

# TABLE 1 SUMMARY OF SOIL ANALYTICAL RESULTS

# TABLE 1 SUMMARY OF SOIL ANALYTICAL RESULTS SOIL ABATMENT AND COMPLETION REPORT TURNER B SOUTH TANK BATTERY SECTION 29, TOWNSHIP 17 SOUTH, RANGE 31 EAST LOCO HILLS, EDDY COUNTY, NEW MEXICO

			ANIONS			BTEX				TPH	
Sample Name	le Depth s)	Sample Date	Chloride	Benzene	Toluene	Ethylbenzene	Xylenes (total)	Total BTEX	GRO C <sub>6</sub> -C <sub>10</sub> Hydrocarbons	DRO >C <sub>10</sub> -C <sub>28</sub> Hydrocarbons	Total Petroleum Hydrocarbons
E C	Sample   (ft-bgs)	dwa	SW90506	8021B	8021B	8021B	8021B	8021B	SW8015	SW8015	SW8015
ဖိ	<u> </u>	ဖိ	mg/kg	mg/kg	mg/kg ONFIRMATION S	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SW-1	6	6/1/14	<16.0			SAMPLES AUC					
SW-2	6	6/1/14	<16.0								
SW-3	6	6/1/14	32.0								
SW-4	2	6/1/14	480								
SW-5	2	6/1/14	80.0								
SW-6	2	6/1/14	1,600								
SW-6B	2	6/3/14	96.0								
SW-7	2	6/2/14	32.0								
SW-8	2	6/2/14	2,360								
SW-8B	2	6/3/14	<16.0								
SW-9 SW-10	2 2	6/2/14 6/2/14	624 16.0								
SW-10	2	6/4/14	<16.0								
SW-11-1	2	6/5/14	366								
SW-12	2	6/4/14	112								
SW-12-1	2	6/5/14	288								
SW-13	2	6/4/14	<16.0								
SW-14	2	6/5/14	1,260								
SW-14B	2	6/6/14	192								
SW-15	2	6/3/14	816								
SW-16	2	6/3/14	64.0								
SW-17	2	6/3/14	32.0								
		2/2///	10.0		NFIRMATION	SAMPLES AOC		T	•	T	
B-1	2.5	6/8/14	<16.0								
B-2	2.5	6/8/14	32.0								
B-11 B-11B	1.5	6/8/14 6/9/14	1,960 2,120								
SW-1	1.5	6/8/14	<16.0	 		 				 	
SW-2	<u>·</u> 1	6/8/14	1,920								
SW-2B	<u>·</u> 1	6/9/14	2,000								
SW-2C	1	6/10/14	432								
SW-3	1	6/8/14	800								
SW-5	1	6/8/14	<16.0								
SW-6	1	6/8/14	<16.0								
SW-12	1	6/8/14	576								
SW-13	1	6/8/14	336								
SW-14	11	6/8/14	528		NFIRMATION S	SAMDI ES AGO					
B-1	2.5	5/28/14			INTIRIVIATION S	DAIVIFLES AUC		<u> </u>	<10.0	<10.0	<10.0
B-1 B-2	2.5	5/28/14							<50.0	130	130
SW-1	1	5/28/14				 			<10.0	<10.0	<10.0
SW-2	<u>'</u> 1	5/28/14							<10.0	<10.0	<10.0
SW-3	<u>·</u> 1	5/28/14							<10.0	<10.0	<10.0
SW-4	1	5/28/14							<10.0	70.1	70.1
SW-5	1	5/28/14							<10.0	<10.0	<10.0
SW-6	1	5/28/14							<10.0	<10.0	<10.0
					KFILL CONFIR						
BACKFILL 1		5/29/14	64.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
BACKFILL 2		5/29/14	64.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
Division (OCD)	o (NM) Oil Cor Default Reme evels for Soil	ediation Action	1,000	10	REGULATORY	STANDARDS		50			5,000

Concentrations in bold and highlighted yellow exceed the NM OCD Default Remediation Action Level.

NOTES:
"-" represents not analyzed.
"--" represents not applicable.

<sup>&</sup>quot;mg/kg" represents milligrams per kilogram.
"<10.0" indicates the analyte was NOT detected at or above the specified sample detection limit (SDL).
Concentrations in bold exceed their specified SDLs.



APPENDIX 1 REFERENCES

# References

Groundwater Conditions in Northern Lea County, New Mexico, Sidney R. Ash, United States Geologic Survey, 1963.

Soil Resource Report for Lea County, New Mexico, United States Department of Agriculture, National Resource Conservation Service, 2010.

Guidelines for Remediation of Leaks, Spills and Releases, New Mexico Oil Conservation Division, 1993.

# APPENDIX 2 SKA SOIL BORING LOGS



Peterson Drilling

SAMPLING METHOD

SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056 Fax: (713) 266-0996

**SOIL BORING SB-1** 

PAGE 1 OF 1

	PROFF IN TEAL
-	That Will
	BRIAN T. WEAVER
	GEOLOGY 5
	CENSED
-	12 12 14 GEV

PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** 

Solid Core Barrel with Disp. Sleeve 8/13/2013 8/13/2013 **BOREHOLE DIAMETER** CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** 

Direct Push Geoprobe

DATE STARTED

DEPTH TO WATER DURING DRILLING ▼

N/A STATIC DEPTH TO GROUNDWATER I

TOP OF CASING ELEVATION

LOGGED BY

Scott Drewry

DATE COMPLETED

ft.						ft.	
REMA	ARKS:	This bo	oring lo	g shou	ld not b	e used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
	X	100	10.1			0-12' Silty sand, brownish red, moist, loose, very fine.	+
			3.8				
			6.6				
-	$\geq$	100	4.0				
- 5 -	$\bigvee$	100	14.1	SM			
	$\triangle$		10.1				
		100	5.8				
-10-						9.75' Crushed rock/caliche present. 10'-12' No recovery.	$+ \mid$
		100	7.1			11.75" Silty clay, brownish red, friable, moist, cohesive, medium plasticity when wetted.	-
	X						
- 15-			6.8				
				CL			
		100	2.4				
			5.6				
-	$\backslash  $		5.0				
_20_							
						Bottom of borehole at 20.0 feet.	



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056

**SOIL BORING SB-2** 

PAGE 1 OF 1

Fax	: (713) 266-0996		
PROJECT NO./NAME		PROJECT LOCATION	NC
12009-0005 / Turner B Tank Battery		Section 29, Townsh	ip 17 South, Range 31 East
DRILLING COMPANY	DRILLING METHOD		LOGGED BY
Peterson Drilling	Direct Push Geoprobe	9	Scott Drewry
SAMPLING METHOD	DATE STARTED		DATE COMPLETED
Solid Core Barrel with Disp. Sleeve	8/13/2013		8/13/2013
BOREHOLE DIAMETER	CASING TYPE / DIAM	IETER	SCREEN TYPE / SLOT SIZE
2 inches	/		/
GRAVEL PACK TYPE	GROUT TYPE		GROUND ELEVATION
	01 00 00 M		N/A

BRIAN T. WEAVER
GEOLOGY
274
CENSES CENSES

DEPTH TO WATER DURING DRILLING ♀ -- ft.

STATIC DEPTH TO GROUNDWATER ▼

TOP OF CASING ELEVATION

REMARKS: This boring log should not be used separately from the original report.

Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
	X	50	4.5	SM		0-2.5' Silty sand, brownish red, moist, loose, very fine.	
						2.5'-4' No recovery.	
- 5 -	X	75	22.8 16.8	SM		4'-7' Silty sand, brownish red, moist, loose, very fine.	
						7'-8' No recovery.	1
 -10- 		100	2.0			8'-18' Silty sand, brownish red, moist, very loose, very fine.	
	X	100	8.9	SM			
		50				15.5' Crushed rock, caliche, and calcareous smearing present.	
						18'-20' No recovery.	
-20-						Bottom of borehole at 20.0 feet.	-



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056 Fax: (713) 266-0996

**SOIL BORING SB-3** 

PAGE 1 OF 1

	PROFESSIONAL SEAL	1
	STATE OF TELES	l
	811	l
		1
	James & Course	
	BRIAN T. WEAVER	
	GEOLOGY S	
_	274 5	
E		
$\dashv$	SONAL TO GEOSE	
- 1	(2 (3) 14 & GE	
	1-14	

PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/13/2013 8/13/2013 BOREHOLE DIAMETER CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/

GRAVEL PACK 1  DEPTH TO WATI  ft.  REMARKS: This I  (sbq q, tt)  Samble  75	boring lo (Edd)  17.5  5.6  12.4	U.S.C.S. GRAPHIC	ft. t be used separately from the origin	N/A ROUNDWATER ▼  al report.  LITHOLOGIC DE		ELEVATION
DEPTH TO WATI ft.  REMARKS: This I  (g)  Sample S  A  Too	17.5 5.6 12.4	U.S.C.S. GRAPHIC	STATIC DEPTH TO GR ft.  t be used separately from the origin  0-3' Silty sand, brownish red, r  2.5' Dark staining and odor pre	al report.  LITHOLOGIC DE	ESCRIPTION	
ft. REMARKS: This I  Upon the content of the con	17.5 5.6 12.4	U.S.C.S. GRAPHIC	ft.  t be used separately from the origin  0-3' Silty sand, brownish red, r	al report.  LITHOLOGIC DE	ESCRIPTION	
Depth (ft. bgs) Sample Sample Sample	17.5 5.6 12.4	U.S.C.S.	0-3' Silty sand, brownish red, r	LITHOLOGIC DE		
75	17.5 5.6 12.4		0-3' Silty sand, brownish red, r	noist, loose, very fine.		
75	17.5 5.6 12.4		0-3' Silty sand, brownish red, r	noist, loose, very fine.		
75	17.5 5.6 12.4		0-3' Silty sand, brownish red, r	noist, loose, very fine.		
75	17.5 5.6 12.4		0-3' Silty sand, brownish red, r			
100	5.6		2.5' Dark staining and odor pre		•	
	12.4	SM	2.5' Dark staining and odor pre 3'-4' No recovery.	sent.		
	12.4	SM	2.5' Dark staining and odor pre 3'-4' No recovery.	sent.		1
			2.5' Dark staining and odor pre 3'-4' No recovery.	sent.		1
			<ul><li>2.5' Dark staining and odor pre</li><li>3'-4' No recovery.</li></ul>	sent.		4,
			3-4 No recovery.			
	13.6	40				
- 5 -		1 1000 51	4'-16' Silty sand, brownish red,	moist, loose, very fine	е.	
	3.0					
L 1 X I						
100	8.1					
-10-	12.2	SM :				
100	25.9		: 12' Becomes dry and very loose			
	20.0		. The becomes dry and very loose	),		
	15.5					
	15.5					
15						
	10-		15.5' Crushed rock/caliche prese	ent, grey color.		
100	16.5	CL ////	16'-17' Silty clay, brownish red, f	riable, cohesive, high	plasticity when wetted	1.
			17'-20' Silty sand, brownish red,	moist, very loose, ver	v fine.	
				, , 10000, VOI	,	
	15.3	SM				
-						
-20						
20				Bottom of borehole a	at 20.0 feet.	
						i i



12009-0005 / Turner B Tank Battery

Solid Core Barrel with Disp. Sleeve

PROJECT NO./NAME

**DRILLING COMPANY** 

SAMPLING METHOD

BOREHOLE DIAMETER

**GRAVEL PACK TYPE** 

Peterson Drilling

2 inches

SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080

Telephone: (713) 266-6056 Fax: (713) 266-0996

PROJECT LOCATION

Section 29, Township 17 South, Range 31 East

**DRILLING METHOD** LOGGED BY Direct Push Geoprobe Scott Drewry DATE STARTED DATE COMPLETED 8/13/2013 8/13/2013 CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE ---- / ---------/ **GROUT TYPE GROUND ELEVATION** N/A

**SOIL BORING SB-4** 

BRIAN T. WEAVER

GEOLOGY

PROFE

PAGE 1 OF 1

						N/A	-14
DEPT	ГН ТО	WATE	R DUR	ING DF	RILLING	Z STATIC DEPTH TO GROUNDWATER ▼ TOP OF CASING ELEVA	TION
REMA	ARKS:	This bo	oring lo	g shou	ıld not be	used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
		75	408 744	SM		0-1.5' Silty sand, brownish red, very moist, loose, very fine, odor present	
			20.1	sw		1.5' Sand, light brown, moist, loose, fine, apparent fill material.	
			-			3'-4' No recovery.	
- 5 -		75	23.6	sw		4'-5.5' Sand, light brown, moist, loose, fine, apparent fill material.	
-			20.3	SM		5.5'-7' Silty sand, brownish red, moist, loose, very fine.	
			-		24.543	7'-8' No recovery.	
	X	100	8.4	CL		8'-9.5' Silty clay, brownish red, medium stiff, moist, medium plasticity, cohesive.	
-10-			15.1			9.5'-15' Silty sand, brownish red, moust, loose, very fine.	
		75	15.7 9.6	SM		12' Becomes very loose.	
	X		14.2 10.5				
-15-			-			15'-16' No recovery.	
 		100	22.9 15.5	SM		16'-20' Silty sand, brownish red, moust, loose, very fine.	
-20-			7.8			18' Crushed rock/caliche and calcareous smearing present.	
						Bottom of borehole at 20.0 feet.	
				-			



2 inches

**GRAVEL PACK TYPE** 

SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056 Fax: (713) 266-0996

**SOIL BORING SB-5** 

PAGE 1 OF 1

		PRO	FESS	NOV	AL	SEA	L
		51	TE	OF T	EE	60	
	-		7	N		14	1
	No.	100	ce'	4	V	NA.	Ì
		BRI	AN T	. WI	EAL	/ER	1
	13	1	GEC	LO	GY		1
ZE	6			274		10	4
	3	1000	VAL.	ENS	以		4
	12	171	MIL	XC			

## PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/13/2013 8/13/2013 **BOREHOLE DIAMETER** CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZ

DEPTH TO WATER DURING DRILLING X STATIC DEPTH TO GROUNDWATER ▼

---- / ----

**GROUT TYPE** 

TOP OF CASING ELEVATION

----/

N/A

**GROUND ELEVATION** 

1	DEPTH TO WATER DURING DRILLING   ft.						STATIC DEPTH TO GROUNDWATER ft.	TOP OF CASING ELEVATION	
REMA	ARKS:	This bo	ring lo	g shou	ld not b	e used s	separately from the original report.		
Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG		LITHOLOGIC DE	ESCRIPTION	Water Levels
	X	75	26.2 3.8 3.5	SM			Silty sand, brownish red, very moist, very fine, I	oose, slight odor.	
-		100	7.6			4'-16'	S' Silty sand, brownish red, very moist, loose, ve	ry fine	
- 5 -	X	100	23.8			4-10	S Silty sand, brownish red, very moist, loose, ve	ry fine.	
 10		100	2.5	SM		8' Bed	ecomes very loose.		
		100	3.5						
-15-		100	9.8				Becomes dry with some gravel and calcareous		
		100	7.3	CL			B' Silty clay, brownish red, friable, moist, cohesi		
 -20-			3.2	SM		18-20	D' Silty sand, brownish red, dry, very loose, very		
							Bottom of borehole	at 20.0 reet.	



