

1R - 426-281

REPORTS

DATE:

7-24-13

Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

CERTIFIED MAIL
RETURN RECEIPT NO. 7008 1140 0001 3072 4642

July 24th, 2013

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RECEIVED

JUL 23 2013

Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

**RE: Termination Request
Rice Operating Company – BD SWD System
BD G-23 EOL (1R426-281): UL/G sec. 23 T22S R37E
(formerly BD B-23 EOL)**

Mr. Hansen:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the BD Salt Water Disposal (SWD) system. The site was previously referred to as the BD B-23 EOL. However, GIS mapping shows the site to be located within unit letter G. To reflect the geographical location of the site, the name has been changed to the BD G-23 EOL. All correspondences will reference BD G-23 EOL.

ROC is the service provider (agent) for the BD SWD System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

Background and Previous Work

The site is located approximately 4 miles southeast of Eunice, New Mexico at UL/G sec. 23 T22S R37E as shown on the Geographical and Site Location Maps (Figure 1 & 2). Groundwater at this site is located at a depth of approximately 60 +/- feet.

In 2010, ROC initiated work on the former BD G-23 EOL junction box. The former junction box was located on an active battery pad and contained a boot. The site was delineated using a backhoe to form a 25 ft x 10 ft x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, the four-wall composite, the bottom composite and the backfill were taken to a commercial laboratory for analysis. Laboratory tests of the four-wall composite showed a chloride reading of 3,320 mg/kg, and gasoline range organics (GRO) and diesel range organics (DRO) readings of non-detect. The bottom composite showed a chloride laboratory reading of 9,520 mg/kg and GRO and DRO readings of non-detect. The soil

was blended on site and a sample taken to a commercial laboratory for analysis. Laboratory analysis of the blended backfill showed a chloride reading of 4,560 mg/kg and GRO and DRO readings of non-detect. The blended backfill was returned to the excavation to 5 ft below ground surface (bgs). At 5-4 ft bgs, a 1 foot clay layer was installed and a clay compaction test was performed on March 1st, 2010. The remaining backfill was exported to a NMOCD approved facility for disposal and the excavation was backfilled with clean, imported soil to ground surface.

The area was contoured to the surrounding landscape, seeded, and an identification plate was placed on the surface of the site to mark its location for future environmental considerations. NMOCD was notified of potential groundwater impact on August 4th, 2010, and a junction box disclosure report was submitted to NMOCD with all the 2010 junction box closures and disclosures.

As part of the Investigation and Characterization Plan approved by NMOCD on May 19th, 2011, six soil bores (SB-1 through SB-6) were advanced through the former junction box site on May 23rd, 2011 and June 6th, 2011. RECS personnel field tested the soil for chlorides and screened in the field with a photo-ionization detector (PID). Representative samples from the bores were taken to a commercial laboratory for confirmation of chloride and hydrocarbon field numbers. All the soil bores had laboratory chloride values that decreased with depth.

Based on the initial delineation results, RECS submitted an ICP Report with the following recommendation to NMOCD on July 15th, 2011 which was approved on September 20th, 2011: ROC would delineate groundwater quality surrounding the former junction box through the installation of a near source monitoring well.

On January 31st, 2012, RECS personnel were on site to install a near-source monitor well (MW-1). Samples were only taken for lithology as the well was being advanced. The well has been sampled quarterly since its installation.

A Further Investigation Report and Corrective Action Plan for Soils was submitted to NMOCD on March 16th, 2012 and approved on March 20th, 2012. As per the report, RECS began the excavation for liner installation on January 16th, 2013. The site was excavated to 29 ft x 36 ft to a depth of 4.5 ft bgs, uncovering the existing clay layer. A 20-mil reinforced poly liner was installed and properly seated at the base of the excavation. Clean, imported blow sand was used to backfill the site to 3 ft bgs and the final 3 ft was backfilled with clean, imported caliche. This site is located on a lease pad and seeding was not required.

