AP - 116

STAGE 1 & 2 REPORTS

DATE: 3rd Q - 2012

Animas Environmental Services, LLC
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Farmington, NM 87401
505-564-2281
Durango, Colorado
970-403-3084

April 3, 2013

Glenn von Gonten
Edward Hansen
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: 3rd Quarter 2012 Remedial Progress Report 2012
Thriftway Refinery
626 County Road 5500, Bloomfield, New Mexico

Dear Mr. von Gonten and Mr. Hansen:

Animas Environmental Services, LLC (AES) has prepared this 3rd Quarter 2012 Remedial Progress Report detailing remedial activities during the third quarter of 2012 on behalf of Thriftway Company (Thriftway) for the Thriftway Refinery, located at 626 County Road 5500, Bloomfield, San Juan County, New Mexico, in accordance with New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB) regulations.

The 3rd Quarter 2012 Remedial Progress Report details groundwater monitoring and gauging activities, multi-phase extraction (MPE) remediation system operations, and phytoremediation activities conducted at the site between June and September 2012. A General Site Plan is included as Figure 1.

1.0 Groundwater Monitoring and Gauging

BioTech conducted groundwater monitoring and gauging of the monitor wells at the site on August 8, 10, 13 and 14, 2012. Based on the current sampling plan, monitoring and gauging events occurred during the first and third quarter of 2012, with groundwater sampling scheduled during the second and fourth quarters. The information below, taken from the Interim Groundwater Sampling Plan submitted to NMOCD on January 25, 2010, lists wells that were gauged during the August 2012 event.

Year 3 Quarter #3 Monitor Well Gauging List

Well Name	Gauging Only	Gauging and Sampling
TW-1 through TW-22	X	*
TW-24 through TW-26	X	*
TW-28 through TW-47	X	*
TW-49 through TW-51	X	*
MW-5, MW-7, MW-20, MW-21	X	*
* No analytical samples collected during quarterly gauging events in the first or third quarters of Years 2 through 4.		

1.1 Measurement of Groundwater Elevations

Depth to groundwater in each of the selected wells was measured with an electronic water level indicator, which has an accuracy of 0.01 feet. Depth to groundwater measurements were recorded on Water Sample Collection Forms. Electronic copies of the Water Sample Collection Forms are included in the Appendix.

1.2 Measurement of Free Product

Each of the wells previously known to contain light non-aqueous phase liquid (LNAPL, or "free product") was measured with an electronic interface probe, and the depths to the top of product and the oil/water interface were recorded on a groundwater measurement form. Free product was measured in August 2012 in 19 wells, including TW-12, TW-13, TW-14, TW-19 through TW-22, TW-24, TW-25, TW-26, TW-28, TW-29, TW-32, TW-33, TW-35, TW-36, TW-38, TW-40, and TW-44.

In monitor wells containing free product, corrected groundwater elevations (Hc) were determined using the following formula:

$$H_c = H_m + (H_o * (\rho_o/\rho_w))$$

where:

H_m is the measured elevation of the hydrocarbon-water interface (ft)

H_o is the thickness of the hydrocarbon layer (ft)

ρ_o is the hydrocarbon density of diesel, assumed to be 0.827 (g/ml) (API, 1986)

ρ_w is the water density, assumed to be 1.0 (g/mL)

2.0 Groundwater Monitoring Results

2.1 Hydraulic Gradient Data

2.1.1 Hydraulic Gradient

Using surveyed top of casing (TOC) elevations and the recorded groundwater depths, AES determined specific groundwater elevations, relative to sea level, for each well measured. Groundwater elevations across the site in August 2012 ranged from 5,423.73 feet above mean sea level (AMSL) in MW-5 to 5,440.45 feet AMSL in TW-19. Groundwater elevations have decreased across the site by an average of 0.3 feet since the last sampling event in May 2012. Groundwater gradient was calculated between TW-1 and MW-5 with a magnitude of 0.007 ft/ft to the northwest for August 2012. The groundwater flow direction has remained stable, in a northwesterly direction, and is consistent with historical site data.

Table 1 includes depth to groundwater measurements and final water table elevations. Groundwater elevation contours for August 2012 are included on Figure 2. Electronic copies of the Water Sample Collection Forms are included in the Appendix.

2.2 Free Product

Free product was measured in 19 monitor wells, including TW-12, TW-13, TW-14, TW-19 through TW-22, TW-24, TW-25, TW-26, TW-28, TW-29, TW-32, TW-33, TW-35, TW-36, TW-38, TW-40, and TW-44. Measured LNAPL thicknesses ranged from 0.07 feet (TW-40) to 1.45 feet (TW-32). Free product thickness contours for August 2012 are presented in Figure 3, and Graphs 1 through 4 include free product thicknesses over time in the eastern portion of the product plume (TW-13, TW-14, TW-19, and TW-22, respectively).

3.0 Measurement of Groundwater and Free Product in MPE Wells

BioTech personnel measured depth to groundwater in the Phase 1, 2, 3, and 4 MPE wells on August 13 and 14, 2012. Depth to water ranged from 9.12 feet below TOC in MPE-80 to 24.25 feet below TOC in MPE-26. On August 8, 2012, free product ranged from 0.01 feet in MPE-17 and MPE-64 up to 1.34 feet in MPE-73. MPE well data is included in Table 2.

3.0 Installation and Sampling of Monitor Well TW-51, July 2012

3.1 Installation of Monitor Well TW-51

BioTech installed one off-site 2-inch diameter monitor well (TW-51) on July 10, 2012. This well was installed to delineate the extent of downgradient methyl tert-butyl ether (MTBE) contamination. TW-51 was installed with a hollow-stem auger drill rig by BioTech, and well completion depth was approximately 10 feet bgs. The location of TW-51 is included on Figure 1.

3.2 Development of Monitor Well TW-51

The newly installed monitor well was developed by BioTech personnel using a combination of bailing and a pneumatic well development pump in order to remove sand and fine sediments. Approximately 15 to 20 gallons were removed from the well. Groundwater pumped from the well was placed in the two onsite lined ponds for evaporation. The monitor well was developed in general accordance with the AES Well Installation and Development Standard Operating Procedure (SOP) and applicable ASTM standards.

3.3 Groundwater Sampling and Analytical Results, TW-51

Following well development, BioTech completed groundwater monitoring and sampling within TW-51 on July 18, 2012. Monitor well TW-51 was analyzed for the following:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX), MTBE, and total naphthalene per U.S. Environmental Protection Agency (USEPA) Method 8260;
- Chloride and sulfate per USEPA Method 300.0; and
- Total dissolved solids (TDS) per Standard Method 2540C.

The sample was analyzed at Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico.

Laboratory analytical results reported concentrations of benzene, toluene, and xylenes below laboratory detection limits. Concentrations of ethylbenzene were reported at 4.4 µg/L µg/L and total naphthalene at 8.7 µg/L in TW-51. Dissolved phase MTBE was reported at 260 µg/L. Dissolved phase concentrations were reported at 220 mg/L chloride, 3,000 mg/L sulfate, and 5,490 mg/L TDS.

4.0 MPE Remediation System Operations

The MPE remediation system was brought back online on May 11, 2012. The MPE system consists of an RSI internal combustion engine (ICE) unit with two engines (Engine #1 and Engine #2) to extract soil vapors and free product from the MPE extractions wells. The system was taken out of pulse mode on May 11, 2012, and Engine #2 was restarted at the location. Engine #1 is currently not in operation. A summary of RSI operations is presented below:

RSI Engine #2 Active MPE Well Summary, Thriftway Refinery

Date of MPE Adjustments	***Engine #2 (operating within the following MPE Wells)***
May 11, 2012	MPE-26
June 4, 2012	MPE-43, MPE-44, MPE-45, and MPE -46
June 8, 2012	MPE-51 and MPE-52
June 25, 2012	Down for service restart same day
July 2, 2012	MPE-73 and MPE-74
August 17, 2012	MPE-73, MPE-74, and MPE-75

BioTech personnel routinely inspect the system and record performance data. During O&M visits, BioTech personnel perform routine maintenance on the MPE remediation unit. Maintenance includes checking fluid levels, checking and replacing air filters, changing spark plugs, changing oil, flushing the radiator, and inspecting the catox unit.

In Engine #2, well vacuums for the reporting period from May through September 30, 2012, typically ranged between 40 and 80 in-H_2O during MPE operations, with total process flow typically ranging between 7 and 47 scfm. Well flow dilution air is estimated to be approximately 10 percent at each well (as needed to lift product).

4.1 System Operations

Based on system operations from May to September 2012, the following estimated remedial summary is presented:

MPE Remediation System Summary, Thriftway Refinery

Parameters	*Engine #1 Reporting Period (5/11/12—9/30/12)*	*Engine #2 Reporting Period (5/11/12—9/30/12)*	*Total Cumulative to Date*
Estimated Petroleum Hydrocarbons Removed (lbs)*	NA	1,426.5	20,583.46
Equivalent Gallons Gasoline Removed (gal)*	NA	230.14	3,320.14
Total Cubic Feet Processed (scf)	NA	1,063,037.5	15,760,208

*from soil vapors only

MPE Remediation System Run Time Summary, Thriftway Refinery

Month	*Engine #1 Run Time (hrs)*	*Engine #1 Percent Run Time*	*Engine #2 Run Time (hrs)*	*Engine #2 Percent Run Time*
May through August 2012	NA	No data	729	30 %

5.0 Phytoremediation Project

BioTech operated the irrigation system through mid-September when it was turned off and drained in anticipation for the upcoming winter season.

6.0 Summary and Conclusions

BioTech Remediation completed groundwater monitoring and gauging at the site in August 2012. Groundwater elevations in August 2012 decreased by an average of 0.3 feet since May 2012 and are consistent with historical seasonal fluctuations. The groundwater gradient was calculated to be approximately 0.007 ft/ft in a northwest direction across the site, which is also consistent with historical site data.