DEPTH TO WATER DURING DRILLING ¥

SKA Consulting, L.P.

SOIL	<b>BORING</b>	SB-6
	PAGE	1 OF 1

PROFF
STATE OF TEXTS
Howard - Hawar
BRIAN T. WEAVER
A series and the seri
GEOLOGY /S
274
ONAL T GEOSCIA
OVIL TO CO
17 17 AL & GEO
12/14

PROJECT NO./NAME		PROJECT LOCATION	NC	
12009-0005 / Turner B Tank Battery		Section 29, Townsh	nip 17 South, Range 31 East	4
DRILLING COMPANY	DRILLING METHOD		LOGGED BY	
Peterson Drilling	Direct Push Geoprobe	)	Scott Drewry	
SAMPLING METHOD	DATE STARTED		DATE COMPLETED	
Solid Core Barrel with Disp. Sleeve	8/14/2013		8/14/2013	
BOREHOLE DIAMETER	CASING TYPE / DIAM	ETER	SCREEN TYPE / SLOT SIZE	
2 inches	/		/	
GRAVEL PACK TYPE	GROUT TYPE		GROUND ELEVATION	
			21/4	

STATIC DEPTH TO GROUNDWATER I

TOP OF CASING ELEVATION

REMARKS: This boring log should not be used separately from the original report. GRAPHIC LOG Depth (ft. bgs) Recovery U.S.C.S. LITHOLOGIC DESCRIPTION 75 0.0 0-3' Silty sand, brownish red, moist, loose, very fine. 0.0 SM 0.2 3'-4' No recovery. 75 4'-7' Silty sand, brownish red, moist, loose, very fine. 1.0 5 1.2 SM 7.3 7'-8' No recovery. 75 1.5 8'-11' Silty sand, brownish red, moist, loose, very fine. 10.1 SM 10 9.1 11'-12' No recovery. 100 12'-20' Silty clay, brownish red, friable, moist, cohesive, medium plasticity when wetted. 1.5 12' Crushed rock/caliche and calcareous smearing present. 5.0 6.8 15 7.1 CL 100 5.5 16' No crushed rock/caliche or calcareous smearing present. 3.5 2.0 3.5 Bottom of borehole at 20.0 feet.



PROJECT NO./NAME

SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080

Fax: (713) 266-0996

Telephone: (713) 266-6056

PROJECT LOCATION

12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/13/2013 8/13/2013 **BOREHOLE DIAMETER** CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** 

N/A

**SOIL BORING SB-7** 

PROFESSIONAL SEAL

TE OF TEX

BRIAN T. WEAVER

GEOLOGY

PAGE 1 OF 1

DEDT										
ft.	н 10	WAIE	K DURI	NG DF	KILLING 1	STATIC DEPTH TO GROUNDWATER ▼ TOP OF CASING ELEVATION ft.      TOP OF CASING ELEVATION				
REMA	ARKS:	This bo	ring lo	g shou	ıld not be	used separately from the original report.				
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION				
	X	75	7.6 4.0 2.1	SM		0-3' Silty sand, brownish red, moist, loose, very fine.	-			
_		100	0.0	sc		3'-4' No recovery. 4'-5' Clayey sand, brownish red, moist, loose, very fine.				
- 5 -			0.0			5'-12' Silty sand, brownish red, moist, loose, very fine.  12' Increased clay content, some calcareous smearing.				
		100	0.0	SM						
·10—			0.0							
-		100	3.0			12'-20' Silty clay, brownish red, friable, moist, cohesive, high plasticity when wetted.				
15-			1.5							
-		100	7.8	CL						
-	X		2.5							
20-						Bottom of borehole at 20.0 feet.				



**SOIL BORING SB-8** 

PAGE 1 OF 1

ray	Fax: (713) 200-0990									
PROJECT NO./NAME			PROJECT LOCATION			1	STATE			
12009-0005 / Turner B Tank Battery			Section 29, Townsh	ip 17 South	, Range 31 East	A	3			
DRILLING COMPANY	DRILLI	NG METHOD		LOGGED	BY	T.	Frice			
Peterson Drilling	Direct I	oush Geoprob	е	Scott Dre	wry	g M	THE RESIDENCE OF THE PARTY.			
SAMPLING METHOD	DATE S	STARTED		DATE CO	MPLETED	1	BRIAN			
Solid Core Barrel with Disp. Sleeve	Solid Core Barrel with Disp. Sleeve 8/14/2013			8/14/2013			GE			
BOREHOLE DIAMETER	CASING	G TYPE / DIAM	METER	SCREEN	TYPE / SLOT SIZE	160	al			
2 inches	2 inches /			/		6.	11/00			
GRAVEL PACK TYPE	GROUT	TYPE		GROUND	ELEVATION	1(	OVAL			
pa 4 to	****			N/A		19	2/12			
DEPTH TO WATER DURING DRILLIN	STATIC DE	PTH TO GROUNDWA	TER 🕎	TOP OF CASING	ELE'	VATION				

PROFESSIONAL SEAL

ft.		***	COOM	140 01	VILLING	-#-	ft.					
REM	ARKS:	This bo	ring lo	g shou	ıld not b	e used s	separately from the original report.					
Depth (ft. bgs)	Sample	Recovery %	Old (mdd)	U.S.C.S.	GRAPHIC LOG		LITHOLOGIC DESCRIPTION					
- 5		100 100 100	4.3 4.6 1.2 - 4.8 4.5 5.3 6.6 1.5 5.0 5.8 56 5.8 6.6 7.3 5.6 4.5 4.5	SM CL SM		3'-4' 4'-14 7.5' E	Silty sand, brownish red, moist, loose, very fine.  No recovery.  4' Silty sand, brownish red, moist, loose, very fine.  Becomes very loose.  5' Silty clay, brownish red, friable, cohesive, med.  8' Silty sand, brownish red, moist, loose, very fine.  0' Silty clay, brownish red, friable, cohesive, med.	ium plasticity when wetted.		Water Levels		
-20-	X		4.3	CL			Bottom of borehole a	at 20.0 feet.				



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080

Telephone: (713) 266-6056

PROJECT LOCATION

PROJECT NO./NAME 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/14/2013 8/14/2013 **BOREHOLE DIAMETER** CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / ----**GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** 

PROFESSIONAL SEAL BRIAN T. WEAVER **GEOLOGY** 274

**SOIL BORING SB-9** 

PAGE 1 OF 1

-- ft.

STATIC DEPTH TO GROUNDWATER I

TOP OF CASING ELEVATION

ft.		****	DOIN	NO DI	VILLING .	STATIC DEPTH TO GROUNDWATER ▼ TOP OF CASING ELEVATION     ft	
REM	ARKS:	This bo	oring lo	g shou	ıld not be	used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	
	X	75	4.8 4.8 5.3	SM		0-3' Silty sand, brownish red, moist, loose, very fine. 6" Some calcareous smearing present.	
			-			3'-4' No recovery.	
- 5 - 		75	6.3 9.6 6.1	SM	and	4'-7' Silty sand, brownish red, moist, loose, very fine, trace clay and very small calcareous nodules and smearing present.	
			-			7'-8' No recovery.	
-		100	5.8			8'-12' Silty sand, brownish red, moist, loose, very fine.	
-10-			7.6 5.7	SM			
	X		6.3				
		100	8.9			12'-18' Silty clay, brownish red, friable, moist, stiff, medium plasticity when wetted.	
			7.1				
-15-			6.5	CL			
+ +		100	7.3				
			5.6				
			5.8			18'-20' Silty sand, brownish red, moist, loose, very fine, some calcareous smearing present.	
-20-	X		5.3	SM			
20-						Bottom of borehole at 20.0 feet.	