On February 12th, 2013, RECS personnel were on site to install MW-2, the up-gradient monitor well. Samples were taken for analysis of background soil concentrations as the well was installed and field tested for chlorides and hydrocarbons. Representative samples were taken to a commercial laboratory for analysis. The 15 ft sample returned a chloride result of 1,580 mg/kg and the 50 ft sample returned a chloride result of non-detect. In both samples, GRO and DRO were non-detect.

An Initial CAP Report and Soil Closure Request was submitted to NMOCD on March 20th, 2013 and was approved on April 24th, 2013. In the report, RECS recommended that ROC sample the up-gradient well (MW-2) in conjunction with the near-source well (MW-1) to determine background groundwater concentrations. In addition, ROC acknowledged that they had met the soil requirements as approved by the NMOCD in the Corrective Action Plan (CAP), and the newly installed 20-mil reinforced liner would prohibit the migration of any residual chlorides. As such, ROC requested 'Soil Closure' for this site. The 'Soil Closure' request was granted by NMOCD on April 24th, 2013.

MW-1 and MW-2 have been sampled quarterly since their installation (Figure 3). During their last sampling event on April 18th, 2013, MW-1, the source well, had a laboratory chloride reading of 820 mg/L, a TDS reading of 1690 mg/L and showed slight elevations in BTEX. MW-2, the up-gradient well, had a laboratory chloride reading of 1,360 mg/L, a TDS reading of 2,160 mg/L and a BTEX reading of non-detect. Based on the monitor well sampling data, it is evident that there is a non-ROC site contributing chloride to the groundwater, up-gradient of the G-23 EOL site.

The hydrocarbon substance on MW-1 has accumulated during the last two sampling events beginning on January 8th, 2013. The substance is described as a non-aqueous liquid, which has been identified through sampling to be consistent with light end condensate fluid. The well has been purged twice since the product accumulated and a PSH recovery sock has been placed in the well as an additional effort to remove the floating liquid in the well bore (Appendix A). Since the former junction box site did not contain hydrocarbons in the soil and given that NMOCD granted 'Soil Closure' for the site, it is evident that the hydrocarbons on MW-1 must be from some source other than the former junction box (Figure 4). TPH concentrations were below detectable limits and PID readings were low in each of the soil bores surrounding the former junction box area, excluding SB-2. SB-2 is located in between a battery and treater pad and resulted in DRO and BTEX concentrations above detectable limits.

The residual constituents in the vadose zone could not in any way affect groundwater beneath the site and the liners will inhibit further migration of constituents to groundwater. The chlorides in the groundwater at MW-1 have come from an up-gradient source. The hydrocarbons in the groundwater could not have come from the soils around the junction box, since soil delineation evidenced no hydrocarbon. Therefore, ROC respectfully requests 'remediation termination' or similar closure status of the site.

Once NMOCD approves the termination request, ROC will plug and abandon MW-1 and MW-2 with a 1-3% bentonite/concrete slurry and a 3 ft concrete cap. A final plug and abandon report will be submitted to NMOCD detailing these activities.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-9174 or me if you have any questions or wish to discuss the site.

Sincerely,



Lara Weinheimer
Project Scientist
RECS
(575) 441-0431

Attachments:

