



Animas Environmental Services, LLC

[www.animasenvironmental.com](http://www.animasenvironmental.com)

624 E. Comanche  
Farmington, NM 87401  
505-564-2281

Durango, Colorado  
970-403-3084

October 21, 2014

Jim Griswold  
New Mexico Oil Conservation Division  
1220 S. St. Francis Drive  
Santa Fe, New Mexico 87505

**Re: Periodic Progress Report 3<sup>rd</sup> Quarter 2013 to 2<sup>nd</sup> Quarter 2014  
Benson-Montin-Greer Highway 537 Llaves Pipeline 2008 Oil Release  
Rio Arriba County, New Mexico**

Dear Mr. Griswold:

On behalf of Benson-Montin-Greer Drilling Corporation (BMG), Animas Environmental Services, LLC (AES) has prepared this Periodic Progress Report detailing groundwater monitoring for the 3<sup>rd</sup> quarter of 2013 through the 2<sup>nd</sup> quarter of 2014 at the BMG Highway 537 Llaves Pipeline 2008 release location. Groundwater monitoring was conducted in accordance with recommendations presented in the Site Investigation Report prepared by AES and submitted in June 2008.

The 2008 release originated on the Schmitz Ranch, on the south side of Highway 537, within the NW¼ NE¼ Section 18, T25N, R3W (N36.40357, W107.18422) and flowed south and southwest through a small unnamed arroyo for a distance of approximately 920 linear feet. A topographic site location map is presented as Figure 1, and a general site plan is presented as Figure 2.

---

## 1.0 Release History

On December 31, 2007, a Western Refining truck driver discovered the Llaves pipeline leak and immediately contacted BMG. BMG personnel confirmed the release and shut down the Llaves pipeline pumps and block valve located about one mile upstream. BMG contracted with TNT Excavating to remove the oil that had pooled along the surface of the small arroyo. Approximately 40 barrels (bbls) of oil were recovered and placed in storage tanks at the BMG Hwy 537 Transfer Station. A total of 3,932 cubic yards of contaminated soils were excavated and transported to the TNT Landfarm facility for disposal.

On January 9, 2008, the Llaves pipeline was repaired. BMG notified the National Response Center of the spill on January 23, 2008, and the release was given identification number 860429.

AES conducted a site investigation during April and May 2008, which included the installation of nine groundwater monitoring wells (MW-1 through MW-9). Details of the investigation were presented in the AES Site Investigation Report submitted to NMOCD and dated June 23, 2008.

On March 21 and 22, 2011, AES installed five remediation wells, MPE-1 through MPE-5, in and around the area of the release, primarily in the area of MW-9. On April 14, 2011, AES installed two additional MPE wells, MPE-6 and MPE-7, at the site. The locations of the remediation wells are presented on Figure 2. Installation details were presented in the Periodic Progress Report submitted to NMOCD and dated August 10, 2011.

---

## 2.0 Groundwater Monitoring – September 2013

AES personnel conducted 3rd quarter 2013 groundwater monitoring at the project area on September 25, 2013. Note that MW-1 through MW-7 were sampled from 2008 to 2011 and had concentrations which remained below laboratory detection limits or applicable standards for eight consecutive quarters. Well MW-8 was sampled from 2008 to 2013 and had concentrations which remained below laboratory detection limits for nine consecutive quarters.

### 2.1 *Groundwater Measurements*

During the September 2013 gauging event, groundwater measurements were recorded for MW-1 through MW-4 and MW-6 through MW-9. A groundwater measurement was not recorded for MW-5 because the well was dry. Groundwater elevations were measured with a Keck water level (with accuracy to 0.01 foot) and ranged from approximately 7,048.96 feet above mean sea level (AMSL) in MW-2 to 7,050.34 feet AMSL in MW-7. Groundwater gradient was calculated to be 0.005 ft/ft in a southwest direction, which is consistent with historical site data.

Depth to groundwater measurements are presented in Table 1 and groundwater analytical results are presented in Table 2. Groundwater elevation contours for September 2013 are presented on Figure 3, and the Depth to Groundwater Measurement Form is included in the Appendix.

### 2.2 *Non Aqueous Phase Liquid (NAPL)*

AES personnel measured depth to groundwater and free product thickness in the monitor wells and MPE wells in September 2013. NAPL or “free product” has been observed in MW-

9 since the January 2010 sampling event, and in September 2013 the measured thickness was recorded at 3.50 feet. Note that remediation wells MPE-1 through MPE-7 were installed around MW-9 in order to remove free product.

Free product was observed in six of the MPE wells, with free product thicknesses ranging from 0.21 feet in MPE-2 to 3.06 feet in MPE-1. Note that free product was not observed in MPE-7 during the September 2013 gauging event. MPE well data are included in Table 1, and free product thickness contours from September 2013 are presented on Figure 4.

---

### 3.0 Groundwater Monitoring – January 2014

AES personnel conducted 1<sup>st</sup> quarter 2014 groundwater monitoring at the project area on January 14, 2014.

#### 3.1 Groundwater Measurements

During the January 2014 gauging event, groundwater measurements were recorded for MW-1 through MW-4 and MW-6 through MW-9. A groundwater measurement was not recorded for MW-5 because the well was dry. Groundwater elevations were measured with a Keck water level (with accuracy to 0.01 foot) and ranged from approximately 7,048.66 feet AMSL in MW-2 to 7,050.30 feet AMSL in MW-7. Groundwater gradient was calculated to be 0.005 ft/ft in a southwest direction, which is consistent with historical site data.

Depth to groundwater measurements are presented in Table 1. Groundwater elevation contours for January 2014 are presented on Figure 5, and depth to groundwater measurements are presented on the Free Product Recovery Form in the Appendix.

#### 3.2 Non Aqueous Phase Liquid (NAPL)

NAPL was observed in MW-9 on January 14, 2014, with a measured thickness recorded at 0.36 feet. Free product was observed in six of the MPE wells with free product thicknesses ranging from 0.33 feet in MPE-2 to 2.38 feet in MPE-4. Free product was not observed in MPE-7 during the January 2014 gauging event. MPE well data are included in Table 1, and free product thickness contours from January 2014 are presented on Figure 6.

---

### 4.0 Groundwater Monitoring – April 2014

AES personnel conducted 2<sup>nd</sup> quarter 2014 groundwater monitoring at the project area on April 4, 2014.

#### 4.1 Groundwater Measurements

During the April 2014 monitoring event, groundwater measurements were recorded for MW-1 through MW-4 and MW-6 through MW-9. A groundwater measurement was not recorded for MW-5 because the well was dry. Groundwater elevations were measured with a Keck water level (with accuracy to 0.01 foot) and ranged from approximately 7,048.79 feet AMSL in MW-2 to 7,050.29 feet AMSL in MW-6. Groundwater gradient was calculated to be 0.005 ft/ft in a southwest direction, which is consistent with historical site data.

Depth to groundwater measurements are presented in Table 1. Groundwater elevation contours for April 2014 are presented on Figure 7, and the Depth to Groundwater Measurement Form is included in the Appendix.

#### 4.2 Non Aqueous Phase Liquid (NAPL)

NAPL was observed in MW-9 on April 4, 2014, with a measured thickness recorded at 0.07 feet. Free product was observed in all MPE wells with free product thicknesses ranging from 0.01 feet in MPE-7 to 2.32 feet in MPE-4. MPE well data are included in Table 1, and free product thickness contours from April 2014 are presented on Figure 8.

---

### 5.0 MPE System Operation & Maintenance

The MPE unit was installed in May 2011 and operated until October 2011, when it was removed for the winter season. An estimated 26,250 lbs of petroleum hydrocarbons were removed via the MPE system. The system remained off-line until September 2014. In the interim, AES had implemented hand bailing of free product from September 2013 to April 2014.

---

### 6.0 Free Product Removal via Hand Bailing

AES implemented hand bailing of free product on a periodic basis as an interim mitigation measure while the remediation unit was off-line. Between September 2013 and April 2014, 103.25 gallons of free product were removed. Free product recovery measurements are presented in Table 3, and free product recovery forms are included in the Appendix.

## 7.0 Conclusions and Recommendations

AES conducted groundwater and free product gauging events in MW-9 and site MPE wells September 2013, January 2014, and April 2014. Groundwater samples were not collected from monitor wells MW-1 through MW-8 because these wells have had at least eight consecutive quarters of either concentrations below laboratory detection limits or below applicable New Mexico Water Quality Control Commission (WQCC) standards.

Free product was observed in MW-9 during the September 2013, January 2014, and April 2014 gauging events. Free product was also observed in six of the MPE wells (MPE-1 through MPE-6) during the September 2013 and January 2014 gauging events and in all MPE wells (MPE-1 through MPE-7) during the April 2014 gauging event. Based on monitoring results AES will continue quarterly monitoring and gauging of all the wells.

---

## 8.0 Scheduled Site Activities

The third quarter 2014 gauging event was conducted in September 2014. Additionally, the MPE unit was returned to the site on September 16, 2014, and will run on a bi-weekly basis. The results of the gauging event and MPE will be submitted in the 3rd quarter 2014 progress report. The next quarterly gauging event is scheduled for December 2014. No groundwater sampling is anticipated; however, progress reports will be submitted on a quarterly basis and will include remediation information and summaries.

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

Sincerely,



David J. Reese  
Environmental Scientist



Brent Everett  
Sr. Hydrogeologist/Project Manager



Elizabeth McNally, P.E.

## Tables

Table 1. Summary of Groundwater Measurement and Water Quality Data

Table 2. Summary of Groundwater Laboratory Analytical Results To Date

Table 3. Summary of Free Product Recovery (Hand Bailing)

## Figures

Figure 1. Topographic Site Location Map

Figure 2. General Site Plan

Figure 3. Groundwater Elevation Contours, September 2013

Figure 4. Free Product Thickness Contours, September 2013

Figure 5. Groundwater Elevation Contours, January 2014

Figure 6. Free Product Thickness Contours, January 2014

Figure 7. Groundwater Elevation Contours, April 2014

Figure 8. Free Product Thickness Contours, April 2014

## Appendix

Depth to Groundwater Measurement Forms

Free Product Recovery Forms

cc: Mike Diamond  
Zach Stradling  
Benson-Montin-Greer Drilling Corp.  
4900 College Blvd  
Farmington, NM 87402

Brandon Powell  
New Mexico Oil Conservation Division  
1000 Rio Brazos Rd.  
Aztec, NM 87410

Craig Schmitz, Private Land Owner  
#70 CR 405  
Lindrith, NM 87029

C:\Users\beverett\Dropbox (Animas Environmental)\0000 Animas Server Dropbox EM (1)\2014  
Projects\BMG\HWY 537 2008 Release\Workplans and Reports\BMG Hwy 537 2008 Release Progress Report  
3rd Qtr 2013 to 2nd Qtr 2014 102114.docx

Tables



TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-1	05-May-08	7082.57		31.45		7051.12	7.62	4.051	1.48	15.57	141.9
MW-1	24-Sep-08	7082.57		31.91		7050.66	6.80	3.588	2.97	15.32	18.1
MW-1	02-Jan-09	7082.57		31.90		7050.67	NM				
MW-1	07-Apr-09	7082.57		31.92		7050.65	7.31	4.536	3.19	13.86	16.8
MW-1	07-Jul-09	7082.57		31.95		7050.62	7.31	3.161	1.48	16.43	52.6
MW-1	12-Oct-09	7082.57		32.20		7050.37	7.43	2.553	5.91	13.97	293.3
MW-1	12-Jan-10	7082.57		32.41		7050.16	7.72	4.035	3.35	11.12	-11.2
MW-1	13-Oct-10	7082.57		32.62		7049.95	7.38	3.596	0.50	14.60	-75.8
MW-1	20-Jan-11	7082.57		32.64		7049.93	7.48	3.726	1.50	11.89	44.6
MW-1	09-May-11	7082.57		32.27		7050.30	7.61	3.543	1.69	13.38	-5.4
MW-1	15-Aug-11	7082.57		33.07		7049.50	NM	NM	NM	NM	NM
MW-1	21-Nov-11	7082.57		32.98		7049.59	NM	NM	NM	NM	NM
MW-1	21-Feb-12	7082.57		32.98		7049.59	NM	NM	NM	NM	NM
MW-1	24-May-12	7082.57		32.92		7049.65	NM	NM	NM	NM	NM
MW-1	18-Sep-12	7082.57		33.34		7049.23	NM	NM	NM	NM	NM
MW-1	04-Dec-12	7082.57		33.54		7049.03	NM	NM	NM	NM	NM
MW-1	26-Mar-13	7082.57		33.31		7049.26	NM	NM	NM	NM	NM
MW-1	26-Jun-13	7082.57		33.53		7049.04	NM	NM	NM	NM	NM
MW-1	25-Sep-13	7082.57		33.44		7049.13	NM	NM	NM	NM	NM
MW-1	14-Jan-14	7082.57		33.51		7049.06	NM	NM	NM	NM	NM
MW-1	04-Apr-14	7082.57		33.50		7049.07	NM	NM	NM	NM	NM
MW-2	05-May-08	7079.94		29.01		7050.93	7.59	2.276	2.21	16.43	90.8
MW-2	24-Sep-08	7079.94		29.61		7050.33	6.93	2.073	2.75	14.93	36.0
MW-2	02-Jan-09	7079.94		29.52		7050.42	NM				
MW-2	07-Apr-09	7079.94		29.50		7050.44	6.93	2.560	1.93	13.38	21.5
MW-2	07-Jul-09	7079.94		29.65		7050.29	7.22	2.067	1.07	15.28	45.9

