AE Order Number Banner

Report Description

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.

App Number: pTO1424554698

1RP - 2940

CONOCOPHILLIPS COMPANY

7/29/2016

The following is an Addendum to the ConocoPhillips Warren Unit Well #13 Injection Line Release (1RP-7-13-2940) Corrective Action Plan submitted to NMOCD on August 21st, 2013.

Corrective Action Plan, Page 2, paragraph 4: text in blue lettering, below, will be changed from the previous version of the CAP.

Corrective Action Plan

RECS recommends that Conoco-Phillips excavate an area of 204 ft x 153 ft to a depth of approximately 4-5 ft bgs. A 20-mil reinforced poly liner will be installed and properly seated throughout the base of the excavation (Figure 2). The liner will provide a barrier that will inhibit the downward migration of residual constituents to groundwater. Approximately 2,000 yards of soil from the release area will be disposed of at a NMOCD approved facility. The remaining excavated soil will be evaluated for use as backfill and any soils requiring disposal will be properly disposed of at a NMOCD approved facility. Soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID reading below 100 ppm. The site will be backfilled with the remaining excavated soil and then clean soil will be imported to the site to replace the soil disposed of at a NMOCD approved facility. The excavation will be brought up to surface level with the imported soil and the site will be contoured to the surrounding location. The disturbed area will then be seeded with a blend of native vegetation. Vegetation provides an infiltration barrier for the site, since plants capture water through their roots thereby reducing the amount of water traveling through the vadose zone to groundwater.

Once we receive approval from NMOCD, we will begin the liner installation at the site. We will notify you when these actions are about to commence.

Conoco Phillips Warren Unit #13 Injection Line AD

Unit Letter N, Section 34, T20S, R38E

Initial release area, facing south 7/12/13

Initial release area, facing west 7/12/13

Initial release area, facing northeast 7/12/13

Initial release area, facing south 7/12/13

Installing vertical #1, facing west 7/18/13

Import caliche to build surface for soil bore installations facing, west 7/18/13

Installing vertical #2, facing west 7/18/13

Installing vertical #3, facing west 7/18/13

Installing vertical #4, facing west 7/18/13

Installing vertical #5, facing north 7/18/13

Installing vertical #7, facing south 7/18/13

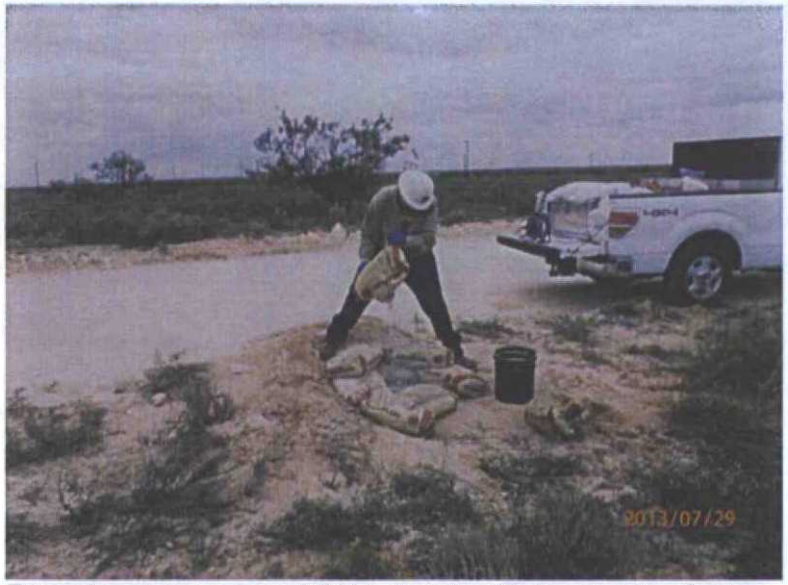
Installing soil bore #1, facing southwest 7/26/13

Collecting sample, facing west 7/26/13

Plugging soil bore #1 in total with bentonite 7/26/13

Installing temporary MW, facing east 7/26/13

Gauging temporary MW, facing northwest 7/29/13



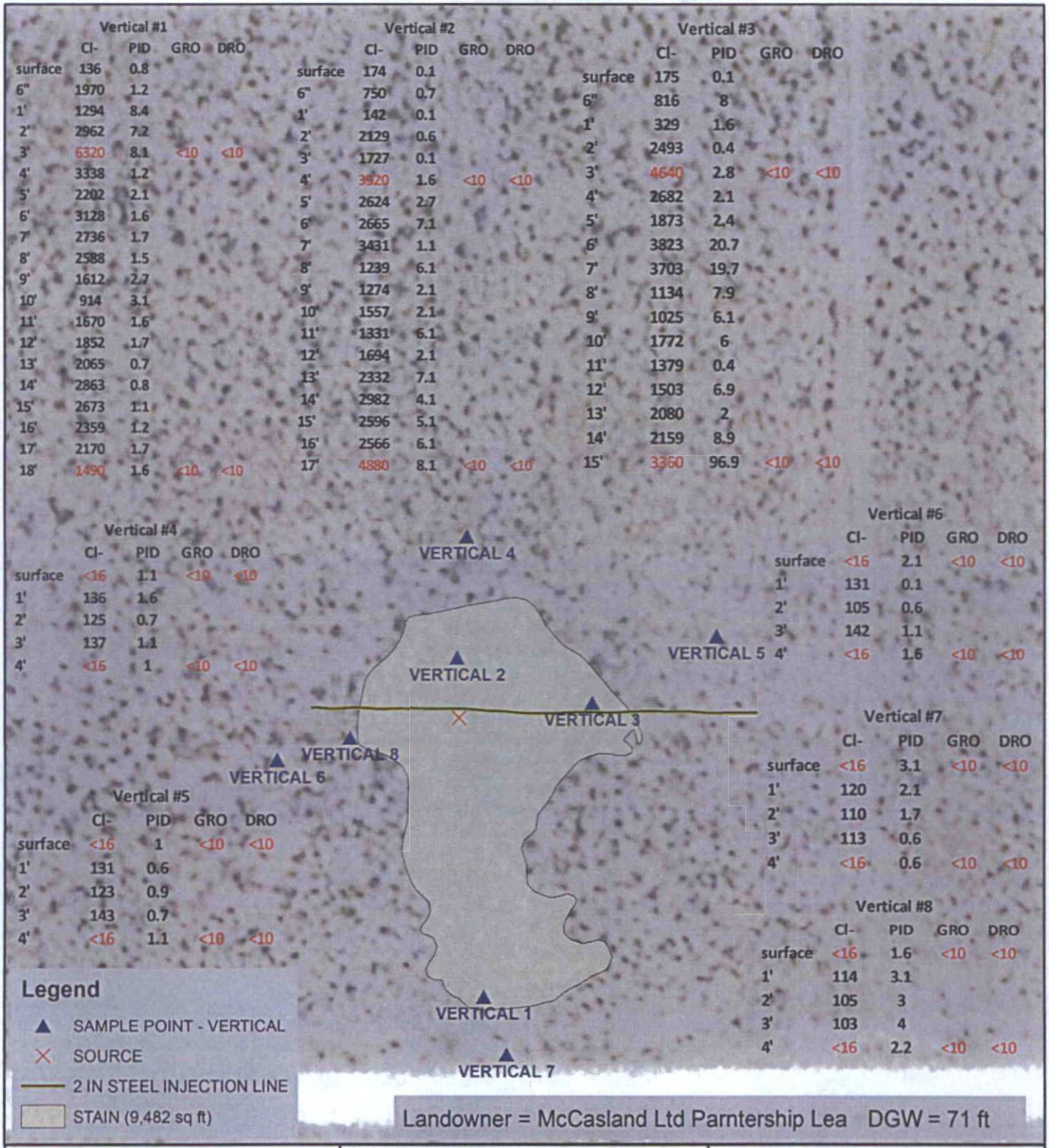
Plugging temporary MW in total with bentonite, facing southwest 7/29/13