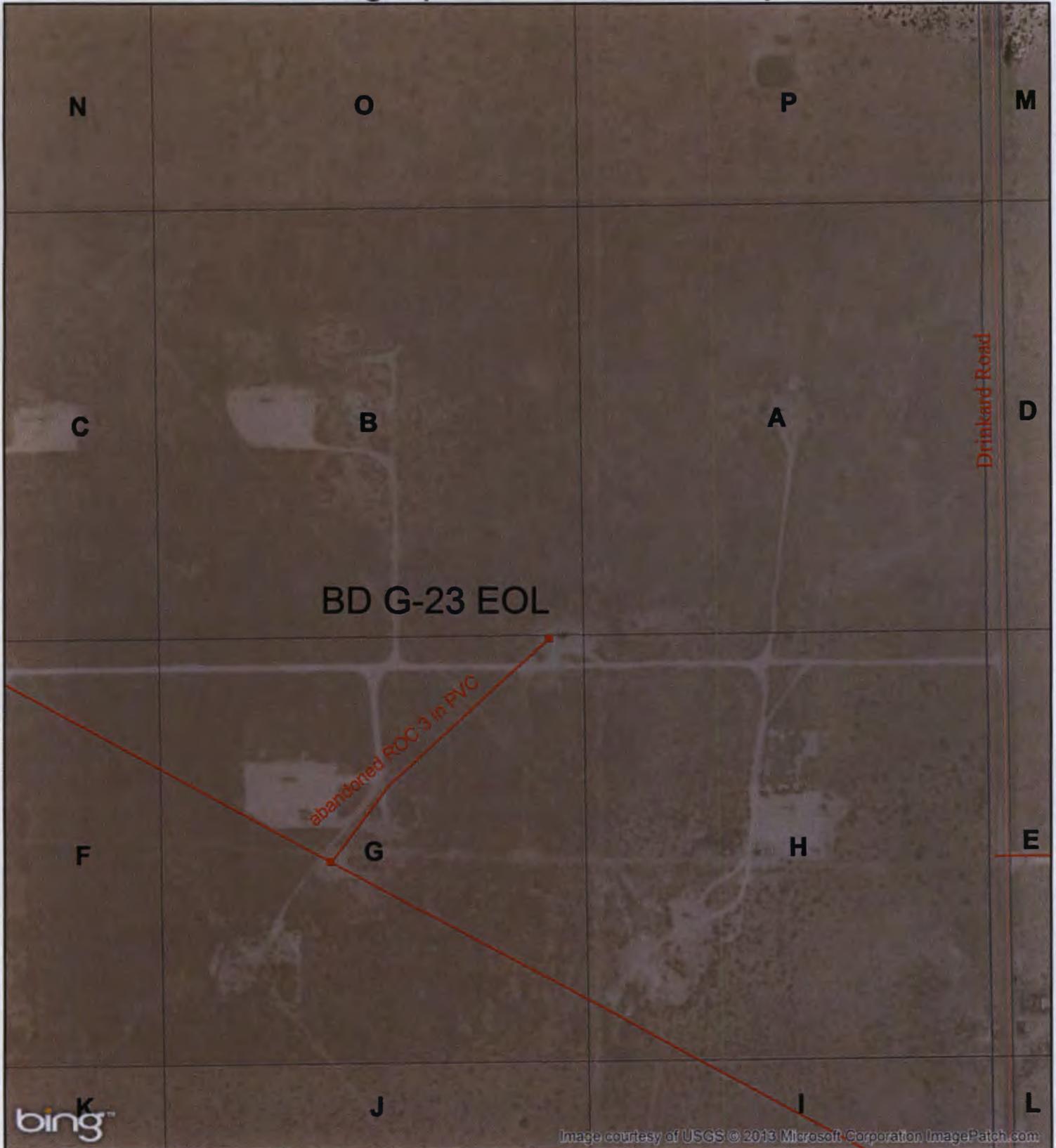
- Figure 1 – Geographical Location Map
- Figure 2 – Site Location Map
- Figure 3 – MW Sampling Data
- Figure 4 – Soil Data Map
- Appendix A – Description of Hydrocarbon Substance in MW-1

RECEIVED OOD
2013 JUL 26 PM 2:44

Figures

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

Geographical Location Map



bing™

Image courtesy of USGS © 2013 Microsoft Corporation ImagePatch.com



BD G-23 EOL
LEGALS: UL/G sec. 23
T22S R37E
NMOCD Case # : 1R426-281

Figure 1

A north arrow is located in the top right corner, with 'N' at the top, 'S' at the bottom, 'E' on the right, and 'W' on the left. Below it is a scale bar with markings at 0, 170, 340, and 680 feet.