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-2	12-Oct-09	7079.94		29.93		7050.01	7.37	1.665	5.63	14.10	178.1
MW-2	12-Jan-10	7079.94		30.01		7049.93	7.51	2.297	2.82	10.88	-2.9
MW-2	13-Oct-10	7079.94				7079.94	NM - Well Filled with Roots				
MW-2	20-Jan-11	7079.94		30.33		7049.61	NM - Well Filled with Roots				
MW-2	09-May-11	7079.94		29.99		7049.95	7.62	2.134	2.54	13.64	-34.1
MW-2	15-Aug-11	7079.94		30.81		7049.13	NM	NM	NM	NM	NM
MW-2	21-Nov-11	7079.94		29.79		7050.15	NM	NM	NM	NM	NM
MW-2	21-Feb-12	7079.94		30.68		7049.26	NM	NM	NM	NM	NM
MW-2	24-May-12	7079.94		30.69		7049.25	NM	NM	NM	NM	NM
MW-2	18-Sep-12	7079.94		31.00		7048.94	NM	NM	NM	NM	NM
MW-2	04-Dec-12	7079.94		31.44		7048.50	NM	NM	NM	NM	NM
MW-2	26-Mar-13	7079.94		31.00		7048.94	NM	NM	NM	NM	NM
MW-2	26-Jun-13	7079.94		31.34		7048.60	NM	NM	NM	NM	NM
MW-2	25-Sep-13	7079.94		30.98		7048.96	NM	NM	NM	NM	NM
MW-2	14-Jan-14	7079.94		31.28		7048.66	NM	NM	NM	NM	NM
MW-2	04-Apr-14	7079.94		31.15		7048.79	NM	NM	NM	NM	NM
MW-3	05-May-08	7081.10		29.49		7051.61	7.79	4.083	2.42	15.91	75.7
MW-3	24-Sep-08	7081.10		30.07		7051.03	6.85	2.778	2.80	14.44	18.5
MW-3	02-Jan-09	7081.10		30.01		7051.09	NM				
MW-3	07-Apr-09	7081.10		30.02		7051.08	6.86	4.596	2.08	12.19	24.7
MW-3	07-Jul-09	7081.10		30.16		7050.94	NM - FILLED WITH SEDIMENT				
MW-3	12-Oct-09	7081.10		30.41		7050.69	7.23	2.316	2.24	13.88	8.3
MW-3	12-Jan-10	7081.10		30.50		7050.60	7.35	2.985	2.87	11.75	-27.2
MW-3	13-Oct-10	7081.10		30.84		7050.26	7.51	3.973	1.71	13.71	-49.8
MW-3	20-Jan-11	7081.10		30.85		7050.25	7.43	3.528	3.30	10.48	53.4
MW-3	10-May-11	7081.10		30.54		7050.56	7.55	3.270	2.06	13.47	-69.3

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-3	15-Aug-11	7081.10		31.23		7049.87	NM	NM	NM	NM	NM
MW-3	21-Nov-11	7081.10		31.19		7049.91	NM	NM	NM	NM	NM
MW-3	21-Feb-12	7081.10		31.19		7049.91	NM	NM	NM	NM	NM
MW-3	24-May-12	7081.10		31.19		7049.91	NM	NM	NM	NM	NM
MW-3	18-Sep-12	7081.10		31.58		7049.52	NM	NM	NM	NM	NM
MW-3	04-Dec-12	7081.10		31.73		7049.37	NM	NM	NM	NM	NM
MW-3	26-Mar-13	7081.10		31.53		7049.57	NM	NM	NM	NM	NM
MW-3	26-Jun-13	7081.10		31.75		7049.35	NM	NM	NM	NM	NM
MW-3	25-Sep-13	7081.10		31.68		7049.42	NM	NM	NM	NM	NM
MW-3	14-Jan-14	7081.10		31.77		7049.33	NM	NM	NM	NM	NM
MW-3	04-Apr-14	7081.10		31.66		7049.44	NM	NM	NM	NM	NM
MW-4	05-May-08	7084.79		32.74		7052.05	7.70	2.699	2.36	14.62	-37.5
MW-4	24-Sep-08	7084.79		33.21		7051.58	6.98	2.163	3.04	13.70	42.9
MW-4	02-Jan-09	7084.79		33.29		7051.50			NM		
MW-4	07-Apr-09	7084.79		33.27		7051.52	6.91	2.779	1.35	11.90	21.1
MW-4	07-Jul-09	7084.79		33.32		7051.47	7.20	2.124	0.80	17.17	-41.5
MW-4	12-Oct-09	7084.79		33.56		7051.23	7.29	1.792	2.00	13.70	43.7
MW-4	12-Jan-10	7084.79		33.68		7051.11	7.36	2.374	2.03	11.53	-26.7
MW-4	13-Oct-10	7084.79		33.93		7050.86	7.42	2.233	1.18	14.11	-56.8
MW-4	20-Jan-11	7084.79		34.01		7050.78	7.55	2.292	2.14	11.57	126.2
MW-4	09-May-11	7084.79		33.79		7051.00	7.65	2.234	1.85	13.05	-20.0
MW-4	15-Aug-11	7084.79		34.37		7050.42	NM	NM	NM	NM	NM
MW-4	21-Nov-11	7084.79		34.33		7050.46	NM	NM	NM	NM	NM
MW-4	21-Feb-12	7084.79		34.35		7050.44	NM	NM	NM	NM	NM
MW-4	24-May-12	7084.79		34.33		7050.46	NM	NM	NM	NM	NM
MW-4	18-Sep-12	7084.79		34.65		7050.14	NM	NM	NM	NM	NM

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-4	04-Dec-12	7084.79		34.83		7049.96	NM	NM	NM	NM	NM
MW-4	26-Mar-13	7084.79		34.82		7049.97	NM	NM	NM	NM	NM
MW-4	26-Jun-13	7084.79		35.85		7048.94	NM	NM	NM	NM	NM
MW-4	25-Sep-13	7084.79		34.83		7049.96	NM	NM	NM	NM	NM
MW-4	14-Jan-14	7084.79		34.85		7049.94	NM	NM	NM	NM	NM
MW-4	04-Apr-14	7084.79		34.84		7049.95	NM	NM	NM	NM	NM
MW-5	05-May-08	7087.98				NA				NM - WELL DRY	
MW-5	24-Sep-08	7087.98				NA				NM - WELL DRY	
MW-5	02-Jan-09	7087.98				NA				NM - WELL DRY	
MW-5	07-Apr-09	7087.98				NA				NM - WELL DRY	
MW-5	07-Jul-09	7087.98				NA				NM - WELL DRY	
MW-5	12-Oct-09	7087.98				NA				NM - WELL DRY	
MW-5	12-Jan-10	7087.98				NA				NM - WELL DRY	
MW-5	13-Oct-10	7087.98				NA				NM - WELL DRY	
MW-5	20-Jan-11	7087.98				NA				NM - WELL DRY	
MW-5	09-May-11	7087.98				NA				NM - WELL DRY	
MW-5	15-Aug-11	7087.98				NA				NM - WELL DRY	
MW-5	21-Nov-11	7087.98				NA				NM - WELL DRY	
MW-5	21-Feb-12	7087.98				NA				NM - WELL DRY	
MW-5	24-May-12	7087.98				NA				NM - WELL DRY	
MW-5	18-Sep-12	7087.98				NA				NM - WELL DRY	
MW-5	04-Dec-12	7087.98				NA				NM - WELL DRY	
MW-5	26-Mar-13	7087.98				NA				NM - WELL DRY	
MW-5	26-Jun-13	7087.98				NA				NM - WELL DRY	
MW-5	25-Sep-13	7087.98				NA				NM - WELL DRY	
MW-5	14-Jan-14	7087.98				NA				NM - WELL DRY	

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-5	04-Apr-14	7087.98				NA	NM - WELL DRY				
MW-6	05-May-08	7088.43		36.03		7052.40	7.73	1.764	2.43	13.95	87.3
MW-6	24-Sep-08	7088.43		36.44		7051.99	7.00	1.464	3.95	14.19	50.3
MW-6	02-Jan-09	7088.43		36.50		7051.93	NM				
MW-6	07-Apr-09	7088.43		36.46		7051.97	7.00	1.854	2.21	11.98	22.2
MW-6	07-Jul-09	7088.43		36.67		7051.76	7.27	1.557	1.35	17.51	57.8
MW-6	12-Oct-09	7088.43		36.78		7051.65	7.43	1.297	2.06	13.11	66.0
MW-6	12-Jan-10	7088.43		36.92		7051.51	7.44	1.615	2.24	11.82	-19.2
MW-6	13-Oct-10	7088.43		37.19		7051.24	7.54	1.502	1.68	14.44	57.9
MW-6	20-Jan-11	7088.43		37.18		7051.25	7.85	1.539	1.83	11.52	174.9
MW-6	09-May-11	7088.43		37.05		7051.38	7.80	1.526	3.31	13.01	31.9
MW-6	15-Aug-11	7088.43		37.59		7050.84	NM	NM	NM	NM	NM
MW-6	21-Nov-11	7088.43		37.65		7050.78	NM	NM	NM	NM	NM
MW-6	21-Feb-12	7088.43		37.61		7050.82	NM	NM	NM	NM	NM
MW-6	24-May-12	7088.43		37.69		7050.74	NM	NM	NM	NM	NM
MW-6	18-Sep-12	7088.43		37.90		7050.53	NM	NM	NM	NM	NM
MW-6	04-Dec-12	7088.43		38.04		7050.39	NM	NM	NM	NM	NM
MW-6	26-Mar-13	7088.43		37.94		7050.49	NM	NM	NM	NM	NM
MW-6	26-Jun-13	7088.43		38.09		7050.34	NM	NM	NM	NM	NM
MW-6	25-Sep-13	7088.43		38.11		7050.32	NM	NM	NM	NM	NM
MW-6	14-Jan-14	7088.43		38.14		7050.29	NM	NM	NM	NM	NM
MW-6	04-Apr-14	7088.43		38.14		7050.29	NM	NM	NM	NM	NM
MW-7	05-May-08	7090.15		37.71		7052.44	NM - LOW YIELD				
MW-7	24-Sep-08	7090.15		38.16		7051.99	7.08	1.572	6.11	13.99	36.3
MW-7	02-Jan-09	7090.15		38.21		7051.94	NM				

