 this discription is for 461.5-462'  SAA & 459.5-461.5' SAND = 60% gravel = 35% silt=5% nonveloption	
\$P)		V	10	1	463	SAA Q 459.5-461.5' SAND=60% gravel=35% silt=5% nonplastic  SAA Q 458.5-459.5' no trace graval  sand=95%  Silt=5% nonplastic	
3		/		1	464		
5P)	•	/		1	465	SAA - trace coarse sand trace gravel to 42" (Qtz+lith)	
P	V	,	y	1	466		
	44.7		14	1	467	<b>\</b>	
Additional Co	mments						
Recovery: N	Iona		_	_	Part	ial Complete	
AA = Same as		Otz = anor	17		_	al $\square$ Complete $\square$ Fid = feldspar $\square$ Y = Yes $\square$ N = No/None	
			_	mir		y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal confidence of the state of the s	ndnot-4
						A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel	uuucuvity

		S	ONIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: Kirtl:		117	1711	Project Number: 62735DM02.1017 Date:	201
Boring/Well I	D: K/	AFB-10	16247	Logged By: . Messenger Page 33	of <u>58</u>
USCS Soil Type PID Reading (ppm)	Temperature (*C) UV fluorescence	Samples collected		Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
SP	7		468	(Ados)	
50	14.7	4	469		
SP)	1	V	470		
(36) ITA	N	/	471	Moist brown (104P 5/3)	
(51)	N		472		
3P	14 h	\     6	473		2
GP.	N		474		
9	N FO	c,B,M	475		
Additional Con	ments:	V	4%		
			4.		
Recovery: No		- anout	Part		
		= quartz = TPH: M =		Fld = feldspar Y = Yes N = No/None y; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal cond	In addition
R = Rounded, S	R = Subround	led SA = S	uhangular	A = Angular VF = Very Fine $K = Fine M = Medium C = Coarse C = Crevel$	luctivity

	SONIC CORING BORING	WELL CONSTRUCTION LOG		
Project: Kirtland BFF	0-101 7117	Project Number: 62735DM02.1017	Date:	VS
Boring/Well ID: KAFE	3-106247	Logged By: Messenger	Page <u>54</u>	of 58
USCS Soil Type PID Reading (ppm) Temperature (°C) UV fluorescence		Soil Description  or; density (primarily coarse)/consistency & plast a size %; fine, medium, coarse, etc.)	sticity	Well Details
(3P) 1	1476 ( SA	A w/trace gravel to 1/8	(tim)	
58) N	478 Jab trace gra	W/silt sand= 952: F=652 M 5:1t: 5% nonplastic Sel grayish brown (10 YR 5/2)	1=31%	
(A)	(479 ) ÇA	A		
51) 1.4 425 B,M,I	480			-
To Soc	481 Q480.75	-482 SAA QUN-477 gravel=(Qtz)		
SP N	482	0 1 13/4/m		`
9	483 / Fac	ce gravel to 136" (1.7h.)		A second
(5)	484			
Additional Comments:	485			
Recovery: None	Partial #	Complete		
SAA = Same as Above Qtz = q	0.00	Y = Yes N = No/None		
		isture analysis; $G = geotechnical$ ; $UV = ultraviolet$		nductivity

	1.000	S	10	VIC C	ORING BORING/WELL CONSTRUCTION LOG	
Project: <b>Kirtla</b> Boring/Well II		KAFB-10	/	747	Project Number: 62735DM02.1017 Date:	e 58
Boring/Well IL	): 	KH10-10	60	147	Logged By: Messenger Page 55	of <u>50</u>
USCS Soil Type PID Reading (ppm)	Temperature ('C) UV fluorescence	Samples collected	Core Kun	Recovery Depth, ft	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)  sand minerology  % gravel  gravel minerology  angularity/roundedness  % fines (silt/clay)	Well Details
5P) 4	2.5 P		0	485	SAA Modes	
	N		, ,	487	well graded sand of gravel - 6 town (107R 5/5) loose moist - 5 and = 90%; f. 25% M= 65% C=10% (atz, feld, lith) gravel = 10% up to 2 4/8" (atz. 1.ith) trace 5itt	
SW	N		1	488	SAA /more gravel Sand = 75%  gravel = 25%  y to 488.25	
	٨	0 0./	,	489	SAA @ 482-483' trace gravel to 11/4" (abolith)	
	1 34.7 N	B,M,P,V Foc		490		
1.3	الر	)   "		491	496-492' removed for sampling	
	N		1	492		
	þ			493	well graded gravel w/sand - donk grayish brown (1018 4/2) 10052, MDist - gravel = 70% up to 27/8" (atzrlith) - 52. 5000d = 30%: F=20% M=60% C=20% (atz, feld, lith) 5A trace clay as nodules - same color (200)	
	N			494	5	
Additional Con	mments:					
Recovery: No		04		Par	1 000	
AA = Same as		Qtz = quartz · P = TPH · M			Fld = feldspar Y = Yes N = No/None gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal con	duativit
					$\Delta = \Delta \log \log C$ ; W = moisture analysis; G = geotechnical; UV = untraviolet; T = thermal con	uucuvity

