February 28, 2017

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

Re: Annual Progress Report for 2015
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 Annual Progress Report, which provides details of groundwater monitoring and remediation activities conducted during 2015 at the BMG Highway 537 Llaves Pipeline 2008 release location. Quarterly monitoring was conducted on March 27, October 9, and December 8, 2015, in accordance with recommendations presented in the Site Investigation Report prepared by AES and submitted in June 2008.

1.0 Site Information

1.1 Site Location

The 2008 release originated on the Schmitz Ranch, on the south side of Highway 537 and flowed south and southwest through a small unnamed arroyo for a distance of approximately 920 linear feet. This arroyo drains to the Los Ojitos Arroyo, which eventually drains to Largo Canyon. The release location is described legally as being located within the NW¼ NE¼ Section 18, T25N, R3W in Rio Arriba County, New Mexico. Latitude and longitude were recorded as being N36.40357 and W107.18422, respectively.
A topographic site location map, based on an excerpt from the U.S. Geological Survey (USGS) 7.5-minute Schmitz Ranch, Rio Arriba County, New Mexico topographic quadrangle (USGS 1963), is included as Figure 1, and a general site plan is presented as Figure 2.

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505-564-2281

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1.2 Release History

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.

January 9, 2008 - 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.

April and May 2008 - AES conducted a site investigation, 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. The locations of the monitoring wells are presented on Figure 2.

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.

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.

1.3 Groundwater Monitoring and Sampling, 2008 to 2014

Note that MW-1 through MW-7 were monitored and sampled from 2008 to 2011 and had dissolved phase concentrations which remained below laboratory detection limits or applicable standards for benzene, toluene, ethylbenzene, and xylene (BTEX) for eight consecutive quarters. Well MW-8 was monitored and sampled from 2008 to 2013 and had dissolved phase BTEX concentrations which remained below laboratory detection limits for nine consecutive quarters. Groundwater monitoring was conducted on a periodic basis throughout 2014.

2.0 Groundwater and NAPL Monitoring – March 2015

2.1 Groundwater Measurements

On March 27, 2015, groundwater measurements were recorded for MW-1, MW-3, MW-4, and MW-6 through MW-9. Groundwater measurements were 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 7,048.93 feet above mean sea level (AMSL) in MW-1 to 7,050.21 feet AMSL in MW-7. Groundwater gradient was calculated to be 0.004 ft/ft in a southwest direction, which is consistent with historical site data. Depth to groundwater measurements are presented in Table 1, and previous groundwater analytical results are presented in Table 2. Groundwater elevation contours for March 2015 are presented on Figure 3, and the Depth to Groundwater Measurement Form is included in the Appendix.

2.2 NAPL Measurements

NAPL has been observed in MW-9 since the January 2010 sampling event, and in March 2015 the measured thickness was recorded at 0.07 feet. Free product was observed in six of the MPE wells, with free product thicknesses ranging from 0.24 feet in MPE-3 to 2.09 feet in MPE-4. Note that free product was not observed in MPE-7 during the March 2015 gauging event. MPE well data are included in Table 1, and free product thickness contours from March 2015 are presented on Figure 4.

3.0 NAPL Measurements – October 2015

Depth to water and NAPL thickness was measured in MPE 1 through MPE 7 for the October event. Free product was observed in six of the MPE wells with thicknesses ranging from 0.36 feet in MPE-2 to 2.12 feet in MPE-5. Free product was not observed in MPE-7. MPE data are included in Table 1, and free product thickness contours from October 2015 are presented on Figure 5.

4.0 Groundwater and NAPL Monitoring – December 2015

4.1 Groundwater Measurements

On December 8, 2015, groundwater measurements were recorded for MW-1, MW-3, MW-4, and MW-6 through MW-9. Groundwater elevations ranged from approximately 7,048.73 feet above mean sea level (AMSL) in MW-1 to 7,049.88 feet AMSL in MW-6 and MW-7.

Groundwater gradient was calculated to be 0.004 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 2015 are presented on Figure 6, and the Depth to Groundwater Measurement Form is included in the Appendix.

4.2 NAPL Measurements

NAPL was observed in MW-9 (0.05 ft) and in six of the MPE wells, with free product thicknesses ranging from 0.18 feet in MPE-2 to 2.34 feet in MPE-5. MPE well data are included in Table 1, and free product thickness contours from December 2015 are presented on Figure 7.

5.0 NAPL Removal via Solar Sipper Pump 1st Quarter 2015

As reported in the Periodic Progress Report 3rd and 4th Quarter 2014 (dated March 30, 2015), AES installed a Geotech Solar Sipper™ NAPL recovery pump as part of a pilot test. The pump ran from January 15 to 21, 2015, and from February 4 to 11, 2015. During that time a total of 50 lbs of petroleum hydrocarbons (8 gallons of NAPL) were extracted.

6.0 RSI MPE System Operation & Maintenance

In May 2015, AES re-installed a Remediation Service International (RSI) mobile multi-phase extraction and treatment system (MPE) to remove residual contaminants. The unit operated from May 8 to August 6, 2015.

6.1 MPE Flow Rates

Vapor extraction flow rates averaged approximately 23 standard cubic feet per minute (SCFM). The cumulative process flow was approximately 1,042,355 SCF from May 8 to August 6, 2015.

6.2 Petroleum Hydrocarbon Recovery 2015

It is estimated that approximately 7,052 lbs (1,137 gallons) of petroleum hydrocarbons were removed through total fluids/free product removal (i.e. multiphase extraction) and stored in an onsite tank. This figure includes an estimated 466 lbs (roughly 75 gallons) of petroleum hydrocarbons which were mechanically removed from the subsurface and utilized as supplemental fuel in the RSI Unit. Note that mass removal calculations do not include petroleum hydrocarbon reductions resulting from natural attenuation or biodegradation. In

addition, a modest amount of petroleum product was removed during hand bailing operations during monitor well gauging events. The RSI summary report is attached.