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-7	07-Apr-09	7090.15		38.16		7051.99	6.87	1.955	1.46	12.80	22.0
MW-7	07-Jul-09	7090.15		38.29		7051.86	7.06	1.599	2.27	16.48	92.6
MW-7	12-Oct-09	7090.15		38.49		7051.66	7.18	1.365	4.64	13.48	77.0
MW-7	12-Jan-10	7090.15		38.64		7051.51	7.22	1.679	1.97	11.02	-6.5
MW-7	13-Oct-10	7090.15		38.89		7051.26	7.57	2.227	1.68	16.25	66.3
MW-7	20-Jan-11	7090.15		38.92		7051.23	8.20	2.569	2.63	10.71	193.4
MW-7	09-May-11	7090.15		38.72		7051.43	7.67	2.066	2.19	14.93	86.8
MW-7	15-Aug-11	7090.15		39.26		7050.89	NM	NM	NM	NM	NM
MW-7	21-Nov-11	7090.15		39.27		7050.88	NM	NM	NM	NM	NM
MW-7	21-Feb-12	7090.15		39.31		7050.84	NM	NM	NM	NM	NM
MW-7	24-May-12	7090.15		39.30		7050.85	NM	NM	NM	NM	NM
MW-7	18-Sep-12	7090.15		39.60		7050.55	NM	NM	NM	NM	NM
MW-7	04-Dec-12	7090.15		39.74		7050.41	NM	NM	NM	NM	NM
MW-7	26-Mar-13	7090.15		39.61		7050.54	NM	NM	NM	NM	NM
MW-7	26-Jun-13	7090.15		39.80		7050.35	NM	NM	NM	NM	NM
MW-7	25-Sep-13	7090.15		39.81		7050.34	NM	NM	NM	NM	NM
MW-7	14-Jan-14	7090.15		39.85		7050.30	NM	NM	NM	NM	NM
MW-7	04-Apr-14	7090.15		39.89		7050.26	NM	NM	NM	NM	NM
MW-8	05-May-08	7085.20		33.71		7051.49	NM - LOW YIELD				
MW-8	24-Sep-08	7085.20		34.20		7051.00	6.88	1.672	3.06	15.24	-9.6
MW-8	05-Jan-09	7085.20		34.21		7050.99	NM				
MW-8	07-Apr-09	7085.20		34.28		7050.92	6.98	2.061	1.81	13.30	-108.8
MW-8	07-Jul-09	7085.20		34.31		7050.89	7.11	1.811	1.17	16.26	-74.0
MW-8	12-Oct-09	7085.20		34.54		7050.66	7.00	1.416	1.48	13.27	-102.1
MW-8	12-Jan-10	7085.20		34.69		7050.51	7.02	1.699	1.73	11.13	-159.8
MW-8	13-Oct-10	7085.20		34.92		7050.28	7.32	1.786	0.77	14.65	-126.5

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-8	20-Jan-11	7085.20		34.99		7050.21	7.40	1.776	1.32	11.42	-71.1
MW-8	20-Jan-11	7085.20		34.99		7050.21	7.40	1.776	1.32	11.42	-71.1
MW-8	10-May-11	7085.20		34.67		7050.53	7.44	1.698	1.06	12.74	-52.5
MW-8	15-Aug-11	7085.20		35.33		7049.87	7.42	1.717	3.67	17.56	-124.4
MW-8	21-Nov-11	7085.20		35.25		7049.95	7.38	1.430	1.83	11.77	95.8
MW-8	21-Feb-12	7085.20		35.30		7049.90	7.74	1.377	2.46	10.21	-85.2
MW-8	24-May-12	7085.20		35.25		7049.95	7.20	1.485	2.09	18.68	28.4
MW-8	18-Sep-12	7085.20		35.63		7049.57	NM	NM	NM	NM	NM
MW-8	04-Dec-12	7085.20		35.81		7049.39	7.43	0.315	4.92	8.50	-91.2
MW-8	26-Mar-13	7085.20		35.65		7049.55	6.98	0.737	6.02	13.26	-66.2
MW-8	26-Jun-13	7085.20		35.83		7049.37	6.90	1.467	9.32	18.87	-22.9
MW-8	25-Sep-13	7085.20		35.74		7049.46	NM	NM	NM	NM	NM
MW-8	14-Jan-14	7085.20		35.87		7049.33	NM	NM	NM	NM	NM
MW-8	04-Apr-14	7085.20		35.79		7049.41	NM	NM	NM	NM	NM
MW-9	05-May-08	7083.64		31.81		7051.83	7.85	1.955	2.59	15.01	-37.9
MW-9	24-Sep-08	7083.64		32.26		7051.38	7.08	1.515	2.84	14.03	43.3
MW-9	05-Jan-09	7083.64				7083.64	NM - WELL DRY				
MW-9	07-Apr-09	7083.64		32.34		7051.30	6.89	1.876	1.11	12.85	7.0
MW-9	07-Jul-09	7083.64		32.41		7051.23	7.19	1.672	1.14	16.77	-9.7
MW-9	12-Oct-09	7083.64		32.63		7051.01	7.22	1.352	2.10	13.78	72.9
MW-9	12-Jan-10	7083.64	32.43	34.80	2.37	7050.68	NM - 2.37 feet of Crude Oil or Free Product				
MW-9	13-Oct-10	7083.64	32.63	35.29	2.66	7050.42	NM - 2.66 feet of Crude Oil or Free Product				
MW-9	20-Jan-11	7083.64	32.71	35.21	2.50	7050.38	NM - 2.50 feet of Crude Oil or Free Product				
MW-9	09-May-11	7083.64	32.43	34.96	2.53	7050.65	NM - 2.53 feet of Crude Oil or Free Product				
MW-9	15-Aug-11	7083.64	33.11	35.33	2.22	7050.04	NM - 2.22 feet of Crude Oil or Free Product				
MW-9	07-Oct-11	7083.64	33.14	35.23	2.09	7050.04	NM - 2.09 feet of Crude Oil or Free Product				

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MW-9	21-Nov-11	7083.64	33.25	35.37	2.12	7049.92		NM - 2.12 feet of Crude Oil or Free Product			
MW-9	21-Feb-12	7083.64	33.14	35.06	1.92	7050.07		NM - 1.92 feet of Crude Oil or Free Product			
MW-9	24-May-12	7083.64	33.15	35.19	2.04	7050.04		NM - 2.04 feet of Crude Oil or Free Product			
MW-9	18-Sep-12	7083.64	33.47	35.26	1.79	7049.77		NM - 1.79 feet of Crude Oil or Free Product			
MW-9	04-Dec-12	7083.64	33.68	35.64	1.96	7049.52		NM - 1.96 feet of Crude Oil or Free Product			
MW-9	26-Mar-13	7083.64	33.53	35.22	1.69	7049.73		NM - 1.69 feet of Crude Oil or Free Product			
MW-9	26-Jun-13	7083.64	33.70	35.27	1.57	7049.59		NM - 1.57 feet of Crude Oil or Free Product			
MW-9	25-Sep-13	7083.64	32.96	36.46	3.50	7049.90		NM - 3.50 feet of Crude Oil or Free Product			
MW-9	14-Jan-14	7083.64	33.95	34.31	0.36	7049.61		NM - 0.36 feet of Crude Oil or Free Product			
MW-9	04-Apr-14	7083.64	33.94	34.01	0.07	7049.68		NM - 0.07 feet of Crude Oil or Free Product			
MPE-1	09-May-11	TBS	33.87	36.87	3.00	NA		NM - 3.00 feet of Crude Oil or Free Product			
MPE-1	15-Aug-11	TBS	34.68	36.47	1.79	NA		NM - 1.79 feet of Crude Oil or Free Product			
MPE-1	07-Oct-11	TBS	34.87	35.81	0.94	NA		NM - 0.94 feet of Crude Oil or Free Product			
MPE-1	21-Nov-11	TBS	34.60	36.85	2.25	NA		NM - 2.25 feet of Crude Oil or Free Product			
MPE-1	21-Feb-12	TBS	34.57	37.03	2.46	NA		NM - 2.46 feet of Crude Oil or Free Product			
MPE-1	24-May-12	TBS	34.56	37.13	2.57	NA		NM - 2.57 feet of Crude Oil or Free Product			
MPE-1	18-Sep-12	TBS	34.91	37.42	2.51	NA		NM - 2.51 feet of Crude Oil or Free Product			
MPE-1	04-Dec-12	TBS	35.06	37.54	2.48	NA		NM - 2.48 feet of Crude Oil or Free Product			
MPE-1	26-Mar-13	TBS	34.91	37.33	2.42	NA		NM - 2.42 feet of Crude Oil or Free Product			
MPE-1	26-Jun-13	TBS	35.09	37.57	2.48	NA		NM - 2.48 feet of Crude Oil or Free Product			
MPE-1	25-Sep-13	TBS	35.07	38.13	3.06	NA		NM - 3.06 feet of Crude Oil or Free Product			
MPE-1	14-Jan-14	TBS	35.12	37.44	2.32	NA		NM - 2.32 feet of Crude Oil or Free Product			
MPE-1	04-Apr-14	TBS	35.10	37.40	2.30	NA		NM - 2.30 feet of Crude Oil or Free Product			
MPE-2	09-May-11	TBS	32.50	33.73	1.23	NA		NM - 1.23 feet of Crude Oil or Free Product			
MPE-2	15-Aug-11	TBS	33.28	33.69	0.41	NA		NM - 0.41 feet of Crude Oil or Free Product			



TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MPE-2	07-Oct-11	TBS	33.33	33.34	0.01	NA		NM - 0.01 feet of Crude Oil or Free Product			
MPE-2	21-Nov-11	TBS	33.28	33.41	0.13	NA		NM - 0.13 feet of Crude Oil or Free Product			
MPE-2	21-Feb-12	TBS	33.24	33.66	0.42	NA		NM - 0.42 feet of Crude Oil or Free Product			
MPE-2	24-May-12	TBS	33.21	33.91	0.70	NA		NM - 0.70 feet of Crude Oil or Free Product			
MPE-2	18-Sep-12	TBS	33.50	34.44	0.94	NA		NM - 0.94 feet of Crude Oil or Free Product			
MPE-2	04-Dec-12	TBS	33.68	34.68	1.00	NA		NM - 1.00 feet of Crude Oil or Free Product			
MPE-2	26-Mar-13	TBS	33.50	34.82	1.32	NA		NM - 1.32 feet of Crude Oil or Free Product			
MPE-2	26-Jun-13	TBS	33.66	34.88	1.22	NA		NM - 1.22 feet of Crude Oil or Free Product			
MPE-2	25-Sep-13	TBS	33.75	33.96	0.21	NA		NM - 0.21 feet of Crude Oil or Free Product			
MPE-2	14-Jan-14	TBS	33.80	34.13	0.33	NA		NM - 0.33 feet of Crude Oil or Free Product			
MPE-2	04-Apr-14	TBS	33.74	34.03	0.29	NA		NM - 0.29 feet of Crude Oil or Free Product			
MPE-3	09-May-11	TBS	32.43	34.65	2.22	NA		NM - 2.22 feet of Crude Oil or Free Product			
MPE-3	15-Aug-11	TBS	33.25	34.51	1.26	NA		NM - 1.26 feet of Crude Oil or Free Product			
MPE-3	07-Oct-11	TBS	33.40	33.74	0.34	NA		NM - 0.34 feet of Crude Oil or Free Product			
MPE-3	21-Nov-11	TBS	33.28	34.13	0.85	NA		NM - 0.85 feet of Crude Oil or Free Product			
MPE-3	21-Feb-12	TBS	33.18	34.83	1.65	NA		NM - 1.65 feet of Crude Oil or Free Product			
MPE-3	24-May-12	TBS	33.15	34.89	1.74	NA		NM - 1.74 feet of Crude Oil or Free Product			
MPE-3	18-Sep-12	TBS	33.45	37.10	3.65	NA		NM - 3.65 feet of Crude Oil or Free Product			
MPE-3	04-Dec-12	TBS	33.64	35.75	2.11	NA		NM - 2.11 feet of Crude Oil or Free Product			
MPE-3	26-Mar-13	TBS	33.49	35.31	1.82	NA		NM - 1.82 feet of Crude Oil or Free Product			
MPE-3	26-Jun-13	TBS	33.66	35.80	2.14	NA		NM - 2.14 feet of Crude Oil or Free Product			
MPE-3	25-Sep-13	TBS	33.76	34.30	0.54	NA		NM - 0.54 feet of Crude Oil or Free Product			
MPE-3	14-Jan-14	TBS	33.86	34.32	0.46	NA		NM - 0.46 feet of Crude Oil or Free Product			
MPE-3	04-Apr-14	TBS	33.83	34.18	0.35	NA		NM - 0.35 feet of Crude Oil or Free Product			
MPE-4	09-May-11	TBS	33.45	35.74	2.29	NA		NM - 2.29 feet of Crude Oil or Free Product			