Drawing date: 6-28-11
Drafted by: L. Weinheimer

Site Map

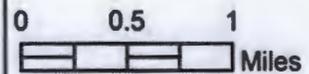


Map data: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AeroX, GeoMapping, Aermap, IGN, TGP, swisstopo, and the GIS User Community



BD G-23 EOL
LEGALS: UL/G sec. 23
T22S R37E
NMOCD Case # : 1R426-281

Figure 2



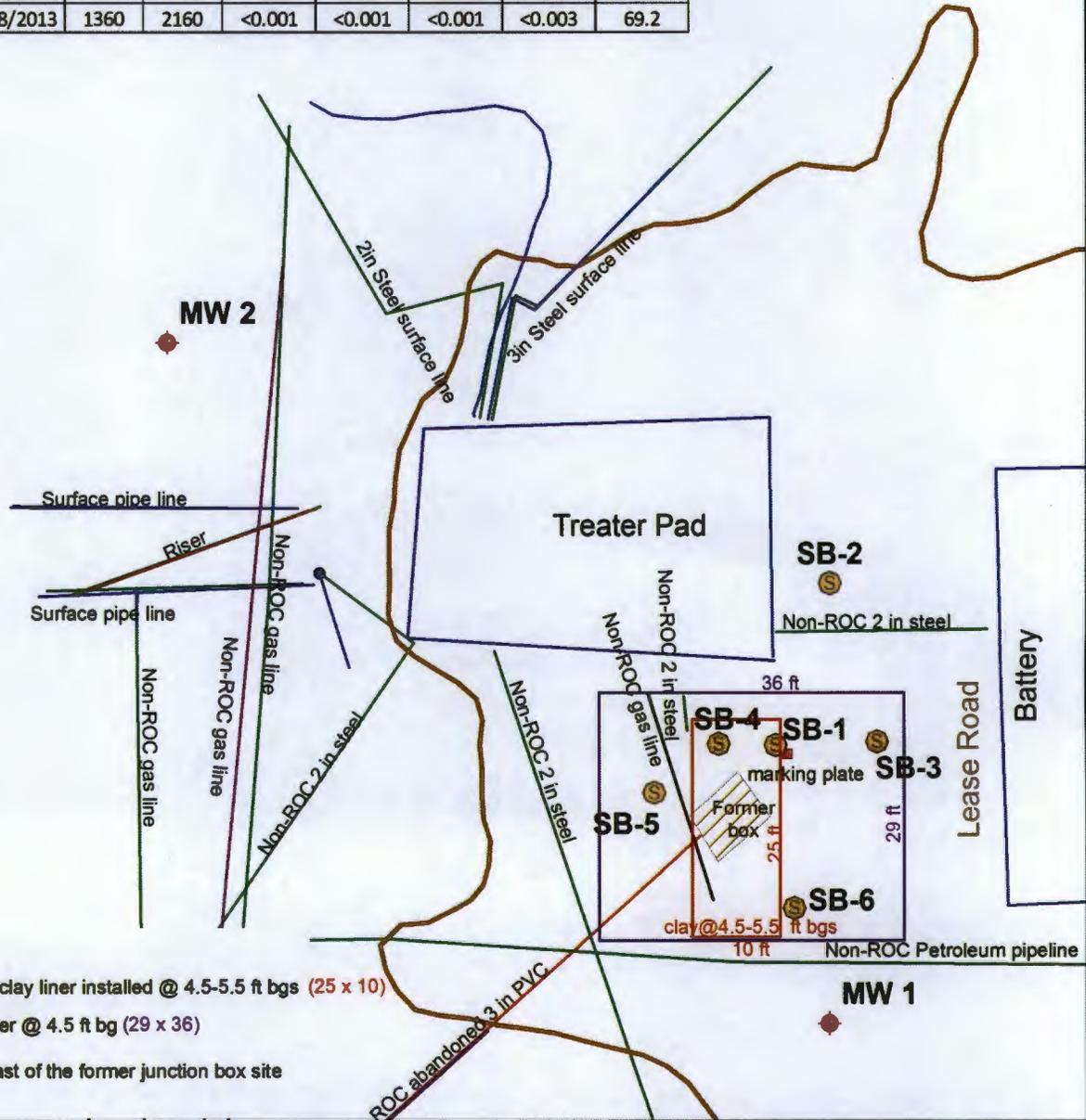
Drawing date: 5.2.11
Drafted by: L. Weinheimer

