



March 30, 2015

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

**Re: Periodic Progress Report 3rd and 4th Quarter 2014
Benson-Montin-Greer Highway 537 Llaves Pipeline 2008 Oil Release
Rio Arriba County, New Mexico
NMOCD Release #860429**

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 and remediation efforts for the 3rd and 4th quarters 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.

604 W. Piñon St.
Farmington, NM 87401
505-564-2281

1911 Main, Ste 280
Durango, CO
970-403-3084

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 2014

AES personnel conducted third quarter 2014 groundwater monitoring at the project area on September 10, 2014. 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. Groundwater monitoring has continued on a quarterly basis.

2.1 Groundwater Measurements

During the September 2014 monitoring event, groundwater measurements were recorded for MW-1, MW-3, MW-4 and MW-6 through MW-9. A groundwater measurement was not recorded for MW-2 and MW-5 because the wells were dry. Depth to groundwater was measured with a Keck water level (with accuracy to 0.01 foot). Groundwater elevations ranged from approximately 7,048.82 feet above mean sea level (AMSL) in MW-1 to 7,050.08 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. Previous groundwater analytical results are presented in Table 2. Groundwater elevation contours for September 2014 are presented on Figure 3, and the Depth to Groundwater Measurement Form is included in the Appendix.

2.2 *Non Aqueous Phase Liquid (NAPL)*

NAPL or “free product” has been observed in MW-9 since the January 2010 sampling event, and in September 2014 the measured thickness was recorded at 0.12 feet. Note that remediation wells MPE-1 through MPE-7 were installed around MW-9 in order to remove free product.

AES personnel measured depth to groundwater and free product thickness in the MPE wells on September 10, 2014. Free product was observed in six of the MPE wells, with free product thicknesses ranging from 0.40 feet in MPE-3 to 2.48 feet in MPE-5. Note that free product was not observed in MPE-7 during the September 2014 gauging event. MPE well data are included in Table 1, and free product thickness contours from September 2014 are presented on Figure 4.

3.0 Groundwater Monitoring – December 2014

AES personnel conducted fourth quarter 2014 groundwater gauging at the project area on December 3, 2014.

3.1 *Groundwater Measurements*

During the December 2014 monitoring event, groundwater measurements were recorded for MW-1, MW-3, MW-4 and MW-6 through MW-9. A groundwater measurement was not recorded for MW-2 and MW-5 because the wells were dry. Depth to groundwater was measured with a Keck water level (with accuracy to 0.01 foot). Groundwater elevations ranged from approximately 7,048.74 feet AMSL in MW-1 to 7,049.91 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 December 2014 are presented on Figure 5. The Depth to Groundwater Measurement Form is included in the Appendix.

3.2 *Non Aqueous Phase Liquid (NAPL)*

NAPL was observed in MW-9 on December 3, 2014, with a measured thickness recorded at 0.06 feet. Free product was observed in six of the MPE wells, with free product thicknesses ranging from 0.37 feet in MPE-3 to 2.42 feet in MPE-5. Free product was not observed in MPE-7 during the December 2014 gauging event. MPE well data are included in Table 1, and free product thickness contours from December 2014 are presented on Figure 6.

4.0 MPE System Operation & Maintenance

On September 16, 2014, AES re-installed a Remediation Service International (RSI) mobile extraction and treatment system at the site to treat residual contaminants. The system was set up with the vacuum in MPE-5 based on the greatest thickness of free product present on site. Note that because of data logging malfunctions, operations data was only recorded between October 3 and October 29, 2014.

4.1 MPE Flow Rates

Vapor extraction flow rates averaged approximately 16 standard cubic feet per minute (SCFM). The cumulative process flow was approximately 210,404 SCFM from October 3 to October 29, 2014.

4.2 Petroleum Hydrocarbon Recovery (3rd and 4th Quarter 2015)

It is estimated that approximately **7,172 lbs of petroleum hydrocarbons** were removed through total fluids/free product removal (i.e. multiphase extraction) and stored in an onsite tank, along with petroleum hydrocarbons utilized as a supplemental fuel to operate the RSI unit. Note that mass removal calculations do not include petroleum hydrocarbon reductions resulting from natural attenuation or biodegradation.

4.2.1 RSI Operations – Vapor Extraction

It is estimated that approximately **352 lbs of petroleum hydrocarbons** (57 gallons) of petroleum hydrocarbons were mechanically removed from the subsurface and utilized as fuel in the RSI Unit. This includes 235 lbs of petroleum hydrocarbons (equivalent to 38 gallons) between October 3 and 29, 2014. Extrapolating from these extraction quantities over a four week period, an additional 117 lbs of petroleum hydrocarbons (equivalent to 19 gallons) were removed from the subsurface from September 16 through October 3, 2014. The pounds of hydrocarbons removed (lbs/hr) were calculated by:

$$\text{lbs/hr} = (\mu\text{g/L}) \times \text{scfm} \times (28.3 \text{ L/scf}) \times (60 \text{ min/1 hour}) \times (2.2 \text{ lbs/kg}) \times (1/10^9)$$

L = liter

scfm = standard cubic feet per minute

4.2.2 RSI Operations – Fluids Recovery

It is estimated that approximately 2,200 gallons of mixed fluids (water and oil) were recovered during RSI operations, and of that volume, approximately half were oil. Therefore, approximately **6,820 lbs of petroleum hydrocarbons** (1,100 gallons) were

removed as part of total fluids extraction during RSI operations. Recovered fluids were stored temporarily onsite until disposal at BMG's Surface Waste Management Facility.