7.0 Conclusions and Recommendations

AES conducted groundwater and NAPL gauging events on monitoring wells and site MPE wells on March 27 and December 8, 2015. Gauging of NAPL in site MPE wells also occurred on October 9, 2015. Groundwater samples were not collected from monitor wells MW-1 through MW-8 because these wells have had at least eight consecutive events of either concentrations below laboratory detection limits or below applicable New Mexico Water Quality Control Commission (WQCC) standards.

NAPL was observed in MW-9 and six of the MPE wells (MPE-1 through MPE-6) during the March and December 2015 gauging events, and six of the MPE wells during the October 2015 gauging event. Measured free product levels have remained fairly consistent from late 2014 to December 2015, and there has been no appreciable migration of the contaminant plume down hydraulic gradient. Based on monitoring results, AES will continue periodic monitoring and gauging of all the wells. NAPL recovery methods will be re-evaluated.

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

Sincerely,

David W. Johnson
Geologist

Elizabeth McNally, P.E.

Tables

Figures

Appendix

Cc: Matt Dimond
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Farmington, NM 87401

Craig Schmitz, Private Land Owner
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Lindrith, NM 87029

Brandon Powell
New Mexico Oil Conservation Division
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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-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-1	27-Mar-15	7082.57		33.64		7048.93	NM	NM	NM	NM	NM
MW-1	08-Dec-15	7082.57		33.84		7048.73	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

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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
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-2	27-Mar-15	7079.94		Dry		NA	NM - WELL DRY				
MW-2	08-Dec-15	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

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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
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-3	27-Mar-15	7081.10		31.78		7049.32	NM	NM	NM	NM	NM
MW-3	08-Dec-15	7081.10		32.12		7048.98	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

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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
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-4	27-Mar-15	7084.79		35.04		7049.75	NM	NM	NM	NM	NM
MW-4	08-Dec-15	7084.79		35.28		7049.51	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				

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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				
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-5	27-Mar-15	7088.98		Dry		NA	NM - WELL DRY				
MW-5	08-Dec-15	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

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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-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-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-6	27-Mar-15	7088.43		38.28		7050.15	NM	NM	NM	NM	NM
MW-6	08-Dec-15	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

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	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-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-7	27-Mar-15	7090.15		39.94		7050.21	NM	NM	NM	NM	NM
MW-7	08-Dec-15	7090.15		40.27		7049.88	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

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	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
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-8	27-Mar-15	7085.20		35.94		7049.26	NM	NM	NM	NM	NM
MW-8	08-Dec-15	7085.20		36.19		7049.01	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

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	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				
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				
MW-9	27-Mar-15	7083.64	33.96	34.03	0.07	7049.66	NM - 0.07 feet of Crude Oil or Free Product				
MW-9	08-Dec-15	7083.64	34.30	34.36	0.06	7049.33	NM - 0.01 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				

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-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-1	09-Oct-15	TBS	35.48	37.37	1.89	NA	NM - 1.89 feet of Crude Oil or Free Product				
MPE-1	27-Mar-15	TBS	35.22	37.29	2.07	NA	NM - 2.07 feet of Crude Oil or Free Product				
MPE-1	09-Oct-15	TBS	35.48	37.37	1.89	NA	NM - 1.89 feet of Crude Oil or Free Product				
MPE-1	08-Dec-15	TBS	35.58	37.60	2.02	NA	NM - 2.02 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				
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				

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	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-2	09-Oct-15	TBS	34.07	34.43	0.36	NA	NM - 0.36 feet of Crude Oil or Free Product				
MPE-2	27-Mar-15	TBS	33.85	34.20	0.35	NA	NM - 0.35 feet of Crude Oil or Free Product				
MPE-2	09-Oct-15	TBS	34.07	34.43	0.36	NA	NM - 0.36 feet of Crude Oil or Free Product				
MPE-2	08-Dec-15	TBS	34.20	34.38	0.18	NA	NM - 0.18 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-3	09-Oct-15	TBS	34.10	34.47	0.37	NA	NM - 0.37 feet of Crude Oil or Free Product				
MPE-3	27-Mar-15	TBS	33.96	34.20	0.24	NA	NM - 0.24 feet of Crude Oil or Free Product				
MPE-3	09-Oct-15	TBS	34.10	34.47	0.37	NA	NM - 0.37 feet of Crude Oil or Free Product				
MPE-3	08-Dec-15	TBS	34.28	34.56	0.28	NA	NM - 0.28 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	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				
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-4	09-Oct-15	TBS	34.90	36.86	1.96	NA	NM - 1.96 feet of Crude Oil or Free Product				
MPE-4	27-Mar-15	TBS	34.73	36.82	2.09	NA	NM - 2.09 feet of Crude Oil or Free Product				
MPE-4	09-Oct-15	TBS	34.90	36.86	1.96	NA	NM - 1.96 feet of Crude Oil or Free Product				
MPE-4	08-Dec-15	TBS	35.09	37.17	2.08	NA	NM - 2.08 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				

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-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				
MPE-5	09-Oct-15	TBS	36.45	38.57	2.12	NA	NM - 2.12 feet of Crude Oil or Free Product				
MPE-5	27-Mar-15	TBS	36.27	38.28	2.01	NA	NM - 2.01 feet of Crude Oil or Free Product				
MPE-5	09-Oct-15	TBS	36.45	38.57	2.12	NA	NM - 2.12 feet of Crude Oil or Free Product				
MPE-5	08-Dec-15	TBS	36.58	38.92	2.34	NA	NM - 2.34 feet of Crude Oil or Free Product				
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				