MW Sampling Data

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
1	60.84	107.83	2/20/2012	860	1970	<0.001	<0.001	<0.001	<0.003	90.5
	60.89	107.83	4/19/2012	1080	1980	<0.001	<0.001	<0.001	<0.003	58.6
	60.92	107.83	7/16/2012	1040	2280	<0.001	<0.001	<0.001	<0.003	47.8
	61.02	107.83	10/5/2012	970	1880	<0.001	<0.001	<0.001	<0.003	46.2
	60.92	107.83	1/8/2013	XXX	XXX	XXX	XXX	XXX	XXX	XXX
	61.19	107.83	4/18/2013	820	1690	<0.010	0.365	1.29	2.99	<10.0

XXX: Constituents not sampled due to product on well.

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
2	61.44	73.02	3/28/2013	1280	2090	<0.1	0.17	0.89	1.44	72.2
	61.47	73.02	4/18/2013	1360	2160	<0.001	<0.001	<0.001	<0.003	69.2



- Approximate location of clay liner installed @ 4.5-5.5 ft bgs (25 x 10)
- Approved 20-mil poly liner @ 4.5 ft bgs (29 x 36)

The marking plat is 10 ft northeast of the former junction box site
 DGW: 60 ft

Figure 3



0 5 10 20
 Feet

Drawing date: 7/9/13
 Drawn by: L. Weinheimer



BD G-23 EOL

LEGALS: UL/G sec. 23
 T22S R37E

NMOCD Case # : 1R426-281

Soil Data

SB-1					
Depth	Cl-	PID	LAB Cl-	GRO	DRO
15	6687	23.7	8200	<10	<10
20	2839	9.3			
25	2181	3.6			
30	1749	1.7			
35	2294	0			
40	1055	0			
45	752	0			
50	570	0			
55	289	4.4	160	<10	<10

SB-2									
Depth	Cl-	PID	LAB Cl-	GRO	DRO	B	T	E	X
SS	201	0							
5	201	0							
10	323	0							
15	918	0							
20	1132	0.7	1420	<10	<10				
25	424	12							
30	193	213	112	<10	26.9	0.113	0.132	0.119	0.499
35	168	24.9							
40	183	1.4	304	<10	<10				