5.0 Free Product Removal via Solar Sipper Pump 1st Quarter 2015

To continue recovering free product during the winter months while the RSI unit was off-line, AES installed a Geotech Solar Sipper™ free product recovery pump as part of a pilot test on January 15, 2015, and utilized the unit through January 21, 2015. The pump was then re-installed on February 4 through February 11, 2015. During that time a total of 50 lbs of petroleum hydrocarbons (8 gallons of free product) were extracted from MPE-5.

6.0 Conclusions and Recommendations

AES conducted groundwater and free product gauging events on monitoring wells and site MPE wells on September 10 and December 3, 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 and six of the MPE wells (MPE-1 through MPE-6) during the September and December 2014 gauging events. Based on monitoring results AES will continue quarterly monitoring and gauging of all the wells and operate the MPE unit on a bi-weekly basis beginning April 2015.

7.0 Scheduled Site Activities

Site activities tentatively scheduled include:

- 1st quarter 2015 monitoring and gauging event is scheduled for March 2015;
- MPE unit re-installation is scheduled for April 2015; and
- Results of the 1st quarter 2015 gauging event will be submitted in a semi-annual report in August 2015, along with the results of the second quarter gauging event scheduled for June 2015.

If you have any questions regarding this report or site conditions, please do not hesitate to contact Brent Everett or Elizabeth McNally 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

Figures

Figure 1. Topographic Site Location Map

Figure 2. General Site Plan

Figure 3. Groundwater Elevation Contours, September 2014

Figure 4. Free Product Thickness Contours, September 2014

Figure 5. Groundwater Elevation Contours, December 2014

Figure 6. Free Product Thickness Contours, December 2014

Appendix

Depth to Groundwater Measurement Forms

cc: Mike Dimond
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
#70 CR 405
Lindrith, NM 87029
Private Landowner
C/O Mike Dimond
Benson-Montin-Greer Drilling Corp.

Q:\Animas 2000\Dropbox (Animas Environmental)\0000 Animas Server Dropbox EM\2015 Projects\BMG\HWY
537 2008 Release\Workplans and Reports\2008 Periodic Progress Report 3rd and 4th Qtr 2014 033015.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)	Temp. (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-1	10-Sep-14	7082.57		33.75		7048.82	NM	NM	NM	NM	NM
MW-1	03-Dec-14	7082.57		33.83		7048.74	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				

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)	Temp. (C)	ORP (mV)
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
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-2	10-Sep-14	7079.94		Dry		NA	NM - WELL DRY				
MW-2	03-Dec-14	7079.94		Dry		NA	NM - WELL DRY				
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

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)	Temp. (C)	ORP (mV)
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
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-3	10-Sep-14	7081.10		32.19		7048.91	NM	NM	NM	NM	NM
MW-3	03-Dec-14	7081.10		32.18		7048.92	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

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)	Temp. (C)	ORP (mV)
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
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-4	10-Sep-14	7084.79		35.14		7049.65	NM	NM	NM	NM	NM
MW-4	03-Dec-14	7084.79		35.21		7049.58	NM	NM	NM	NM	NM
MW-5	05-May-08	7087.98		Dry		NA	NM - WELL DRY				
MW-5	24-Sep-08	7087.98		Dry		NA	NM - WELL DRY				
MW-5	02-Jan-09	7087.98		Dry		NA	NM - WELL DRY				
MW-5	07-Apr-09	7087.98		Dry		NA	NM - WELL DRY				
MW-5	07-Jul-09	7087.98		Dry		NA	NM - WELL DRY				
MW-5	12-Oct-09	7087.98		Dry		NA	NM - WELL DRY				
MW-5	12-Jan-10	7087.98		Dry		NA	NM - WELL DRY				
MW-5	13-Oct-10	7087.98		Dry		NA	NM - WELL DRY				
MW-5	20-Jan-11	7087.98		Dry		NA	NM - WELL DRY				
MW-5	09-May-11	7087.98		Dry		NA	NM - WELL DRY				
MW-5	15-Aug-11	7087.98		Dry		NA	NM - WELL DRY				
MW-5	21-Nov-11	7087.98		Dry		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)	Temp. (C)	ORP (mV)
MW-5	21-Feb-12	7087.98		Dry		NA	NM - WELL DRY				
MW-5	24-May-12	7087.98		Dry		NA	NM - WELL DRY				
MW-5	18-Sep-12	7087.98		Dry		NA	NM - WELL DRY				
MW-5	04-Dec-12	7087.98		Dry		NA	NM - WELL DRY				
MW-5	26-Mar-13	7087.98		Dry		NA	NM - WELL DRY				
MW-5	26-Jun-13	7087.98		Dry		NA	NM - WELL DRY				
MW-5	25-Sep-13	7087.98		Dry		NA	NM - WELL DRY				
MW-5	14-Jan-14	7087.98		Dry		NA	NM - WELL DRY				
MW-5	04-Apr-14	7087.98		Dry		NA	NM - WELL DRY				
MW-5	10-Sep-14	7088.98		Dry		NA	NM - WELL DRY				
MW-5	03-Dec-14	7088.98		Dry		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