In August 2012, free product was observed and measured in 19 monitor wells, including TW-12, TW-13, TW-14, TW-19 through TW-22, TW-24, TW-25, TW-26, TW-28, TW-29,

TW-32, TW-33, TW-35, TW-36, TW-38, TW-40, and TW-44. Measured thicknesses ranged from 0.07 feet (TW-40) to 1.45 feet (TW-32). In August 2012, free product was also observed in 32 remediation wells, with the greatest thickness measured in MPE-73 (1.34 feet).

Engine #2 was re-installed at the site and has been in operation at the site since May 11, 2012. Engine #2 continued to operate at the site throughout the third quarter of 2012. It is estimated that a total of **20,583** lbs of petroleum hydrocarbons have been mechanically removed from the site since system startup on March 10, 2010.

If you have any questions regarding this report or scheduled site activities, please do not hesitate to contact me or Ross Kennemer at (505) 564-2281.

Sincerely,

Deborah Watson,
Project Manager

Elizabeth McNally, P.E.
New Mexico Registration #15799

Attachments:
Tables
- Table 1. Summary of Groundwater Measurements and Water Quality Data
- Table 2. Summary of Groundwater and Free Product Measurements for Phases 1 through 5 MPE Wells

Figures
- Figure 1. General Site Plan
- Figure 2. Groundwater Elevations, August 2012
- Figure 3. Free Product Thickness Contours, August 2012

Graphs
- Graph 1. Free Product Thicknesses over Time in TW-13
- Graph 2. Free Product Thicknesses over Time in TW-14

Graph 3. Free Product Thicknesses over Time in TW-19
Graph 4. Free Product Thicknesses over Time in TW-22

Appendix. Groundwater Measurement Forms
Hall Environmental Analysis Laboratory Report #1207992

cc: Robert Moss
Thriftway Company
501 Airport Drive
Farmington, NM 87401

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TABLE 1
SUMMARY OF RECENT GROUNDWATER MEASUREMENTS AND WATER QUALITY DATA
Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-1	11-May-12	5471.58		30.81		5440.77	NM	NM	NM	NM	NM	NM
TW-1	08-Aug-12	5471.58		31.28		5440.30	NM	NM	NM	NM	NM	NM
TW-2	29-Feb-12	5469.31		29.19		5440.12	NM	NM	NM	NM	NM	NM
TW-2	11-May-12	5469.31		29.04		5440.27	NM	NM	NM	NM	NM	NM
TW-2	08-Aug-12	5469.31		29.49		5439.82	NM	NM	NM	NM	NM	NM
TW-3	29-Feb-12	5468.14		28.2		5439.94	NM	NM	NM	NM	NM	NM
TW-3	11-May-12	5468.14		28.07		5440.07	NM	NM	NM	NM	NM	NM
TW-3	08-Aug-12	5468.14		28.34		5439.80	NM	NM	NM	NM	NM	NM
TW-4	29-Feb-12	5458.72		19.32		5439.40	NM	NM	NM	NM	NM	NM
TW-4	11-May-12	5458.72		19.17		5439.55	NM	NM	NM	NM	NM	NM
TW-4	08-Aug-12	5458.72		19.66		5439.06	NM	NM	NM	NM	NM	NM
TW-5	29-Feb-12	5465.18		25.77		5439.41	NM	NM	NM	NM	NM	NM
TW-5	11-May-12	5465.18		25.61		5439.57	NM	NM	NM	NM	NM	NM
TW-5	08-Aug-12	5465.18		26.05		5439.13	NM	NM	NM	NM	NM	NM
TW-6	29-Feb-12	5463.57		24.94		5438.63	NM	NM	NM	NM	NM	NM
TW-6	11-May-12	5463.57		24.81		5438.76	NM	NM	NM	NM	NM	NM
TW-6	08-Aug-12	5463.57		25.23		5438.34	NM	NM	NM	NM	NM	NM
TW-7	29-Feb-12	5461.17		22.41		5438.76	NM	NM	NM	NM	NM	NM
TW-7	17-May-12	5461.17		22.28		5438.89	7.23	2.517	0.44	17.05	-24.5	NM
TW-7	08-Aug-12	5461.17		22.69		5438.48	7.23	NM	NM	NM	NM	NM

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Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-8	19-Feb-12	5458.29		19.83		5438.46	NM	NM	NM	NM	NM	NM
TW-8	17-May-12	5458.29		19.75		5438.54	7.19	2.791	0.09	14.53	-21.6	NM
TW-8	08-Aug-12	5458.29		20.23		5438.06	NM	NM	NM	NM	NM	NM
TW-9	29-Feb-12	5450.61		12.28		5438.33	NM	NM	NM	NM	NM	NM
TW-9	11-May-12	5450.61		12.27		5438.34	NM	NM	NM	NM	NM	NM
TW-9	08-Aug-12	5450.61		12.85		5437.76	NM	NM	NM	NM	NM	NM
TW-10	29-Feb-12	5450.16		12.49		5437.67	NM	NM	NM	NM	NM	NM
TW-10	11-May-12	5450.16		12.48		5437.68	NM	NM	NM	NM	NM	NM
TW-10	08-Aug-12	5450.16		13.04		5437.12	NM	NM	NM	NM	NM	NM
TW-11	29-Feb-12	5456.31		18.25		5438.06	NM	NM	NM	NM	NM	NM
TW-11	11-May-12	5456.31		18.18		5438.13	NM	NM	NM	NM	NM	NM
TW-11	08-Aug-12	5456.31		18.56		5437.75	NM	NM	NM	NM	NM	NM
TW-12	28-Feb-12	5460.44		22.57		5437.87	NM	NM	NM	NM	NM	NM
TW-12	11-May-12	5460.44	22.46	22.53	0.07	5437.97	Not Sampled - NAPL Present					
TW-12	08-Aug-12	5460.44	22.83	23.11	0.28	5437.56	Not Sampled - NAPL Present					
TW-13	29-Feb-12	5458.17	20.79	21.70	0.91	5437.22	Not Sampled - NAPL Present					
TW-13	11-May-12	5458.17	20.70	21.60	0.90	5437.31	Not Sampled - NAPL Present					
TW-13	08-Aug-12	5458.17	21.05	22.25	1.20	5436.91	Not Sampled - NAPL Present					
TW-14	29-Feb-12	5454.24	17.21	17.52	0.31	5436.98	Not Sampled - NAPL Present					
TW-14	11-May-12	5454.24	17.16	17.27	0.11	5437.06	Not Sampled - NAPL Present					
TW-14	08-Aug-12	5454.24	17.30	18.52	1.22	5436.73	Not Sampled - NAPL Present					

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Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-15	29-Feb-12	5450.44		13.19		5437.25	NM	NM	NM	NM	NM	NM
TW-15	17-May-12	5450.44		13.20		5437.24	7.32	3.593	0.85	14.09	-29.0	NM
TW-15	08-Aug-12	5450.44		13.70		5436.74	NM	NM	NM	NM	NM	NM
TW-16	29-Feb-12	5448.45		11.44		5437.01	NM	NM	NM	NM	NM	NM
TW-16	11-May-12	5448.45		11.54		5436.91	NM	NM	NM	NM	NM	NM
TW-16	08-Aug-12	5448.45	Not Measured - Root Growth at 11.0'									
TW-17	29-Feb-12	5446.24		10.06		5436.18	NM	NM	NM	NM	NM	NM
TW-17	11-May-12	5446.24		10.13		5436.11	NM	NM	NM	NM	NM	NM
TW-17	08-Aug-12	5446.24		10.58		5435.66	NM	NM	NM	NM	NM	NM
TW-18	29-Feb-12	5452.73		16.48		5436.25	7.25	NM	NM	NM	NM	NM
TW-18	17-May-12	5452.73		16.41		5436.32	7.29	4.157	0.79	16.25	-27.7	NM
TW-18	08-Aug-12	5452.73		16.78		5435.95	NM	NM	NM	NM	NM	NM
TW-19	29-Feb-12	5458.49	17.74	18.11	0.37	5440.69	Not Sampled - NAPL Present					
TW-19	11-May-12	5458.49	17.70	17.84	0.14	5440.77	Not Sampled - NAPL Present					
TW-19	08-Aug-12	5458.49	17.93	18.57	0.64	5440.45	Not Sampled - NAPL Present					
TW-20	29-Feb-12	5453.74	17.55	19.02	1.47	5435.94	Not Sampled - NAPL Present					
TW-20	11-May-12	5453.74	17.47	18.88	1.41	5436.03	Not Sampled - NAPL Present					
TW-20	08-Aug-12	5453.74	17.95	18.32	0.37	5435.73	Not Sampled - NAPL Present					
TW-21	29-Feb-12	5451.85	TW damaged by demolition work									
TW-21	14-May-12	5451.85	TW damaged by demolition work									