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MPE-4	15-Aug-11	TBS	34.26	35.85	1.59	NA		NM - 1.59 feet of Crude Oil or Free Product			
MPE-4	07-Oct-11	TBS	34.46	34.67	0.21	NA		NM - 0.21 feet of Crude Oil or Free Product			
MPE-4	21-Nov-11	TBS	34.20	35.92	1.72	NA		NM - 1.72 feet of Crude Oil or Free Product			
MPE-4	21-Feb-12	TBS	34.16	36.17	2.01	NA		NM - 2.01 feet of Crude Oil or Free Product			
MPE-4	24-May-12	TBS	34.16	36.08	1.92	NA		NM - 1.92 feet of Crude Oil or Free Product			
MPE-4	18-Sep-12	TBS	34.48	36.64	2.16	NA		NM - 2.16 feet of Crude Oil or Free Product			
MPE-4	04-Dec-12	TBS	34.63	37.03	2.40	NA		NM - 2.40 feet of Crude Oil or Free Product			
MPE-4	26-Mar-13	TBS	34.47	36.58	2.11	NA		NM - 2.11 feet of Crude Oil or Free Product			
MPE-4	26-Jun-13	TBS	34.63	37.06	2.43	NA		NM - 2.43 feet of Crude Oil or Free Product			
MPE-4	25-Sep-13	TBS	34.61	36.60	1.99	NA		NM - 1.99 feet of Crude Oil or Free Product			
MPE-4	14-Jan-14	TBS	34.62	37.00	2.38	NA		NM - 2.38 feet of Crude Oil or Free Product			
MPE-4	04-Apr-14	TBS	34.59	36.91	2.32	NA		NM - 2.32 feet of Crude Oil or Free Product			
MPE-5	09-May-11	TBS	34.93	37.70	2.77	NA		NM - 2.77 feet of Crude Oil or Free Product			
MPE-5	15-Aug-11	TBS	35.68	37.80	2.12	NA		NM - 2.12 feet of Crude Oil or Free Product			
MPE-5	07-Oct-11	TBS	35.69	37.82	2.13	NA		NM - 2.13 feet of Crude Oil or Free Product			
MPE-5	21-Nov-11	TBS	35.58	38.16	2.58	NA		NM - 2.58 feet of Crude Oil or Free Product			
MPE-5	21-Feb-12	TBS	35.61	38.03	2.42	NA		NM - 2.42 feet of Crude Oil or Free Product			
MPE-5	25-May-12	TBS	35.61	37.97	2.36	NA		NM - 2.36 feet of Crude Oil or Free Product			
MPE-5	18-Sep-12	TBS	35.89	38.55	2.66	NA		NM - 2.66 feet of Crude Oil or Free Product			
MPE-5	04-Dec-12	TBS	36.06	38.84	2.78	NA		NM - 2.78 feet of Crude Oil or Free Product			
MPE-5	26-Mar-13	TBS	35.94	38.36	2.42	NA		NM - 2.42 feet of Crude Oil or Free Product			
MPE-5	26-Jun-13	TBS	36.12	38.12	2.00	NA		NM - 2.00 feet of Crude Oil or Free Product			
MPE-5	25-Sep-13	TBS	36.09	38.38	2.29	NA		NM - 2.29 feet of Crude Oil or Free Product			
MPE-5	14-Jan-14	TBS	36.15	38.50	2.35	NA		NM - 2.35 feet of Crude Oil or Free Product			
MPE-5	04-Apr-14	TBS	36.15	38.32	2.17	NA		NM - 2.17 feet of Crude Oil or Free Product			

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
MPE-6	09-May-11	TBS		33.05		NA	NM - DUE TO HIGH CONTAMINATION OF CRUDE Oil				
MPE-6	15-Aug-11	TBS	33.72	33.81	0.09	NA	NM - 0.09 feet of Crude Oil or Free Product				
MPE-6	07-Oct-11	TBS	33.67	34.05	0.38	NA	NM - 0.38 feet of Crude Oil or Free Product				
MPE-6	21-Nov-11	TBS	33.51	34.64	1.13	NA	NM - 1.13 feet of Crude Oil or Free Product				
MPE-6	21-Feb-12	TBS	33.46	35.02	1.56	NA	NM - 1.56 feet of Crude Oil or Free Product				
MPE-6	24-May-12	TBS	33.43	35.15	1.72	NA	NM - 1.72 feet of Crude Oil or Free Product				
MPE-6	18-Sep-12	TBS	34.03	36.11	2.08	NA	NM - 2.08 feet of Crude Oil or Free Product				
MPE-6	04-Dec-12	TBS	33.88	36.23	2.35	NA	NM - 2.35 feet of Crude Oil or Free Product				
MPE-6	26-Mar-13	TBS	34.71	35.85	1.14	NA	NM - 1.14 feet of Crude Oil or Free Product				
MPE-6	26-Jun-13	TBS	33.88	36.45	2.57	NA	NM - 2.57 feet of Crude Oil or Free Product				
MPE-6	25-Sep-13	TBS	35.80	36.80	1.00	NA	NM - 1.00 feet of Crude Oil or Free Product				
MPE-6	14-Jan-14	TBS	33.88	36.14	2.26	NA	NM - 2.26 feet of Crude Oil or Free Product				
MPE-6	04-Apr-14	TBS	33.82	36.10	2.28	NA	NM - 2.28 feet of Crude Oil or Free Product				
MPE-7	09-May-11	TBS	30.87	30.88	0.01	NA	NM - 0.01 feet of Crude Oil or Free Product				
MPE-7	15-Aug-11	TBS		31.59		NA	NM	NM	NM	NM	NM
MPE-7	07-Oct-11	TBS		31.60		NA	NM	NM	NM	NM	NM
MPE-7	21-Nov-11	TBS	31.54	31.55	0.01	NA	NM - 0.01 feet of Crude Oil or Free Product				
MPE-7	21-Feb-12	TBS	31.54	31.55	0.01	NA	NM - 0.01 feet of Crude Oil or Free Product				
MPE-7	24-May-12	TBS	31.52	31.53	0.01	NA	NM - 0.01 feet of Crude Oil or Free Product				
MPE-7	18-Sep-12	TBS		32.18		NA	NM	NM	NM	NM	NM
MPE-7	04-Dec-12	TBS		32.09		NA	NM	NM	NM	NM	NM
MPE-7	26-Mar-13	TBS		31.87		NA	NM	NM	NM	NM	NM
MPE-7	26-Jun-13	TBS		32.09		NA	NM	NM	NM	NM	NM
MPE-7	25-Sep-13	TBS		31.99		NA	NM	NM	NM	NM	NM
MPE-7	14-Jan-14	TBS		NM		NA	NM	NM	NM	NM	NM
MPE-7	04-Apr-14	TBS	32.00	32.01	0.01	NA	NM - 0.01 feet of Crude Oil or Free Product				

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Surveyed TOC (ft)	Depth to Product (ft)	Depth to Water (ft)	NAPL Thickness (ft)	GW Elev. (ft)	pH	Conductivity (mS)	DO (mg/L)	Temperature (C)	ORP (mV)
---------	--------------	-------------------	-----------------------	---------------------	---------------------	---------------	----	-------------------	-----------	-----------------	----------

**NOTE:** NS = NOT SAMPLED  
NM = NOT MEASURED  
NA = NOT AVAILABLE  
TBS = TO BE SURVEYED

TABLE 2  
SUMMARY OF GROUNDWATER LABORATORY ANALYTICAL RESULTS  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl- benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	GRO ( $\text{mg/L}$ )	DRO ( $\text{mg/L}$ )	MRO ( $\text{mg/L}$ )
<b>Analytical Method</b>		<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8015B</b>	<b>8015B</b>	<b>8015B</b>
<b>New Mexico WQCC</b>		<b>10</b>	<b>750</b>	<b>750</b>	<b>620</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>
MW-1	05-May-08	<1.0	<1.0	<1.0	<2.0	0.092	<1.0	<5.0
MW-1	24-Sep-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	02-Jan-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	07-Apr-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	07-Jul-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	12-Oct-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	12-Jan-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	13-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	20-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	10-May-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	05-May-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	24-Sep-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	02-Jan-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	07-Apr-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	07-Jul-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	12-Oct-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	12-Jan-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	13-Oct-10	NS - Well filled with Roots						
MW-2	20-Jan-11	NS - Well filled with Roots						
MW-2	10-May-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	05-May-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	24-Sep-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	02-Jan-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	07-Apr-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	07-Jul-09	NS - Well filled with sediment						
MW-3	12-Oct-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	12-Jan-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	13-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	20-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	10-May-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	05-May-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	24-Sep-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	02-Jan-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	07-Apr-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0

TABLE 2  
SUMMARY OF GROUNDWATER LABORATORY ANALYTICAL RESULTS  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl- benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	GRO ( $\text{mg/L}$ )	DRO ( $\text{mg/L}$ )	MRO ( $\text{mg/L}$ )
<b>Analytical Method</b>		<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8015B</b>	<b>8015B</b>	<b>8015B</b>
<b>New Mexico WQCC</b>		<b>10</b>	<b>750</b>	<b>750</b>	<b>620</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>
MW-4	07-Jul-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	12-Oct-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	12-Jan-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	13-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	20-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	09-May-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-5	05-May-08	NS - Well Dry						
MW-5	24-Sep-08	NS - Well Dry						
MW-5	02-Jan-09	NS - Well Dry						
MW-5	07-Apr-09	NS - Well Dry						
MW-5	07-Jul-09	NS - Well Dry						
MW-5	12-Oct-09	NS - Well Dry						
MW-5	12-Jan-10	NS - Well Dry						
MW-5	13-Oct-10	NS - Well Dry						
MW-5	20-Jan-11	NS - Well Dry						
MW-5	09-May-11	NS - Well Dry						
MW-6	05-May-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	24-Sep-08	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	02-Jan-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	07-Apr-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	07-Jul-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	12-Oct-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	12-Jan-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	13-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	20-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	09-May-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	05-May-08	2.8	<1.0	<1.0	<2.0	0.40	<1.0	<5.0
MW-7	24-Sep-08	<1.0	<1.0	<1.0	<2.0	0.069	<1.0	<5.0
MW-7	02-Jan-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	07-Apr-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	07-Jul-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	12-Oct-09	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	12-Jan-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	13-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0

TABLE 2  
SUMMARY OF GROUNDWATER LABORATORY ANALYTICAL RESULTS  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	GRO (mg/L)	DRO (mg/L)	MRO (mg/L)
<b>Analytical Method</b>		<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8015B</b>	<b>8015B</b>	<b>8015B</b>
<b>New Mexico WQCC</b>		<b>10</b>	<b>750</b>	<b>750</b>	<b>620</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>
MW-7	20-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	09-May-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-8	05-May-08	26	10	<1.0	<2.0	1.10	<1.0	<5.0
MW-8	24-Sep-08	65	26	<1.0	<2.0	0.90	<1.0	<5.0
MW-8	05-Jan-09	45	25	<1.0	2.2	1.0	<1.0	<5.0
MW-8	07-Apr-09	25	20	<1.0	2.9	0.89	<1.0	<5.0
MW-8	07-Jul-09	7.5	4.5	<1.0	<2.0	0.21	<1.0	<5.0
MW-8	12-Oct-09	15	11	<1.0	<2.0	0.52	<1.0	<5.0
MW-8	12-Jan-10	<1.0	<1.0	<1.0	<2.0	0.088	<1.0	<5.0
MW-8	13-Oct-10	12	<1.0	1.7	16	0.25	<1.0	<5.0
MW-8	20-Jan-11	35	<1.0	6.5	6.3	0.16	<1.0	<5.0
MW-8	10-May-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-8	15-Aug-11	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0	<5.0
MW-8	21-Nov-11	<2.0	<2.0	<2.0	<4.0	<0.10	2.2	<5.0
MW-8	21-Feb-12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0	<5.0
MW-8	24-May-12	<2.0	<2.0	<2.0	<4.0	<0.10	<1.0	<5.0
MW-8	21-Sep-12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-8	04-Dec-12	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-8	26-Mar-13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-8	27-Jun-13	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-9	05-May-08	6.2	7.5	<1.0	2.3	0.90	<1.0	<5.0
MW-9	24-Sep-08	17	12	<1.0	<2.0	0.32	<1.0	<5.0
MW-9	05-Jan-09	NS - Well Dry						
MW-9	07-Apr-09	12	6.2	<1.0	<2.0	0.32	<1.0	<5.0
MW-9	07-Jul-09	7.0	5.3	<1.0	<2.0	0.28	<1.0	<5.0
MW-9	12-Oct-09	26	2.0	<1.0	<2.0	0.31	<1.0	<5.0
MW-9	12-Jan-10	NS - 2.37 FEET OF CRUDE OIL						
MW-9	13-Oct-10	NS - 2.66 FEET OF CRUDE OIL						
MW-9	20-Jan-11	NS - 2.50 FEET OF CRUDE OIL						
MW-9	09-May-11	NS - 2.53 FEET OF CRUDE OIL						
MW-9	15-Aug-11	NS - 2.22 FEET OF CRUDE OIL						
MW-9	21-Nov-11	NS - 2.12 FEET OF CRUDE OIL						
MW-9	21-Feb-12	NS - 1.92 FEET OF CRUDE OIL						
MW-9	24-May-12	NS - 2.04 FEET OF CRUDE OIL						
MW-9	18-Sep-12	NS - 1.79 FEET OF CRUDE OIL						