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)	Temp. (C)	ORP (mV)
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-6	10-Sep-14	7088.43		38.37		7050.06	NM	NM	NM	NM	NM
MW-6	03-Dec-14	7088.43		38.55		7049.88	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				
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

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)	Temp. (C)	ORP (mV)
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-7	10-Sep-14	7090.15		40.07		7050.08	NM	NM	NM	NM	NM
MW-7	03-Dec-14	7090.15		40.24		7049.91	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
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

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)	Temp. (C)	ORP (mV)
MW-8	04-Apr-14	7085.20		35.79		7049.41	NM	NM	NM	NM	NM
MW-8	10-Sep-14	7085.20		36.04		7049.16	NM	NM	NM	NM	NM
MW-8	03-Dec-14	7085.20		36.15		7049.05	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				
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				
MW-9	10-Sep-14	7083.64	34.15	34.27	0.12	7049.46	NM - 0.12 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)	Temp. (C)	ORP (mV)
MW-9	03-Dec-14	7083.64	34.25	34.31	0.06	7049.38	NM - 0.06 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-1	10-Sep-14	TBS	35.36	37.70	2.34	NA	NM - 2.34 feet of Crude Oil or Free Product				
MPE-1	03-Dec-14	TBS	35.44	37.77	2.33	NA	NM - 2.33 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				
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				

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)	Temp. (C)	ORP (mV)
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-2	10-Sep-14	TBS	34.03	34.44	0.41	NA	NM - 0.41 feet of Crude Oil or Free Product				
MPE-2	03-Dec-14	TBS	34.10	34.55	0.45	NA	NM - 0.45 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-3	10-Sep-14	TBS	34.15	34.55	0.40	NA	NM - 0.40 feet of Crude Oil or Free Product				
MPE-3	03-Dec-14	TBS	34.20	34.57	0.37	NA	NM - 0.37 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				
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				

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)	Temp. (C)	ORP (mV)
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-4	10-Sep-14	TBS	34.89	37.22	2.33	NA	NM - 2.33 feet of Crude Oil or Free Product				
MPE-4	03-Dec-14	TBS	34.95	37.30	2.35	NA	NM - 2.35 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				
MPE-5	10-Sep-14	TBS	36.38	38.86	2.48	NA	NM - 2.48 feet of Crude Oil or Free Product				
MPE-5	03-Dec-14	TBS	36.49	38.91	2.42	NA	NM - 2.42 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)	Temp. (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-6	10-Sep-14	TBS	34.12	36.42	2.30	NA	NM - 2.30 feet of Crude Oil or Free Product				
MPE-6	03-Dec-14	TBS	34.20	36.50	2.30	NA	NM - 2.30 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

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)	Temp. (C)	ORP (mV)
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				
MPE-7	10-Sep-14	TBS		32.34		NA	NM	NM	NM	NM	NM
MPE-7	03-Dec-14	TBS		32.41		NA	NM	NM	NM	NM	NM