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Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-21	08-Aug-12	5451.85	16.78	17.60	0.82	5434.93	Not Sampled - NAPL Present					
TW-22	29-Feb-12	5450.19	14.96	15.30	0.34	5435.17	Not Sampled - NAPL Present					
TW-22	14-May-12	5450.19	14.87	15.12	0.25	5435.28	Not Sampled - NAPL Present					
TW-22	08-Aug-12	5450.19	15.10	15.70	0.60	5434.99	Not Sampled - NAPL Present					
TW-23	16-Nov-11	5443.64		9.05		5434.59	NM	NM	NM	NM	NM	NM
TW-23	29-Feb-12	5443.64		9.01		5434.63	NM	NM	NM	NM	NM	NM
TW-23	14-May-12	5443.64	Not Measured - Root Growth at 9.0'									
TW-23	08-Aug-12	5443.64	Not Measured - Root Growth at 9.0'									
TW-24	29-Feb-12	5444.79	11.08	11.10	0.02	5433.71	Not Sampled - NAPL Present					
TW-24	14-May-12	5444.79		11.07		5433.72	NM	NM	NM	NM	NM	NM
TW-24	08-Aug-12	5444.79	11.34	11.44	0.10	5433.43	Not Sampled - NAPL Present					
TW-25	29-Feb-12	5448.80	14.25	14.71	0.46	5434.47	Not Sampled - NAPL Present					
TW-25	14-May-12	5448.80	14.16	14.45	0.29	5434.59	Not Sampled - NAPL Present					
TW-25	08-Aug-12	5448.80	14.35	15.15	0.80	5434.31	Not Sampled - NAPL Present					
TW-26	29-Feb-12	5450.34	15.94	16.85	0.91	5434.24	Not Sampled - NAPL Present					
TW-26	14-May-12	5450.34	15.86	16.64	0.78	5434.35	Not Sampled - NAPL Present					
TW-26	08-Aug-12	5450.34	16.02	17.42	1.40	5434.08	Not Sampled - NAPL Present					
TW-28	29-Feb-12	5449.24	15.33	16.46	1.13	5433.71	Not Sampled - NAPL Present					
TW-28	14-May-12	5449.24	15.26	16.19	0.93	5433.82	Not Sampled - NAPL Present					
TW-28	08-Aug-12	5449.24	15.39	16.81	1.42	5433.60	Not Sampled - NAPL Present					

TABLE 1

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Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-29	29-Feb-12	5441.87	9.37	9.78	0.41	5432.43	Not Sampled - NAPL Present					
TW-29	14-May-12	5441.87	9.23	9.42	0.19	5432.61	Not Sampled - NAPL Present					
TW-29	08-Aug-12	5441.87	9.40	10.30	0.90	5432.31	Not Sampled - NAPL Present					
TW-30	28-Feb-12	5437.93		6.18		5431.75	NM	NM	NM	NM	NM	NM
TW-30	14-May-12	5437.93		5.96		5431.97	NM	NM	NM	NM	NM	NM
TW-30	08-Aug-12	5437.93		6.40		5431.53	NM	NM	NM	NM	NM	NM
TW-31	28-Feb-12	5438.54		7.11		5431.43	NM	NM	NM	NM	NM	NM
TW-31	14-May-12	5438.54		6.76		5431.78	NM	NM	NM	NM	NM	NM
TW-31	08-Aug-12	5438.54		7.18		5431.36	NM	NM	NM	NM	NM	NM
TW-32	14-May-12	5441.61	9.13	10.47	1.34	5432.25	Not Sampled - NAPL Present					
TW-32	10-Aug-12	5441.61	9.34	10.79	1.45	5432.02	Not Sampled - NAPL Present					
TW-33	29-Feb-12	5445.85	13.10	13.15	0.05	5432.74	Not Sampled - NAPL Present					
TW-33	14-May-12	5445.85	12.93	12.98	0.05	5432.91	Not Sampled - NAPL Present					
TW-33	08-Aug-12	5445.85	13.10	13.40	0.30	5432.70	Not Sampled - NAPL Present					
TW-34	29-Feb-12	5455.80		19.91		5435.89	NM	NM	NM	NM	NM	NM
TW-34	22-May-12	5455.80		19.99		5435.81	NM	NM	NM	NM	NM	NM
TW-34	10-Aug-12	5455.80		20.55		5435.25	NM	NM	NM	NM	NM	NM
TW-35	29-Feb-12	5449.14		15.28		5433.86	NM	NM	NM	NM	NM	NM
TW-35	22-May-12	5449.14		15.51		5433.63	NM	NM	NM	NM	NM	NM
TW-35	10-Aug-12	5449.14	15.35	15.98	0.63	5433.68	Not Sampled - NAPL Present					

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Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-36	29-Feb-12	5441.91	13.14	13.22	0.08	5428.76	Not Sampled - NAPL Present					
TW-36	22-May-12	5441.91	13.13	13.30	0.17	5428.75	Not Sampled - NAPL Present					
TW-36	10-Aug-12	5441.91	13.32	13.72	0.40	5428.52	Not Sampled - NAPL Present					
TW-37	28-Feb-12	5439.59		10.67		5428.92	NM	NM	NM	NM	NM	NM
TW-37	17-May-12	5439.59		10.59		5429.00	7.26	3.124	0.95	16.40	-25.8	NM
TW-37	10-Aug-12	5439.59		10.80		5428.79	NM	NM	NM	NM	NM	NM
TW-38	29-Feb-12	5442.11	11.58	11.60	0.02	5430.53	Not Sampled - NAPL Present					
TW-38	14-May-12	5442.11		11.56		5430.55	NM	NM	NM	NM	NM	NM
TW-38	10-Aug-12	5442.11	11.64	11.78	0.14	5430.45	Not Sampled - NAPL Present					
TW-39	28-Feb-12	5438.43		7.87		5430.56	NM	NM	NM	NM	NM	NM
TW-39	14-May-12	5438.43		7.30		5431.13	7.17	3.934	0.56	17.39	-20.7	NM
TW-39	10-Aug-12	5438.43		7.91		5430.52	NM	NM	NM	NM	NM	NM
TW-40	29-Feb-12	5437.50	7.86	8.33	0.47	5429.56	Not Sampled - NAPL Present					
TW-40	14-May-12	5437.50	7.27	7.55	0.28	5430.18	Not Sampled - NAPL Present					
TW-40	10-Aug-12	5437.50	7.82	7.89	0.07	5429.67	Not Sampled - NAPL Present					
TW-41	28-Feb-12	5434.77		6.06		5428.71	NM	NM	NM	NM	NM	NM
TW-41	21-May-12	5434.77		5.85		5428.92	7.08	4.146	0.26	16.69	-15.6	NM
TW-41	10-Aug-12	5434.77		5.67		5429.10	NM	NM	NM	NM	NM	NM
TW-42	28-Feb-12	5433.76		6.14		5427.62	NM	NM	NM	NM	NM	NM
TW-42	21-May-12	5433.76		7.01		5426.75	7.18	4.835	0.19	14.92	-21.0	NM
TW-42	10-Aug-12	5433.76		5.79		5427.97	NM	NM	NM	NM	NM	NM

TABLE 1

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS AND WATER QUALITY DATA

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-43	28-Feb-12	5440.42		12.27		5428.15	NM	NM	NM	NM	NM	NM
TW-43	21-May-12	5440.42		12.26		5428.16	7.11	4.350	0.88	15.95	-17.1	NM
TW-43	10-Aug-12	5440.42		12.48		5427.94	NM	NM	NM	NM	NM	NM
TW-44	29-Feb-12	5444.08	14.96	16.17	1.21	5428.91	Not Sampled - NAPL Present					
TW-44	14-May-12	5444.08	14.98	16.10	1.12	5428.91	Not Sampled - NAPL Present					
TW-44	10-Aug-12	5444.08	15.10	16.48	1.38	5428.74	Not Sampled - NAPL Present					
TW-45	29-Feb-12	TBS		7.02			NM	NM	NM	NM	NM	NM
TW-45	21-May-12	TBS		7.08			7.18	5.029	1.88	15.13	-21.1	NM
TW-45	10-Aug-12	TBS		7.30			NM	NM	NM	NM	NM	NM
TW-46	29-Feb-12	TBS		7.36			NM	NM	NM	NM	NM	NM
TW-46	21-May-12	TBS		7.37			7.14	4.727	0.60	15.22	-18.7	NM
TW-46	10-Aug-12	TBS		7.52			NM	NM	NM	NM	NM	NM
TW-47	29-Feb-12	TBS		6.72			NM	NM	NM	NM	NM	NM
TW-47	22-May-12	TBS		7.84			NM	NM	NM	NM	NM	NM
TW-47	13-Aug-12	TBS		7.15			NM	NM	NM	NM	NM	NM
TW-48	28-Feb-12	TBS		7.28			NM	NM	NM	NM	NM	NM
TW-48	22-May-12	TBS		7.08			NM	NM	NM	NM	NM	NM
TW-48	13-Aug-12	TBS	Not Measured - Root Growth at 7.0'									
TW-49	29-Feb-12	TBS		6.11			NM	NM	NM	NM	NM	NM
TW-49	22-May-12	TBS		6.10			7.08	6.360	1.35	14.30	-15.6	NM

TABLE 1

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS AND WATER QUALITY DATA

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Corrected GW Elev. (ft)	pH	Conductivity (mS)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	Purge Volume (gallons)
TW-49	13-Aug-12	TBS		6.49			NM	NM	NM	NM	NM	NM
TW-50	28-Feb-12	TBS		7.98			NM	NM	NM	NM	NM	NM
TW-50	22-May-12	TBS		7.58			7.15	5.354	0.45	16.25	-19.7	NM
TW-50	13-Aug-12	TBS		7.94			NM	NM	NM	NM	NM	NM
TW-51	13-Aug-12	TBS		7.26			NM	NM	NM	NM	NM	NM
MW-5	28-Feb-12	5428.97		5.09		5423.88	NM	NM	NM	NM	NM	NM
MW-5	22-May-12	5428.97		5.13		5423.84	NM	NM	NM	NM	NM	NM
MW-5	13-Aug-12	5428.97		5.24		5423.73	NM	NM	NM	NM	NM	NM
MW-7	28-Feb-12	5435.28		8.69		5426.59	NM	NM	NM	NM	NM	NM
MW-7	22-May-12	5435.28		8.08		5427.20	NM	NM	NM	NM	NM	NM
MW-7	13-Aug-12	5435.28		8.84		5426.44	NM	NM	NM	NM	NM	NM
MW-20	29-Feb-12	5430.45		5.99		5424.46	NM	NM	NM	NM	NM	NM
MW-20	21-May-12	5430.45		6.04		5424.41	7.09	4.748	0.38	14.15	-15.8	NM
MW-20	13-Aug-12	5430.45		6.13		5424.32	NM	NM	NM	NM	NM	NM
MW-21	29-Feb-12	5428.62		3.52		5425.1	NM	NM	NM	NM	NM	NM
MW-21	21-May-12	5428.62		3.50		5425.12	7.21	6.073	0.99	15.48	-23.1	NM
MW-21	13-Aug-12	5428.62		3.88		5424.74	NM	NM	NM	NM	NM	NM