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056 Fax: (713) 266-0996

**SOIL BORING SB-10** 

PAGE 1 OF 1

	PROFESSIONAL SEAL
	STATE OF TEXAS
	Brant White
	BRIAN T. WEAVER
IZE	GEOLOGY 274
	12 CANAL TO GEORGE

PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY SKA Consulting Hand Auger Chris Brown SAMPLING METHOD DATE STARTED DATE COMPLETED Hand Auger 8/13/2013 8/13/2013 BOREHOLE DIAMETER CASING TYPE / DIAMETER SCREEN TYPE / SLOT SI ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** N/A DEPTH TO WATER DURING DRILLING ♥ STATIC DEPTH TO GROUNDWATER I

-- ft. -- ft. REMARKS: This boring log should not be used separately from the original report. TOP OF CASING ELEVATION

IVEIVIE	11110. 1	טע פוווו	ing io	y Siloui	u not b	e used separately from the original report.
		. 0				

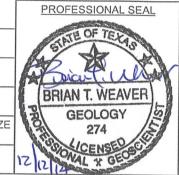
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
	X	100	9.9	SM		0-1' Silty sand, brownish red, dry, loose, very fine.	
					2.12.124	Bottom of borehole at 1.0 feet.	
-							



**SOIL BORING SB-11** 

PAGE 1 OF 1

Fax: (713) 266-0996									
PROJECT NO./NAME			PROJECT LOCATION	ON			STATE		
12009-0005 / Turner B Tank Battery			Section 29, Townsh	nip 17 South	, Range 31 East	1	9 5		
DRILLING COMPANY	DRILLII	NG METHOD		LOGGED	BY	1	1		
Peterson Drilling	on Drilling Direct Push Geoprobe				wry	1	Dice		
SAMPLING METHOD	DATE S	STARTED		DATE COMPLETED		18	BRIAN		
Solid Core Barrel with Disp. Sleeve		8/14/2013		163	GE GE				
BOREHOLE DIAMETER	CASING	TYPE / DIAM	METER	SCREEN	TYPE / SLOT SIZ	E	g/ GL		
2 inches	nes/			/		1	Triel .		
GRAVEL PACK TYPE	GROUT	TYPE		GROUND ELEVATION		7,31	NO NA		
***				N/A		16	12/12		
DEPTH TO WATER DURING DRILLIN	GΨ	STATIC DE	STATIC DEPTH TO GROUNDWA		TOP OF CASIN	G ELE	VATION		



REMARKS: This boring log should not be used separately from the original report.

I VLIVII	11110.	11113 100	ing io	g snot	iid not b	e used separatery from the original report.																							
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	0,000																						
	X	75	5.8 21.1 71.5	SM		0-3' Silty sand, brownish red, moist, loose, very fine, slight odor.																							
	,		-			3'-4' No recovery.																							
- 5 -	X	75	139.4 119.7 47.6	SM		4'-7' Silty sand, brownish red, moist, loose, very fine.																							
			-			7'-8' No recovery.																							
	X	100	92.6 69.5			8'-17' Silty clay, brownish red, friable, moist, medium plasticity when wetted.																							
-10- 			80.3 79.4	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL												
		100	97.5 98.5															CL											
	$\times$		67.9																										
15- 		75	99.3 78.4																										
			81.3			17'-19' Silty sand, brownish red, moist, loose, very fine.																							
	X		3.0	SM																									
			-			19'-20' No recovery.																							
-20-						Bottom of borehole at 20.0 feet.																							
							-																						



**SOIL BORING SB-12** 

PAGE 1 OF 1

		1
	PROFESSIONAL SEAL	1
	STATE OF TELES	
	SIM	
		1
	mula & Company	ı
	(BRIAN T. WEAVER)	
	GEOLOGY 5	
Έ	274	l
-	IZ ONAL * GEOSCH	-
	12 17 X GE	l
- 1	The state of the s	ŧ

	()								
PROJECT NO./NAME		PROJECT LOCATION							
12009-0005 / Turner B Tank Battery		Section 29, Township 17 South, Range 31 East							
DRILLING COMPANY	DRILLING METHOD		LOGGED BY	1					
Peterson Drilling	Direct Push Geoprobe	Scott Drewry							
SAMPLING METHOD	DATE STARTED		DATE COMPLETED						
Solid Core Barrel with Disp. Sleeve	8/14/2013		8/14/2013	1					
BOREHOLE DIAMETER	CASING TYPE / DIAM	IETER	SCREEN TYPE / SLOT SIZE	1					
2 inches	/		/						
GRAVEL PACK TYPE	GROUT TYPE		GROUND ELEVATION	h					

DEPTH TO WATER DURING DRILLING ♀

STATIC DEPTH TO GROUNDWATER 🔻

TOP OF CASING ELEVATION

ft.						- ft.																						
REM	ARKS:	This bo	ring lo	g shou	ld not b	e used separately from the original report.																						
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels																					
		100	1.5			0-4' Silty sand, brownish red, moist, loose, very fine, slight odor.	T																					
-	X		6.3	014																								
			3.0	SM		2'-3' Color becomes light brown, dense.																						
			2.3																									
_ 5 _	X	100	2.5			4'-7' Silty clay, brownish red, moist, stiff, medium plasticity, cohesive, some calcareous nodules.																						
			4.3	CL																								
			2.8																									
	$\times$		15.7			7'-14' Silty sand, brown with dark staining, moist, loose, strong odor.																						
		100	2.3			8' Becomes brownish red, increasing clay content with depth.																						
			6.6																									
-10-			2.8	SM																								
			1.5																									
		100	1.5																									
	X		3.5																									
			2.5			14'-17' Silty clay, brownish red, friable, cohesive, medium plasticity when wetted.																						
<del>-15-</del>			2.5	CL																								
		100	3.8																									
			4.0			17'-20' Silty sand, brownish red, moist, medium dense, very fine.																						
			2.4	SM																								
	X		4.0																									
-20-						Bottom of borehole at 20.0 feet.																						
			L																									



12.2

12.2

6.8

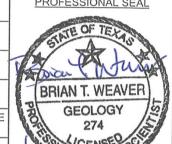
CL

100

PAGE 1 OF 1

<b>PROFESSIONAL</b>	SEAL
and the same of th	

**SOIL BORING SB-13** 



	PROJECT NO./NAME			PROJECT LOCATION	NC		1	- C. C. C.	STE
	12009-0005 / Turner B Tank Battery			Section 29, Townsh	ip 17 South	, Range 31 East	1	S	1
	DRILLING COMPANY	DRILLI	NG METHOD		LOGGED BY			4	
	Peterson Drilling	Direct F	ush Geoprobe	)	Scott Dre	VA.	TOV	x	
	SAMPLING METHOD	DATE S	TARTED		DATE CO	7/-	BRI	AN	
	Solid Core Barrel with Disp. Sleeve	8/13/20	13		8/13/2013	100	10111	-	
	BOREHOLE DIAMETER	CASING	TYPE / DIAM	ETER	SCREEN	183	3\	G	
	2 inches	/			/		1	Til	
I	GRAVEL PACK TYPE	GROUT	TYPE		GROUND	ELEVATION	1.7	A CO	2
I	0 A-10			N/A		191	2/12	NA.	
I	DEPTH TO WATER DURING DRILLING	GΫ́	STATIC DEF	TH TO GROUNDWA	TER 🕎	TOP OF CASING	ELE\	/ATIC	NC

REMARKS: This boring log should not be used separately from the original report.

