

3R - 447

Q1 2013 GWMR

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August 2, 2013

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

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

Durango, Colorado
970-403-3084

**Re: 1st Quarter 2013 Periodic Progress Report
Benson-Montin-Greer Highway 537 Llaves Pipeline 2008 Oil Release
Rio Arriba County, New Mexico**

2013 SEP 16 P 1:11
RECEIVED OGD

Dear Mr. von Gonten:

On behalf of Benson-Montin-Greer Drilling Corporation (BMG), Animas Environmental Services, LLC (AES) has prepared this Periodic Progress Report detailing groundwater monitoring and sampling for the 1st quarter of 2013 at the BMG Highway 537 Llaves Pipeline 2008 release location. Groundwater monitoring and sampling were conducted in accordance with recommendations presented in the Site Investigation Report prepared by AES and submitted in June 2008.

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

1.0 Release History

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

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

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

2.0 Groundwater Monitoring and Sampling – March 2013

AES personnel conducted groundwater monitoring and sampling at the project area on March 26, 2013. Groundwater samples collected from MW-8 were laboratory analyzed for benzene, toluene, ethylbenzene and xylene (BTEX) and total petroleum hydrocarbons (TPH) per EPA Methods 8021/8015 at Hall Environmental Analysis Laboratory (Hall), Albuquerque, New Mexico. Note that MW-1 through MW-7 were sampled from 2008 to 2011 and have had concentrations which remained below laboratory detection limits or applicable standards for eight consecutive quarters.

2.1 *Groundwater Measurements and Water Quality Data*

During the March 2013 sampling event, groundwater measurements were recorded for MW-1 through MW-4 and MW-6 through MW-9. A groundwater measurement was not recorded for MW-5 because the well was dry. Groundwater elevations were measured with a Keck water level (with accuracy to 0.01 foot) and ranged from approximately 7,048.94 feet above mean sea level (AMSL) in MW-2 to 7,050.54 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.

Water quality measurements were made with an YSI Water Quality Meter in MW-8 prior to sample collection. Water quality measurements for MW-8 were recorded as 13.26°C temperature, 6.98 pH, 6.02 mg/L dissolved oxygen (DO), -66.2 mV oxidation reduction potential (ORP), and 0.737 mS/cm conductivity. Depth to groundwater measurements and water quality data are presented in Table 1. Groundwater elevation contours for March 2013 are presented on Figure 3, and Water Sample Collection Forms are included in the Appendix.

2.2 *Non Aqueous Phase Liquid (NAPL)*

NAPL or “free product” was first observed in MW-9 during the January 2010 sampling event, with a measured thickness of 2.37 feet. Free product was again observed in MW-9 during the March 2013 sampling event with a measured thickness of 1.69 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 multi-phase extraction (MPE) wells on March 26, 2013. Free product was observed in six of the MPE wells with free product thicknesses ranging from 1.14 feet in MPE-6 to 2.42 feet in MPE-1 and MPE-5. Note that free product was not observed in MPE-7 during the March 2013 sampling event. MPE well data are included in Table 1, and free product thickness contours from March 2013 are presented on Figure 4.

2.3 *Groundwater Analytical Results*

Groundwater samples were collected from MW-8 for laboratory analysis of total BTEX and TPH as gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO). Total BTEX and TPH concentrations were reported below laboratory analytical results and applicable New Mexico Water Quality Control Commission (WQCC) standards. Tabulated laboratory analytical results are included in Table 2, and laboratory analytical reports are presented the Appendix.

3.0 MPE System Operations

The MPE unit was installed in May 2011 and operated until October 2011, when it was removed for the winter season. An estimated 26,250 lbs of petroleum hydrocarbons were removed via the MPE system to date. The system remained off-line (pulse mode) through the end of the first quarter 2013. AES is implementing hand bailing of free product on a weekly basis as an interim mitigation measure.