			SO	NI	C C	ORING BORING/WELL CONSTRUCTION LOG	
	Kirtland B				,	Project Number: 62735DM02.1017 Date:	N
Boring/W	/ell ID:	KAFB	-106	24	7		of <u>58</u>
USCS Soil Type	FLD Keading (ppm) Temperature (°C)	UV fluorescence Samples collected	Core Run	Recovery	Depth, ft bgs	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.) sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Details
(FW)	317	N	6	1	494	( noder)	
(SW)	1	M	1	1	496		.
50°		P)		1	497	Well graded Sand W/ gravel +clay - grayish browd (10YP 5/2) 10058, Moist-sand = 50%: F= 50% N=65% SR C=15% (atzfell, lith); gravel = 40% up to 244" (atz+lith) spends clay = 10% soft, nonplastic -	
50°	31.3	<b>N</b>	4	1	498		
Sw)		N		1	499	SAA w/more gravel and loss clay  gravel: 50%  sand: 45%  clay: 5%	
(N)	.6 *	B,M,P,	V	1	Sov		
52)		N		1	501	(10 500.5' SAA'  well graded sand - gray ish Grown (10 Ye 5/2) loose Moist  sand-90%: F: 15% M= 75% C=10% (2022 food, life); gravel=10% of to?  (2022 11:11) SA=SR Mace clay	
520)	34.4	4	15	1	502	S C 152 M=452 (=202	
Sw)	al Comm	N		1	503	502-503' 5and = 802: F=152 M=652 (=202)  gravel = 202 up to 3"	
Addition	al Commer	us.		-			
SAA = Sa Samples:		EDB; P = TP	Н; М		nerol	Complete  Fld = feldspar Y = Yes N = No/None  ogy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal constant A = Angular, VE = Vory Fine, E = Fine M = Medium, C = Coarse, G = Gravel	aductivity

PID Reading (ppm)  Temperature ("C)  USCS Soil Type  Pip Reading (ppm)  Temperature ("C)	UV fluorescence Samples collected	Core Run		24-3 s5q	Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)	of <u>58</u>
(mc (:					Soil Description  soil type; Munsell color; density (primarily coarse)/consistency & plasticity  % sand (include grain size %; fine, medium, coarse, etc.)	of <u>20</u>
USCS Soil Type PID Reading (ppm) Temperature (*C)	UV fluorescence Samples collected	e Run	y	gs	soil type; Munsell color; density (primarily coarse)/consistency & plasticity % sand (include grain size %; fine, medium, coarse, etc.)	
		Cor	Recovery	Depth, ft	sand minerology % gravel gravel minerology angularity/roundedness % fines (silt/clay)	Well Detai
	<b>N</b>		1	503	SAFT @ 498-499 gravel = 60% of to 23/8" ( odo) Frace clay	
W [W	r		1	505		
5W) -5C)	N		/	506	SAA WALLE CLAY - Sand = 70% novel = 20% clay = 10% novel = 30% clay = 10% novel = 20% clay = 20% clay	
c)	N		1		SAA WI MOSE clay: Sand= 70% gnavel= 20% clay=10% porplasticity clayer sand - very pale brown (10 PP 713) 50ft, SLM (Qtz feld, lith) sand= 70%: VF= 35% F=65% trace medium sand (Qtz feld, lith) 54-58 clay=30% soft, high plasticity @ 306-506.151 F-Msand Nighty 506.75;	
	N	15	1	507	Clay = 90% med. plasticity; sand = 10%: VF = 35% F: 65% trace medium sand (atz, feld, lith) sA-SR - trace grand to 3/8" (1ith)	
50	N		1	509	clayer sand - light brownish gray (love 4/2) loose, slips SAA @ 506-506.75' clay soft + low plasticity	
in a	N		1		poorly graded sand w/silt-light brownish gray (1046 6/2) bose, gent of sand = 90%: VF = 26% F= 75% Have medium sand (9tz, fold, lith) SA-SE; silt=90% nonplastic	
2.7	N		1	511	poorly graded sand - SAA w/less silt moist sand: 95%: F=25% M=75% trace coanse sand filt=5% nonplastic trace gravel to 2" (1.7h)	
SP	ÿ		1	512	(atz, feld, lith) SK-SE; silt=90% nonplastic  poorly graded sand - SAA w/less silt moist  sand=95%: f=25% M=75% true coarse sand  silt=5% nonplastic  trace gravel to 2" (1.74)  SAA w/more glavel  sand=75% F-M afface C  gravel=20% up to 21/2"  silt=5% trace clay as nodules	
Additional Comme	nts:			Par		
AA = Same as Abo	ove Qtz = qu	artz			Fld = feldspar Y = Yes N = No/None	
amples: V = VOCs	E/EDB; $P = TP$	H; M=	min	ierolo	gy; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal co	nductivity

	8			SO	NIC	CORING BORING/WELL CONSTRUCTION LOG							
	Kirtland I		1/ =		, , , ,	Project Number: 62735DM02.1017 Date:							
Boring/W	Vell ID:		KAFB	-11	1624		f <u>.58</u>						
USCS Soil Type	PID Reading (ppm) Temperature (°C)	UV fluorescence	Samples collected	Core Run	Recovery Depth, ft bgs	angularity/roundedness % fines (silt/clay)	Well Details						
5P) 3P)	34.4	رر ر		15	514	SAA w/trace cobble to 3/4" (174)  Saint = 65%  Saint = 30% up to 2"  SAA - No thinge cobble  4							
				<b>V</b>	515	TD=515' seache 2-5-19 @ 1130							
Additiona  Recovery: SAA = Sar	: None		ufz = angri		Pa	artial Complete							
Samples: \	V = VOCs/	SAA = Same as Above Qtz = quartz Fld = feldspar Y = Yes N = No/None  Samples: V = VOCs/EDB; P = TPH; M = minerology; B = biologic; W = moisture analysis; G = geotechnical; UV = ultraviolet; T = thermal conductivity  R = Rounded, SR = Subrounded, SA = Subangular, A = Angular, VF = Very Fine, F = Fine, M = Medium, C = Coarse, G = Gravel											