NOTES: NM - Not Measured

* Denotes erroneous DO measurement - sensor malfunction

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)
Phase 1 Wells					
MPE-1	29-Feb-12	TBD		23.87	
MPE-1	25-May-12	TBD		23.78	
MPE-1	13-Aug-12	TBD		24.15	
MPE-2	29-Feb-12	TBD	21.77	21.86	0.09
MPE-2	25-May-12	TBD	21.65	21.82	0.17
MPE-2	13-Aug-12	TBD	22.00	22.31	0.31
MPE-3	29-Feb-12	TBD		21.03	
MPE-3	25-May-12	TBD		20.97	
MPE-3	13-Aug-12	TBD		21.34	
MPE-4	29-Feb-12	TBD		20.27	
MPE-4	25-May-12	TBD		20.14	
MPE-4	13-Aug-12	TBD		20.53	
MPE-5	29-Feb-12	TBD	19.59	19.64	0.05
MPE-5	25-May-12	TBD	19.47	19.63	0.16
MPE-5	13-Aug-12	TBD	19.79	20.20	0.41
MPE-6	29-Feb-12	TBD		19.87	
MPE-6	25-May-12	TBD	19.83	19.84	0.01
MPE-6	13-Aug-12	TBD	20.20	20.22	0.02
MPE-7	29-Feb-12	TBD		20.73	
MPE-7	21-May-12	TBD		20.66	
MPE-7	13-Aug-12	TBD		20.99	
MPE-8	29-Feb-12	TBD		22.00	
MPE-8	21-May-12	TBD		21.96	
MPE-8	13-Aug-12	TBD		22.30	
MPE-9	29-Feb-12	TBD		23.68	
MPE-9	21-May-12	TBD		23.66	
MPE-9	13-Aug-12	TBD		24.00	
MPE-10	29-Feb-12	TBD		23.53	
MPE-10	21-May-12	TBD		23.47	
MPE-10	13-Aug-12	TBD		23.82	

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	*Date*	*T.O.C. (ft amsl)*	*Depth to Product (ft)*	*Depth to Water (ft)*	*NAPL Thickness (ft)*
MPE-11	29-Feb-12	TBD		21.61	
MPE-11	21-May-12	TBD	NM-Roots in Well		
MPE-11	**13-Aug-12**	**TBD**	**NM-Root Growth at 21.6'**		
MPE-12	29-Feb-12	TBD		22.59	
MPE-12	21-May-12	TBD		22.57	
MPE-12	**13-Aug-12**	**TBD**	**NM-Root Growth at 22.7'**		
MPE-13	29-Feb-12	TBD	22.97	22.99	0.02
MPE-13	21-May-12	TBD	22.91	22.97	0.06
MPE-13	**13-Aug-12**	**TBD**	**23.22**	**23.45**	**0.23**
MPE-14	29-Feb-12	TBD		22.05	
MPE-14	21-May-12	TBD		22.01	
MPE-14	**13-Aug-12**	**TBD**	**22.30**	**22.55**	**0.25**
MPE-16	29-Feb-12	TBD		20.19	
MPE-16	21-May-12	TBD		20.12	
MPE-16	**13-Aug-12**	**TBD**		**20.48**	
MPE-17	29-Feb-12	TBD		20.49	
MPE-17	23-May-12	TBD	20.34	20.36	0.02
MPE-17	**13-Aug-12**	**TBD**	**20.64**	**20.65**	**0.01**
MPE-18	29-Feb-12	TBD		19.48	
MPE-18	23-May-12	TBD		19.49	
MPE-18	**13-Aug-12**	**TBD**		**19.78**	
MPE-19	29-Feb-12	TBD		19.28	
MPE-19	23-May-12	TBD		19.23	
MPE-19	**13-Aug-12**	**TBD**		**19.55**	
Phase 2 Wells					
MPE-20	29-Feb-12	TBD		18.98	
MPE-20	23-May-12	TBD		18.96	
MPE-20	**13-Aug-12**	**TBD**		**19.25**	
MPE-21	29-Feb-12	TBD	20.13	20.42	0.29
MPE-21	23-May-12	TBD	20.08	20.45	0.37

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)
MPE-21	13-Aug-12	TBD	20.33	20.85	0.52
MPE-22	29-Feb-12	TBD		20.97	
MPE-22	23-May-12	TBD		20.96	
MPE-22	13-Aug-12	TBD	21.18	21.56	0.38
MPE-23	29-Feb-12	TBD		20.09	
MPE-23	23-May-12	TBD		20.96	
MPE-23	13-Aug-12	TBD		21.28	
MPE-24	29-Feb-12	TBD		22.98	
MPE-24	23-May-12	TBD		22.90	
MPE-24	13-Aug-12	TBD		23.20	
MPE-25	29-Feb-12	TBD		23.26	
MPE-25	23-May-12	TBD		23.23	
MPE-25	13-Aug-12	TBD		23.59	
MPE-26	29-Feb-12	TBD	22.89	23.95	1.06
MPE-26	23-May-12	TBD	23.00	23.28	0.28
MPE-26	13-Aug-12	TBD	23.28	24.25	0.97
MPE-27	29-Feb-12	TBD		22.06	
MPE-27	23-May-12	TBD		22.15	
MPE-27	13-Aug-12	TBD	NM-Root Growth at 22.2'		
MPE-28	29-Feb-12	TBD		21.74	
MPE-28	23-May-12	TBD		21.84	
MPE-28	13-Aug-12	TBD		22.18	
MPE-29	29-Feb-12	TBD		20.87	
MPE-29	23-May-12	TBD		20.84	
MPE-29	13-Aug-12	TBD		21.11	
MPE-30	10-Nov-11	TBD		21.68	
MPE-30	29-Feb-12	TBD		21.36	
MPE-30	23-May-12	TBD		21.46	
MPE-30	13-Aug-12	TBD	NM-Root Growth at 21.4'		
MPE-31	29-Feb-12	TBD		22.66	

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)
MPE-31	23-May-12	TBD		22.71	
MPE-31	13-Aug-12	TBD		23.00	
MPE-33	29-Feb-12	TBD	22.54	22.73	0.19
MPE-33	23-May-12	TBD	22.51	22.59	0.08
MPE-33	13-Aug-12	TBD	22.73	23.41	0.68
MPE-34	29-Feb-12	TBD		22.44	
MPE-34	23-May-12	TBD		22.38	
MPE-34	13-Aug-12	TBD		22.66	
MPE-35	29-Feb-12	TBD	21.00	21.09	0.09
MPE-35	23-May-12	TBD	20.88	21.12	0.24
MPE-35	13-Aug-12	TBD	21.05	21.95	0.90
MPE-36	29-Feb-12	TBD	20.13	20.37	0.24
MPE-36	23-May-12	TBD	20.07	20.21	0.14
MPE-36	13-Aug-12	TBD	20.32	20.72	0.40
MPE-37	29-Feb-12	TBD		20.52	
MPE-37	23-May-12	TBD		20.49	
MPE-37	13-Aug-12	TBD		20.76	
MPE-38	29-Feb-12	TBD	20.03	20.05	0.02
MPE-38	23-May-12	TBD	19.96	20.05	0.09
MPE-38	13-Aug-12	TBD	20.24	20.40	0.16
Phase 3 Wells					
MPE-39	29-Feb-12	TBD		17.65	
MPE-39	23-May-12	TBD		17.63	
MPE-39	13-Aug-12	TBD		17.91	
MPE-40	29-Feb-12	TBD		17.85	
MPE-40	23-May-12	TBD		18.50	
MPE-40	13-Aug-12	TBD		18.12	
MPE-41	29-Feb-12	TBD		18.52	
MPE-41	23-May-12	TBD		19.25	
MPE-41	13-Aug-12	TBD		18.78	

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)
MPE-42	29-Feb-12	TBD		19.25	
MPE-42	23-May-12	TBD		20.09	
MPE-42	13-Aug-12	TBD		19.54	
MPE-43	29-Feb-12	TBD		20.16	
MPE-43	23-May-12	TBD	20.18	20.80	0.62
MPE-43	13-Aug-12	TBD		20.38	
MPE-44	29-Feb-12	TBD	20.24	21.20	0.96
MPE-44	23-May-12	TBD	20.41	20.50	0.09
MPE-44	13-Aug-12	TBD	20.36	21.30	0.94
MPE-45	29-Feb-12	TBD	20.45	20.77	0.32
MPE-45	23-May-12	TBD		21.52	
MPE-45	13-Aug-12	TBD	20.60	21.19	0.59
MPE-46	29-Feb-12	TBD		21.25	
MPE-46	23-May-12	TBD	20.95	21.58	0.63
MPE-46	13-Aug-12	TBD		21.81	
MPE-47	29-Feb-12	TBD	20.93	21.19	0.26
MPE-47	23-May-12	TBD		19.24	
MPE-47	13-Aug-12	TBD	21.15	22.42	1.27
MPE-48	29-Feb-12	TBD		20.14	
MPE-48	23-May-12	TBD		19.52	
MPE-48	13-Aug-12	TBD		20.55	
MPE-49	29-Feb-12	TBD		19.34	
MPE-49	23-May-12	TBD	20.56	20.82	0.26
MPE-49	13-Aug-12	TBD		19.98	
MPE-50	29-Feb-12	TBD	20.52	20.75	0.23
MPE-50	23-May-12	TBD		21.01	
MPE-50	13-Aug-12	TBD	20.89	21.26	0.37
MPE-51	29-Feb-12	TBD		21.05	
MPE-51	25-May-12	TBD	20.74	21.24	0.50
MPE-51	13-Aug-12	TBD		21.30	