KEN	MARKS:	Inis bo	oring to	g snou	lid not b	e used separately from the original report.		
Depth (ff. bos)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION		Water Levels
_	X	50	7.3	SM		0'-2' Silty sand, brownish red, moist, loose, very fine, some gravel/caliche.		
_	_		-			2'-4' No recovery.		
- 5 -	X	75	9.9	SM		4'-7' Silty sand, brownish red, moist, very loose, very fine.		
		100	13.2			7'-8' No recovery.  8'-17' Silty sand, brownish red, moist, very loose, very fine.		
10-	X		7.8				,	
		100	7.3	SM				

15'-16' Some crushed rock/caliche and calcareous smearing present.

17'-20' Silty clay, brownish red, friable, stiff, cohesive, medium plasticity when wetted.

Bottom of borehole at 20.0 feet.



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056

**SOIL BORING SB-14** 

PAGE 1 OF 1

Fax: (713) 266-0996 PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/13/2013 8/13/2013 BOREHOLE DIAMETER CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** N/A

STATIC DEPTH TO GROUNDWATER \( \mathbb{T}

TOP OF CASING ELEVATION

ft.						ft.	
REMA	ARKS: 1	This bo	ring lo	g shou	ld not b	e used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
	X	50	5.8 8.6	SM		0-2' Silty sand, brownish red, moist, loose, very fine.	
			-			2'-4' No recovery.	
- 5 -	X	75	12.7	CM		4'-7' Silty sand, brownish red, moist, loose, very fine.	
			7.1	SM		7! 0! No recover.	
						7'-8' No recovery.	
- 10- - 10-		75	17.0	SM		8'-13' Silty sand, brownish red, moist, very loose, very fine.	
		100	0.0			13'-18.5' Silty clay, brownish red, friable, stiff, cohesive, medium plasticity when wetted.	_
-15-			6.3				
		100	7.8	CL			
			4.8	SM :		18.5'-20' Silty sand, brownish red, moist, very loose, very fine.	$- \mid \mid$
-20-	$\triangle$					Bottom of borehole at 20.0 feet.	-



DEPTH TO WATER DURING DRILLING ¥

SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056

**SOIL BORING SB-15** 

PAGE 1 OF 1

	PROFESSIONAL SEAL
	BRIAN T. WEAVER
	GEOLOGY 274
Έ	CENSEDSO
	12 12 14 x GE

Fax: (713) 266-0996 PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/14/2013 8/14/2013 BOREHOLE DIAMETER CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** 

STATIC DEPTH TO GROUNDWATER ₹

TOP OF CASING ELEVATION

N/A

ft.						ft.	****	
REMA	RKS: 1	his bo	ring log	g shou	ld not b	e used separately from the original report.		
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION		Water Levels
		50	0.0			0-2' Silty sand, brownish red, moist, very loose, very fine.		
	X		0.5	SM				
ΓŤ			-			2'-4' No recovery.		
			-					
		75	0.2			4'-7' Silty sand, brownish red, moist, loose, very fine.		
- 5 -			2.0	SM				
+			3.3					
	$\times$							
			-			7'-8' No recovery.		
h 1		75	0.0			8'-11' Silty sand, brownish red, moist, loose, very fine.		
			0.0					
10-				SM				
	$\times$		1.5					
<b> </b>			-		14 46 AF ST	11'-12' No recovery.		
		75	2.0			12'-15' Silty sand, brownish red, moist, loose, very fine.		
						·- ·-· <b>,</b> ·-· ·- · · · · · · · · · · · · · · · ·		
			2.2	SM				
<b> </b>			0.5			14' Crusehd rock/caliche and calcareous smearing present.		
-15-	$\triangle$		_			15'-16' No recovery.		
		100	2.2	SM		16'-17' Silty sand, brownish red, moist, loose, very fine, crushed rock/caliche and calcareous smearing present.		
			2.2			17'-20' Silty clay, brownish red, friable, moist, cohesive, medium plasticity when wetted.		
-			0.7					
				CL				
	X		0.5					
-20-						Bottom of borehole at 20.0 feet.		



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080

Telephone: (713) 266-6056 Fax: (713) 266-0996

PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/13/2013 8/13/2013 BOREHOLE DIAMETER CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ----/--------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** N/A

-- ft.

BRIAN T. WEAVER

GEOLOGY

274

2 12 14 X GEOSGI

**SOIL BORING SB-16** 

PAGE 1 OF 1

DEPTH TO WATER DURING DRILLING  $\slash$  -- ft.

STATIC DEPTH TO GROUNDWATER 👤

TOP OF CASING ELEVATION

....

REMARKS: This boring log should not be used separately from the original report.

REMAI	RKS: 1	his bo	ring lo	g shou	ld not be	used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
	X	50	9.9	CL		0-2' Silty clay, brownish red, friable, cohesive, medium plasticity when wetted.	
			-			2'-4' No recovery.	
			-				
		100	12.7			4'-15' Silty sand, brownish red, moist, loose, very fine.	
5 -			12.2				
			12.2				
			7.6				
+		100	16.0			8' Becomes very loose.	
-  -	$\preceq$		7.1				
-10-			6.6	SM			
			7.1			11' Crushed rock/caliche and calcareous smearing present.	
		100	9.6				
	$\times$		11.2			13' Crushed rock/caliche, no calcareous smearing present.	
			16.2				
<del></del>			11.2			15'-20' Silty clay, brownish red, friable, cohesive, medium plasticity when wetted.	
		100	4.8				
			5.6	CL			
			6.6				
+			7.3				
-20-	$\triangle$		-			Bottom of borehole at 20.0 feet.	
						bottom of borehole at 20.0 leet.	



**SOIL BORING SB-17** 

PAGE 1 OF 1

	ax. (713) 200-0990				
PROJECT NO./NAME		PROJECT LOCATION			
12009-0005 / Turner B Tank Battery		Section 29, Township 17 South, Range 31 East			
DRILLING COMPANY	DRILLING METHOD		LOGGED BY	1	
Peterson Drilling	Direct Push Geoprob	е	Scott Drewry	P	
SAMPLING METHOD	DATE STARTED		DATE COMPLETED	Ē	
Solid Core Barrel with Disp. Sleeve	8/14/2013		8/14/2013	F.	
BOREHOLE DIAMETER	CASING TYPE / DIAN	METER	SCREEN TYPE / SLOT SIZE	1	
2 inches	/		/		
GRAVEL PACK TYPE	GROUT TYPE		GROUND ELEVATION	1,	
***			N/A	1	

PROFESSIONAL SEAL BRIAN T. WEAVER GEOLOGY

DEPTH TO WATER DURING DRILLING ♀

STATIC DEPTH TO GROUNDWATER I -- ft.

TOP OF CASING ELEVATION

DEMARKS: This boring log should not be used as

REM	ARKS:	This bo	oring lo	g shou	ld not b	e used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
		75	0.0	SM		0-3' Silty sand, brownish red, moist, loose, very fine.	
			-			3'-4' No recovery.	1
- 5 -	X	50	0.0	SM		4'-6.5' Silty sand, brownish red, moist, loose, very fine.	
-			-		.,.,.	6.5'-8' No recovery.	
	X	50	0.0	SM		8'-10' Silty sand, brownish red, moist, loose, very fine.	
-10-			0.0	***************************************	· · · · · · · · · · · · · · · · · · ·	10'-12' No recovery.	
			-				
		100	0.0	SM		12'-13.5' Silty sand, brownish red, moist, loose, very fine.	
 -15-			0.0	CL		13.5'-15.5' Silty clay, brownish red, friable, stiff, medium plasticity when wetted.	
		100	0.0	SM		15.5'-18' Silty sand, brownish red, moist, loose, very fine.	
		-	0.0			17' Crushed rock/caliche and calcareous smearing present.	
			0.0			18'-20' Silty clay, brownish red, friable, stiff, medium plasticity when wetted.	
-20-	X		0.0	CL			
						Bottom of borehole at 20.0 feet.	