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	03-Dec-14	TBS	34.20	36.50	2.30	NA	NM - 2.30 feet of Crude Oil or Free Product				
MPE-6	09-Oct-15	TBS	34.16	36.21	2.05	NA	NM - 2.05 feet of Crude Oil or Free Product				
MPE-6	27-Mar-15	TBS	33.97	35.95	1.98	NA	NM - 1.98 feet of Crude Oil or Free Product				
MPE-6	09-Oct-15	TBS	34.16	36.21	2.05	NA	NM - 2.05 feet of Crude Oil or Free Product				
MPE-6	08-Dec-15	TBS	34.63	36.68	2.05	NA	NM - 2.05 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				
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
MPE-7	09-Oct-15	TBS		32.29		NA	NM	NM	NM	NM	NM
MPE-7	27-Mar-15	TBS		32.14		NA	NM	NM	NM	NM	NM
MPE-7	09-Oct-15	TBS		32.29		NA	NM	NM	NM	NM	NM
MPE-7	08-Dec-15	TBS		32.47		NA	NM	NM	NM	NM	NM

NOTE: NS = NOT SAMPLED
NM = NOT MEASURED

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)

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
		(µg/L)	*(µg/L)*	*(µg/L)*	*(µg/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
		(µg/L)	*(µg/L)*	*(µg/L)*	*(µg/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

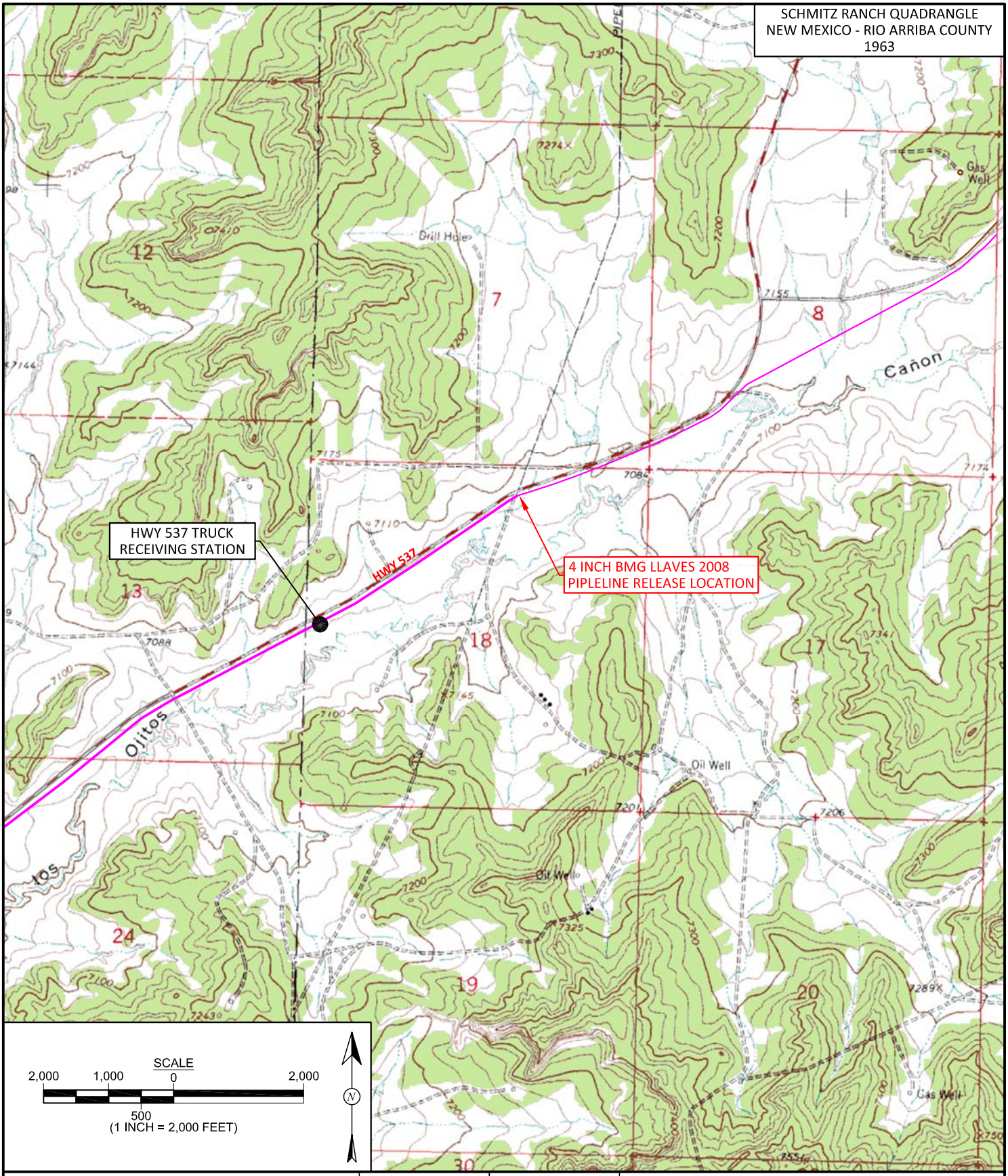
TABLE 2
SUMMARY OF GROUNDWATER LABORATORY ANALYTICAL RESULTS
BMG HWY 537 LLAVES PIPELINE 2008 OIL RELEASE
Rio Arriba County, New Mexico

Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	GRO	DRO	MRO
		(µg/L)	*(µg/L)*	*(µg/L)*	*(µg/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	26-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 OR FREE PRODUCT						
MW-9	13-Oct-10	NS - 2.66 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	20-Jan-11	NS - 2.50 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	09-May-11	NS - 2.53 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	15-Aug-11	NS - 2.22 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	21-Nov-11	NS - 2.12 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	21-Feb-12	NS - 1.92 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	24-May-12	NS - 2.04 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	18-Sep-12	NS - 1.79 FEET OF CRUDE OIL OR FREE PRODUCT						

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
		(µg/L)	*(µg/L)*	*(µg/L)*	*(µg/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 OR FREE PRODUCT						
MW-9	26-Mar-13	NS - 1.69 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	26-Jun-13	NS - 1.57 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	25-Sep-13	NS - 3.50 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	14-Jan-14	NS - 0.36 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	04-Apr-14	NS - 0.07 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	10-Sep-14	NS - 0.12 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	03-Dec-14	NS - 0.06 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	27-Mar-15	NS - 0.07 FEET OF CRUDE OIL OR FREE PRODUCT						
MW-9	08-Dec-15	NS - 0.05 FEET OF CRUDE OIL OR FREE PRODUCT						