4.0 Conclusions and Recommendations

AES conducted a groundwater monitoring and sampling event on March 26, 2013. MW-8, the only sampled well during this event, has remained below the applicable WQCC standards for BTEX and below laboratory detection limits for TPH for eight consecutive quarters. Free product was observed in MW-9 and in six of the MPE wells (MPE-1 through MPE-6). Based on recent laboratory analytical results, AES recommends discontinuing quarterly monitoring

and sampling of MW-8. AES recommends continued quarterly monitoring and sampling of MW-9 and either weekly hand bailing of free product or reactivation of the MPE unit.

5.0 Scheduled Site Activities

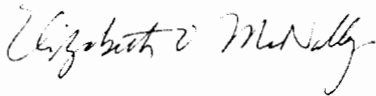
The second quarter 2013 sampling event was conducted in June 2013, and the report is in the process of being prepared.

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

Sincerely,



Landrea Cupps
Environmental Scientist



Elizabeth McNally, P.E.

Tables

Table 1. Summary of Groundwater Measurement 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, March 2013

Figure 4. Free Product Thickness Contours, March 2013

Appendix

Water Sample Collection Forms

Groundwater Laboratory Analytical Report (Hall 1303A45)

cc: Mike Dimond
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.

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Progress Report 1st Qtr 2013 080213.docx

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-2	05-May-08	7079.94		29.01		7050.93	7.59	2.276	2.21	16.43	90.8
MW-2	24-Sep-08	7079.94		29.61		7050.33	6.93	2.073	2.75	14.93	36.0
MW-2	02-Jan-09	7079.94		29.52		7050.42			NM		
MW-2	07-Apr-09	7079.94		29.50		7050.44	6.93	2.560	1.93	13.38	21.5
MW-2	07-Jul-09	7079.94		29.65		7050.29	7.22	2.067	1.07	15.28	45.9
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		

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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-3	05-May-08	7081.10		29.49		7051.61	7.79	4.083	2.42	15.91	75.7
MW-3	24-Sep-08	7081.10		30.07		7051.03	6.85	2.778	2.80	14.44	18.5
MW-3	02-Jan-09	7081.10		30.01		7051.09			NM		
MW-3	07-Apr-09	7081.10		30.02		7051.08	6.86	4.596	2.08	12.19	24.7
MW-3	07-Jul-09	7081.10		30.16		7050.94		NM - FILLED WITH SEDIMENT			
MW-3	12-Oct-09	7081.10		30.41		7050.69	7.23	2.316	2.24	13.88	8.3
MW-3	12-Jan-10	7081.10		30.50		7050.60	7.35	2.985	2.87	11.75	-27.2
MW-3	13-Oct-10	7081.10		30.84		7050.26	7.51	3.973	1.71	13.71	-49.8
MW-3	20-Jan-11	7081.10		30.85		7050.25	7.43	3.528	3.30	10.48	53.4
MW-3	10-May-11	7081.10		30.54		7050.56	7.55	3.270	2.06	13.47	-69.3
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

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MW-4	05-May-08	7084.79		32.74		7052.05	7.70	2.699	2.36	14.62	-37.5
MW-4	24-Sep-08	7084.79		33.21		7051.58	6.98	2.163	3.04	13.70	42.9
MW-4	02-Jan-09	7084.79		33.29		7051.50			NM		
MW-4	07-Apr-09	7084.79		33.27		7051.52	6.91	2.779	1.35	11.90	21.1
MW-4	07-Jul-09	7084.79		33.32		7051.47	7.20	2.124	0.80	17.17	-41.5
MW-4	12-Oct-09	7084.79		33.56		7051.23	7.29	1.792	2.00	13.70	43.7
MW-4	12-Jan-10	7084.79		33.68		7051.11	7.36	2.374	2.03	11.53	-26.7
MW-4	13-Oct-10	7084.79		33.93		7050.86	7.42	2.233	1.18	14.11	-56.8
MW-4	20-Jan-11	7084.79		34.01		7050.78	7.55	2.292	2.14	11.57	126.2
MW-4	09-May-11	7084.79		33.79		7051.00	7.65	2.234	1.85	13.05	-20.0
MW-4	15-Aug-11	7084.79		34.37		7050.42	NM	NM	NM	NM	NM
MW-4	21-Nov-11	7084.79		34.33		7050.46	NM	NM	NM	NM	NM
MW-4	21-Feb-12	7084.79		34.35		7050.44	NM	NM	NM	NM	NM
MW-4	24-May-12	7084.79		34.33		7050.46	NM	NM	NM	NM	NM
MW-4	18-Sep-12	7084.79		34.65		7050.14	NM	NM	NM	NM	NM
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-5	05-May-08	7087.98				NA			NM - WELL DRY		
MW-5	24-Sep-08	7087.98				NA			NM - WELL DRY		
MW-5	02-Jan-09	7087.98				NA			NM - WELL DRY		
MW-5	07-Apr-09	7087.98				NA			NM - WELL DRY		
MW-5	07-Jul-09	7087.98				NA			NM - WELL DRY		
MW-5	12-Oct-09	7087.98				NA			NM - WELL DRY		
MW-5	12-Jan-10	7087.98				NA			NM - WELL DRY		
MW-5	13-Oct-10	7087.98				NA			NM - WELL DRY		
MW-5	20-Jan-11	7087.98				NA			NM - WELL DRY		