TABLE 2  
SUMMARY OF GROUNDWATER LABORATORY ANALYTICAL RESULTS  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethyl- benzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	GRO ( $\text{mg/L}$ )	DRO ( $\text{mg/L}$ )	MRO ( $\text{mg/L}$ )
<b>Analytical Method</b>		<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8021B</b>	<b>8015B</b>	<b>8015B</b>	<b>8015B</b>
<b>New Mexico WQCC</b>		<b>10</b>	<b>750</b>	<b>750</b>	<b>620</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>
<b>MW-9</b>	04-Dec-12	NS - 1.96 FEET OF CRUDE OIL						
<b>MW-9</b>	26-Mar-13	NS - 1.69 FEET OF CRUDE OIL						
<b>MW-9</b>	27-Jun-13	NS - 1.57 FEET OF CRUDE OIL						

**NOTE:** NS = Not Sampled  
NA = Not Analyzed  
GRO = Gasoline Range Organics  
DRO = Diesel Range Organics  
MRO = Motor Oil Range Organics



TABLE 3  
SUMMARY OF FREE PRODUCT RECOVERY  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Start/Finish Time	Depth to NAPL (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Volume Recovered (gal)
MPE-1	19-Sep-13	13:18	35.09	37.58	2.49	2.0
		13:29				
MPE-1	16-Oct-13		35.08	37.40	2.32	2.0
MPE-1	23-Oct-13		35.10	37.98	2.88	2.0
MPE-1	01-Nov-13		35.08	37.97	2.89	2.0
MPE-1	03-Dec-13		34.99	36.44	1.45	2.0
MPE-1	14-Jan-14	13:47	35.12	37.44	2.32	2.5
		16:25				
MPE-1	04-Apr-14	13:40	35.10	37.40	2.30	2.0
		13:52				
MPE-2	19-Sep-13	14:13	33.77	34.14	0.37	0.5
		14:20				
MPE-2	16-Oct-13		34.75	34.98	0.23	0.25
MPE-2	23-Oct-13		33.78	33.94	0.16	0.75
MPE-2	01-Nov-13		33.72	33.90	0.18	0.75
MPE-2	03-Dec-13		34.64	34.69	0.05	0.5
MPE-2	14-Jan-14	14:03	33.80	34.13	0.33	4.0
		14:27				
MPE-2	04-Apr-14	14:03	33.74	34.03	0.29	6.0
		14:37				
MPE-3	19-Sep-13	13:47	33.80	34.76	0.96	0.5
		13:59				
MPE-3	16-Oct-13		33.80	34.60	0.80	0.25
MPE-3	23-Oct-13		33.86	34.34	0.48	0.5
MPE-3	01-Nov-13		33.79	34.13	0.34	0.5

TABLE 3  
SUMMARY OF FREE PRODUCT RECOVERY  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Start/Finish Time	Depth to NAPL (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Volume Recovered (gal)
MPE-3	03-Dec-13		33.70	34.13	0.43	1.25
MPE-3	14-Jan-14	13:59	33.86	34.32	0.46	7.0
		15:00		38.50		
MPE-3	04-Apr-14	14:40	33.83	34.18	0.35	2.0
		14:55	34.39	34.41	0.02	
MPE-4	19-Sep-13	13:32	34.66	36.86	2.20	1.5
		13:44				
MPE-4	16-Oct-13		34.61	36.84	2.23	1.25
MPE-4	23-Oct-13		34.64	36.84	2.20	2.25
			34.91	35.30	0.39	
MPE-4	01-Nov-13		34.64	36.82	2.18	2.0
			34.87	35.30	0.43	
MPE-4	03-Dec-13		34.43	35.54	1.11	1.25
MPE-4	14-Jan-14	13:53	34.62	37.00	2.38	2.50
		15:36	34.49	38.50	4.01	
MPE-4	04-Apr-14	13:40	34.59	36.91	2.32	3.50
		13:55	35.55	35.74	0.19	
MPE-5	19-Sep-13	13:05	36.13	38.60	2.47	2.5
		13:17				
MPE-5	16-Oct-13		36.11	37.11	1.00	2.5
MPE-5	23-Oct-13	11:15	36.13	38.51	2.38	2.25
		13:15	36.37	39.92	3.55	
MPE-5	01-Nov-13		36.02	38.13	2.11	2.25
			35.62	37.34	1.72	
MPE-5	03-Dec-13		36.04	38.40	2.36	2.5
MPE-5	14-Jan-14	13:44	36.15	36.50	0.35	10.0
		16:20		38.00		
MPE-5	04-Apr-14	14:02	36.15	38.32	2.17	9.0
		14:32	37.05	37.20	0.15	
MPE-6	19-Sep-13	14:32	33.09	36.89	3.80	3.0
		14:55				

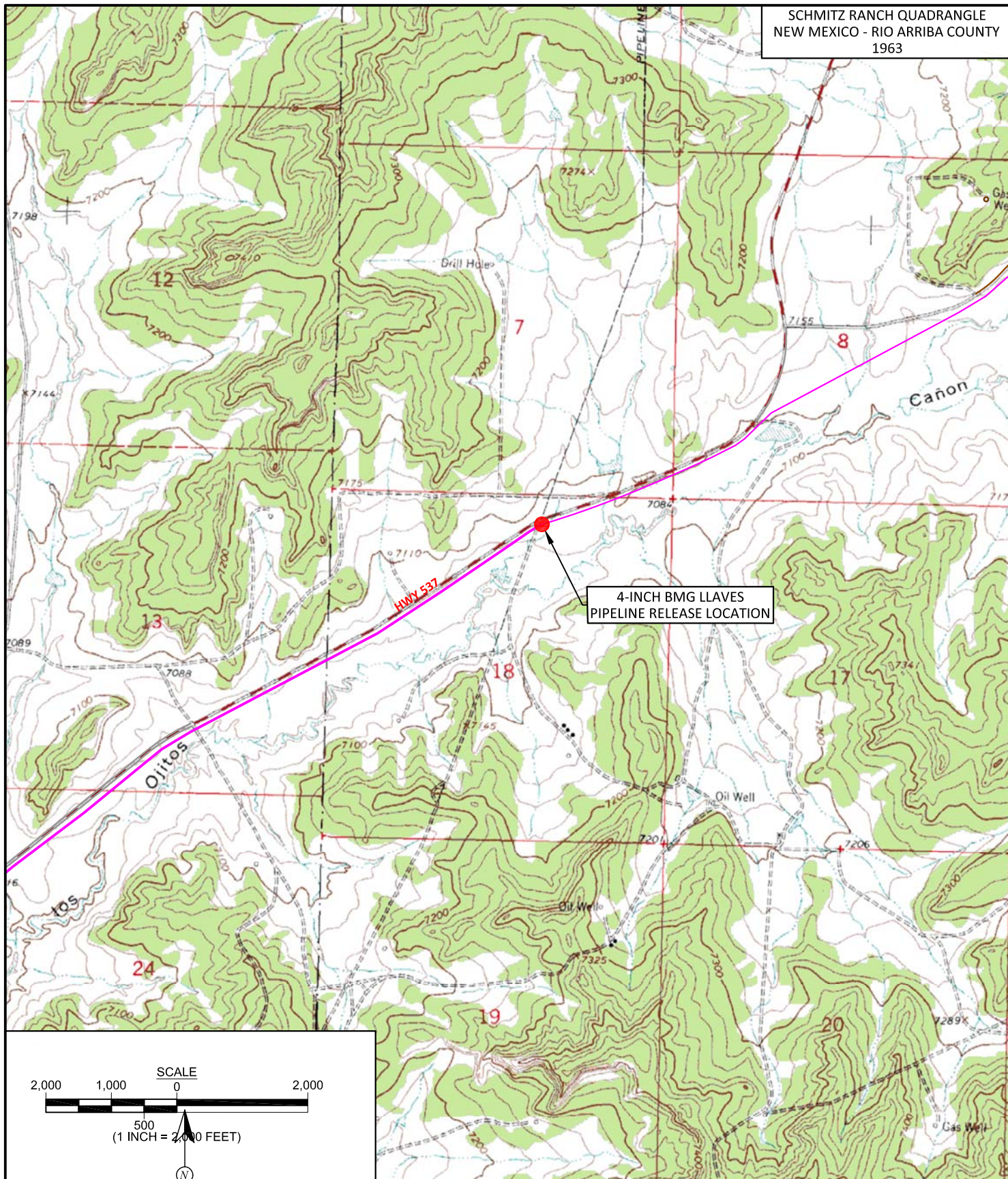
TABLE 3  
SUMMARY OF FREE PRODUCT RECOVERY  
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE  
Rio Arriba County, New Mexico

Well ID	Date Sampled	Start/Finish Time	Depth to NAPL (ft)	Depth to Water (ft)	NAPL Thickness (ft)	Volume Recovered (gal)
MPE-6	16-Oct-13		33.83	36.10	2.27	1.5
MPE-6	23-Oct-13		34.89	35.89	1.00	1.75
			34.15	34.42	0.27	
MPE-6	01-Nov-13		34.76	35.86	1.10	1.5
			33.92	34.40	0.48	
MPE-6	03-Dec-13		34.78	36.42	1.64	2.0
MPE-6	14-Jan-14	13:56	33.88	36.14	2.26	3.0
		15:13	38.10	38.12	0.02	
MPE-6	04-Apr-14	14:39	33.82	36.10	2.28	5.0
		15:06	37.81	37.82	0.01	
MPE-7	19-Sep-13	14:04		32.00	No NAPL	
		14:10				
MPE-7	16-Oct-13			32.08	No NAPL	
MPE-7	23-Oct-13			32.08	No NAPL	
MPE-7	01-Nov-13			32.08	No NAPL	
MPE-7	03-Dec-13			31.92	No NAPL	
MPE-7	04-Apr-14	13:59	32.00	32.01	0.01	1.0
		14:07		32.19		