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



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REVISIONS BY: C. Lameman	**DATE REVISED:** July 7, 2016
CHECKED BY: E. McNally	**DATE CHECKED:** July 7, 2016
APPROVED BY: E. McNally	**DATE APPROVED:** July 7, 2016

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

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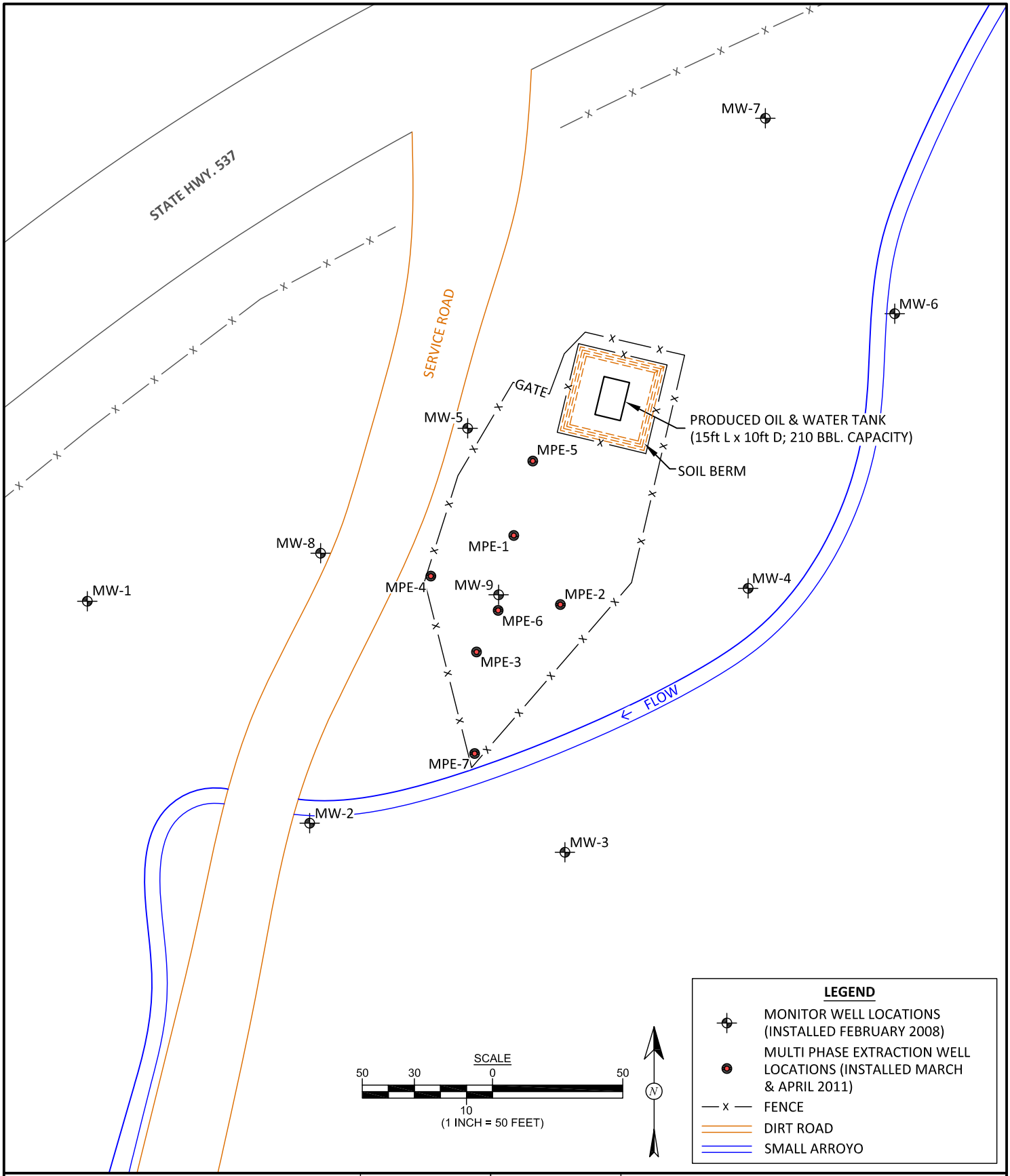