Completed temporary MW, facing northwest 7/29/13

Building road for additional soil bore installations, facing west 8/5/13

Completed soil bores, facing west 8/6/13

Vertical Data



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

CONOCO PHILLIPS
WARREN UNIT #013
INJECTION LINE AD

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM
API No. 3002507881

Figure 1

1RP-7-13-2940

N W E S

0 50 100 Feet

GPS date: 7-18-2013 KN
Drawing date: 7-24-2013
Drafted by: L. Weinheimer

Vertical Data

Vertical #1

	Cl-	PID	GRO	DRO
surface	136	0.8		
6"	1970	1.2		
1'	1294	8.4		
2'	2962	7.2		
3'	6320	8.1	<10	<10
4'	3338	1.2		
5'	2202	2.1		
6'	3128	1.6		
7'	2736	1.7		
8'	2588	1.5		
9'	1612	2.7		
10'	914	3.1		
11'	1670	1.6		
12'	1852	1.7		
13'	2065	0.7		
14'	2863	0.8		
15'	2673	1.1		
16'	2359	1.2		
17'	2170	1.7		
18'	1490	1.6	<10	<10

Vertical #2

	Cl-	PID	GRO	DRO
surface	174	0.1		
6"	750	0.7		
1'	142	0.1		
2'	2129	0.6		
3'	1727	0.1		
4'	3520	1.6	<10	<10
5'	2624	2.7		
6'	2665	7.1		
7'	3431	1.1		
8'	1239	6.1		
9'	1274	2.1		
10'	1557	2.1		
11'	1331	6.1		
12'	1694	2.1		
13'	2332	7.1		
14'	2982	4.1		
15'	2596	5.1		
16'	2566	6.1		
17'	4880	8.1	<10	<10

Vertical #3

	Cl-	PID	GRO	DRO
surface	175	0.1		
6"	816	8		
1'	329	1.6		
2'	2493	0.4		
3'	4640	2.8	<10	<10
4'	2682	2.1		
5'	1873	2.4		
6'	3823	20.7		
7'	3703	19.7		
8'	1134	7.9		
9'	1025	6.1		
10'	1772	6		
11'	1379	0.4		
12'	1503	6.9		
13'	2080	2		
14'	2159	8.9		
15'	3360	96.9	<10	<10

Vertical #4

	Cl-	PID	GRO	DRO
surface	<16	1.1	<10	<10
1'	136	1.6		
2'	125	0.7		
3'	137	1.1		
4'	<16	1	<10	<10

Vertical #5

	Cl-	PID	GRO	DRO
surface	<16	1	<10	<10
1'	131	0.6		
2'	123	0.9		
3'	143	0.7		
4'	<16	1.1	<10	<10

Vertical #6

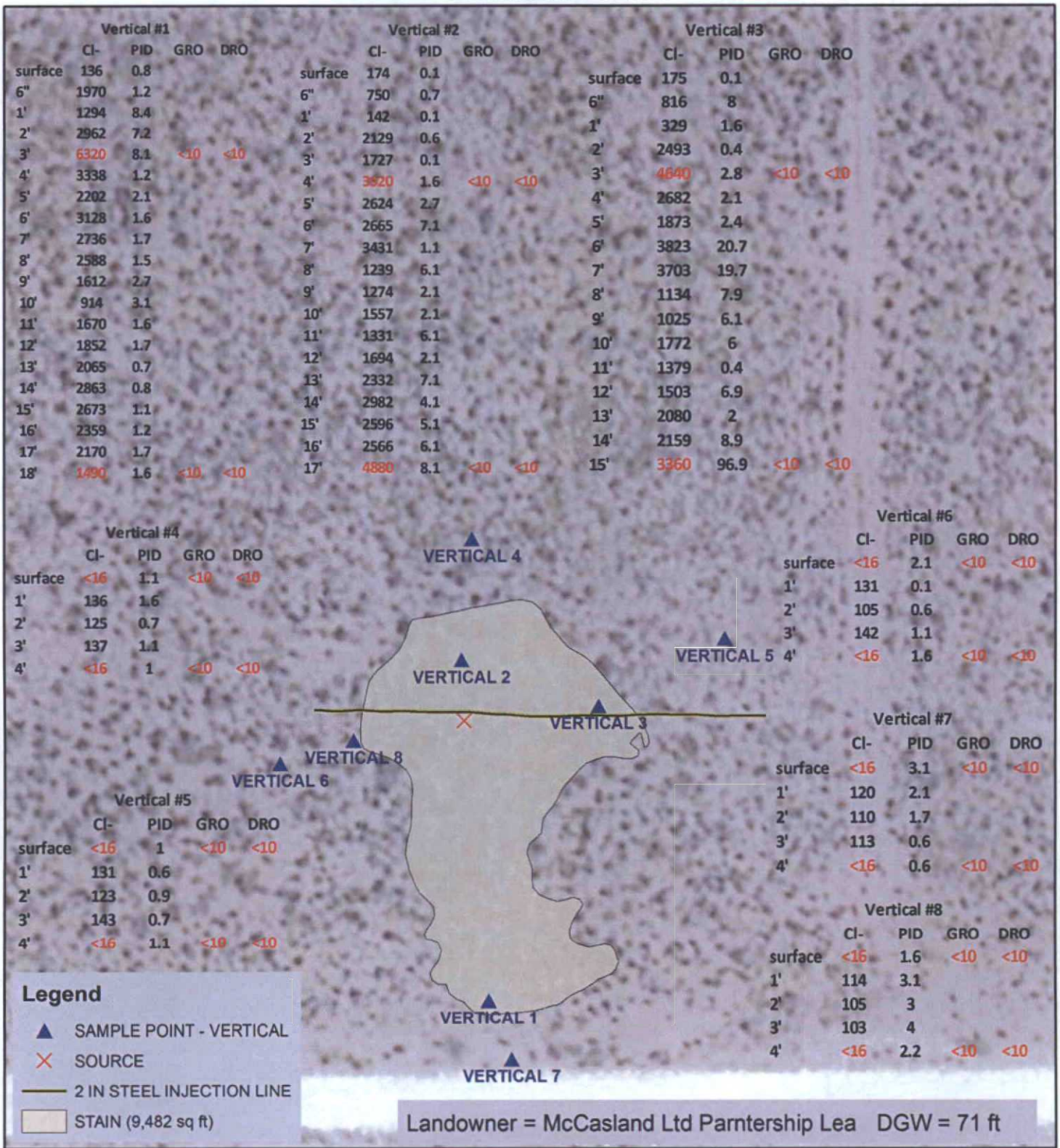
	Cl-	PID	GRO	DRO
surface	<16	2.1	<10	<10
1'	131	0.1		
2'	105	0.6		
3'	142	1.1		
4'	<16	1.6	<10	<10

Vertical #7

	Cl-	PID	GRO	DRO
surface	<16	3.1	<10	<10
1'	120	2.1		
2'	110	1.7		
3'	113	0.6		
4'	<16	0.6	<10	<10

Vertical #8

	Cl-	PID	GRO	DRO
surface	<16	1.6	<10	<10
1'	114	3.1		
2'	105	3		
3'	103	4		
4'	<16	2.2	<10	<10



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

CONOCO PHILLIPS WARREN UNIT #013 INJECTION LINE AD

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM
API No. 3002507881

Figure 1

1RP-7-13-2940

N W E S

0 50 100 Feet

GPS date: 7-18-2013 KN
Drawing date: 7-24-2013
Drafted by: L. Weinheimer

Rice Environmental Consulting & Safety
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

August 20th, 2013

Geoffrey Leking
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau – District 1
1625 N. French Dr.
Hobbs, NM 88240-9273

RE: **Corrective Action Plan (CAP)**
Conoco-Phillips – Warren Unit Well #13 Injection Line Release
2RP-7-13-2940
UL/N sec. 34 T20S R38E
API No. 3002507881

Mr. Leking:

Conoco-Phillips has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the site referenced above.