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

Figures

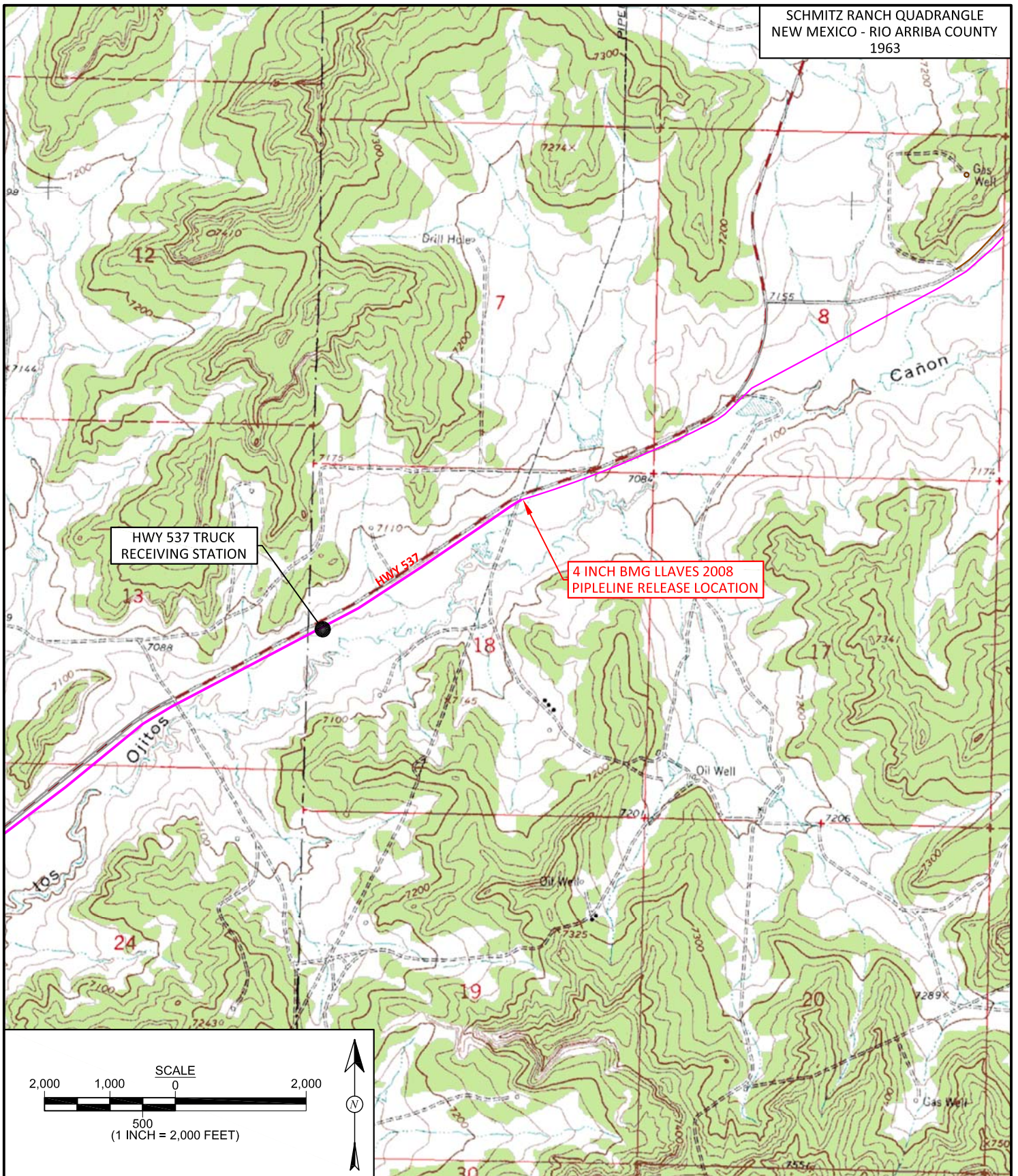


FIGURE 1

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

DRAWN BY:
C. Lameman

DATE DRAWN:
January 11, 2013

REVISIONS BY:
C. Lameman

DATE REVISED:
October 17, 2014

CHECKED BY:
D. Reese

DATE CHECKED:
October 17, 2014