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)
MPE-52	29-Feb-12	TBD	20.73	21.13	0.40
MPE-52	25-May-12	TBD	19.49	19.93	0.44
MPE-52	13-Aug-12	TBD	21.04	21.46	0.42
MPE-53	29-Feb-12	TBD	19.47	20.13	0.66
MPE-53	25-May-12	TBD	19.22	19.33	0.11
MPE-53	14-Aug-12	TBD	19.70	20.53	0.83
MPE-54	29-Feb-12	TBD	19.26	19.35	0.09
MPE-54	25-May-12	TBD		18.71	
MPE-54	14-Aug-12	TBD	19.40	20.18	0.78
MPE-55	29-Feb-12	TBD		18.73	
MPE-55	25-May-12	TBD		14.14	
MPE-55	14-Aug-12	TBD		19.00	
MPE-56	29-Feb-12	TBD		14.22	
MPE-56	25-May-12	TBD		14.83	
MPE-56	14-Aug-12	TBD		14.41	
MPE-57	29-Feb-12	TBD		14.14	
MPE-57	25-May-12	TBD		15.08	
MPE-57	14-Aug-12	TBD		15.10	
Phase 4 Wells					
MPE-58	29-Feb-12	TBD		15.09	
MPE-58	25-May-12	TBD		13.79	
MPE-58	14-Aug-12	TBD		15.34	
MPE-59	25-May-12	TBD		14.08	
MPE-59	14-Aug-12	TBD		14.06	
MPE-60	25-May-12	TBD		13.88	
MPE-60	14-Aug-12	TBD		14.34	
MPE-61	25-May-12	TBD		14.13	
MPE-61	14-Aug-12	TBD		14.15	
MPE-62	25-May-12	TBD	14.86	15.36	0.50
MPE-62	14-Aug-12	TBD		14.40	

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	Date	T.O.C. (ft amsl)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)
MPE-63	25-May-12	TBD		15.34	
MPE-63	14-Aug-12	TBD	15.09	15.93	0.84
MPE-64	25-May-12	TBD	15.98	16.00	0.02
MPE-64	14-Aug-12	TBD	15.54	15.55	0.01
MPE-65	25-May-12	TBD		16.16	
MPE-65	14-Aug-12	TBD	16.28	16.31	0.03
MPE-66	25-May-12	TBD	17.40	17.41	0.01
MPE-66	14-Aug-12	TBD	16.33	17.15	0.82
MPE-67	25-May-12	TBD		15.67	
MPE-67	14-Aug-12	TBD		17.71	
MPE-68	14-Aug-12	TBD		16.09	
MPE-69	14-Aug-12	TBD		15.50	
MPE-70	14-Aug-12	TBD	15.67	16.01	0.34
MPE-71	22-Jun-12	TBD	16.04	16.06	0.02
MPE-71	14-Aug-12	TBD	15.68	16.23	0.55
MPE-72	22-Jun-12	TBD	15.79	16.76	0.97
MPE-72	14-Aug-12	TBD		16.29	
MPE-73	22-Jun-12	TBD	14.68	15.65	0.97
MPE-73	13-Aug-12	TBD	16.59	17.93	1.34
MPE-74	22-Jun-12	TBD	13.68	14.56	0.88
MPE-74	13-Aug-12	TBD	14.86	15.72	0.86
MPE-75	22-Jun-12	TBD		12.91	
MPE-75	13-Aug-12	TBD	13.88	14.88	1.00
MPE-76	22-Jun-12	TBD		12.47	
MPE-76	13-Aug-12	TBD	13.03	13.37	0.34

TABLE 2

SUMMARY OF RECENT GROUNDWATER MEASUREMENTS OF PHASES 1 through 4 MPE WELLS

Thriftway Refinery, 626 CR 5500, Bloomfield, New Mexico

Well ID	*Date*	*T.O.C. (ft amsl)*	*Depth to Product (ft)*	*Depth to Water (ft)*	*NAPL Thickness (ft)*
MPE-77	22-Jun-12	TBD	11.33	11.36	0.03
MPE-77	13-Aug-12	TBD		12.65	
MPE-78	22-Jun-12	TBD		11.33	

FIGURE 1

GENERAL SITE PLAN
THRIFTWAY REFINERY
626 ROAD 5500
BLOOMFIELD, NEW MEXICO

AES
Animas Environmental Services, LLC

DRAWN BY: N. Willis	**DATE DRAWN:** February 2, 2009
REVISIONS BY: C. Lameman	**DATE REVISED:** February 28, 2013
CHECKED BY: D. Watson	**DATE CHECKED:** February 28, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** February 28, 2013

LEGEND

MONITOR WELL LOCATIONS

N

SCALE
200 100 0 200
50
(1 INCH = 200 FEET)

FIGURE 2

GROUNDWATER ELEVATION CONTOURS
AUGUST 2012
THRIFTWAY REFINERY
626 ROAD 5500
BLOOMFIELD, NEW MEXICO

Animas Environmental Services, LLC

DRAWN BY: N. Willis	**DATE DRAWN:** February 2, 2009
REVISIONS BY: C. Lameman	**DATE REVISED:** February 28, 2013
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APPROVED BY: E. McNally	**DATE APPROVED:** February 28, 2013

LEGEND

- MONITOR WELL LOCATIONS
- 5440.30 GROUNDWATER ELEVATION IN FEET (AMSL)
- —5434— GROUNDWATER ELEVATION CONTOUR IN FEET (AMSL)

NOTE: GROUNDWATER MEASUREMENTS WERE MADE ON AUGUST 8, 10, AND 13, 2012. LOCATIONS OF TW-45 THROUGH TW-50 ARE APPROXIMATE.

SCALE
200 100 0 200
50
(1 INCH = 200 FEET)

KUTZ WASH

ARROYO

CR 5500

GATE

REFINERY OFFICE

DISPATCH OFFICE

SHOP

PROCESS WATER EVAPORATION LAGOONS

HYDROCRACKER REFORMER (REMOVED)

FIRE WATER POND (REMOVED)

GROUNDWATER GRADIENT 0.007 FT/FT BETWEEN TW-1 AND MW-5

TW-47 TBS 7.15
MW-22 NM
MW-21 5424.74
MW-5 5423.73
TW-49 TBS 6.49
TW-51 TBS 7.26
TW-46 TBS 7.52
MW-7 5426.44
TW-42 5427.97
TW-41 5429.10
TW-40 5429.67
TW-39 5430.52
TW-31 5431.36
TW-30 5431.53
MW-9 NM
TW-45 TBS 7.30
MW-20 5424.32
TW-50 TBS 7.94
TW-48 TBS NM
MW-10 NM
TW-29 5432.31
TW-43 5427.94
TW-37 5428.79
TW-38 5430.45
TW-32 5432.02
TW-24 5433.43
TW-23 NM
TW-17 5435.66
TW-16 NM
TW-44 5428.74
TW-33 5432.70
TW-28 5433.60
TW-25 5434.31
TW-22 5434.99
TW-15 5436.74
TW-10 5437.12
TW-36 5428.52
TW-18 5435.95
TW-9 5437.76
TW-26 5434.08
TW-21 5434.93
TW-19 5440.45
TW-14 5436.73
TW-11 5437.75
TW-8 5438.06
TW-35 5433.68
TW-20 5435.73
TW-13 5436.91
TW-12 5437.56
TW-7 5438.48
TW-4 5439.06
TW-34 5435.25
TW-6 5438.34
TW-5 5439.13
TW-3 5439.80
TW-2 5439.82
TW-1 5440.30

FIGURE 3

FREE PRODUCT THICKNESS CONTOURS
AUGUST 2012
THRIFTWAY REFINERY
626 ROAD 5500
BLOOMFIELD, NEW MEXICO

Animas Environmental Services, LLC

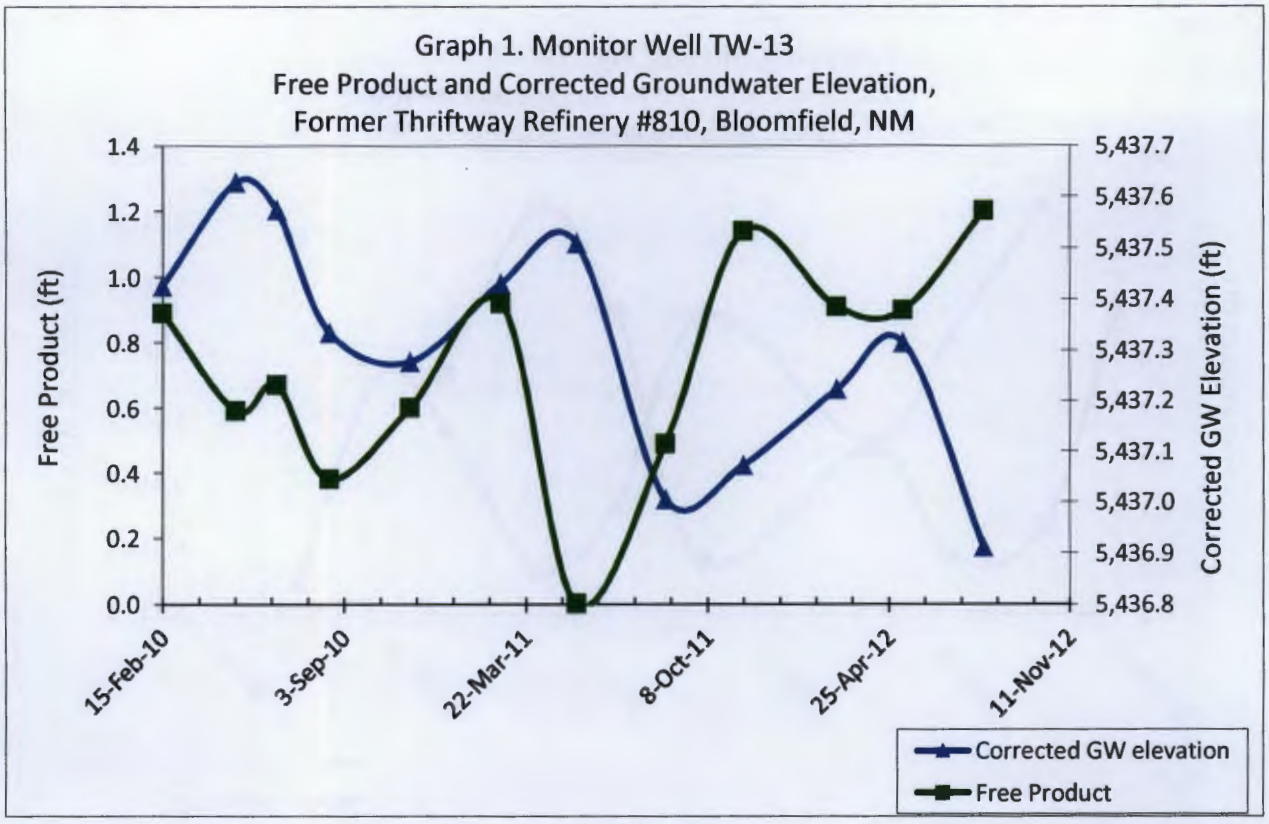
DRAWN BY: N. Willis	**DATE DRAWN:** February 2, 2009
REVISIONS BY: C. Lameman	**DATE REVISED:** February 28, 2013
CHECKED BY: D. Watson	**DATE CHECKED:** February 28, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** February 28, 2013