An accidental discharge of produced water occurred from an injection line located 300 yards west of the Warren Unit #13 well on July 4th, 2013. A total of 441 barrels of produced water was released into the pasture. A vacuum truck was called to the site and recovered 21 barrels of produced water. NMOCD was notified of the release on July 8th, 2013, and an initial C-141 was submitted by Conoco-Phillips to NMOCD on July 18th, 2013 (Appendix A). The site is located in UL/N sec. 34 T20S R38E, in Lea County, New Mexico. Soil bore installation at the site determined that the depth to groundwater is approximately located at 71 ft bgs.

RECS personnel were on site beginning on July 12th, 2013 to initiate work on the release. The release and surrounding area were mapped and photos were taken of the release area. On July 17th, 2013, RECS received verbal permission from NMOCD to conduct verticals at the site. Eight verticals were installed at the site to determine the extent of the release (Figure 1). As the verticals were installed, field samples were taken every foot and field tested for chlorides and hydrocarbons. Representative samples were taken to a commercial laboratory for analysis. Verticals 1-3, located inside the release area, showed elevated laboratory chloride levels at all depths in the three verticals. Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) readings returned results of non-detect throughout all depths in the three verticals. Verticals 4-8, located outside the release area, showed laboratory chloride levels below 250 mg/kg throughout the five verticals and at all depths. GRO and DRO readings returned results of non-detect throughout the five verticals and at all depths (Appendix B).

To further delineate the site, soil bores were installed at the site on July 26th and on August 6th and 7th, 2013. A total of 20 soil bores were installed at the site (Figure 2 and 3). Between the July and August soil bore installations events, a caliche road was

installed across the area to serve as a base for the soil bore rig. As the soil bores were advanced, samples were taken at regular intervals and field tested for chlorides and hydrocarbons. Representative samples were taken to a commercial laboratory for analysis (Appendix C). Based on the soil bore data, as the release moves downward through the vadose zone, it hits a semi-permeable layer at 20-25 ft bgs, where the release moves horizontally over this layer. The outer soil bores delineate the edges of the release.

SB-20 was installed at the site on July 26th, 2013 to determine the depth to groundwater at the site. The bore was installed to a depth of 82 ft bgs and then left open for over 48 hours to allow groundwater to accumulate. The bore was gauged on July 29th, 2013 and depth to groundwater was determined to be at approximately 71 ft bgs. NMOCD was notified of potential groundwater impact at the site on July 26th, 2013.

Photo documentation of these activities can be found in Appendix D.

Corrective Action Plan

RECS recommends that Conoco-Phillips excavate an area of 140 ft x 170 ft to a depth of approximately 4-5 ft bgs. A 20-mil reinforced poly liner will be installed and properly seated throughout the base of the excavation (Figure 2). The liner will provide a barrier that will inhibit the downward migration of residual constituents to groundwater. Approximately 2,000 yards of soil from the release area will be disposed of at a NMOCD approved facility. The remaining excavated soil will be evaluated for use as backfill and any soils requiring disposal will be properly disposed of at a NMOCD approved facility. Soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID reading below 100 ppm. The site will be backfilled with the remaining excavated soil and then clean soil will be imported to the site to replace the soil disposed of at a NMOCD approved facility. The excavation will be brought up to surface level with the imported soil and the site will be contoured to the surrounding location. The disturbed area will then be seeded with a blend of native vegetation. Vegetation provides an infiltration barrier for the site, since plants capture water through their roots thereby reducing the amount of water traveling through the vadose zone to groundwater.

It is evident from the soil bore data that the release may have affected groundwater beneath the site. Therefore, RECS recommends that Conoco-Phillips install a source monitor well at the site (Figure 2). The monitor well will be installed once the excavation for liner installation is completed. The monitor well will be sampled quarterly for chlorides and TDS. Additional monitor wells may need to be installed to fully delineate groundwater. Once the monitor well(s) have been sampled and the data analyzed, Conoco-Phillips will submit a report to NMOCD detailing the groundwater data and either proposing a groundwater remedy or requesting site closure.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

- Figure 1 – Vertical Data
- Figure 2 – SB 1-3 Installation Data and Proposed MW Location
- Figure 3 – SB- 4-19 Installation Data and Proposed MW Location
- Appendix A – Initial C-141
- Appendix B – Vertical Installation Laboratory Analyses
- Appendix C – Soil Bore Installation Documentation
- Appendix D – Photo Documentation

Conoco Phillips Warren Unit #13 Injection Line AD

Unit Letter N, Section 34, T20S, R38E

Initial release area, facing south 7/12/13

Initial release area, facing west 7/12/13

Initial release area, facing northeast 7/12/13

Initial release area, facing south 7/12/13

Installing vertical #1, facing west 7/18/13

Import caliche to build surface for soil bore installations facing, west 7/18/13

Installing vertical #2, facing west 7/18/13

Installing vertical #3, facing west 7/18/13

Installing vertical #4, facing west 7/18/13

Installing vertical #5, facing north 7/18/13

Installing vertical #7, facing south 7/18/13

Installing soil bore #1, facing southwest 7/26/13

Collecting sample, facing west 7/26/13

Plugging soil bore #1 in total with bentonite 7/26/13

Installing temporary MW, facing east 7/26/13

Gauging temporary MW, facing northwest 7/29/13

Plugging temporary MW in total with bentonite, facing southwest 7/29/13

Completed temporary MW, facing northwest 7/29/13

Building road for additional soil bore installations, facing west 8/5/13

Completed soil bores, facing west 8/6/13

DEPTH	CI-	PID	GRO	DRO
SS	137	0.6		
5	110	0.8		
10	119	0.5		
15	329	0.1		
20	2059	0.1		
25	2404	0.1		

20	1967	0.5		
25	573	0.6		
30	522	0.5		
35	268	0.5		
40	152	0.2		
45	153	0.2		

20	1706	0.7		
25	416	0.5		

20	80	0.07	
25	134	0.06	
30	117	0.06	

SB - 12

DEPTH	CI-	PID	GRO	DRO
SS	109	1.5		
5	100	1		
10	109	1		
15	79	0.7		
20	1270	0.5		
25	152	0.5		
30	120	0.3		

SB - 7

DEPTH	CI-	PID	GRO	DRO
SS	141	0.8		
5	83	1.7		
10	101	0.6		
15	115	0.4		
20	1147	1.7		
25	351	0.7		
30	182	0.9		
35	167	0.7		