APPROVED BY:
E. McNally

DATE APPROVED:
October 17, 2014

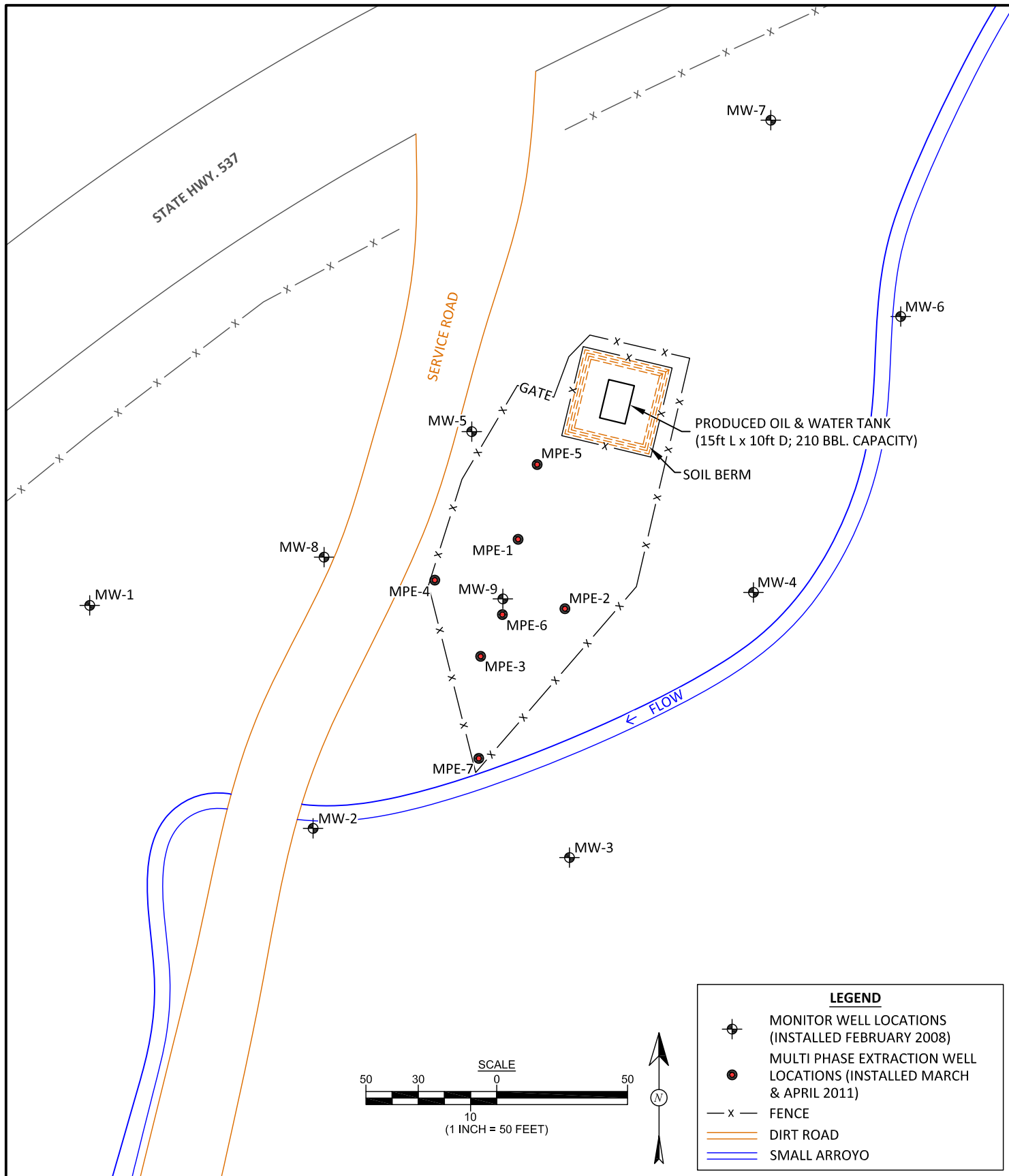


FIGURE 2



DRAWN BY:
C. Lameman

DATE DRAWN:
January 11, 2013

REVISIONS BY:
C. Lameman

DATE REVISED:
October 17, 2014

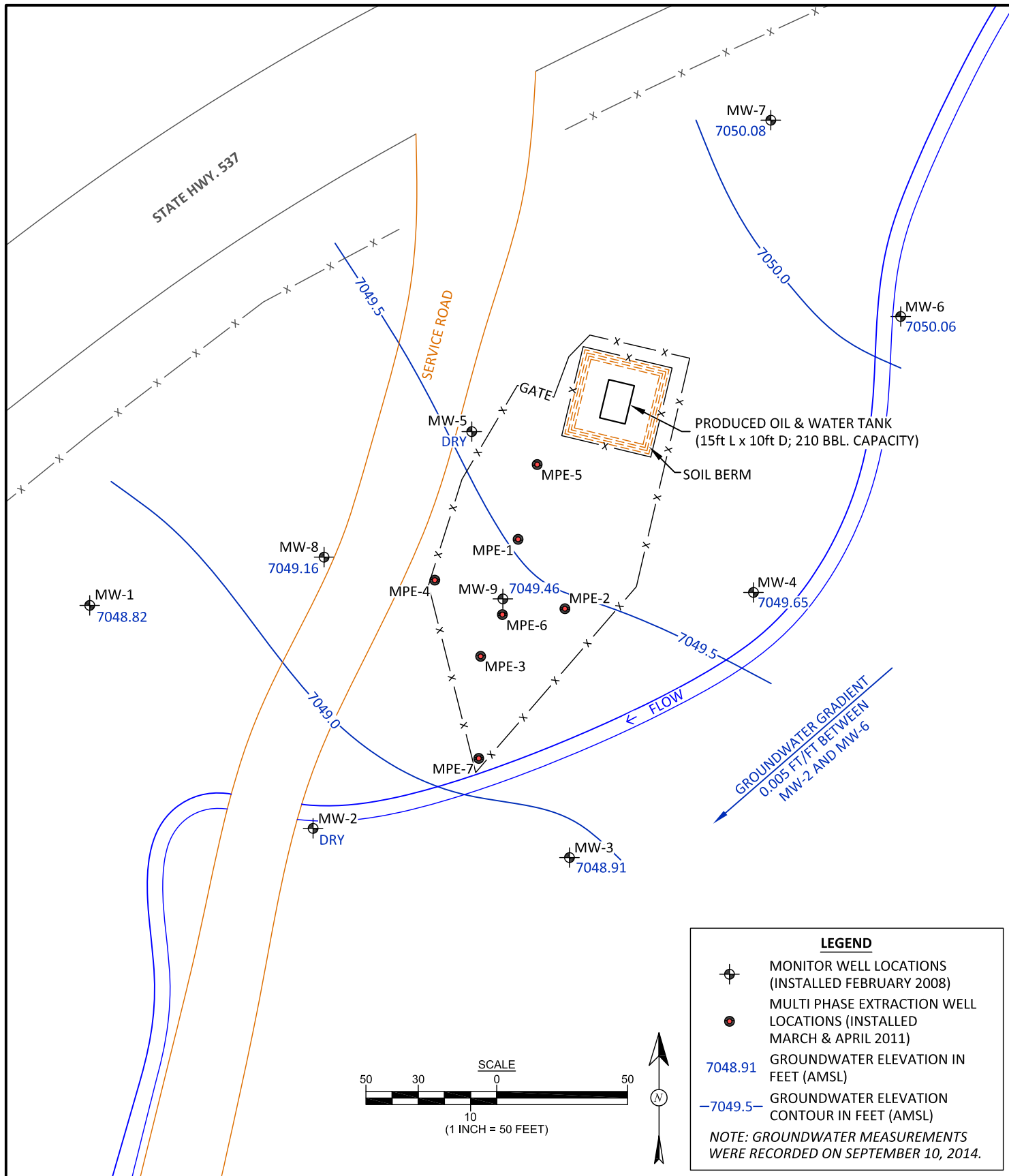
CHECKED BY:
D. Reese

DATE CHECKED:
October 17, 2014

APPROVED BY:
E. McNally