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056

Fax: (713) 266-0996

PROJECT LOCATION

PROJECT NO./NAME 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/13/2013 8/13/2013 BOREHOLE DIAMETER CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** N/A

-- ft.

PROFESSIONAL SEAL BRIAN T. WEAVER GEOLOGY 274 ONAL & G

**SOIL BORING SB-18** 

PAGE 1 OF 1

DEPTH TO WATER DURING DRILLING ♥ -- ft.

STATIC DEPTH TO GROUNDWATER I

TOP OF CASING ELEVATION

REMA	ARKS:	This bo	oring lo	g shou	ıld not b	e used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
	X	50	7.3	SM		0-2' Silty sand, brownish red, moist, loose, very fine.	
			-			2'-4' No recovery.	
- 5 - 5	X	75	12.4 15.7 9.3	SM		4'-7'Silty sand, brownish red, moist, loose, very fine.	
			-		6466	7'-8' No recovery.	
	X	100	18.5 12.7			8'-20' Silty sand, brownish red, moist, very loose, very fine.	
			13.4			10' Becomes dry.	
	$\times$	100	9.5	SM			
15			5.8 16.0	Olvi		14' Becomes moist, crushed rock/caliche and calcareous smearing present.	
		100	12.2				
			15.7 8.6				
-20-	X		14.5				
						Bottom of borehole at 20.0 feet.	



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056

**GROUT TYPE** 

**SOIL BORING SB-19** 

PAGE 1 OF 1

	PROFESSIONAL SEAL	
_	TATE OF TEXAS	
	19	-
	afficient White	
-	BRIAN T. WEAVER	
	GEOLOGY 2	
E	274	
_	CENSED SO	
	12 2 VAL & GEOD	

PROJECT NO./NAME

PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry DATE STARTED SAMPLING METHOD DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/14/2013 8/14/2013 **BOREHOLE DIAMETER** CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/

DEPTH TO WATER DURING DRILLING 

▼

**GRAVEL PACK TYPE** 

STATIC DEPTH TO GROUNDWATER ▼

TOP OF CASING ELEVATION

**GROUND ELEVATION** 

N/A

ft.						ft.	
REMAR	RKS:1	his bo	ring lo	g shou	ld not b	e used separately from the original report.	
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Water Levels
		75	2.8	CL		0-1' Silty clay, brownish red, friable, moist, cohesive, medium plasticity when wetted.	
	X		4.5			1'-3' Silty sand, brownish red, moist, loose, very fine.	
T T			2.0	SM			
			-		1	3'-4' No recovery.	-
	X	100	7.1			4'-16' Silty sand, brownish red, moist, loose, very fine.	
5			5.6				
			3.5				
<b> </b>			6.6				
		100	4.6			8' Trace clay content.	
			5.0				
10	$ \overline{} $		2.5	SM			
t t			5.6			11' No trace clay.	
<b> </b>		100	5.6				
<b> </b>			4.5				
<b> </b>			5.0				
15			6.1				
t K		100	6.3			16'-19' Silty clay, brownish red, friable, cohesive, medium plasticity when wetted.	
			5.6	CL			
			2.7				
+			3.0	SM		19'-20' Silty sand, brownish red, moist, loose, very fine.	
-20-	-		-		11/2	Bottom of borehole at 20.0 feet.	



**SOIL BORING SB-20** 

PAGE 1 OF 1

ПОС	passes	-	17102 1 01					
	ephone: (1 26 (713)	713) 266-6056 66-0996						ROFESSIONAL SEAL
PROJECT NO./NAME			PROJECT LOCATION	NC		1	1	STATE OF TELES
12009-0005 / Turner B Tank Battery			Section 29, Townsh	nip 17 South	, Range 31 East	1	Z.	THE WAY
DRILLING COMPANY	DRILLI	NG METHOD		LOGGED	BY	I	7	Die William
Peterson Drilling	Direct F	ush Geoprobe	)	Scott Drewry			4	BRIAN T. WEAVER
SAMPLING METHOD	DATES	STARTED		DATE COMPLETED			F	
Solid Core Barrel with Disp. Sleeve	8/14/20	13		8/14/2013		1	义	GEOLOGY /
BOREHOLE DIAMETER	CASING	TYPE / DIAN	IETER	SCREEN	TYPE / SLOT SIZE	1	3	274
2 inches	/			/			8.	CENSE
GRAVEL PACK TYPE	GROUT	TYPE		GROUND ELEVATION		12	اما	WAL & GE
***	****			N/A			104	14
DEPTH TO WATER DURING DRILLIN	G∑	PTH TO GROUNDWA	TER V	TOP OF CASING	ELI	EVA	TION	

DEP	DEPTH TO WATER DURING DRILLING 🖳					立	STATIC DEPTH TO GROUNDWATER TOP OF CASING ELEVATION ft.					
	ARKS:	This bo	ring lo	g shou	ld not b	e used s	separately from the original report.		-			
Depth (ft. bgs)	Sample	Recovery %	PID (ppm)	U.S.C.S.	GRAPHIC LOG		LITHOLOGIC DESCRIPTION					
		50	14.0 3.5 -	SM		1' Cı	2' Silty sand, brownish red, dry loose, very fine.  Crushed rock/caliche and calcareous smearing present.  4' No recovery.					
- 5 -		75	23.4 62.8 14.0	SM		4'-7'	Silty sand, brownish red, dry, very loose, very	fine.				
-			-			7'-8'	No recovery.					
 - 10-		100	23.6 29.0 41.2 19.0	SM		8'-12	!' Silty sand, brownish red, dry, very loose, ver	fine.				
		100	21.3	CL			3.5' Silty clay, brownish red, friable, cohesive,					
_ 15— 		100	32.0 7.6 19.6 14.1	SM		16' B	-18' Silty sand, brownish red, dry, very loose, v					
-20-			2.8	CL		18'-20	0' Silty clay, brownish red, friable, cohesive, m  Bottom of boreho					



DEPTH TO WATER DURING DRILLING ¥

SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056

**SOIL BORING SB-21** 

PAGE 1 OF 1

	PROFESSIONAL SEAL
	STATE OF TEXAS
۵	9
t	RE PLUCH
1	TO WEAVER!
	BRIAN T. WEAVER
1	B GEOLOGY
SIZE	274
	CENSES
	OVAL * GEOS
	11人 1739年新疆地区的

TOP OF CASING ELEVATION

Fax: (713) 266-0996

PROJECT NO./NAME PROJECT LOCATION 12009-0005 / Turner B Tank Battery Section 29, Township 17 South, Range 31 East DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling **Direct Push Geoprobe** Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/14/2013 8/14/2013 **BOREHOLE DIAMETER** CASING TYPE / DIAMETER SCREEN TYPE / SLOT S 2 inches ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** N/A

STATIC DEPTH TO GROUNDWATER 👤

REMARKS: This boring log should not be used separately from the original report.

Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Motor Location
	X	75	20.3 103.7 13.2	SM		0-3' Silty sand, dark brownish red, moist, loose, very fine, slight odor.	
			-			3'-4' No recovery.	
— 5 — 	X	75	30.2 30.5	SM		4'-7' Silty sand, dark brownish red, moist, loose, very fine, slight odor.	
			-		10.11	7'-8' No recovery.	
	X	100	16.2			8'-18' Silty sand, brownish red, moist, loose, very fine, slight odor.	
10			5.8 12.2 25.2				
- +		100	3.5				
+ +	$\triangle$		15.6	SM			
			24.9				
-15-	X		44.8				
<b>†</b> †		75	20.8				
			79.1			17' Crushed rock/caliche present.	
	X		143.2	CL		18'-19' Silty clay, brownish red, friable, cohesive, medium plasticity, slight odor.	
			-			19'-20' No recovery.	
-20-						Bottom of borehole at 20.0 feet.	



PROJECT NO./NAME

SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056

Fax: (713) 266-0996

PROJECT LOCATION

Section 29, Township 17 South, Range 31 East

12009-0005 / Turner B Tank Battery DRILLING COMPANY **DRILLING METHOD** LOGGED BY Peterson Drilling Direct Push Geoprobe Scott Drewry SAMPLING METHOD DATE STARTED DATE COMPLETED Solid Core Barrel with Disp. Sleeve 8/14/2013 8/14/2013 BOREHOLE DIAMETER CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE 2 inches ---- / --------/ **GRAVEL PACK TYPE GROUT TYPE GROUND ELEVATION** N/A

**SOIL BORING SB-22** 

BRIAN T. WEAVER

GEOLOGY

274

PAGE 1 OF 1

NAL SEAL

DEPT	DEPTH TO WATER DURING DRILLING   ft.					Ā	STATIC DEPTH TO GROUNDWATER TOP OF CASING ELEVATION ft.						
	ARKS:	This bo	oring lo	g shou	ld not be	used s		from the o	original r	eport.			
Depth (ft. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC		LITHOLOGIC DESCRIPTION					10/040/1	
	X	50	2.5 3.8	SM			2' Silty sand, brownish red, dry, loose, very fine, many crushed rocks/caliche.						
			-			2'-4'	No recove	ery.					
 - 5 -		50	4.3	SM		4'-'6	Silty sand	, brownish	red, dry,	, loose, ve	ery fine, m	any crushed rocks/caliche.	
			-			6'-8'	No recove	ry.					
		50	4.5 81.6	CL								re, medium plasticity when wetted.	
—10— 			-		<i>(((((</i> (((((((((((((((((((((((((((((((		2' No reco		with black	k stairiing	, moist, m	edium stiff, medium plasticity, odor present.	
	$\times$	50	6.3 16.9	SM		13.5	14' Silty s	and, brow	n, moist,	loost, ver	ry fine, od	or present.	
 15			-		i. da ka	14'-1	6' No reco	very.		•			-
		100	4.5 149.7	SM		16'-1	3' Silty sar	nd, brownis	sh red, di	ry, loose,	very fine,	many crushed rock/caliche.	
	X	(A)	121.5 216.5	CL		18'-20	)' Silty cla	y, brownisi	h red with	h dark sta	ining, moi	ist, medium plasticity, odor present.	_
-20-					teatechalachalachal	nann non sinte one saw, seen			-	Bottom of	borehole	at 20.0 feet.	
						-							



**SOIL BORING SB-23** 

PAGE 1 OF 1

	PROFESSIONAL SEAL	
	STATE OF TEXAS	
	The water	-
	BRIAN T. WEAVER	
ZE	GEOLOGY S	
	Was Unaver Cold	
	12 2 WAL & GEOS	

PROJECT NO./NAME		PROJECT LOCATION	N	
12009-0005 / Turner B Tank Battery		Section 29, Townsh	ip 17 South, Range 31 East	
DRILLING COMPANY	DRILLING METHOD		LOGGED BY	1
Peterson Drilling	Direct Push Geoprobe		Scott Drewry	
SAMPLING METHOD	DATE STARTED		DATE COMPLETED	
Solid Core Barrel with Disp. Sleeve	8/14/2013		8/14/2013	
BOREHOLE DIAMETER	CASING TYPE / DIAM	ETER	SCREEN TYPE / SLOT SIZE	l
2 inches	/		/	
GRAVEL PACK TYPE	GROUT TYPE		GROUND ELEVATION	١
	****		N/A	

REMARKS: This boring log should not be used separately from the original report.    Comparison of the content o	DEPT	DEPTH TO WATER DURING DRILLING   ft.						STATIC DEPTH TO GROUNDWATER TOP OF CASING ELEVATION ft.				
75		RKS: T	his bo	ring lo	g shou	ld not b	e used s		report.			
75	Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG		LITHOLOGIC DESCRIPTION				
To the second of	  		100	2.0 1.7 - 1.5 20 3.0 1.7 7.1 11.1 7.3 6.3 4.8 5.0			3'-4'	No recovery. ' Silty sand, brownish red, m	oist, loose, very fine			
SM 18.5'-19' Silty sand, brownish red, moist, loose, very fine.  19'-20' No recovery.	15 		75	5.6	SM		16'-1	B' Silty sand, brownish red, n	noist, loose, very find	e, crushed rock/caliche and calcareous		
Bottom of borehole at 20.0 feet.	- 20			2.5			18.5'-	19' Silty sand, brownish red, ' No recovery.	moist, loose, very f	ine.		
	-20								Bottom of borehole	at 20.0 feet.		



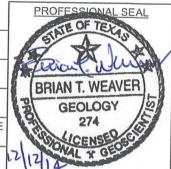
DEPTH TO WATER DURING DRILLING ♀

**SOIL BORING SB-24** 

PAGE 1 OF 1

T C	. (113) 200-0330			
PROJECT NO./NAME		PROJECT LOCATION		
12009-0005 / Turner B Tank Battery		Section 29, Townsh	ip 17 South, Range 31 East	
DRILLING COMPANY	DRILLING METHOD		LOGGED BY	
Peterson Drilling	Direct Push Geoprobe		Scott Drewry	
SAMPLING METHOD	DATE STARTED		DATE COMPLETED	
Solid Core Barrel with Disp. Sleeve	8/14/2013		8/14/2013	
BOREHOLE DIAMETER	CASING TYPE / DIAM	ETER	SCREEN TYPE / SLOT SIZE	
2 inches	/		/	
GRAVEL PACK TYPE	GROUT TYPE		GROUND ELEVATION	
			NIA	

STATIC DEPTH TO GROUNDWATER I



-- ft.

TOP OF CASING ELEVATION

π.						ft.	
REMA	ARKS:	This be	oring lo	g shou	uld not l	be used separately from the original report.	-
Depth (ff. bgs)	Sample	Recovery %	OIA (mdd)	U.S.C.S.	GRAPHIC	LITHOLOGIC DESCRIPTION	Water Levels
	X	75	0.5 0.5 1.2	SM		0-3' Silty sand, brownish red, moist, very loose, very fine.	
			-		Part Core	3'-4' No recovery.	
- 5 -		75	0.7 3.0 1.7	SM		4'-7' Silty sand, brownish red, moist, very loose, very fine.	
			-			7'-8' No recovery.	
- 10-		75	1.7 1.5	SM		8'-11' Silty sand, brownish red, moist, very loose, very fine. 8' Crushed rock/caliche or calcareous smearing present. 9' No crushed rock/caliche or calcareous smearing present.	
			-			11'-12' No recovery.	
	$\times$	75	3.5 1.5 2.0	SM		12'-15' Silty sand, brownish red, moist, loose, very fine.	
-15-			-			15'-16' No recovery.	
		100	2.2	SM		16'-16.5' Silty sand, brownish red, moist, loose, very fine.	
			0.5	CL		16.5'-19' Silty clay, brownish red, friable, moist, cohesive, medium plasticity when wetted, crushed rock/caliche and calcareous smearing present.	
_20_	$\times$		1.5	SM		19'-20' Silty sand, brownish red, moist, loose, very fine.	
20						Bottom of borehole at 20.0 feet.	
			L				_