SB - 16

DEPTH	CI-	PID	GRO	DRO
SS	93	3		
5	90	2.1		
10	115	4		
15	238	0.8		
20	1025	0.8		
25	1293	0.5		
30	108	0.6		
35	115	0.6		

SB - 5

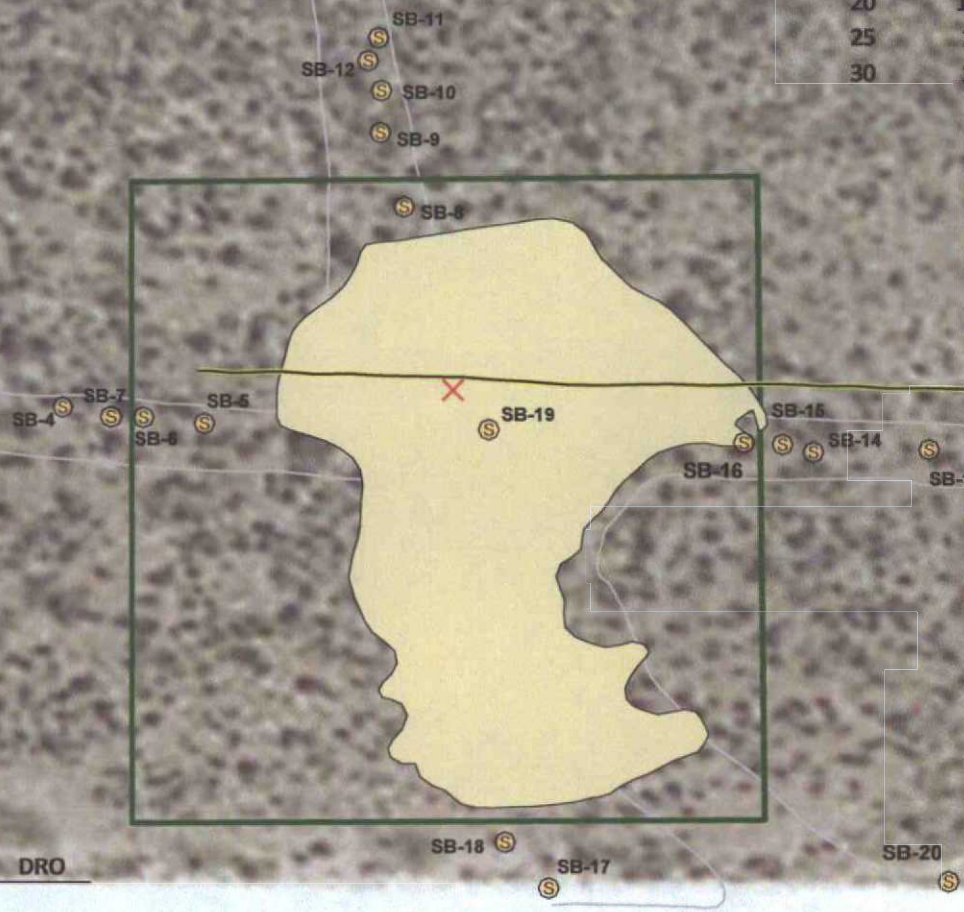
DEPTH	CI-	PID	GRO	DRO
SS	137	0.3		
5	147	1.6		
10	105	0.9		
15	159	0.8		
20	2294	0.5		
25	3067	0.5		

SB - 14

DEPTH	CI-	PID	GRO	DRO
SS	84	3.1		
5	62	3.6		
10	57	4.7		
15	104	0.8		
20	79	0.6		
25	61	0.4		
30	61	0.6		

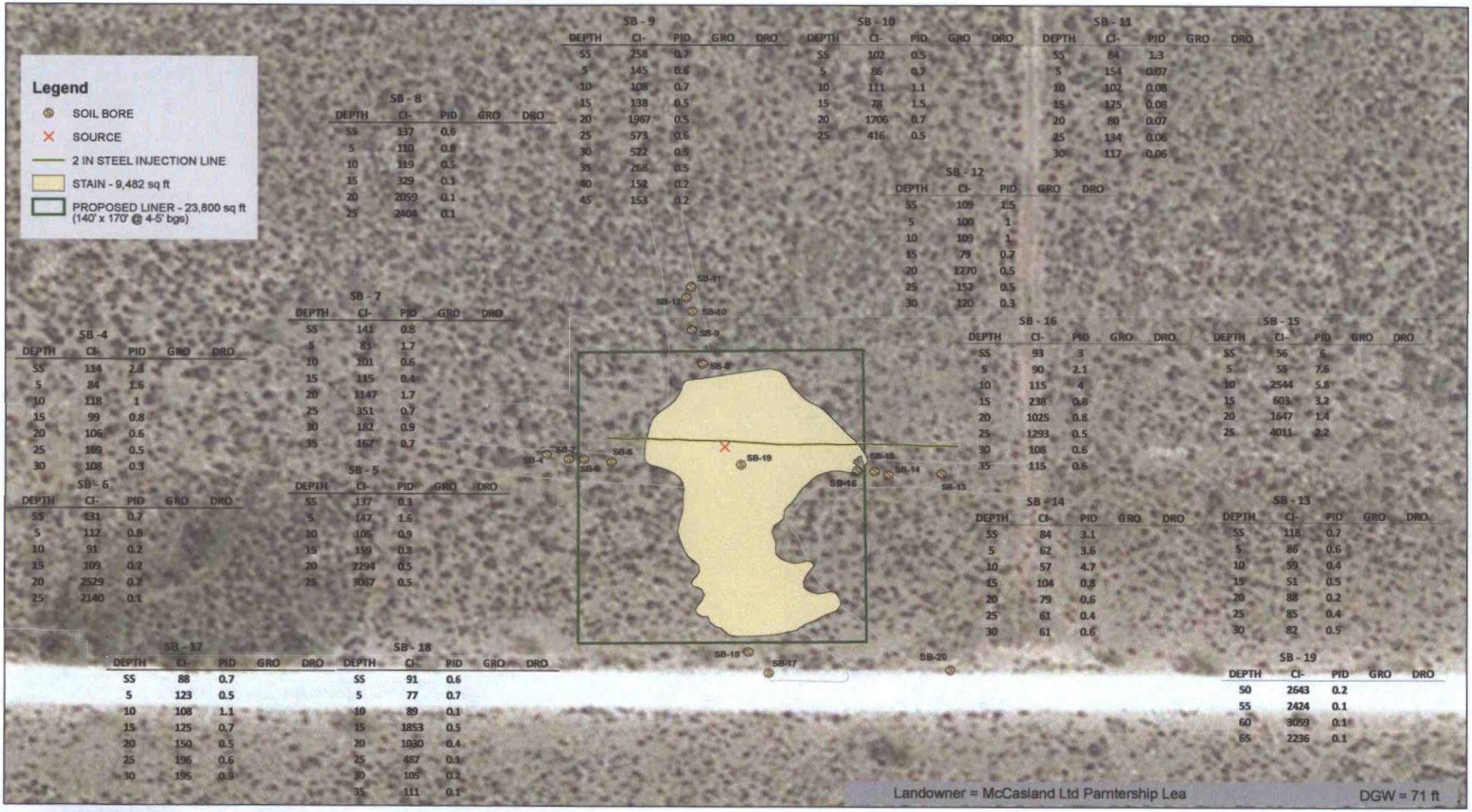
SB - 18

DRO	DEPTH	CI-	PID	GRO	DRO
	SS	91	0.6		
	5	77	0.7		
	10	89	0.1		
	15	1853	0.5		
	20	1030	0.4		
	25	487	0.1		
	30	105	0.2		
	35	111	0.1		



Landowner = McCasland Ltd Parntership Lea

WARREN



SB - 1

DEPTH	Cl-	PID	GRO	DRO
SS	137	0.6		
5	110	0.8		
10	119	0.5		
15	329	0.1		
20	2059	0.1		
25	2404	0.1		

SB - 2

DEPTH	Cl-	PID	GRO	DRO
SS	141	0.8		
5	83	1.7		
10	101	0.6		
15	115	0.4		
20	1147	1.7		
25	351	0.7		
30	182	0.9		
35	167	0.7		