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FIGURE 2

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

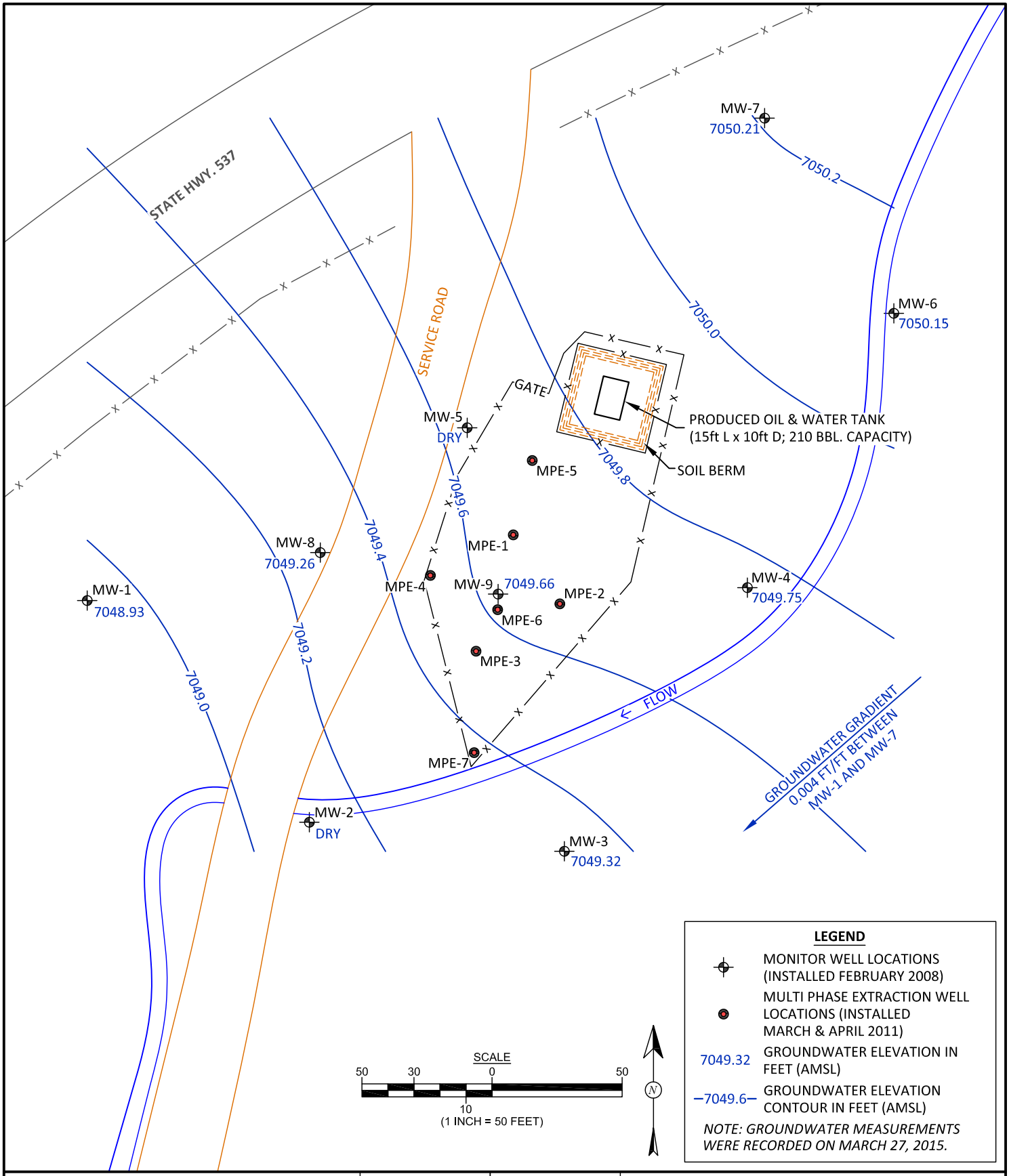

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FIGURE 3

GROUNDWATER ELEVATION CONTOURS, MARCH 2015

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

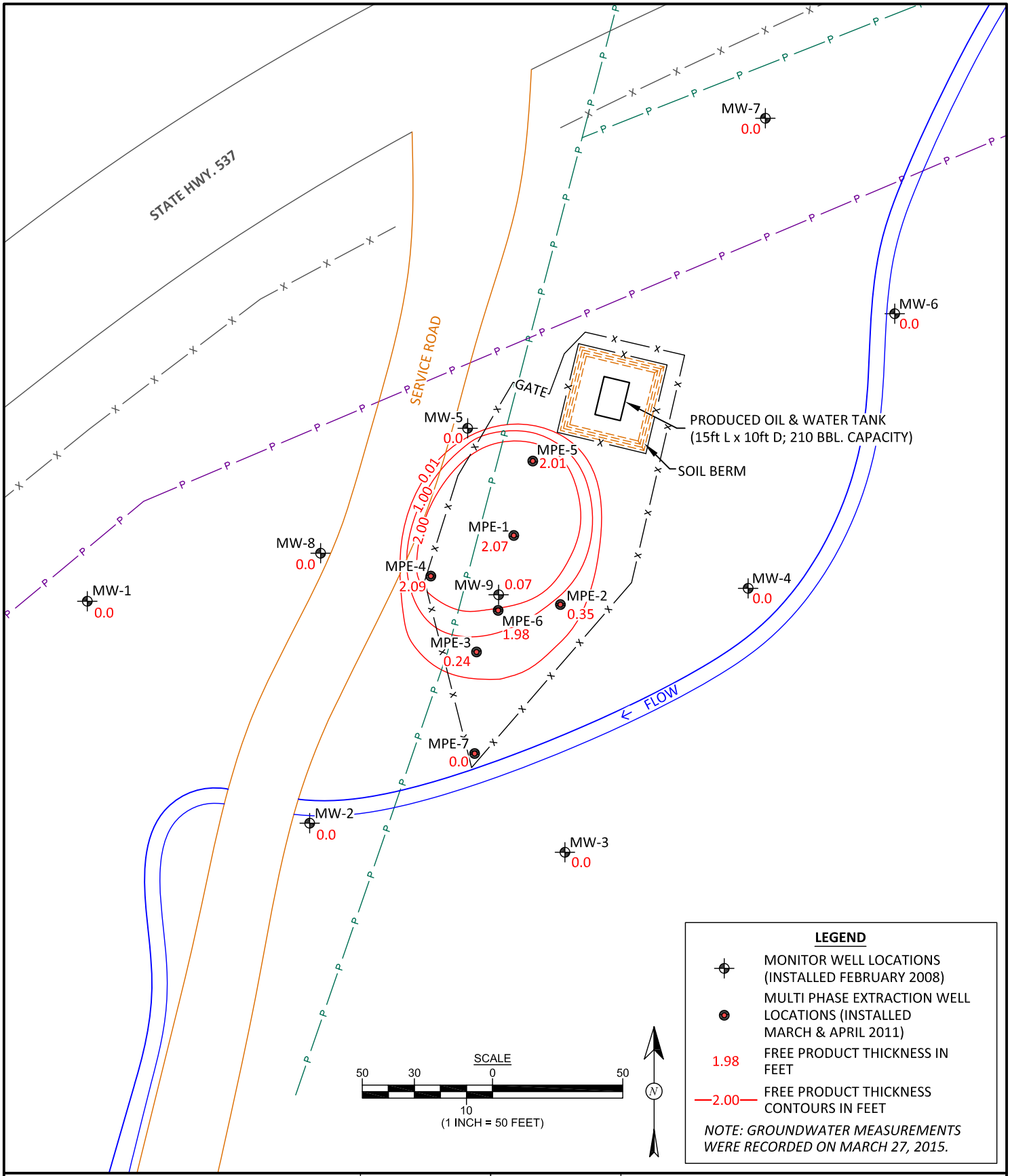

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FIGURE 4

FREE PRODUCT THICKNESS CONTOURS, MARCH 2015
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