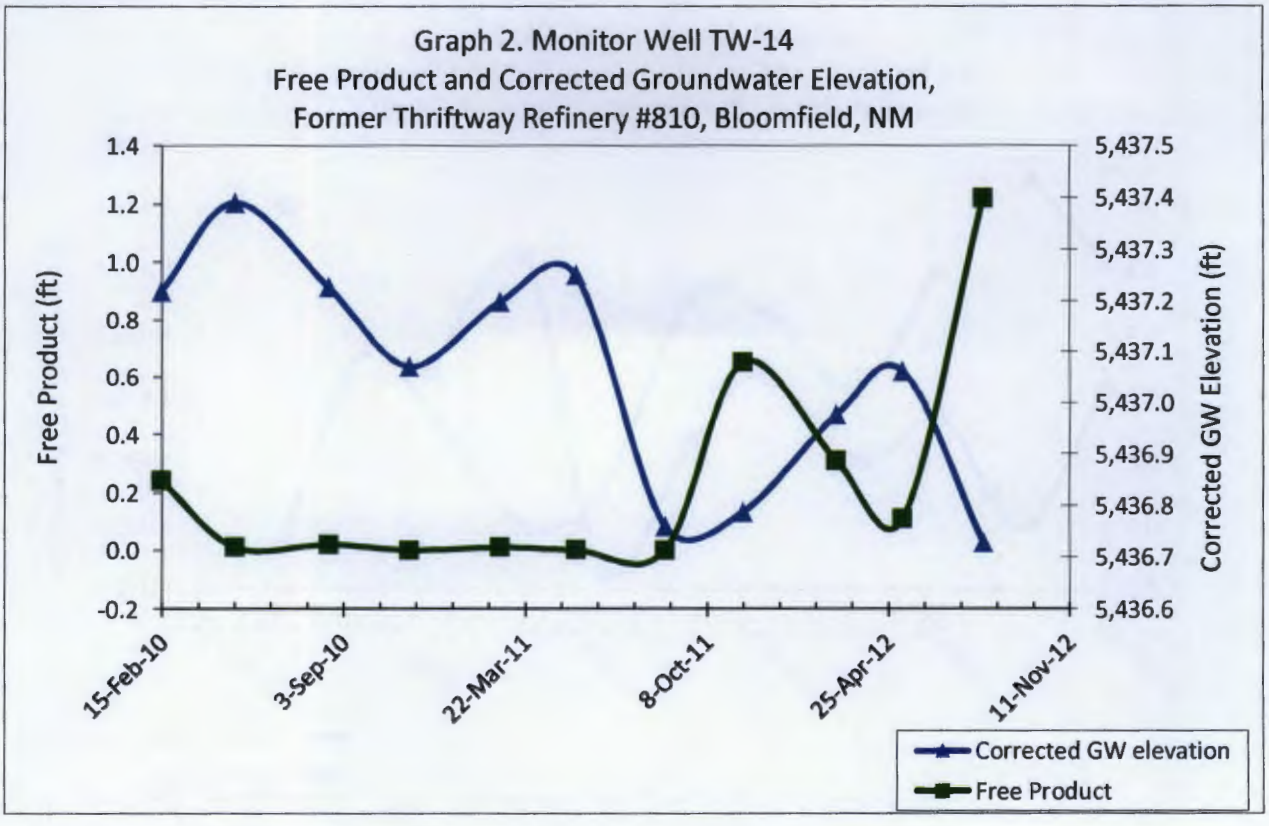
LEGEND

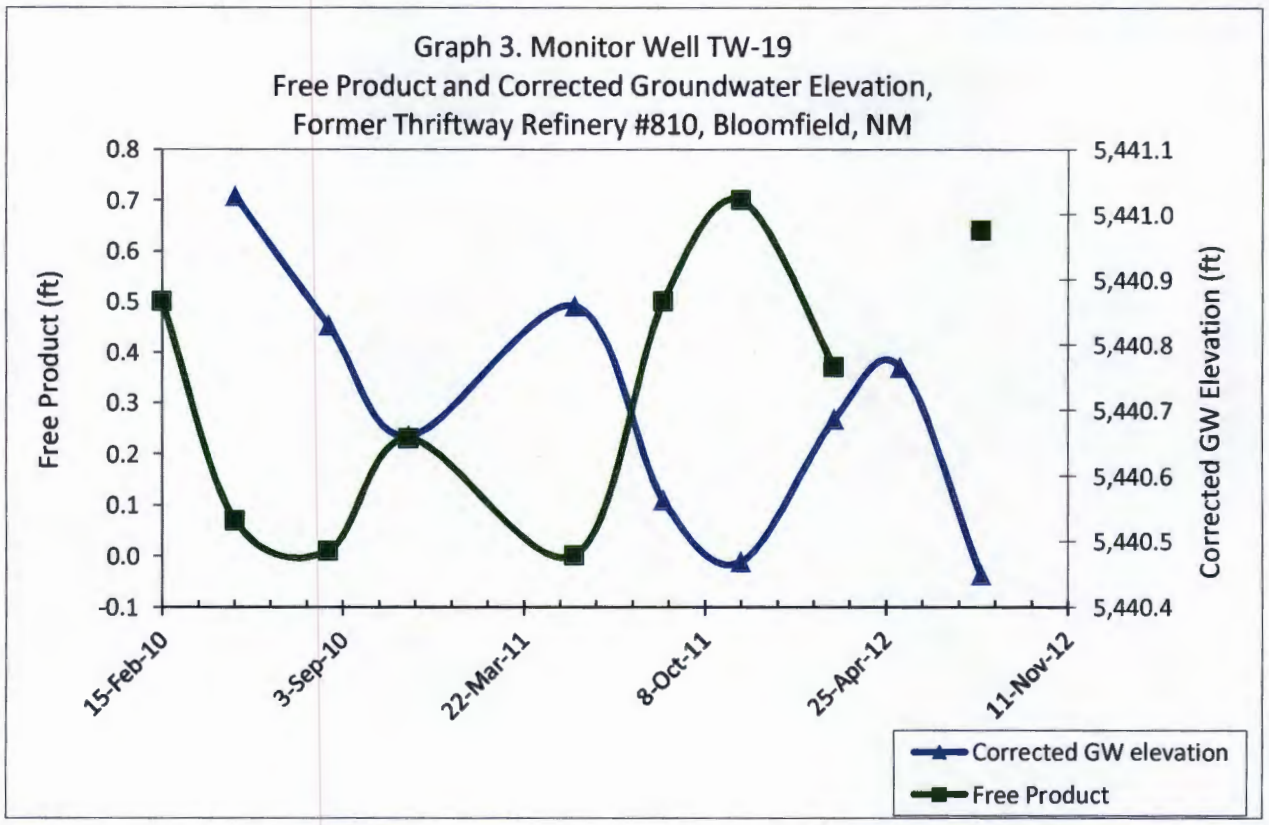
- MONITOR WELL LOCATIONS
- MPE REMEDIATION WELL
- 1.34 FREE PRODUCT THICKNESS IN FEET
- —0.5— FREE PRODUCT THICKNESS CONTOUR IN FEET