SB - 3

DEPTH	Cl-	PID	GRO	DRO
SS	137	0.3		
5	147	1.6		
10	105	0.9		
15	159	0.8		
20	2294	0.5		
25	3067	0.5		

SB - 4

DEPTH	Cl-	PID	GRO	DRO
SS	114	2.8		
5	84	1.6		
10	118	1		
15	99	0.8		
20	106	0.6		
25	109	0.5		
30	108	0.3		

SB - 5

DEPTH	Cl-	PID	GRO	DRO
SS	131	0.7		
5	112	0.8		
10	91	0.2		
15	109	0.2		
20	2529	0.2		
25	2140	0.1		

SB - 6

DEPTH	Cl-	PID	GRO	DRO
SS	258	0.7		
5	145	0.6		
10	108	0.7		
15	138	0.5		
20	1967	0.5		
25	573	0.6		
30	522	0.5		
35	268	0.5		
40	152	0.2		
45	153	0.2		

SB - 7

DEPTH	Cl-	PID	GRO	DRO
SS	102	0.5		
5	86	0.7		
10	111	1.1		
15	78	1.5		
20	1706	0.7		
25	416	0.5		

SB - 8

DEPTH	Cl-	PID	GRO	DRO
SS	84	1.3		
5	154	0.07		
10	102	0.08		
15	175	0.08		
20	80	0.07		
25	134	0.06		
30	117	0.06		

SB - 9

DEPTH	Cl-	PID	GRO	DRO
SS	109	1.5		
5	100	1		
10	109	1		
15	79	0.7		
20	1270	0.5		
25	152	0.5		
30	120	0.3		

SB - 10

DEPTH	Cl-	PID	GRO	DRO
SS	93	3		
5	90	2.1		
10	115	4		
15	238	0.8		
20	1025	0.8		
25	1293	0.5		
30	108	0.6		
35	115	0.6		

SB - 11

DEPTH	Cl-	PID	GRO	DRO
SS	56	6		
5	55	7.6		
10	2544	5.8		
15	603	3.2		
20	1647	1.4		
25	4011	2.2		

SB - 12

DEPTH	Cl-	PID	GRO	DRO
SS	84	3.1		
5	62	3.6		
10	57	4.7		
15	104	0.8		
20	79	0.6		
25	61	0.4		
30	61	0.6		

SB - 13

DEPTH	Cl-	PID	GRO	DRO
SS	118	0.7		
5	86	0.6		
10	59	0.4		
15	51	0.5		
20	88	0.2		
25	85	0.4		
30	82	0.5		

SB - 14

DEPTH	Cl-	PID	GRO	DRO
SS	88	0.7		
5	123	0.5		
10	108	1.1		
15	125	0.7		
20	150	0.5		
25	196	0.6		
30	195	0.5		

SB - 15

DEPTH	Cl-	PID	GRO	DRO
SS	91	0.6		
5	77	0.7		
10	89	0.1		
15	1853	0.5		
20	1030	0.4		
25	487	0.1		
30	105	0.2		
35	111	0.1		

SB - 16

DEPTH	Cl-	PID	GRO	DRO
50	2643	0.2		
55	2424	0.1		
60	3059	0.1		
65	2236	0.1		

SB - 17

DEPTH	Cl-	PID	GRO	DRO
SS	84	3.1		
5	62	3.6		
10	57	4.7		
15	104	0.8		
20	79	0.6		
25	61	0.4		
30	61	0.6		

SB - 18

DEPTH	Cl-	PID	GRO	DRO
SS	56	6		
5	55	7.6		
10	2544	5.8		
15	603	3.2		
20	1647	1.4		
25	4011	2.2		

SB - 19

DEPTH	Cl-	PID	GRO	DRO
SS	118	0.7		
5	86	0.6		
10	59	0.4		
15	51	0.5		
20	88	0.2		
25	85	0.4		
30	82	0.5		

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM

CONOCO PHILLIPS WARREN UNIT #013 INJECTION LINE AD

Further Delineation Soil Bore Data

0 50 100 Feet

N W E S

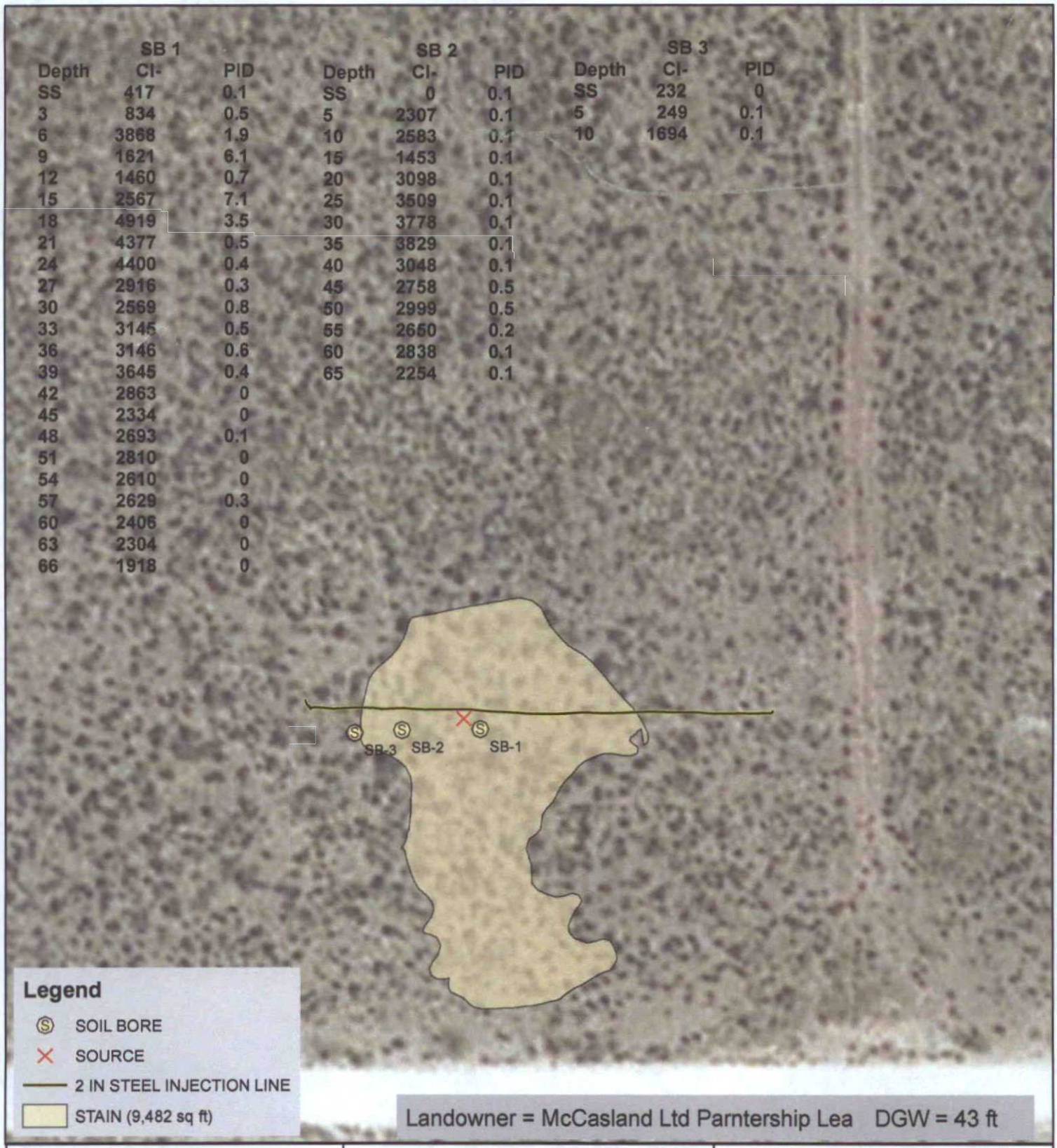
GPS date: 8-7-2013 JK
Drawing date: 8/7/13
Drafted by: LS