**Cumulative volume recovered (gal): 103.25**

**NOTE:** NS = Not Sampled  
NA = Not Analyzed

## Figures



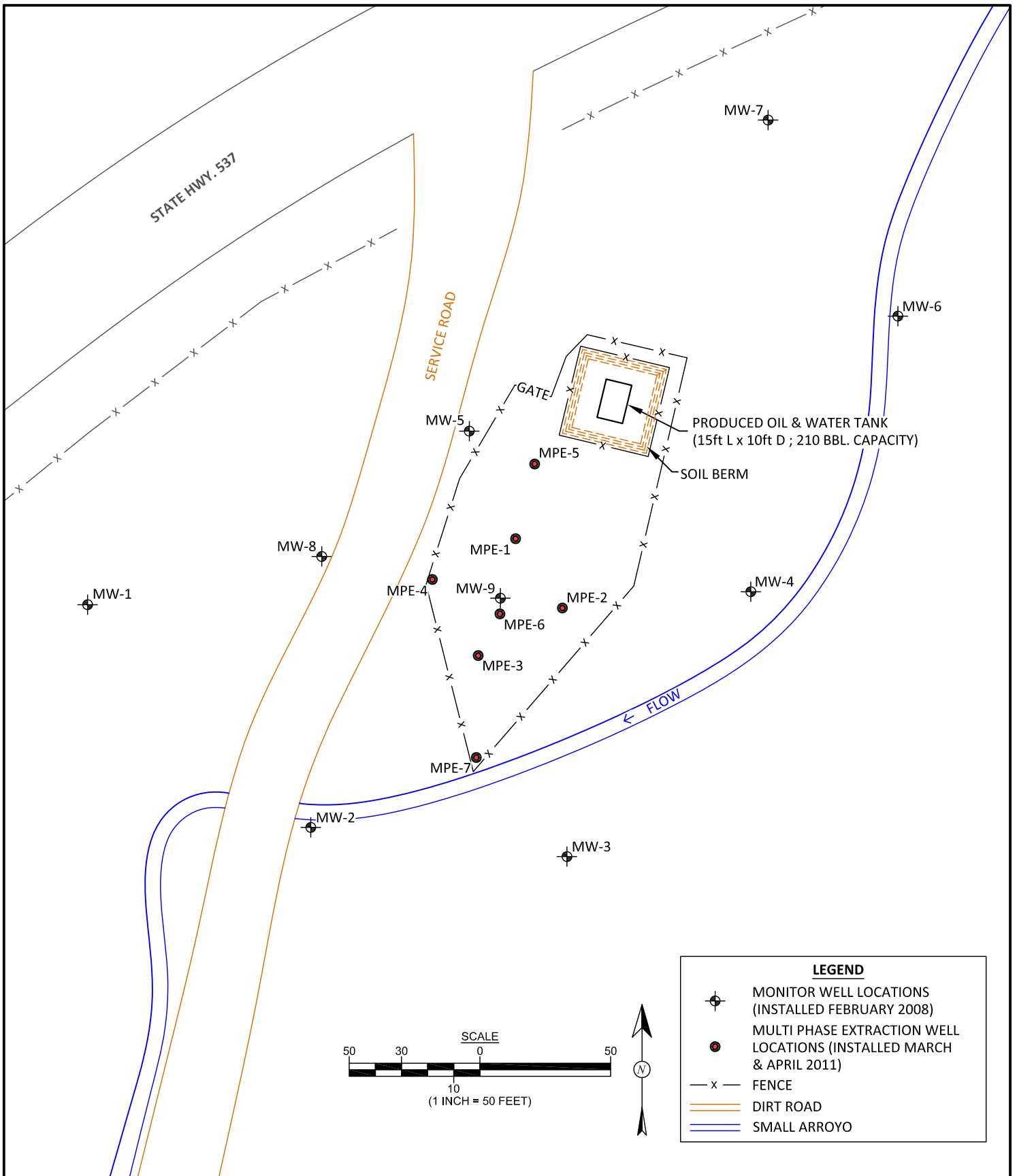
4-INCH BMG LLAVES  
 PIPELINE RELEASE LOCATION

<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 14, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 14, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 14, 2014

### FIGURE 1

**TOPOGRAPHIC SITE LOCATION MAP**  
 BMG HIGHWAY 537  
 LLAVES 2008 PIPELINE OIL RELEASE  
 NW¼ NE¼, SEC. 18, T25N, R3W  
 SCHMITZ RANCH  
 RIO ARRIBA COUNTY, NEW MEXICO  
 N36.40357, W107.18422

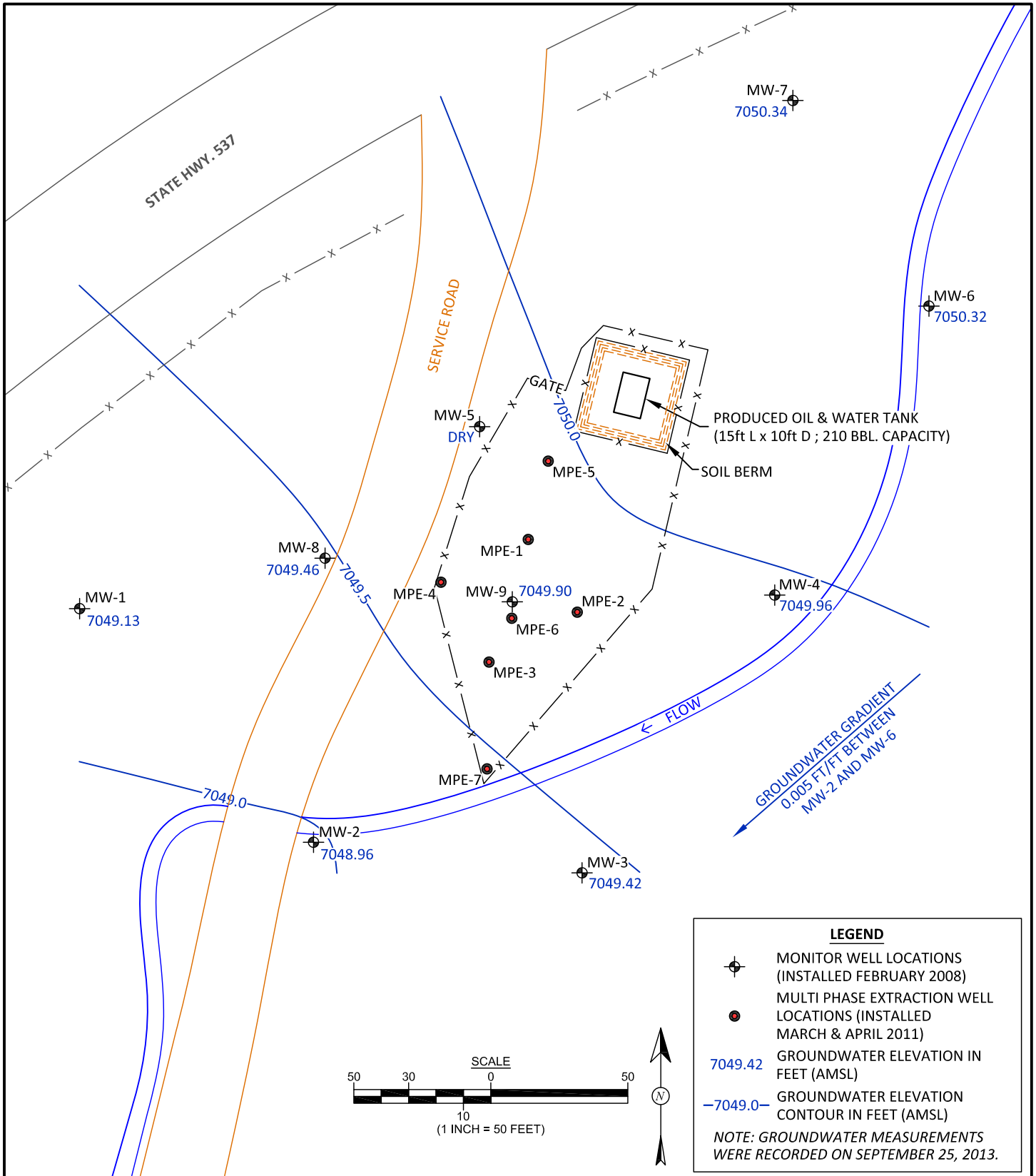
**AES**  
 Animas Environmental Services, LLC



<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 14, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 14, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 14, 2014

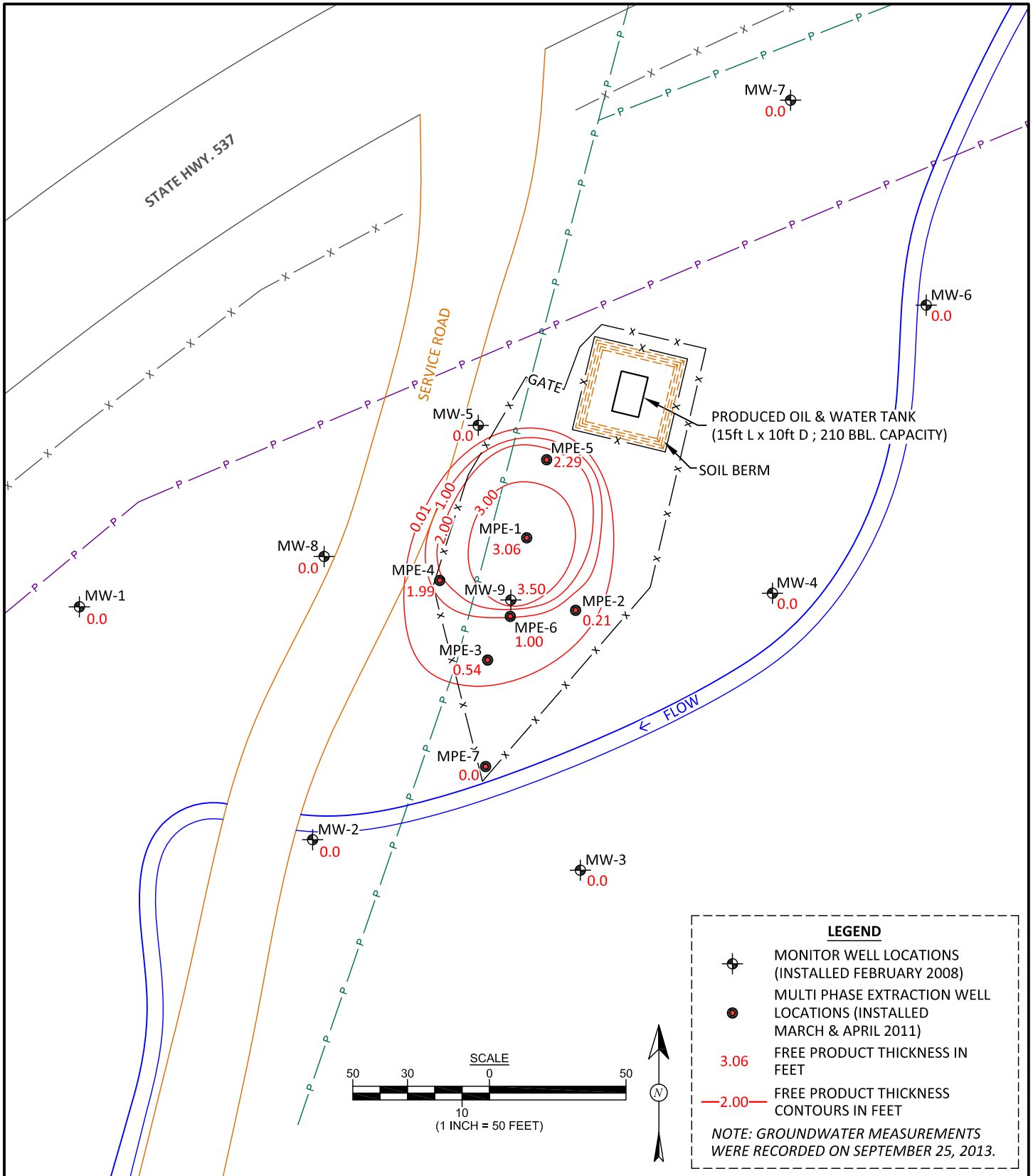
**FIGURE 2**

**GENERAL SITE PLAN**  
 BMG HIGHWAY 537  
 LLAVES 2008 PIPELINE OIL RELEASE  
 NW¼ NE¼, SEC. 18, T25N, R3W  
 SCHMITZ RANCH  
 RIO ARRIBA COUNTY, NEW MEXICO  
 N36.40357, W107.18422



<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 14, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 14, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 14, 2014