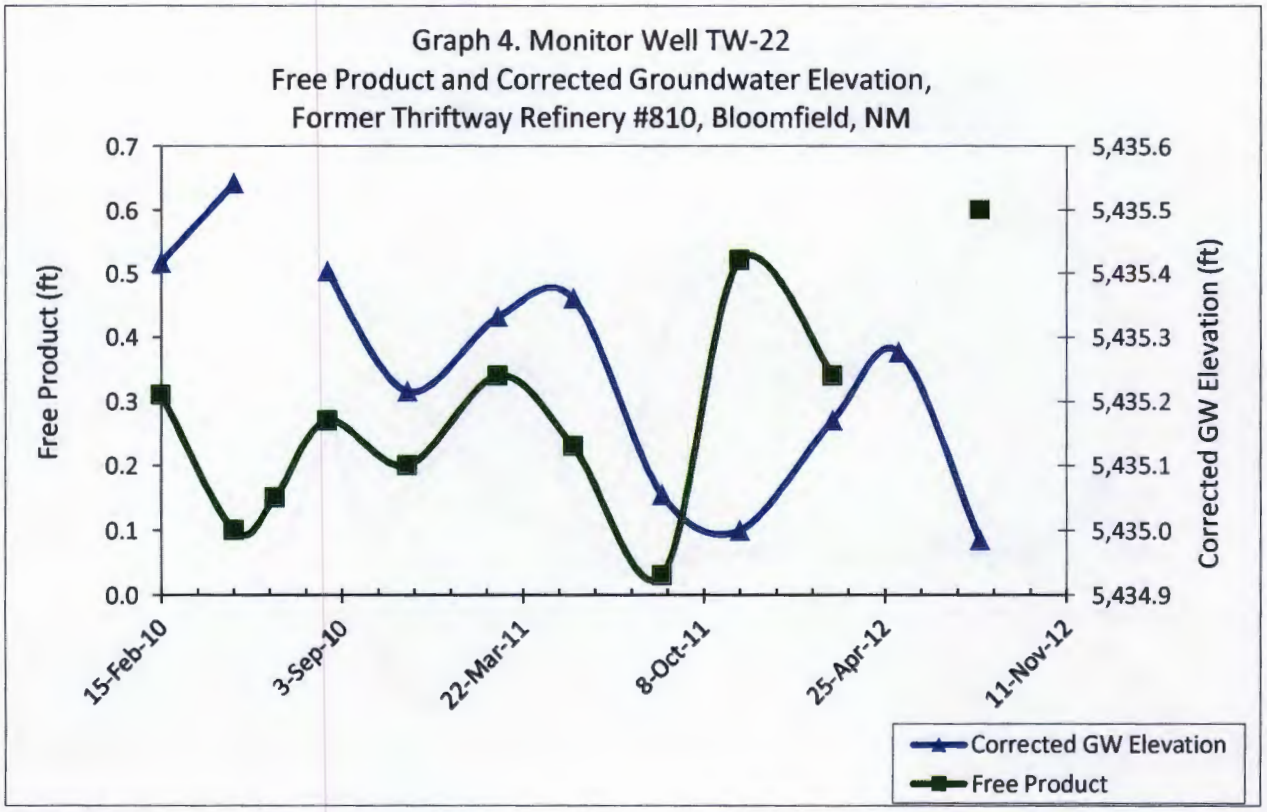
NOTE: ALL MEASUREMENTS WERE MADE ON AUGUST 8, 10, AND 13, 2012. LOCATIONS OF TW-45 THROUGH TW-50 ARE APPROXIMATE.

SCALE
200 100 0 200
50
(1 INCH = 200 FEET)


Graph 1. Monitor Well TW-13
Free Product and Corrected Groundwater Elevation,
Former Thriftway Refinery #810, Bloomfield, NM
Free Product (ft)
Corrected GW Elevation (ft)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
5,437.7
5,437.6
5,437.5
5,437.4
5,437.3
5,437.2
5,437.1
5,437.0
5,436.9
5,436.8
15-Feb-10
3-Sep-10
22-Mar-11
8-Oct-11
25-Apr-12
11-Nov-12
Corrected GW elevation
Free Product


Graph 2. Monitor Well TW-14
Free Product and Corrected Groundwater Elevation,
Former Thriftway Refinery #810, Bloomfield, NM
Free Product (ft)
Corrected GW Elevation (ft)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
5,437.5
5,437.4
5,437.3
5,437.2
5,437.1
5,437.0
5,436.9
5,436.8
5,436.7
5,436.6
15-Feb-10
3-Sep-10
22-Mar-11
8-Oct-11
25-Apr-12
11-Nov-12
Corrected GW elevation
Free Product


Graph 3. Monitor Well TW-19
Free Product and Corrected Groundwater Elevation,
Former Thriftway Refinery #810, Bloomfield, NM
Free Product (ft)
Corrected GW Elevation (ft)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
5,441.1
5,441.0
5,440.9
5,440.8
5,440.7
5,440.6
5,440.5
5,440.4
15-Feb-10
3-Sep-10
22-Mar-11
8-Oct-11
25-Apr-12
11-Nov-12
Corrected GW elevation
Free Product


Graph 4. Monitor Well TW-22
Free Product and Corrected Groundwater Elevation,
Former Thriftway Refinery #810, Bloomfield, NM
Free Product (ft)
Corrected GW Elevation (ft)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
5,435.6
5,435.5
5,435.4
5,435.3
5,435.2
5,435.1
5,435.0
5,434.9
15-Feb-10
3-Sep-10
22-Mar-11
8-Oct-11
25-Apr-12
11-Nov-12
Corrected GW Elevation
Free Product

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project: Groundwater Monitoring
Site: Thriftway #810 Refinery
Location: Bloomfield, New Mexico
Tech: MB

Project No.: AES 050204
Date: 8-8-12
Time: 13:00
Form: 1 of 4

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
TW-1	12:48	-	31.28'	-	
TW-2	12:57		29.49'		
TW-3	12:59		28.34'		- Casing Rooting in @ Water Level.
TW-4	13:05		19.66'		
TW-5	13:13		26.05'		
TW-6	13:17		25.23'		
TW-7	13:21		22.69		
TW-8	13:37		20.23'		
TW-9	13:44		12.85'		
TW-10	13:47		13.04'		
TW-11	13:~~55~~		18.56		
TW-12	14:02	22.83'	23.11	0.28'	
TW-13	14:10	~~22.22~~ 21.05	~~21.05~~ 22.25	1.20'	
TW-14	14:16	17.30'	18.52'	1.22'	
TW-15	14:26		13.70'		
TW-16	14:31		NM		Rooted in @ 11'
TW-17	14:36		10.58'		
TW-18	14:44		16.78		
TW-19	14:55	17.93	18.57	0.64'	
TW-20	14:59	17.95	18.32	0.37	
TW-21	15:06	16.78	17.60'	0.82'	
TW-22	15:12	15.10'	15.70'	0.60'	
TW-23	15:22		NM		Rooted in @ 9'
TW-24	15:28	11.34'	11.44'	0.10'	
TW-25	15:38	14.~~3~~5	15.~~3~~5 15	0.80'	
TW-26	15:46	16.02	17.42'	1.40'	
TW-28	15:52	15.39	16.81	1.42'	
TW-29	16:01	9.40	10.30	0.90'	
TW-30	16:08		6.40'		
TW-31	13:20		7.18'		
TW-32	13:30	9.34'	10.79'	1.45'	
TW-33	13:47	13.10	13.40	0.30'	
TW-34	13:54		20.55'		

Wells measured with KECK water level or KECK interface tape, decontaminated between each well measurement.

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project: Groundwater Monitoring
Site: Thriftway #810 Refinery
Location: Bloomfield, New Mexico
Tech: MB

Project No.: AES 050204
Date: 8-10-12
Time: 13:00 →
Form: 2 of 4

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
TW-35	~~15~~:02	15.35	15.98	0.63'	
TW-36	~~15:00~~	13.32	13.72	0.40'	
TW-37	13:56		10.80'		
TW-38	14:02	11.64'	11.78'	0.14'	
TW-39	14:10		7.91'		
TW-40	14:14	7.82'	7.89'	0.07	
TW-41	14:21		5.67'		
TW-42	14:32		5.79'		
TW-43	14:37		12.48'		
TW-44	14:46	15.10'	16.48'	1.38'	
TW-45	~~15:16~~ ~~14:02~~	~~13.35'~~	~~15.78~~ 7.30	~~0.43'~~	
TW-46	15:19		7.52'		
TW-47	11:45		7.15'		
TW-48	11:06		NM		Roots in @ 7'
TW-49	~~11:56~~		6.49'		
TW-50	11:17		7.94'		
MW-5	11:34		5.24'		
MW-7	11:19		8.84'		
MW-20	15:25		6.13'		
MW-21	11:50		3.88'		
TW-51	15:21		7.26'		

Wells measured with ~~KECK~~ water level or KECK interface tape, decontaminated between each well measurement.
Geoprobe Interface probe

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project: Groundwater Monitoring
Site: Thriftway #810 Refinery
Location: Bloomfield, New Mexico
Tech: MB

Project No.: AES 050204
Date: 8-13-12
Time: 13:00
Form: 1 of 3

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MPE-1	13:08		24.15'		
MPE-2	13:08	22.00	22.31'	0.31'	
MPE-3	13:14		21.34'		
MPE-4	13:15		20.53'		
MPE-5	13:18	19.79	20.00'		
MPE-6	13:20	20.20	20.22'	0.02'	
MPE-7	13:23		20.99'		
MPE-8	13:24		22.30'		
MPE-9	13:26		24.00'		
MPE-10	13:28		23.82'		
MPE-11	13:30		NM		Rooted in @ 21.6'
MPE-12	13:32		NM		" 22.7'
MPE-13	13:34	23.22'	23.45		
MPE-14	13:37	22.30	22.55		
MPE-15	—	—	—		No MPE-15
MPE-16	13:40		20.48		
MPE-17	13:42	20.64'	20.65'	0.01'	
MPE-18	13:47		19.78		
MPE-19	13:50		19.55'		
MPE-20	13:51		19.25'		
MPE-21	13:53	20.33'	20.85'	0.52'	
MPE-22	13:56	21.18'	21.56		
MPE-23	13:58		21.28'		
MPE-24	14:01		23.20'		
MPE-25	14:03		23.59'		
MPE-26	14:08	23.28'	24.25'		
MPE-27	14:13		NM		Rooted in @ 22.2'
MPE-28	14:15		22.18'		
MPE-29	14:18		21.11'		
MPE-30	14:18		NM		Rooted in @ 21.35'
MPE-31	14:21		23.00'		
MPE-32	—	—	—		No MPE-32
MPE-33	14:25	22.73'	23.41'		

Wells measured with KECK water level or KECK interface tape, decontaminated between each well measurement.