Sheet 2 of 2

8/9

Soil Bore Data

SB 1			SB 2			SB 3		
Depth	Cl-	PID	Depth	Cl-	PID	Depth	Cl-	PID
SS	417	0.1	SS	0	0.1	SS	232	0
3	834	0.5	5	2307	0.1	5	249	0.1
6	3868	1.9	10	2583	0.1	10	1694	0.1
9	1621	6.1	15	1453	0.1			
12	1460	0.7	20	3098	0.1			
15	2567	7.1	25	3509	0.1			
18	4919	3.5	30	3778	0.1			
21	4377	0.5	35	3829	0.1			
24	4400	0.4	40	3048	0.1			
27	2916	0.3	45	2758	0.5			
30	2569	0.8	50	2999	0.5			
33	3145	0.5	55	2650	0.2			
36	3146	0.6	60	2838	0.1			
39	3645	0.4	65	2254	0.1			
42	2863	0						
45	2334	0						
48	2693	0.1						
51	2810	0						
54	2610	0						
57	2629	0.3						
60	2406	0						
63	2304	0						
66	1918	0						



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC
RECS

CONOCO PHILLIPS WARREN UNIT #013 INJECTION LINE AD

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM

HOBBS OCD
JUL 26 2013
RECEIVED

N W E S

0 50 100 Feet

GPS date: 7-26-2013 KN
Drawing date: 7-26-2013
Drafted by: LS

7/2

RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM

CONOCO PHILLIPS
WARREN UNIT #013
INJECTION LINE AD
API No. 3002507881

1RP-7-13-2940

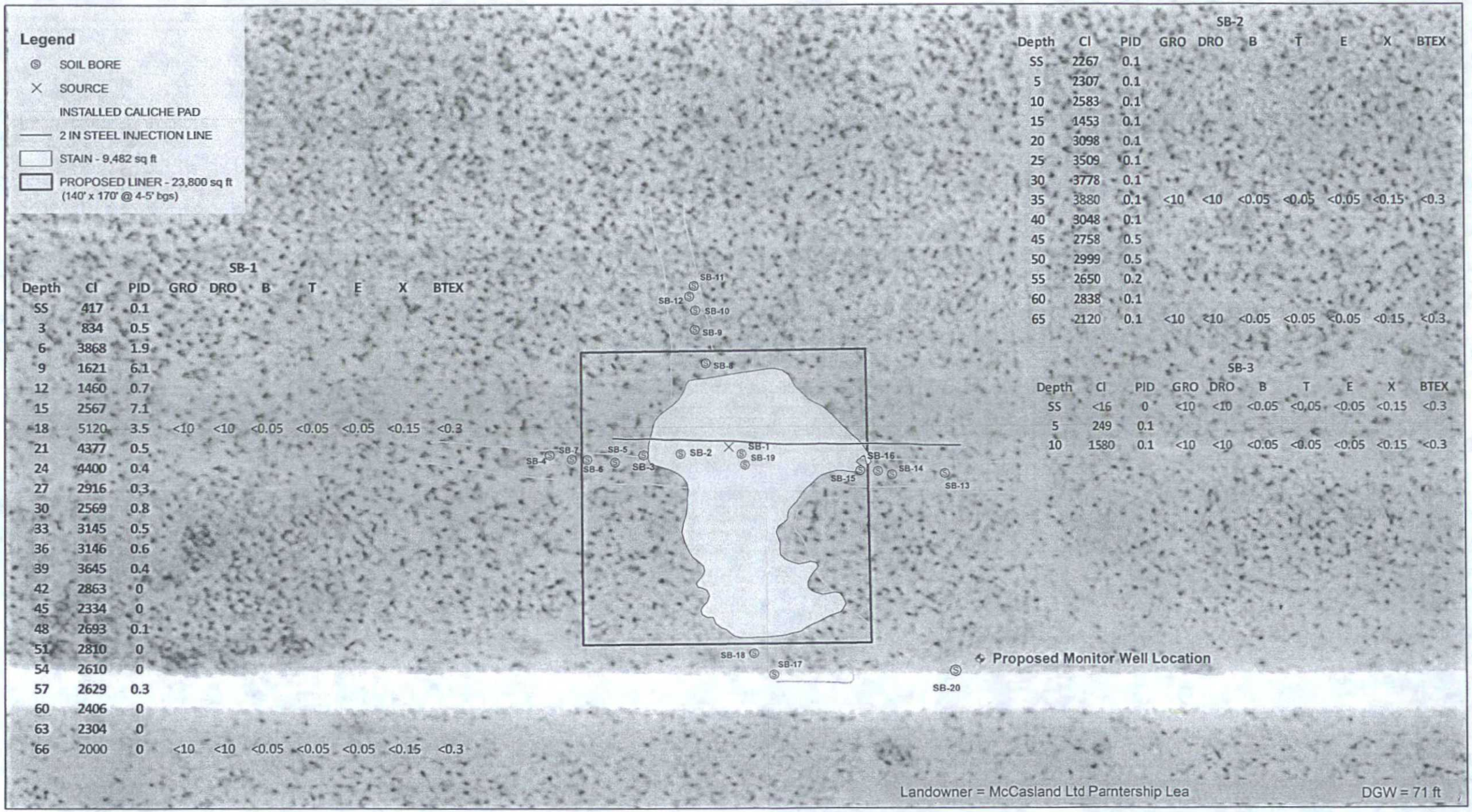
Soil Bore Data And Proposed Monitor Well Location