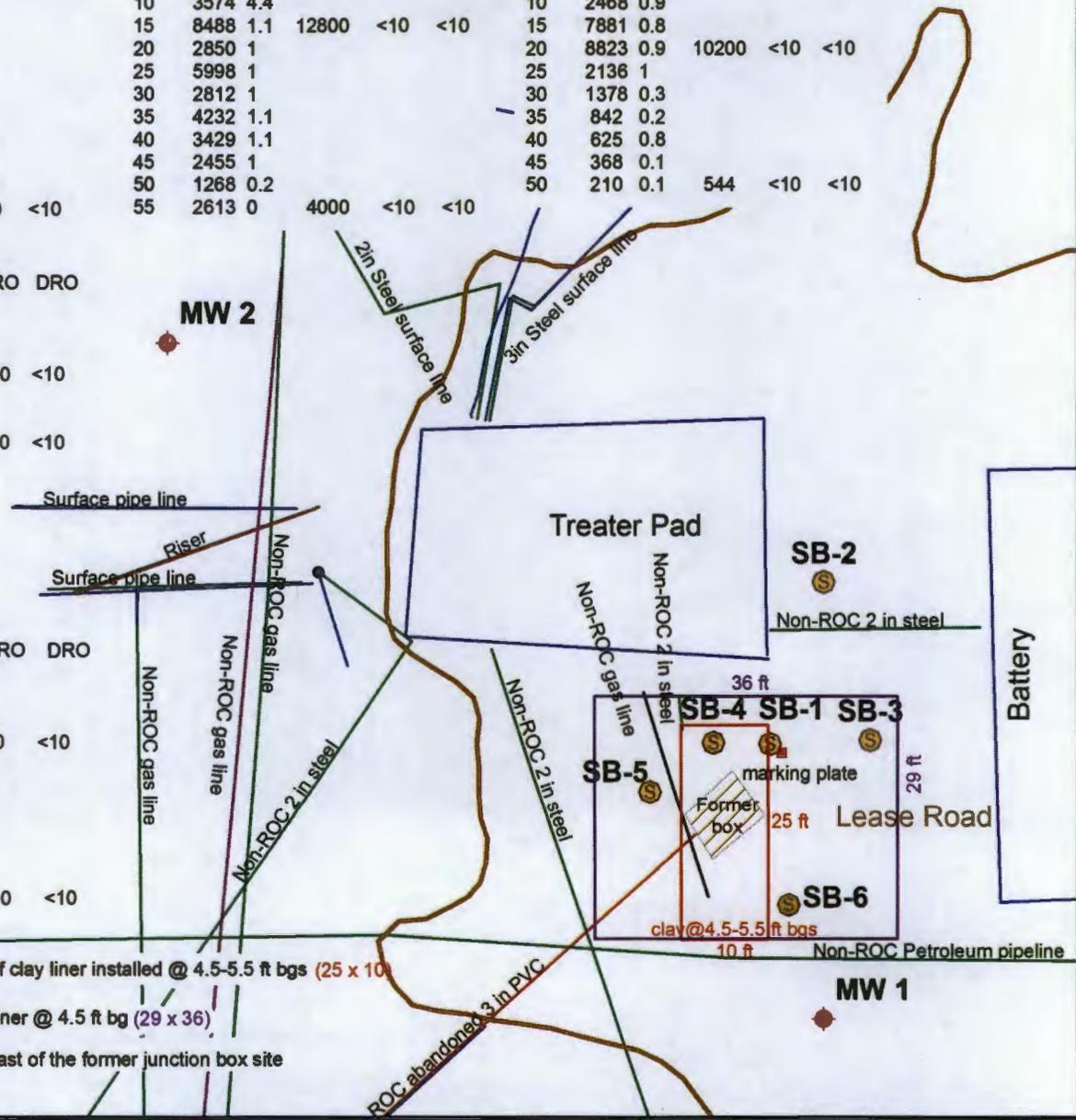
SB-3					
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	3459	1.3	5300	<10	<10
5	1625	0	1760	<10	<10
10	1153	0			
15	613	0			
20	336	0			
25	305	0			
30	315	0			
35	339	0			
40	457	0			
45	427	0			
50	437	0			
55	352	0	336	<10	<10

SB-4					
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	168	2.7			
5	450	3.1			
10	3574	4.4			
15	8488	1.1	12800	<10	<10
20	2850	1			
25	5998	1			
30	2812	1			
35	4232	1.1			
40	3429	1.1			
45	2455	1			
50	1268	0.2			
55	2613	0	4000	<10	<10

SB-5					
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	141	0.1			
5	773	0.8			
10	2468	0.9			
15	7881	0.8			
20	8823	0.9	10200	<10	<10
25	2136	1			
30	1378	0.3			
35	842	0.2			
40	625	0.8			
45	368	0.1			
50	210	0.1	544	<10	<10

SB-6					
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	167	0			
5	295	0			
10	1800	0			
15	1919	0	2560	<10	<10
20	446	0			
25	252	0			
30	205	0	192	<10	<10