DEPTH TO GROUNDWATER MEASUREMENT FORM

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Tel. (505) 564-2281 Fax (505) 324-2022

Project: Groundwater Monitoring
Site: Thriftway #810 Refinery
Location: Bloomfield, New Mexico
Tech: MB

Project No.: AES 050204
Date: 8-13-12
Time:
Form: 2 of 3

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MPE-34	14:39		22.66'		
MPE-35	14:42	21.05	21.95	0.90'	
MPE-36	14:45	20.32'	20.72'	0.40'	
MPE-37	14:47		20.76'		
MPE-38	14:50	20.24'	20.40'	0.16	
MPE-39	14:55		17.91'		
MPE-40	14:57		18.12'		
MPE-41	14:58		18.78'		
MPE-42	15:00		19.54'		
MPE-43	15:02		20.38'		
MPE-44	15:04	20.36'	21.30	0.94	
MPE-45	15:17	20.60	21.19'	0.59'	
MPE-46	15:21		21.81'		
MPE-47	15:24	21.15	22.42	1.27	
MPE-48	15:28		20.55'		
MPE-49	15:30		19.98'		
MPE-50	15:34	20.89'	21.26'	0.37	
MPE-51	15:36		21.30		
MPE-52	15:40	21.04'	21.46	0.42	
MPE-53	16:23	19.70'	20.53	0.83	
MPE-54	10:29	19.40'	20.18'	0.78'	
MPE-55	10:37		19.00'		
MPE-56	10:41		14.41'		
MPE-57	10:45		15.10'		
MPE-58	10:47		15.34'		
MPE-59	10:52		14.06'		
MPE-60	10:55		14.31'		
MPE-61	10:56		14.15		
MPE-62	10:59		14.40'		
MPE-63	11:03	15.09'	15.93'		
MPE-64	11:07	15.54'	15.55'		
MPE-65	11:10	16.28'	16.31'		
MPE-66	11:13	16.33'	17.15		
MPE-67	11:20		17.71		

Wells measured with KECK water level or KECK interface tape, decontaminated between each well measurement.

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services
624 E. Comanche, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project: Groundwater Monitoring
Site: Thriftway #810 Refinery
Location: Bloomfield, New Mexico
Tech:

Project No.: AES 050204
Date: 8-14-12
Time:
Form: 3 of 3

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MPE-68	11:23		16.09'		
MPE-69	11:25		15.50'		
MPE-70	11:28	15.67'	16.01'		
MPE-71	11:30	15.68'	16.23'		
MPE-72	11:34	~~16.29'~~	~~14.29~~ ~~16.63~~	~~1.34'~~	
13 MPE-73	10:30	16.59	17.93	1.34'	ACTIVE / mpe
MPE-74	10:35	14.86	15.72	0.86'	ACTIVE / mpe
MPE-75	11:45	13.88	14.88'	1.00'	ACTIVATE 8/14/12 (1310)
MPE-76	11:48	13.03'	13.37		
MPE-77	11:50		12.65		
MPE-78	11:52	11.51'	11.53'	0.02'	
mpe 79	11:56	~~11.50~~	11.50		
mpe 80	11:58	~~9.12~~	9.12		
mpe 81	12:02	~~10.64'~~	10.64		
mpe 82	12:06	10.89	11.65'		
mpe 83	12:08		12.38'		

Wells measured with KECK water level or KECK interface tape, decontaminated between each well measurement.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 01, 2012

Ross Kennemer

Animas Environmental Services
624 East Comanche
Farmington, NM 87401
TEL: (505) 486-1776
FAX (505) 324-2022

RE: Former Thriftway Refinery #810 OrderNo.: 1207992

Dear Ross Kennemer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/20/2012 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1207992**
Date Reported: **8/1/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: TW-51
Project: Former Thriftway Refinery #810
Collection Date: 7/18/2012 2:20:00 PM
Lab ID: 1207992-001 **Matrix:** AQUEOUS **Received Date:** 7/20/2012 9:57:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	220	10		mg/L	20	7/24/2012 3:16:43 PM
Sulfate	3000	50		mg/L	100	7/25/2012 6:30:24 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **JDJ**
Benzene	ND	2.0		µg/L	2	7/26/2012 2:04:30 PM
Toluene	ND	2.0		µg/L	2	7/26/2012 2:04:30 PM
Ethylbenzene	4.4	2.0		µg/L	2	7/26/2012 2:04:30 PM
Methyl tert-butyl ether (MTBE)	260	2.0		µg/L	2	7/26/2012 2:04:30 PM
Naphthalene	ND	4.0		µg/L	2	7/26/2012 2:04:30 PM
1-Methylnaphthalene	8.7	8.0		µg/L	2	7/26/2012 2:04:30 PM
2-Methylnaphthalene	ND	8.0		µg/L	2	7/26/2012 2:04:30 PM
Xylenes, Total	ND	4.0		µg/L	2	7/26/2012 2:04:30 PM
Surr: 1,2-Dichloroethane-d4	90.3	70-130		%REC	2	7/26/2012 2:04:30 PM
Surr: 4-Bromofluorobenzene	95.9	70-130		%REC	2	7/26/2012 2:04:30 PM
Surr: Dibromofluoromethane	102	70-130		%REC	2	7/26/2012 2:04:30 PM
Surr: Toluene-d8	98.2	70-130		%REC	2	7/26/2012 2:04:30 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	5490	200	H	mg/L	1	7/27/2012 5:18:00 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits	U	Samples with CalcVal < MDL

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1207992

01-Aug-12

Client: Animas Environmental Services

Project: Former Thriftway Refinery #810

Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R4401	RunNo: 4401							
Prep Date:	Analysis Date: 7/24/2012	SeqNo: 122537	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R4401	RunNo: 4401							
Prep Date:	Analysis Date: 7/24/2012	SeqNo: 122538	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.1	90	110			

Sample ID 1207A38-005AMS	SampType: MS	TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R4401	RunNo: 4401							
Prep Date:	Analysis Date: 7/24/2012	SeqNo: 122564	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	11	0.50	5.000	5.758	105	87.8	111			

Sample ID 1207A38-005AMSD	SampType: MSD	TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R4401	RunNo: 4401							
Prep Date:	Analysis Date: 7/24/2012	SeqNo: 122565	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	11	0.50	5.000	5.758	104	87.8	111	0.261	20	

Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R4430	RunNo: 4430							
Prep Date:	Analysis Date: 7/25/2012	SeqNo: 123518	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R4430	RunNo: 4430							
Prep Date:	Analysis Date: 7/25/2012	SeqNo: 123519	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.9	0.50	10.00	0	98.6	90	110			

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1207992

01-Aug-12

Client: Animas Environmental Services

Project: Former Thriftway Refinery #810

Sample ID **5ml-rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R4468**	RunNo: **4468**
Prep Date:	Analysis Date: **7/25/2012**	SeqNo: **125357** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.9	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.5	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R4468**	RunNo: **4468**
Prep Date:	Analysis Date: **7/25/2012**	SeqNo: **125358** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	84.1	126			
Toluene	21	1.0	20.00	0	106	80	120			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	10		10.00		99.7	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1207992**

01-Aug-12

Client: Animas Environmental Services

Project: Former Thriftway Refinery #810

Sample ID **MB-3041**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **3041**	RunNo: **4477**
Prep Date: **7/26/2012**	Analysis Date: **7/27/2012**	SeqNo: **125326** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-3041**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **3041**	RunNo: **4477**
Prep Date: **7/26/2012**	Analysis Date: **7/27/2012**	SeqNo: **125327** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	101	80	120			

Sample ID **1207946-002AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **BatchQC**	Batch ID: **3041**	RunNo: **4477**
Prep Date: **7/26/2012**	Analysis Date: **7/27/2012**	SeqNo: **125330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8920	100	5000	3960	99.2	80	120			

Sample ID **1207946-002AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **BatchQC**	Batch ID: **3041**	RunNo: **4477**
Prep Date: **7/26/2012**	Analysis Date: **7/27/2012**	SeqNo: **125331** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8960	100	5000	3960	99.9	80	120	0.392	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Animas Environmental** Work Order Number: **1207992**

Received by/date: 07/23/12

Logged By: **Ashley Gallegos** 7/20/2012 9:57:00 AM

Completed By: **Ashley Gallegos** 7/23/2012 3:22:46 PM

Reviewed By: 07/23/12

Chain of Custody

1.	Were seals intact?	Yes	No	Not Present ✓
2.	Is Chain of Custody complete?	Yes ✓	No	Not Present
3.	How was the sample delivered?	Courier		

Log In

4.	Coolers are present? (see 19. for cooler specific information)	Yes ✓	No	NA
5.	Was an attempt made to cool the samples?	Yes ✓	No	NA
6.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ✓	No	NA
7.	Sample(s) in proper container(s)?	Yes ✓	No	
8.	Sufficient sample volume for indicated test(s)?	Yes ✓	No	
9.	Are samples (except VOA and ONG) properly preserved?	Yes ✓	No	
10.	Was preservative added to bottles?	Yes	No ✓	NA
11.	VOA vials have zero headspace?	Yes ✓	No	No VOA Vials
12.	Were any sample containers received broken?	Yes	No ✓	
13.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✓	No	# of preserved bottles checked for pH:
14.	Are matrices correctly identified on Chain of Custody?	Yes ✓	No	(<2 or >12 unless noted)
15.	Is it clear what analyses were requested?	Yes ✓	No	Adjusted?
16.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✓	No	Checked by:

Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes No NA ✓

Person Notified: Date:

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			

Chain-of-Custody Record

Client: Animas Environmental Services LLC.

Mailing Address: 624 E Comanche Farmington NM 87401

Phone #: 505 564 2281

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Former Thriftway Refinery #810

Project #:

Project Manager: R. Kennemer

Sampler: Mike Beauvelant

[redacted]

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	[redacted]	BTEX + MTBE + [redacted] (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (~~VOA~~) BTEX, MTBE, Total Naphth	8270 (Semi-VOA)	25HD TDS	300.0 Chlorides, Sulfates			Air Bubbles (Y or N)
7-18-12	14:20	H_2O	TW-51	3-40mL 1-500mL	HCl plastic	-001										X		X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
7-19-12	09:00	[signature]	[signature]	7/19/12	1525
7/19/12	1650	[signature]	[signature]	07/20/12	0957

Remarks: Bill to BioTech

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will [illegible]