0 50 100 Feet

GPS date: 8-7-2013 JK
Drawing date: 8/7/13
Drafted by: LS

N W E S

Figure 2



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM

CONOCO PHILLIPS
WARREN UNIT #013
INJECTION LINE AD

API No. 3002507881

1RP-7-13-2940

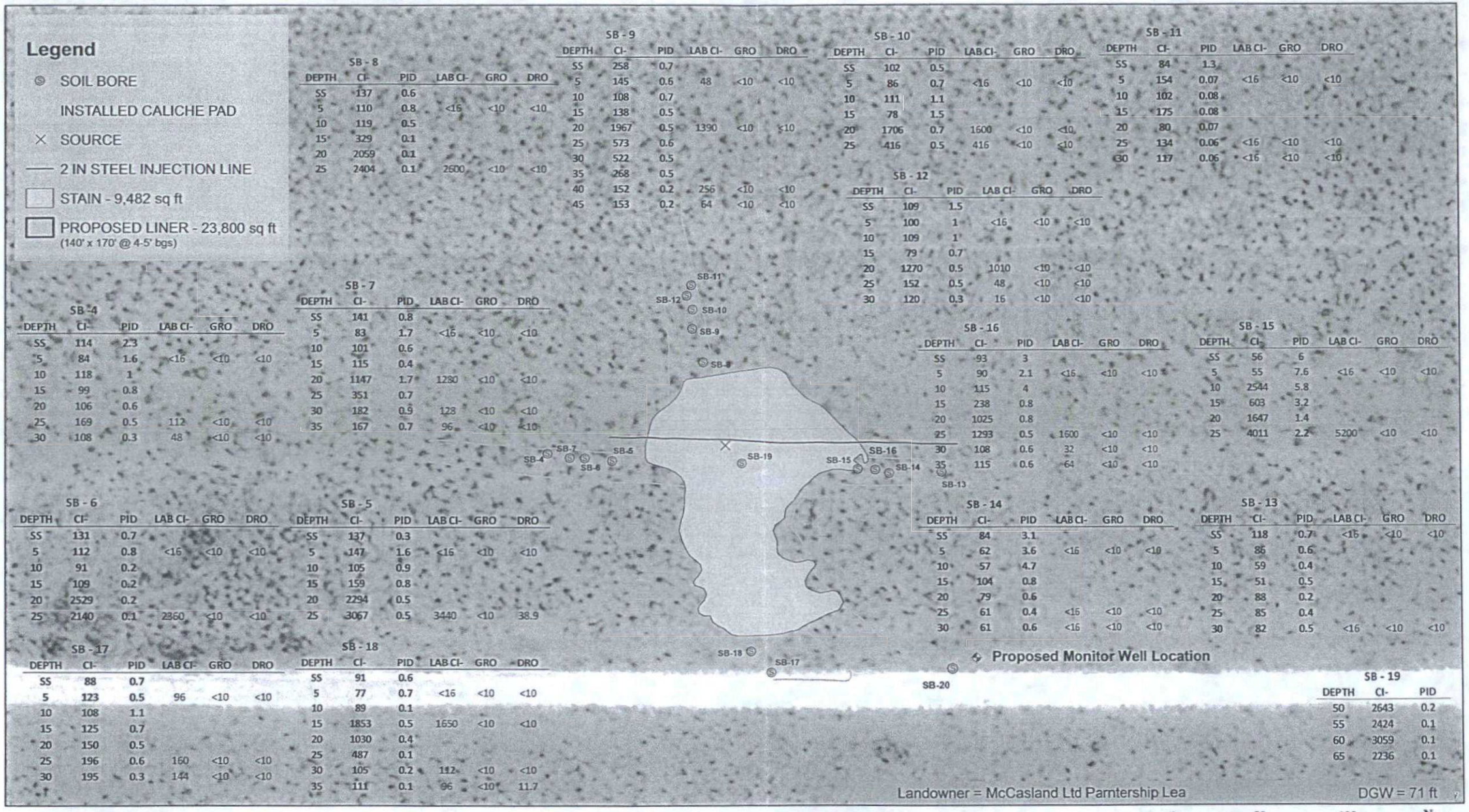
Soil Bore Data And Proposed Monitor Well Location

0 50 100 Feet

GPS date: 8-7-2013 JK
Drawing date: 8/7/13
Drafted by: LS

N W E S

Figure 2



SB - 8

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	137	0.6			
5	110	0.8	<16	<10	<10
10	119	0.5			
15	329	0.1			
20	2059	0.1			
25	2404	0.1	2600	<10	<10

SB - 9

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	258	0.7			
5	145	0.6	48	<10	<10
10	108	0.7			
15	138	0.5			
20	1967	0.5	1390	<10	<10
25	573	0.6			
30	522	0.5			
35	268	0.5			
40	152	0.2	256	<10	<10
45	153	0.2	64	<10	<10

SB - 10

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	102	0.5			
5	86	0.7	<16	<10	<10
10	111	1.1			
15	78	1.5			
20	1706	0.7	1600	<10	<10
25	416	0.5	416	<10	<10

SB - 11

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	84	1.3			
5	154	0.07	<16	<10	<10
10	102	0.08			
15	175	0.08			
20	80	0.07			
25	134	0.06	<16	<10	<10
30	117	0.06	<16	<10	<10

SB - 12

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	109	1.5			
5	100	1	<16	<10	<10
10	109	1			
15	79	0.7			
20	1270	0.5	1010	<10	<10
25	152	0.5	48	<10	<10
30	120	0.3	16	<10	<10

SB - 4

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	114	2.3			
5	84	1.6	<16	<10	<10
10	118	1			
15	99	0.8			
20	106	0.6			
25	169	0.5	112	<10	<10
30	108	0.3	48	<10	<10

SB - 7

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	141	0.8			
5	83	1.7	<16	<10	<10
10	101	0.6			
15	115	0.4			
20	1147	1.7	1280	<10	<10
25	351	0.7			
30	182	0.9	128	<10	<10
35	167	0.7	96	<10	<10

SB - 16

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	93	3			
5	90	2.1	<16	<10	<10
10	115	4			
15	238	0.8			
20	1025	0.8			
25	1293	0.5	1600	<10	<10
30	108	0.6	32	<10	<10
35	115	0.6	64	<10	<10

SB - 15

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	56	6			
5	55	7.6	<16	<10	<10
10	2544	5.8			
15	603	3.2			
20	1647	1.4			
25	4011	2.2	5200	<10	<10

SB - 6

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	131	0.7			
5	112	0.8	<16	<10	<10
10	91	0.2			
15	109	0.2			
20	2529	0.2			
25	2140	0.1	2360	<10	<10

SB - 5

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	137	0.3			
5	147	1.6	<16	<10	<10
10	105	0.9			
15	159	0.8			
20	2294	0.5			
25	3067	0.5	3440	<10	38.9

SB - 14

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	84	3.1			
5	62	3.6	<16	<10	<10
10	57	4.7			
15	104	0.8			
20	79	0.6			
25	61	0.4	<16	<10	<10
30	61	0.6	<16	<10	<10

SB - 13

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	118	0.7	<16	<10	<10
5	86	0.6			
10	59	0.4			
15	51	0.5			
20	88	0.2			
25	85	0.4			
30	82	0.5	<16	<10	<10

SB - 17

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	88	0.7			
5	123	0.5	96	<10	<10
10	108	1.1			
15	125	0.7			
20	150	0.5			
25	196	0.6	160	<10	<10
30	195	0.3	144	<10	<10

SB - 18

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	91	0.6			
5	77	0.7	<16	<10	<10
10	89	0.1			
15	1853	0.5	1650	<10	<10
20	1030	0.4			
25	487	0.1			
30	105	0.2	112	<10	<10
35	111	0.1	96	<10	11.7