**SOIL BORING SB-25** 

PAGE 1 OF 1

		Į.
	PROFFCOISMAL SEAL	
	STATE OF TEXAS	/
	1 Level Herry	
	BRIAN T. WEAVER	
	GEOLOGY S	
ZE	274	
_	CENSE OF	
	12 12 14 TOE	

	() ==============================		
PROJECT NO./NAME		PROJECT LOCATION	NC
12009-0005 / Turner B Tank Battery		Section 29, Townsh	ip 17 South, Range 31 East
DRILLING COMPANY	DRILLING METHOD		LOGGED BY
Peterson Drilling	Direct Push Geoprobe	Э	Scott Drewry
SAMPLING METHOD	DATE STARTED		DATE COMPLETED
Solid Core Barrel with Disp. Sleeve	8/13/2013		8/13/2013
BOREHOLE DIAMETER	CASING TYPE / DIAM	METER	SCREEN TYPE / SLOT SIZE
2 inches			/
GRAVEL PACK TYPE	GROUT TYPE		GROUND ELEVATION
			AI/A

			-	*****************		****			N/A		112/14					
DEPT	н то ү	VATER	RDURII	NG DR	ILLING	立	STATIC DEPTH TO G	ROUNDWA		TOP OF CASING	ELEVATION					
	RKS:1	his bo	ring lo	g shou	ld not b	e used	separately from the orig	inal report.								
Depth (ft. bgs)	Sample	Recovery %	PID (mdd)	U.S.C.S.	GRAPHIC LOG		LITHOLOGIC DESCRIPTION									
	X	50	4.8 7.8	SM		0-2' Silty sand, brownish red, moist, loose, very fine.										
						2'-4	' No recovery.									
+		100	11.2			4'-1	4' Silty sand, brownish re	d, moist, loo	se, very fine	).						
5 —	X															
- +			7.8													
		100	6.6	SM												
-10- 			5.0			10.5	s' Crused rock/caliche and	d calcareous	smearing p	resent.						
- +	X	100	6.6													
<u> </u>	$\triangle$		5.8			1/1/2	20' Silty clay, brownish re	d friable voi	av stiff sohe	osivo modium plantic	situ who a watted					
-15-			0.0			17-2	20 Only day, blownish re	u, mabie, vei	y sun, cone	sive, medium piasiic	sty when wetted.					
		100	3.8													
	XI			CL												
-			0.7													
-20-			-					Bottom	of borehole	at 20.0 feet.						
												-				



SKA Consulting, L.P. 1515 Witte Road, Suite 150 Houston, Texas 77080 Telephone: (713) 266-6056 Fax: (713) 266-0996

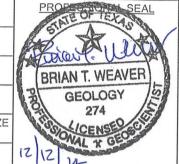
Hand Auger

8/13/2013

DATE STARTED

**SOIL BORING SB-26** 

PAGE 1 OF 1



# PROJECT LOCATION

Section 29, Township 17 South, Range 31 East **DRILLING METHOD** LOGGED BY Chris Brown DATE COMPLETED 8/13/2013

CASING TYPE / DIAMETER SCREEN TYPE / SLOT SIZE ---- / --------/

**GROUT TYPE GROUND ELEVATION** N/A

ft.					RILLING		ft.	*******************************		OUNDWATE		TOP OF CA	JINO EL	- VATION	
REMA	RKS: 1	his bo	ring lo	g shou	ld not k	oe used s	separatel	y from	the origina	ıl report.					
(ft. bgs)	Sample	Recovery %	DIA (mdd)	U.S.C.S.	GRAPHIC LOG		LITHOLOGIC DESCRIPTION								
	X	100	11.2	SM		0-1'	Silty sand	d, browi	nish red, d	ry, loose, ver	y fine.				
Ť					1.1.1.				***************************************	Bottom o	boreho	ole at 1.0 feet.		-	

# APPENDIX 3 WATER WELL DOCUMENTATION



## Prepared for:

SKA CONSULTING, L.P. 1515 Witte Rd. #150 Houston, TX 77080



# Water Well Report Turner Tank Battery Section 9, Township 17 S, Range 31 East

Loco Hills, NM 88255

Eddy County

PO #: 12009-0005

ES-107558

Monday, September 30, 2013

# Table of Contents Turner Tank Battery



Geographic Summary							
Maps							
Summary Map - 1 Mile Radius							
Topographic Overlay Map - 1 Mile Radius							
Current Imagery Overlay Map - 1 Mile Radius							
Water Well Details							
Database Definitions and Sources							
Disclaimer							

# Geographic Summary Turner Tank Battery



Location

Eddy, NM

Coordinates

Longitude & Latitude in Degrees Minutes Seconds-103° 53′ 48″, 32° 48′ 29″Longitude & Latitude in Decimal Degrees-103.896709°, 32.808056°

X and Y in UTM 603290.09, 3630547.22 (Zone 13)

Elevation

Target Property lies 3655.38 feet above sea level.

 Zip Codes

 Search Distance
 Zip Codes

 Target Property
 88210, 88211, 88254, 88255

 1 mile
 88210, 88211, 88254, 88255

Topos Searched

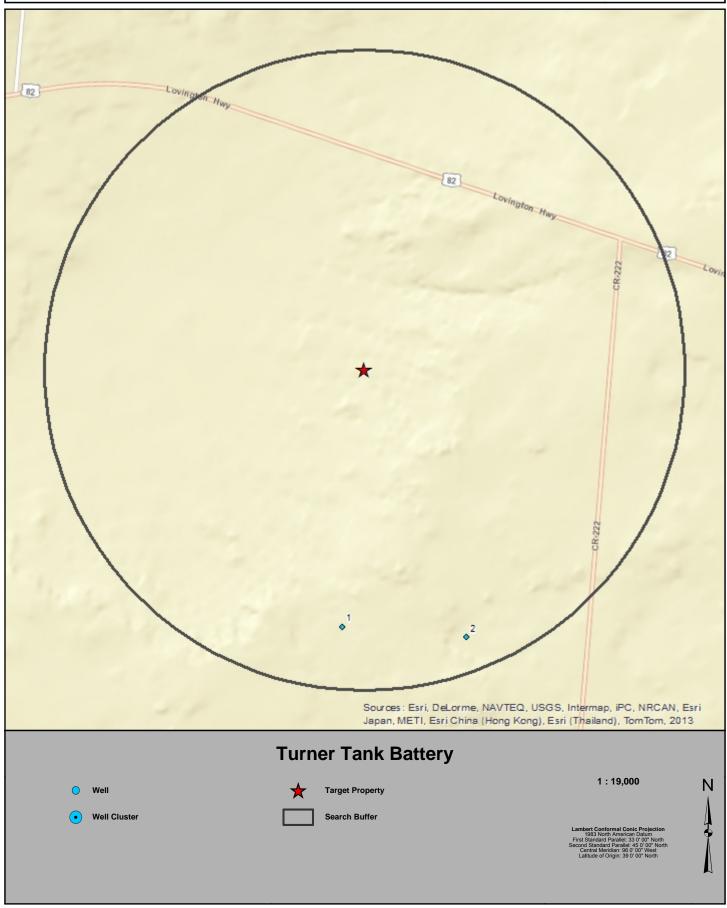
Search Distance Topo Name

Target Property Loco Hills (1985)

1 mile Loco Hills (1985)

# **Summary Map - 1 Mile Radius**





# **Topographic Overlay Map - 1 Mile Radius**