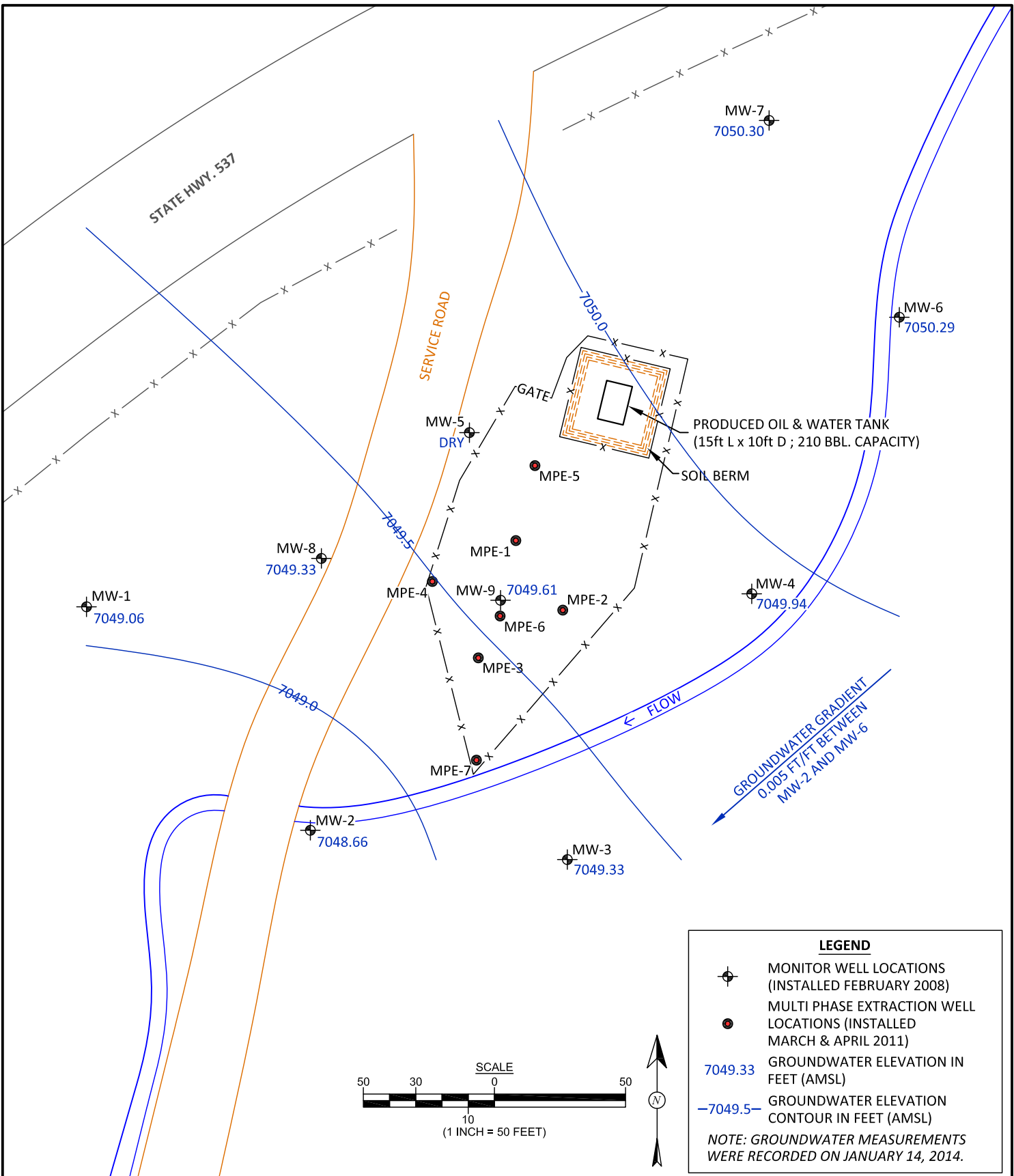
**FIGURE 3**  
**GROUNDWATER ELEVATION CONTOURS, SEPTEMBER 2013**  
BMG HIGHWAY 537  
LLAVES 2008 PIPELINE OIL RELEASE  
NW¼ NE¼, SEC. 18, T25N, R3W  
SCHMITZ RANCH, RIO ARRIBA COUNTY, NEW MEXICO  
N36.40357, W107.18422



<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 14, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 14, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 14, 2014

**FIGURE 4**  
**FREE PRODUCT THICKNESS CONTOURS, SEPTEMBER 2013**  
 BMG HIGHWAY 537  
 LLAVES 2008 PIPELINE OIL RELEASE  
 NW¼ NE¼, SEC. 18, T25N, R3W  
 SCHMITZ RANCH, RIO ARRIBA COUNTY, NEW MEXICO  
 N36.40357, W107.18422

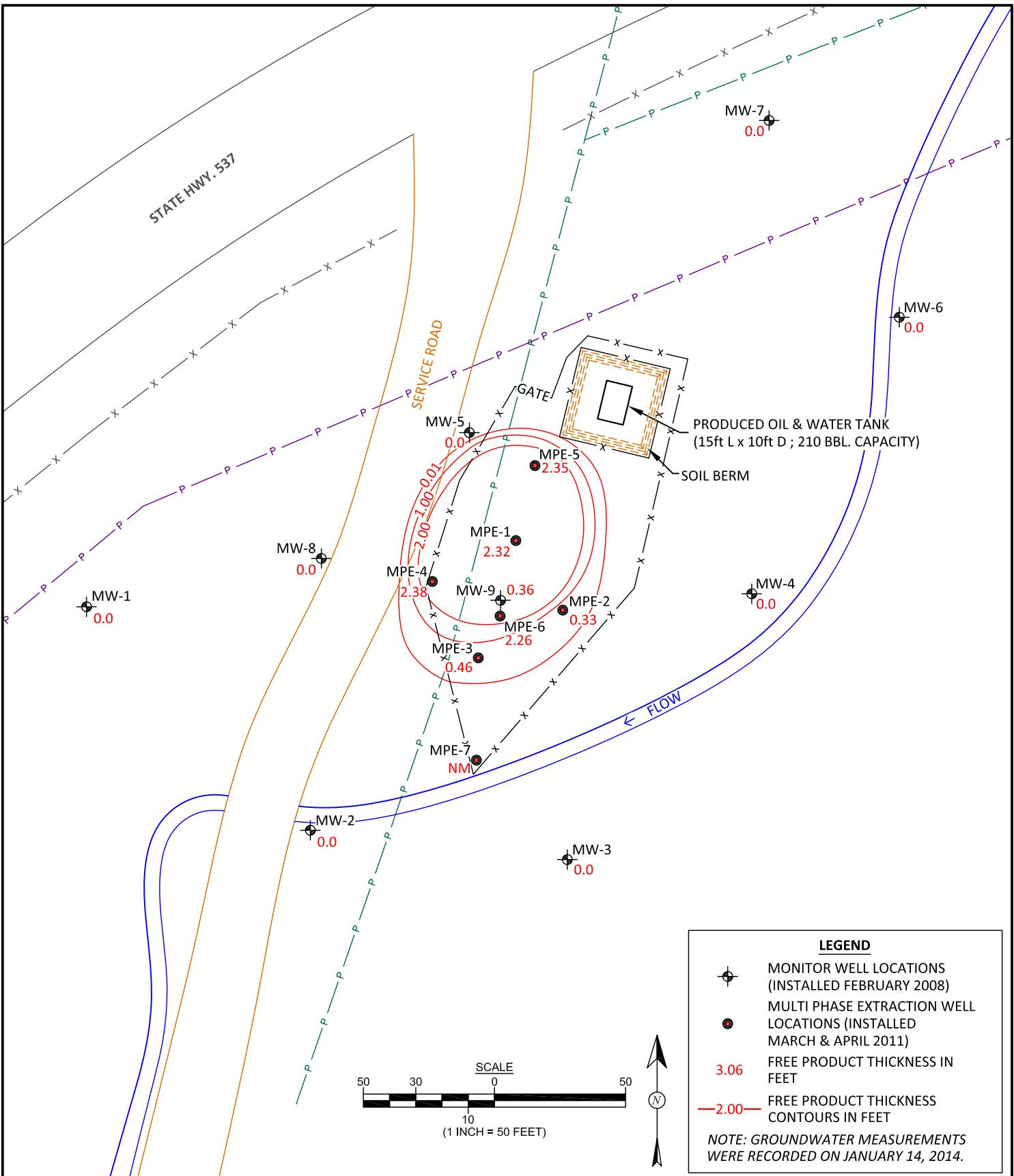




<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 14, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 14, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 14, 2014

**FIGURE 5**

**GROUNDWATER ELEVATION CONTOURS, JANUARY 2014**  
 BMG HIGHWAY 537  
 LLAVES 2008 PIPELINE OIL RELEASE  
 NW¼ NE¼, SEC. 18, T25N, R3W  
 SCHMITZ RANCH, RIO ARRIBA COUNTY, NEW MEXICO  
 N36.40357, W107.18422



**LEGEND**

- MONITOR WELL LOCATIONS (INSTALLED FEBRUARY 2008)
- MULTI PHASE EXTRACTION WELL LOCATIONS (INSTALLED MARCH & APRIL 2011)
- 3.06** FREE PRODUCT THICKNESS IN FEET
- 2.00—** FREE PRODUCT THICKNESS CONTOURS IN FEET

*NOTE: GROUNDWATER MEASUREMENTS WERE RECORDED ON JANUARY 14, 2014.*

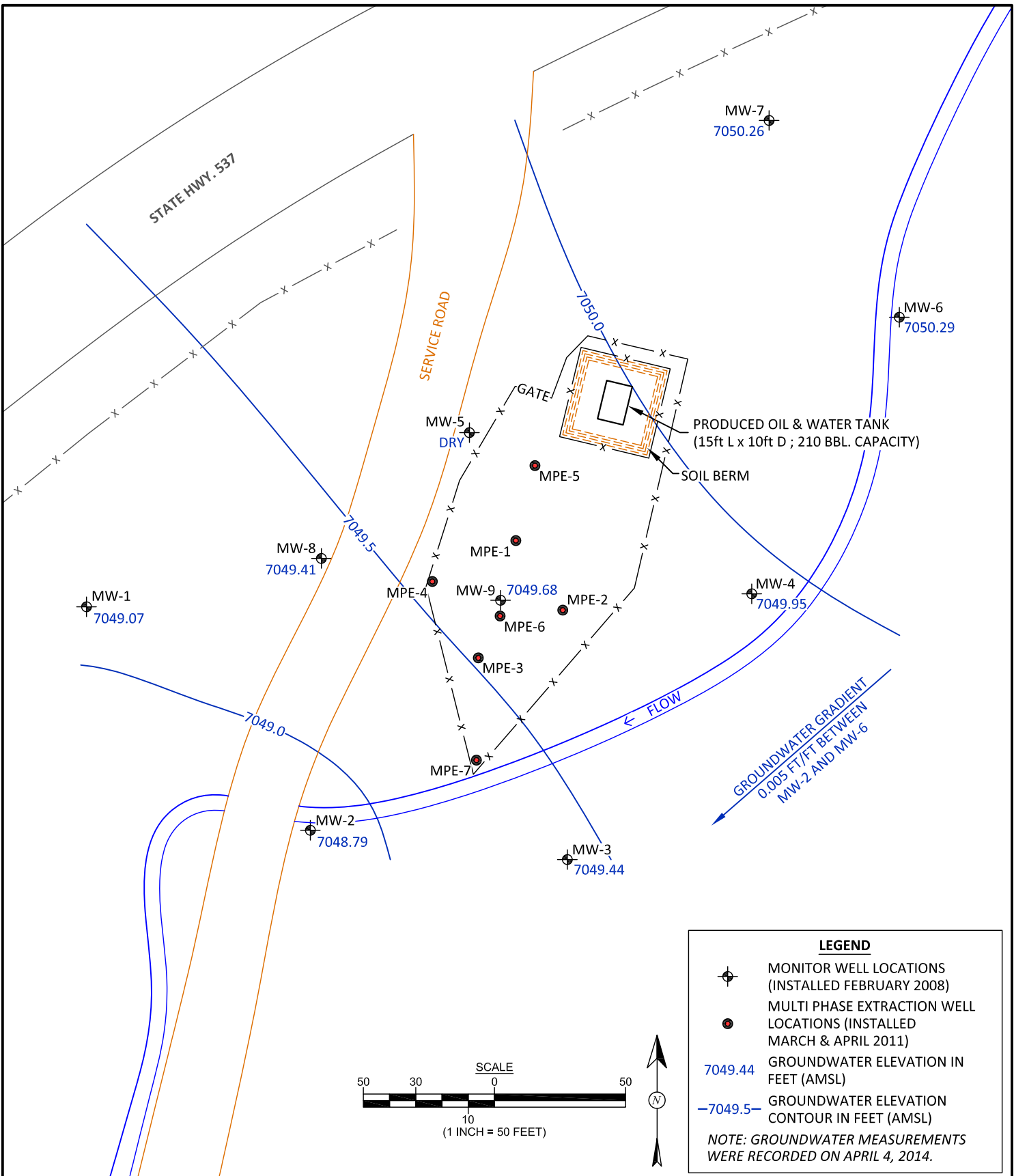


<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 14, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 14, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 14, 2014

**FIGURE 6**

**FREE PRODUCT THICKNESS CONTOURS, JANUARY 2014**

BMG HIGHWAY 537  
LLAVES 2008 PIPELINE OIL RELEASE  
NW¼ NE¼, SEC. 18, T25N, R3W  
SCHMITZ RANCH, RIO ARRIBA COUNTY, NEW MEXICO  
N36.40357, W107.18422