SB - 19

DEPTH	Cl-	PID
50	2643	0.2
55	2424	0.1
60	3059	0.1
65	2236	0.1

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM

CONOCO PHILLIPS WARREN UNIT #013 INJECTION LINE AD

API No. 3002507881

1RP-7-13-2940

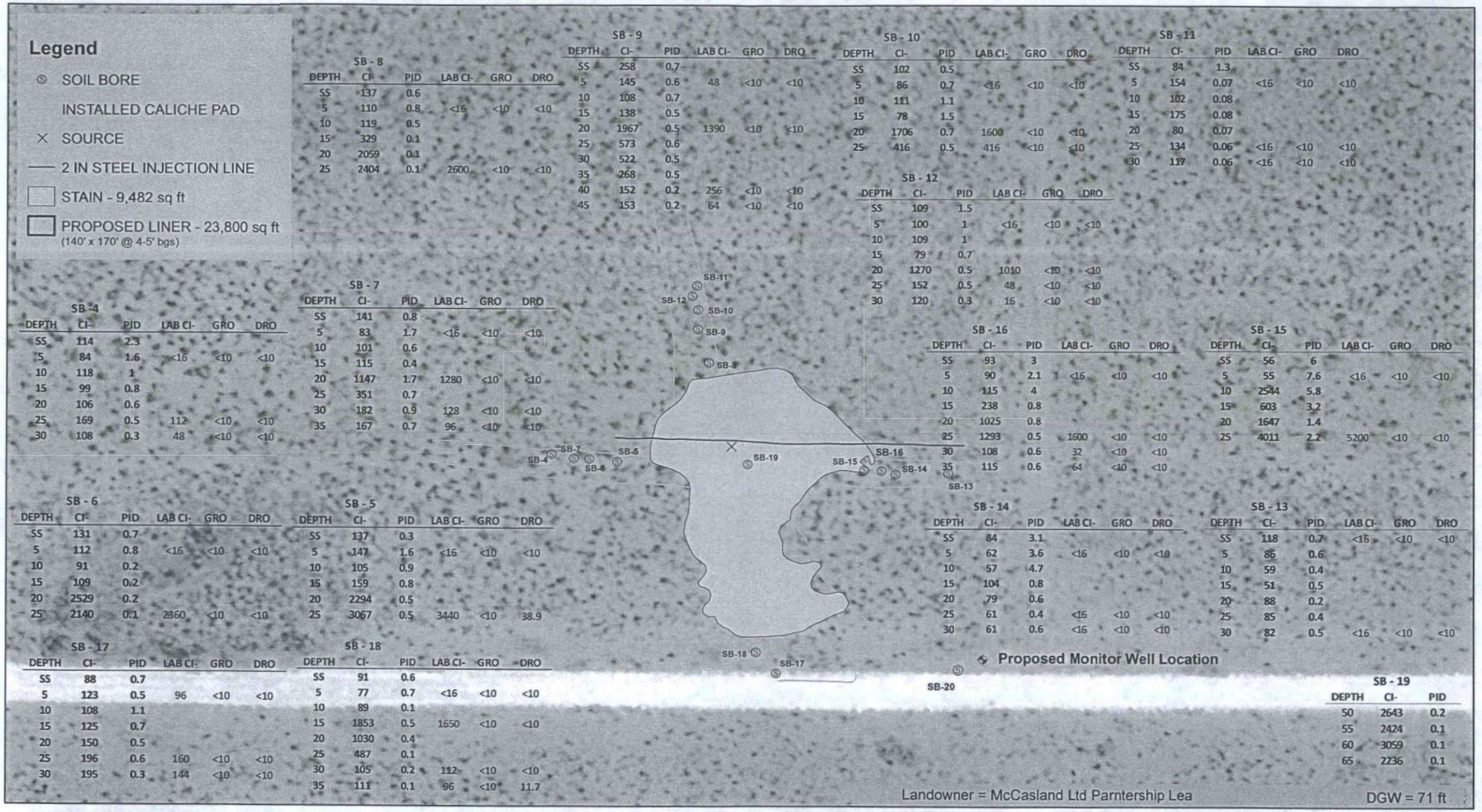
Soil Bore Data And Proposed Monitor Well Location

0 50 100 Feet

GPS date: 8-7-2013 JK
Drawing date: 8/14/13
Drafted by: LS

N W E S

Figure 3



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM

CONOCO PHILLIPS
WARREN UNIT #013
INJECTION LINE AD

API No. 3002507881

1RP-7-13-2940

Soil Bore Data And Proposed Monitor Well Location

0 50 100 Feet

GPS date: 8-7-2013 JK
Drawing date: 8/14/13
Drafted by: LS

N W E S

Figure 3

Legend

- SOIL BORE
- INSTALLED CALICHE PAD
- SOURCE
- 2 IN STEEL INJECTION LINE
- PROPOSED LINER - 30,887 sq ft
- PROPOSED LINER - 22,909 sq ft
- STAIN - 9,482 sq ft

SB - 10

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	102	0.5			
5	86	0.7	<16	<10	<10
10	111	1.1			
15	78	1.5			
20	1706	0.7	1600	<10	<10
25	416	0.5	416	<10	<10

SB - 12

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	109	1.5			
5	100	1	<16	<10	<10
10	109	1			
15	79	0.7			
20	1270	0.5	1010	<10	<10
25	152	0.5	43	<10	<10
30	120	0.3	16	<10	<10

SB - 11

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	84	1.3			
5	154	0.07	<16	<10	<10
10	102	0.08			
15	175	0.08			
20	80	0.07			
25	134	0.06	<16	<10	<10
30	117	0.06	<16	<10	<10

SB - 4

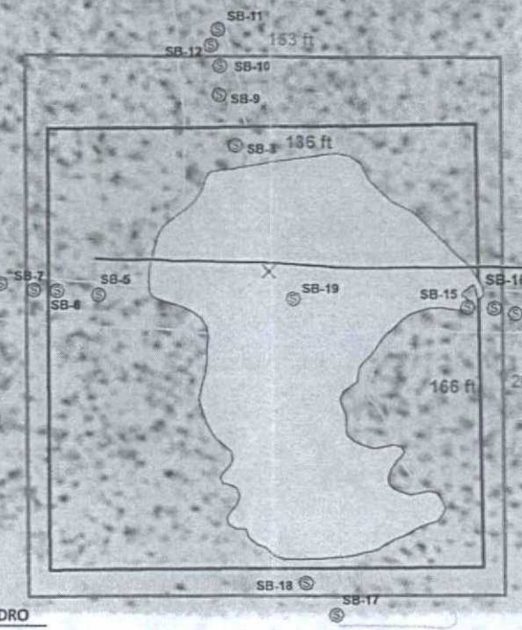
DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	114	2.3			
5	84	1.6	<16	<10	<10
10	118	1			
15	99	0.8			
20	106	0.6			
25	169	0.5	112	<10	<10
30	108	0.3	48	<10	<10

SB - 7

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	141	0.8			
5	83	1.7	<16	<10	<10
10	101	0.6			
15	115	0.4			
20	1147	1.7	1280	<10	<10
25	351	0.7			
30	182	0.9	128	<10	<10
35	167	0.7	96	<10	<10

SB - 6

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	131	0.7			
5	112	0.8	<16	<10	<10
10	91	0.2			
15	109	0.2			
20	2529	0.2			
25	2140	0.1	2360	<10	<10



SB - 15

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	56	6			
5	55	7.6	<16	<10	<10
10	2544	5.8			
15	603	3.2			
20	1647	1.4			
25	4011	2.2	5200	<10	<10

SB - 16

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	93	3			
5	90	2.1	<16	<10	<10
10	115	4			
15	238	0.8			
20	1025	0.8			
25	1293	0.5	1600	<10	<10
30	108	0.6	32	<10	<10
35	115	0.6	64	<10	<10

SB - 14

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	84	3.1			
5	62	3.6	<16	<10	<10
10	57	4.7			
15	104	0.8			
20	79	0.6			
25	61	0.4	<16	<10	<10
30	61	0.6	<16	<10	<10

SB - 18

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	91	0.6			
5	77	0.7	<16	<10	<10
10	89	0.1			
15	1853	0.5	1650	<10	<10
20	1030	0.4			
25	487	0.1			
30	105	0.2	112	<10	<10
35	111	0.1	96	<10	11.7

SB - 17

DEPTH	Cl-	PID	LAB Cl-	GRO	DRO
SS	88	0.7			
5	123	0.5	96	<10	<10
10	108	1.1			
15	125	0.7			
20	150	0.5			
25	196	0.6	160	<10	<10
30	195	0.3	144	<10	<10

Proposed Monitor Well Location

Landowner = McCasland Ltd Parntership Lea

DGW = 71 ft

RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC — RECS

LEGALS UL/ N Sec. 34
T20S - R38E
LEA COUNTY, NM

CONOCO PHILLIPS
WARREN UNIT #013
INJECTION LINE AD

API No. 3002507881

1RP-7-13-2940

Soil Bore Data And Proposed Liners

0 50 100 Feet

GPS date: 8-7-2013 JK
Drawing date: 10/23/13
Drafted by: L. Weinheimer

N W E S