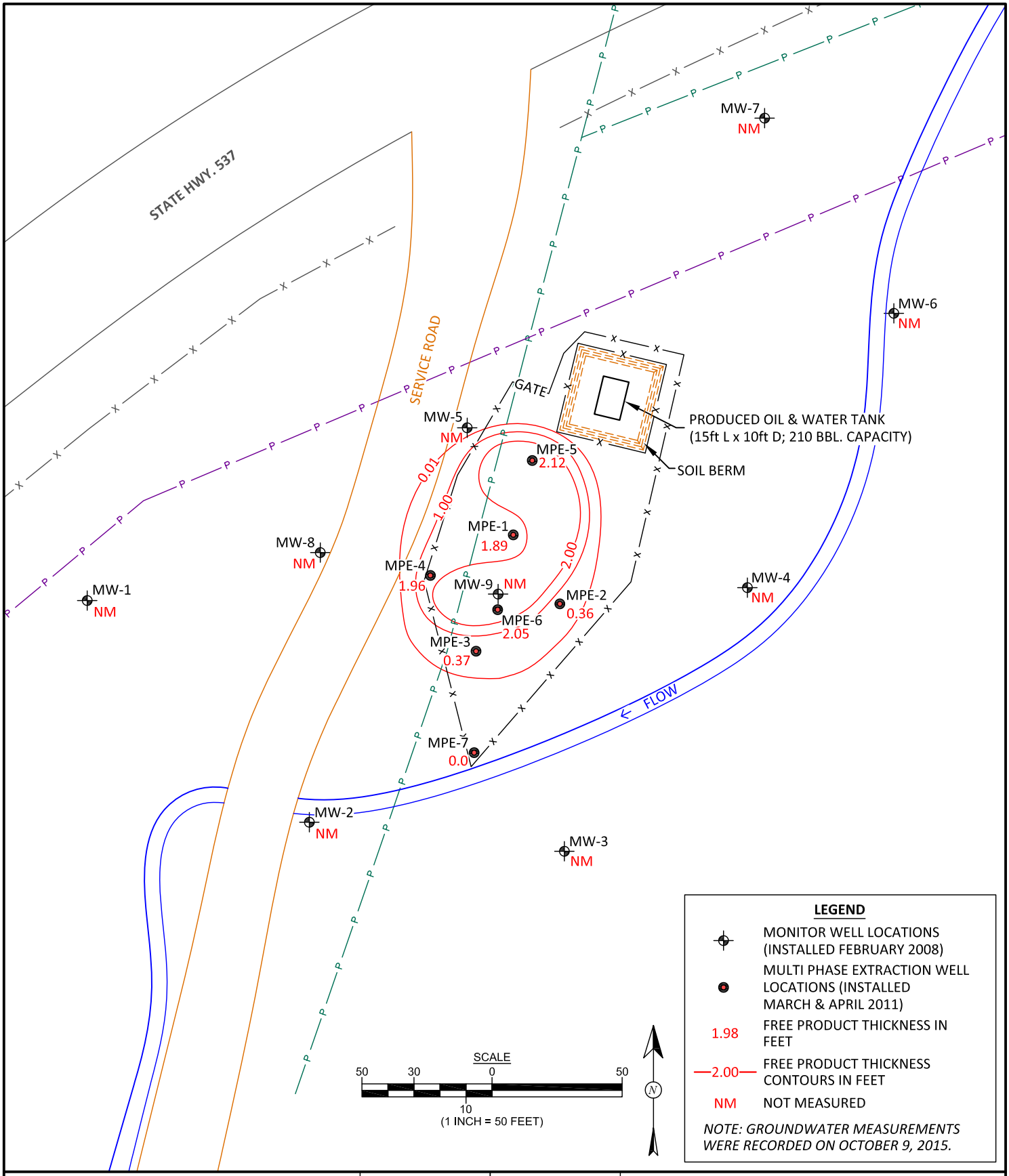

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FIGURE 5

FREE PRODUCT THICKNESS CONTOURS, OCTOBER 2015
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