MW 2					
Depth	Cl-	PID	LAB Cl-	GRO	DRO
SS	114	0.7			
5	154	0.8			
10	745	1			
15	1147	1	1580	<10	<10
20	892	1.3			
25	535	0.9			
30	932	0.5			
35	888	0.3			
40	150	0.4			
45	145	0.4			
50	134	0.5	<16	<10	<10

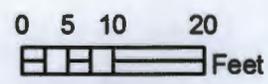


Approximate location of clay liner installed @ 4.5-5.5 ft bgs (25 x 10)
 Approved 20-mil poly liner @ 4.5 ft bg (29 x 36)
 The marking plat is 10 ft northeast of the former junction box site
 DGW: 60 ft

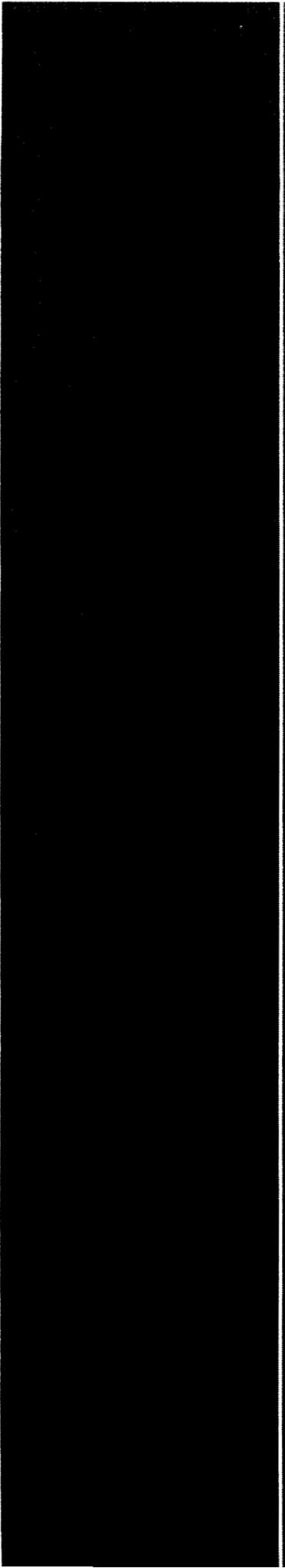


BD G-23 EOL
 LEGALS: UL/G sec. 23
 T22S R37E
 NMOCD Case # : 1R426-281

Figure 4



Drawing date: 2/19/13
 Drafted by: L.S.



Appendix A

Description of Hydrocarbon Substance in MW-1

RICE Environmental Consulting and Safety (RECS)

P.O. Box 2948 Hobbs, NM 88241

Phone 575.393.2967

Arc Environmental

P. O. Box 1772

Lovington, New Mexico 88260

(575) 631-9310

Rozanne Johnson ~ rozanne@valornet.com

June 28, 2013

Mr. Hack Conder
RICE Operating Company
112 West Taylor
Hobbs, New Mexico 88240

Re: BD G-23 EOL

Mr. Conder,

As requested the following is a general description of the RICE BD G-23 EOL location:

- There are two monitor wells at the site, Monitor Well #1 (the source well) and Monitor Well #2 (the up gradient well). Monitor Well #1 at the above mentioned site contains a non-aqueous liquid, which has been identified through sampling to be consistent with a light end condensate fluid. Routine purging of Monitor Well #1 with a PSH recovery bailer to remove the floating fluid has been in progress since January 2013. A PSH recovery sock has been placed in the monitor well as an additional effort to remove the floating fluid in the well bore. Monitor Well #1 continues to have the floating fluid present and has tested positive for BTEX. There are several pipelines in the area, an oil production battery, as well as, other environmental monitoring sites, which could be contributing to the presence of BTEX.

Sincerely,
Arc Environmental

Rozanne Johnson
Rozanne Johnson

Electronic Copy: Hack Conder
Katie Jones