DATE APPROVED:
October 17, 2014

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

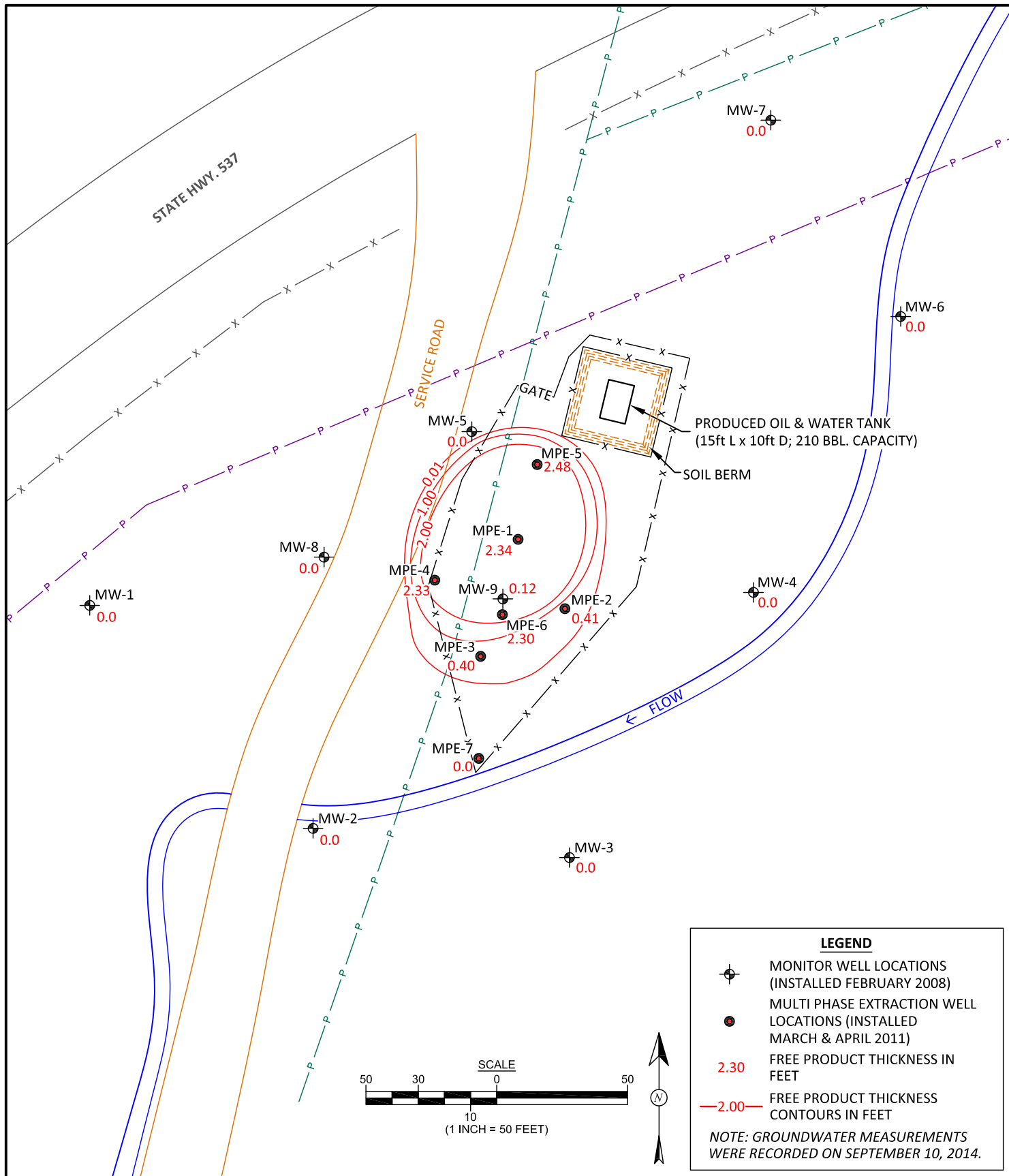


DRAWN BY: C. Lameman	DATE DRAWN: January 11, 2013
REVISIONS BY: C. Lameman	DATE REVISED: October 17, 2014
CHECKED BY: D. Reese	DATE CHECKED: October 17, 2014
APPROVED BY: E. McNally	DATE APPROVED: October 17, 2014