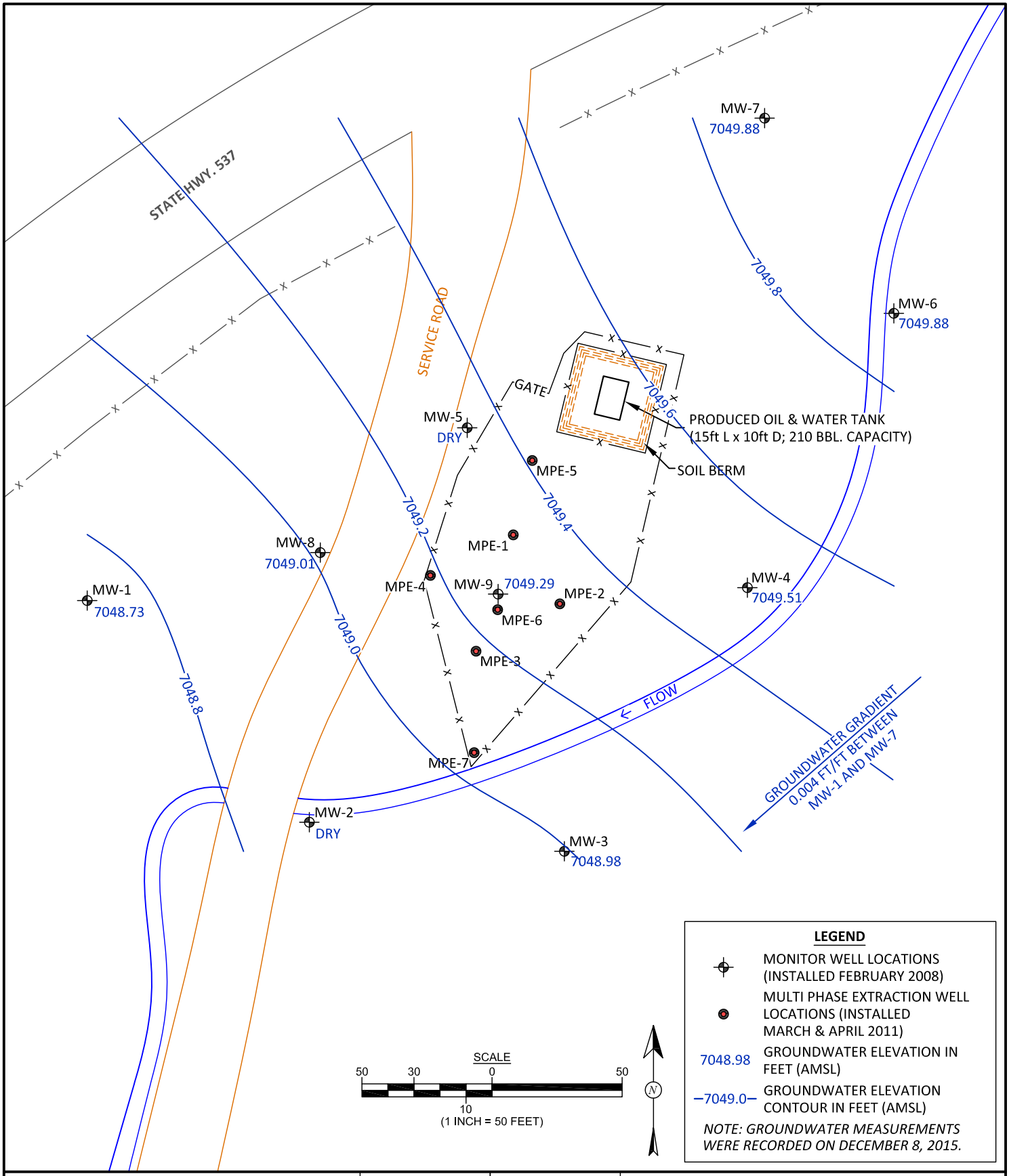

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FIGURE 6

GROUNDWATER ELEVATION CONTOURS, DECEMBER 2015

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

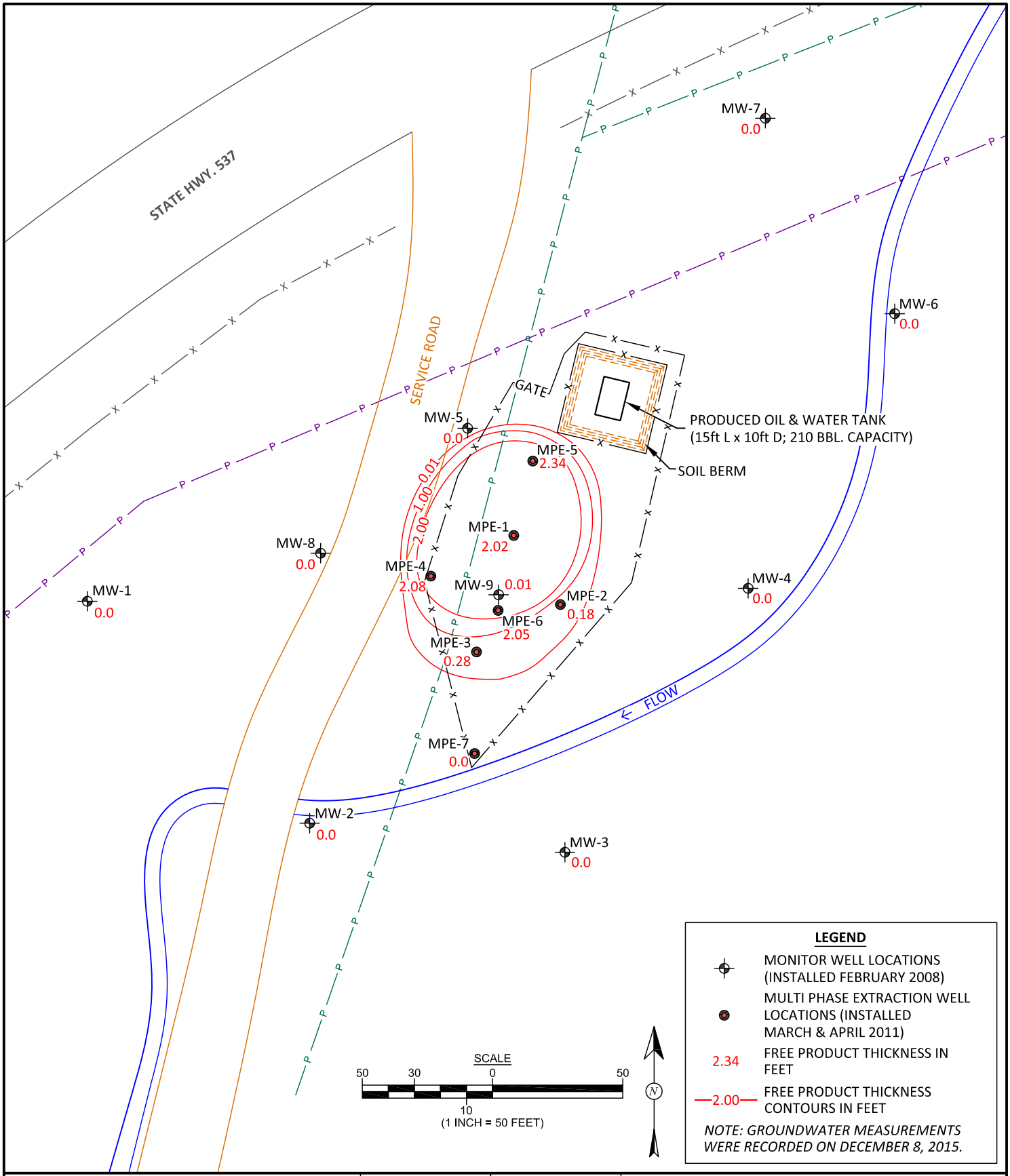

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FIGURE 7

FREE PRODUCT THICKNESS CONTOURS, DECEMBER 2015
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

DEPTH TO GROUNDWATER MEASUREMENT FORM

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: Dylan Davis

Project No.: AES 080101
Date: 3/27/15
Time: 1305
Form: 1 of 1

Well I.D.	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MW-1		33.64		
MW-2		31.10		well was Dry
MW-3		31.78		
MW-4		35.04		
MW-5		34.90		well was Dry
MW-6		38.28		
MW-7	~~38.28~~	39.94		
MW-8		35.94		
MW-9	34.03	33.96	0.07	
MPE-1	35.22	37.29	2.07	
MPE-2	33.85	34.20	0.35	
MPE-3	33.96	34.20	0.24	
MPE-4	34.73	36.82	2.09	
MPE-5	36.27	38.28	2.01	
MPE-6	33.97	35.95	1.98	
MPE-7		32.14		

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

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services
604 W Pinon, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project: Benson-Montin-Greer
Site: HWY 537 2008 Release
Location:
Tech: S. Glasses

Project No.:
Date: 10-9-15
Time: 1102
Form: 1 of 1

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MPE-1		35.48	37.37	1.89	
MPE-2		34.07	34.43	0.36	
MPE-3		34.10	34.47	0.37	
MPE-4		34.90	36.86	1.96	
MPE-5		36.45	38.57	2.12	
MPE-6		34.16	36.21	2.05	
MPE-7		—	32.29		
MW-9					

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

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services
604 W Pinon, Farmington NM 87401
Tel. (505) 564-2281 Fax (505) 324-2022

Project: Benson-Montin-Greer
Site: HWY 537 2008 Release
Location:
Tech: S. Galvez

Project No.:
Date: 12/08/15
Time: 0830
Form: 1 of 1

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MW-1	0857	—	33.84	—	
MW-2	0854	—	Dry	—	
MW-3	0849	—	32.12	—	
MW-4	0846	—	37.23	—	
MW-5	0904	—	Dry	—	
MW-6	0844	—	38.55	—	
MW-7	0839	—	40.27	—	
MW-8	0901	—	36.19	—	
MW-9	0952	34.36	34.35	0.05	
MPE-1	0935	35.58	37.60	2.02	
MPE-2	0945	34.20	34.38	0.18	
MPE-3	1002	34.28	34.56	0.28	
MPE-4	0925	35.09	37.17	2.08	
MPE-5	0917	36.58	38.92	2.34	
MPE-6	1016	34.63	36.68	2.05	
MPE-7	0958	—	32.49	—	

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

Remediation Service Int'l
4835 Colt Unit D
Ventura CA 93003
805.644.8382
805.644.8378 FAX
www.rsi-save.com

Report Generator Version 1.4

Due to file size, data has been resampled from 'O2' events only at an event frequency of 1 out of 3

Date of Report:	8/12/2015
Project Name:	BMG Site B 081215
Unit ID:	0
Controller S/N:	0
Software version:	900

Assumptions:

20000	Btu/lb
6.2	lb/gallon of gasoline
120	Mole Weight of Extracted VOC