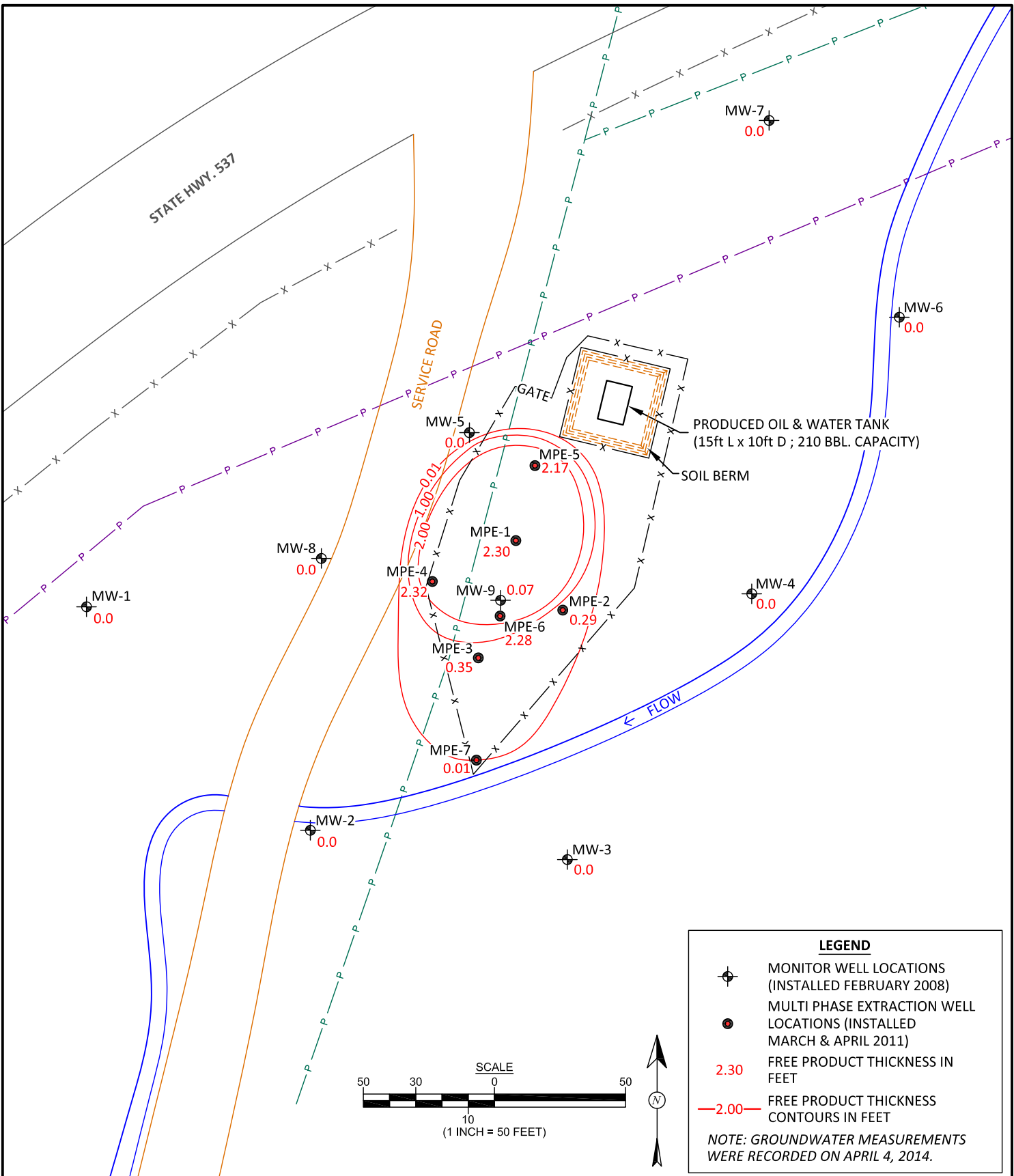


<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 18, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 18, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 18, 2014

**FIGURE 7**

**GROUNDWATER ELEVATION CONTOURS, APRIL 2014**

BMG HIGHWAY 537  
LLAVES 2008 PIPELINE OIL RELEASE  
NW¼ NE¼, SEC. 18, T25N, R3W  
SCHMITZ RANCH, RIO ARRIBA COUNTY, NEW MEXICO  
N36.40357, W107.18422



**LEGEND**

- MONITOR WELL LOCATIONS (INSTALLED FEBRUARY 2008)
- MULTI PHASE EXTRACTION WELL LOCATIONS (INSTALLED MARCH & APRIL 2011)
- 2.30** FREE PRODUCT THICKNESS IN FEET
- 2.00—** FREE PRODUCT THICKNESS CONTOURS IN FEET

*NOTE: GROUNDWATER MEASUREMENTS WERE RECORDED ON APRIL 4, 2014.*



<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> January 11, 2013
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> August 18, 2014
<b>CHECKED BY:</b> E. Skyles	<b>DATE CHECKED:</b> August 18, 2014
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> August 18, 2014

**FIGURE 8**

**FREE PRODUCT THICKNESS CONTOURS, APRIL 2014**

BMG HIGHWAY 537  
LLAVES 2008 PIPELINE OIL RELEASE  
NW¼ NE¼, SEC. 18, T25N, R3W  
SCHMITZ RANCH, RIO ARRIBA COUNTY, NEW MEXICO  
N36.40357, W107.18422

## Appendix

# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: \_\_\_\_\_  
 Site: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Tech: Sege

Project No.: \_\_\_\_\_  
 Date: 9/19/13  
 Time: 1300  
 Form: \_\_\_\_\_

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
5	1305	36.13	38.60	2.5	Bailed to H <sub>2</sub> O
	1317				
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
1	1318	35.09	37.58	2.0	Bailed Dry
	1329				
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
4	1332	34.66	36.86	1.5	Bailed to bailer in well
	1344				
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
3	1347	33.80	34.76	0.5	Bailed off product
	1359				
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
7	1404		32.06	0.0	Water at 32.06 NO product
	1410				
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
2	1413	33.77	34.14	0.5	
	1420				

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!

# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: \_\_\_\_\_

Project No.: \_\_\_\_\_

Site: \_\_\_\_\_

Date: \_\_\_\_\_

Location: \_\_\_\_\_

Time: \_\_\_\_\_

Tech: \_\_\_\_\_

Form: \_\_\_\_\_

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
	1432 1453	33.09	36.89	3.0	bailed to H <sub>2</sub> O
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!

# FREE PRODUCT RECOVERY FORM

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

Project: BMG 08 Release  
 Site: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Tech: Jesse

Project No.: \_\_\_\_\_  
 Date: 10-16-13  
 Time: 1308  
 Form: \_\_\_\_\_

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
5		36.11	37.11	2.5	
1		35.08	37.40	2.0	Baled Dry
4		36.61	36.84	1.25	
6		37.83	36.10	1.5	
3		33.80	34.60	.25	
2		34.75	34.98	>.25	

Free Product Storage, Transport, and Disposal Information: **RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!** #7 H<sub>2</sub>O @ 32.08 NO Product



onsite 11:00

# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: \_\_\_\_\_

Project No.: \_\_\_\_\_

Site: \_\_\_\_\_

Date: 10-23-13

Location: BM6 08

Time: \_\_\_\_\_

Tech: Jesse

Form: \_\_\_\_\_

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
5	11:15	36.13	38.51	2.25	
	13:15	36.37	39.92		
1	35:10	37.98		2.0	
	41:25	41.67			
4	34:64	36.84		2.25	
	34:91	35.30			
6	34:89	35.89		1.75	
	34:15	34.42			
3	33:86	34.34		0.5	
	34:90	34.93			
2	33:78	33.94		0.75	
	33:90	33.92			

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!

#7 H<sub>2</sub>O @ 32.08 NO Product

# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: \_\_\_\_\_

Project No.: \_\_\_\_\_

Site: \_\_\_\_\_

Date: 11-1-15

Location: BMB 08

Time: 12:00

Tech: Dease

Form: \_\_\_\_\_

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
5		36.02	38.13	2.25	
		35.62	37.34		
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
1		35.08	37.97	2.0	
		40.98	41.64		
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
4		34.64	36.82	2.0	
		34.87	35.30		
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
6		34.76	35.86	1.5	
		33.92	34.40		
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
3		33.79	34.13	0.5	
		34.82	34.69		
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
2		33.72	33.90	.75	
		33.84	33.84		

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!

#7 H<sub>2</sub>O @ 33.08

# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: BMG 08 Spill

Project No.: \_\_\_\_\_

Site: \_\_\_\_\_

Date: \_\_\_\_\_

Location: \_\_\_\_\_

Time: 12:00

Tech: Jesse

Form: \_\_\_\_\_

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
5		36.04	38.40	2.5	
1		36.99	36.44	2.0	
4		34.43	35.54	1.25	
6		34.78	36.42	2.0	
2		34.64	34.69	.5	
3		33.70	34.13	1.25	

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!

#7 31.92 H<sub>2</sub>O NO product

# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: Gauge & Bail MW + MPG  
 Site: \_\_\_\_\_  
 Location: BUG HWY 537 OS Release  
 Tech: L. Lamore

Project No.: \_\_\_\_\_  
 Date: 1-14-2014  
 Time: 1301  
 Form: \_\_\_\_\_

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
MPG-5	1344	36.15	<del>38.50</del>	10	42.60 TDW Recharge on well is excellent!!
	1557/1620		38.00		
MPG-1	1347	35.12	37.44	2.5	43.39 TDW - Bailed. 2.0 gal @ 1554 Recharge slow to none.
	1546/1625	43.05	<del>43.40</del>		
MPG-4	1353	34.62	37.00	2.5 gal	38.39 TDW
	1520/1536	34.49	<del>38.50</del>		
MPG-6	1356	33.88	36.14	3.0	39.70 TDW
	1501/1513	38.10	38.12		
MPG-3	1359	33.86	34.32	7.0	41.55 TDW
	<del>1430</del> /1500		38.50		
MPG-2	1403	33.80	34.13	4.0 gal.	42.71 TDW
	1409/1427		41.20		

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!

\* wells located w/in the fence

July 1<sup>st</sup>

## 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:** Hwy 537 2008 Spill  
**Location:** Rio Arriba County, New Mexico  
**Tech:** L.L. & J.S.

**Project No.:** AES 080101  
**Date:** 4.4.2014  
**Time:** 1302  
**Form:** 1 of 1

1" wells

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MW-1	1306		33.50		4' well
MW-2	1304		31.65 w		3' well casing
MW-3	1303		31.66		4' well casing
MW-4	1302		34.84		4' well casing
MW-5	1311		→		34.98 TDW "Dry"
MW-6	1300		38.14		3' well casing
MW-7	12.58		39.89		3' well casing
MW-8	1307		35.79		
MW-9	1316	33.94	34.01		2.5' casing . 0.07" NAPL
MPE-1	1330	35.10	37.40 w		2" well
MPE-2	1328	33.74	34.03		2" well
MPE-3	1322	33.83	34.18		2" well
MPE-4	1326	34.59	36.91		2" well
MPE-5	1332	36.15	38.32		2" well
MPE-6	1319	33.82	36.10		2" well
MPE-7	1324	32.00	32.01		2" well

**ONE INCH WELLS...TAKE  
CORRECT BAILERS!!!!**

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





# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: Free Product Recovery

Project No.: \_\_\_\_\_

Site: Hwy 537 2008 Sp. 11

Date: 4-4-2014

Location: \_\_\_\_\_

Time: 1300

Tech: LL/JS

Form: 1 of 2

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
1	1340	35.10	37.40	2 gal.	43.49 TDW
	1352	42.72	43.36		
2	1403	33.74	39.03	6	
	1437	40.79	40.80		
3	1440	33.83	34.18	2	34.39
	1455	<del>33.83</del>	34.41		
4	1340	34.59	36.91	3.5	
	1355	35.55	35.74		
5	1402	36.15	38.32	9	42.58 TDW
	1432	37.05	37.20		
6	1439	33.82	36.10	5	39.70 TDW
	1506	37.81	37.82		

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!



# FREE PRODUCT RECOVERY FORM

Animas Environmental Services, LLC

624 E. Comanche, Farmington NM 87401

Tel. (505) 564-2281

Project: \_\_\_\_\_

Project No.: \_\_\_\_\_

Site: Hwy 537 2008 Spill

Date: 4.4.2014

Location: \_\_\_\_\_

Time: 1300

Tech: JS/LL

Form: 2082

Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
7	1359	32.00	32.01	/	
	1407		32.19		
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations
Well ID	Start/Finish Time	Depth to NAPL (ft.)	Depth to Water (ft.)	Purged Vol (gal.)	Method / Notes / Observations

Free Product Storage, Transport, and Disposal Information: RECORD FINAL VOLUMES OF WATER AND PRODUCT THAT ARE RECOVERED!