FIGURE 3

GROUNDWATER ELEVATION CONTOURS, SEPTEMBER 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



DRAWN BY:

C. Lameman

DATE DRAWN:

January 11, 2013

REVISIONS BY:

C. Lameman

DATE REVISED:

October 17, 2014

CHECKED BY:

D. Reese

DATE CHECKED:

October 17, 2014

APPROVED BY:

E. McNally

DATE APPROVED:

October 17, 2014

FIGURE 4

FREE PRODUCT THICKNESS CONTOURS, SEPTEMBER 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

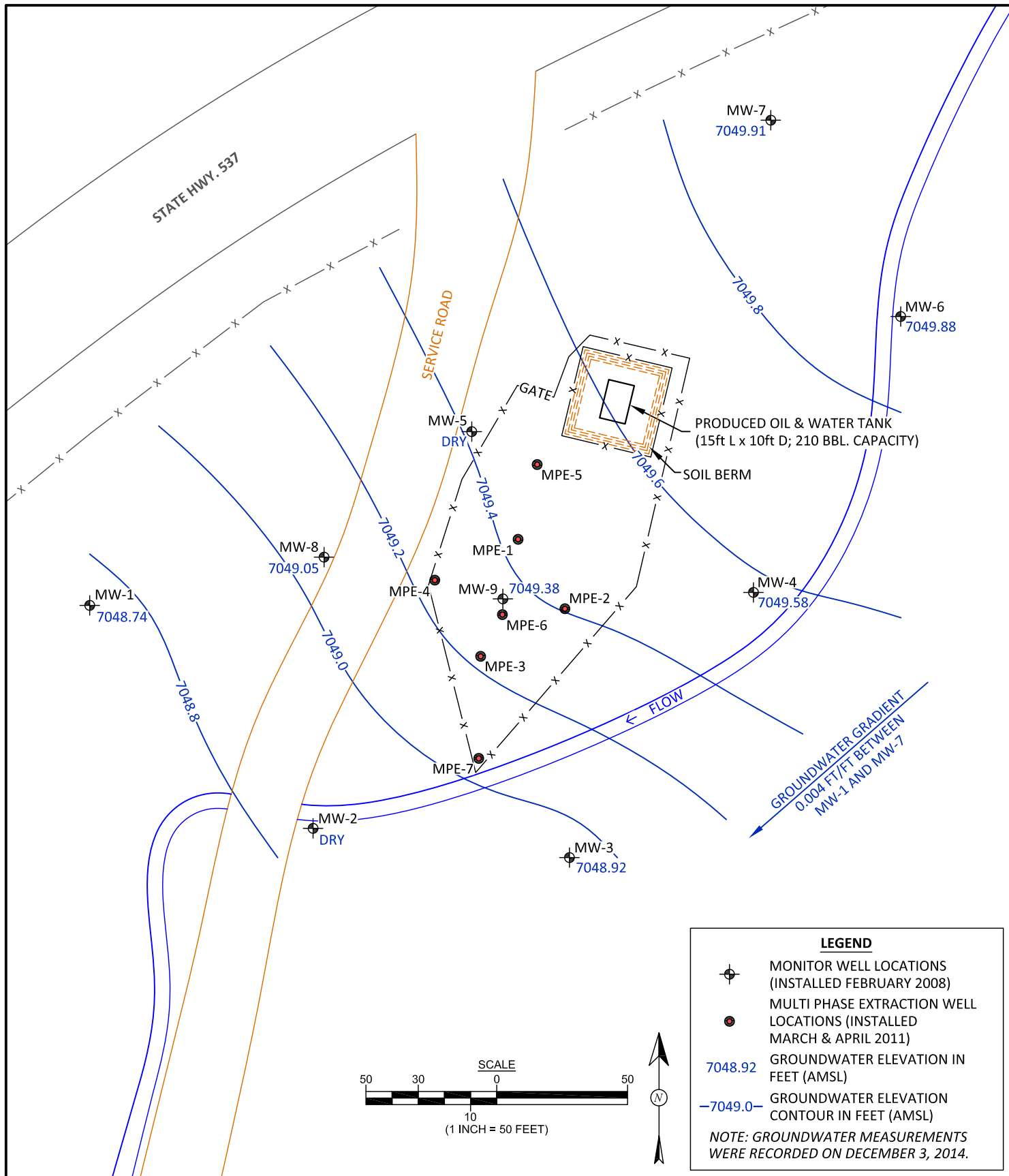
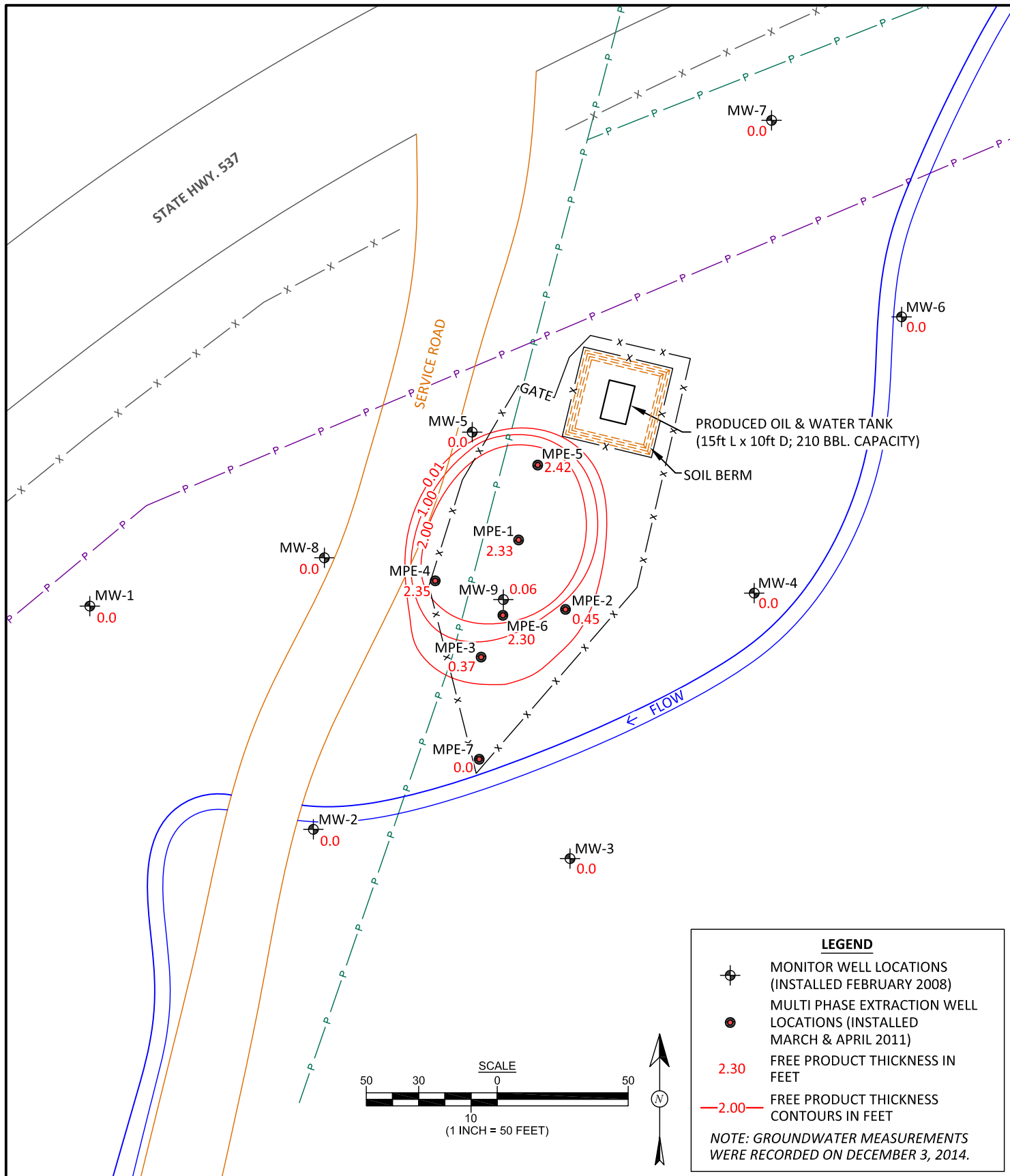


FIGURE 5

GROUNDWATER ELEVATION CONTOURS, DECEMBER 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



DRAWN BY:
C. Lameman

DATE DRAWN:
January 11, 2013

REVISIONS BY:
C. Lameman

DATE REVISED:
March 24, 2015

CHECKED BY:
B. Everett

DATE CHECKED:
March 24, 2015

APPROVED BY:
E. McNally

DATE APPROVED:
March 24, 2015

FIGURE 6

FREE PRODUCT THICKNESS CONTOURS, DECEMBER 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

Animas Environmental Services

Project:	Groundwater Monitoring
Site:	Hwy 537 2008 Spill
Location:	Rio Arriba County, New Mexico
Tech:	LL & SG

Date: 9-10-2014

Time: 1015

Form: 1 of 1

corrected
the
↓

"no bailing"

Animas Environmental Services

604 W. Pinon St, 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: Lamone, L.

Project No.: AES 080101

Date: 12/03/2014

Time: 1205

Form: 1 of 1

[illegible]

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