2520	Btu/Cubic Foot of Propane
1000	Btu/Cubic Foot of Natural Gas

Date Range From:	6/8/2015 12:12
Date Range To :	8/6/2015 10:36
Lbs. Removed/Perioc	465.66
Gal Removed/Period	75.11
SCF Processed/Perioc	1042355

Parts/Million by Volume (PPMV) Conversion to Micrograms/Liter (ug/L)
(PPMV/24.055)*AVG. Mole Weight=ug/L

Mass Transfer Equation to Convert to Pounds/Hour:
(ug/L)*(Flow SCFM)*28.3 L/SCF*60 Minutes/Hour*2.2 lbs/Kg*(1/10^9)

There are no express or implied warranties for fitness of use or any other purpose of the data contained herein.
See report footnotes for disclaimer details and other technical information relating to calculation procedures.

Footnotes:

RSIs Innovative Approach to Estimating Btu/Hr:
1. Measure alternate fuel usage of engine prior to introduction of process flow
2. Multiply the SCFM flow rate of the alternate fuel (propane or natural gas) by the Btu value to determine energy demand on the engine at static conditions
3. The controller records a "snapshot" of the energy demand at a given RPM and engine manifold vacuum just prior to allowing the process flow to begin
4. The controller adjusts the initial baseline based on engine load or oxygen deficiency as necessary
5. Any drop in energy demand is assumed to be caused by the introduction of the process flow and is displayed as Estimated Btu/hr and recorded accordingly

RSIs Innovative Approach to Estimating PPMV:
1. The controller completes the Btu/hr calculation as explained above
2. The controller looks at the well flow rate (estimated or measured in SCFM)

3. The controller then computes the average PPMV using the mass transfer equation to solve for PPMV
4. If the flow rate is estimated then PPMV is subject to accuracy of estimated flow and accuracy of the Btu/hr calculation
5. If the flow rate is measured then this PPMV estimate will be relative to actual lab data assuming the flow measurement and the Btu calculations are correct

There are many advantages to using RSIs innovative approach in calculating how much mass was removed from a project in a given time period. Our method eliminates human calculation error and prevents incorrect or non-calibrated use of field instrumentation and it is a consistent periodic measurement over time which when used properly will reduces costly laboratory analysis.

Our estimates of VOC removal have proven to be reasonable when compared to independent lab data. Because the process flow rate and the alternate fuel flow rate measurements are dependent upon proper system operation there are no expressed or implied warrantees of fitness of use for any purpose when using this report or the data contained herein.

Please do not hesitate to contact RSI 1-800-368-8685 if you should have any questions or require further information