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MW-5	09-May-11	7087.98				NA			NM - WELL DRY		
MW-5	15-Aug-11	7087.98				NA			NM - WELL DRY		
MW-5	21-Nov-11	7087.98				NA			NM - WELL DRY		
MW-5	21-Feb-12	7087.98				NA			NM - WELL DRY		
MW-5	24-May-12	7087.98				NA			NM - WELL DRY		
MW-5	18-Sep-12	7087.98				NA			NM - WELL DRY		
MW-5	04-Dec-12	7087.98				NA			NM - WELL DRY		
MW-5	26-Mar-13	7087.98				NA			NM - WELL DRY		
MW-6	05-May-08	7088.43		36.03		7052.40	7.73	1.764	2.43	13.95	87.3
MW-6	24-Sep-08	7088.43		36.44		7051.99	7.00	1.464	3.95	14.19	50.3
MW-6	02-Jan-09	7088.43		36.50		7051.93			NM		
MW-6	07-Apr-09	7088.43		36.46		7051.97	7.00	1.854	2.21	11.98	22.2
MW-6	07-Jul-09	7088.43		36.67		7051.76	7.27	1.557	1.35	17.51	57.8
MW-6	12-Oct-09	7088.43		36.78		7051.65	7.43	1.297	2.06	13.11	66.0
MW-6	12-Jan-10	7088.43		36.92		7051.51	7.44	1.615	2.24	11.82	-19.2
MW-6	13-Oct-10	7088.43		37.19		7051.24	7.54	1.502	1.68	14.44	57.9
MW-6	20-Jan-11	7088.43		37.18		7051.25	7.85	1.539	1.83	11.52	174.9
MW-6	09-May-11	7088.43		37.05		7051.38	7.80	1.526	3.31	13.01	31.9
MW-6	15-Aug-11	7088.43		37.59		7050.84	NM	NM	NM	NM	NM
MW-6	21-Nov-11	7088.43		37.65		7050.78	NM	NM	NM	NM	NM
MW-6	21-Feb-12	7088.43		37.61		7050.82	NM	NM	NM	NM	NM
MW-6	24-May-12	7088.43		37.69		7050.74	NM	NM	NM	NM	NM
MW-6	18-Sep-12	7088.43		37.90		7050.53	NM	NM	NM	NM	NM
MW-6	04-Dec-12	7088.43		38.04		7050.39	NM	NM	NM	NM	NM
MW-6	26-Mar-13	7088.43		37.94		7050.49	NM	NM	NM	NM	NM

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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-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

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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-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			

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	26-Mar-13	7083.64	33.53	35.22	1.69	7049.73		NM - 1.69 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-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-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			

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-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-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-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-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			

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	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-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

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

TABLE 2
SUMMARY OF GROUNDWATER 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 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 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-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						
MW-9	04-Dec-12	NS - 1.96 FEET OF CRUDE OIL						

TABLE 2
SUMMARY OF GROUNDWATER 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	26-Mar-13	NS - 1.69 FEET OF CRUDE OIL						

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

SCHMITZ RANCH QUADRANGLE
NEW MEXICO - RIO ARriba COUNTY
1963

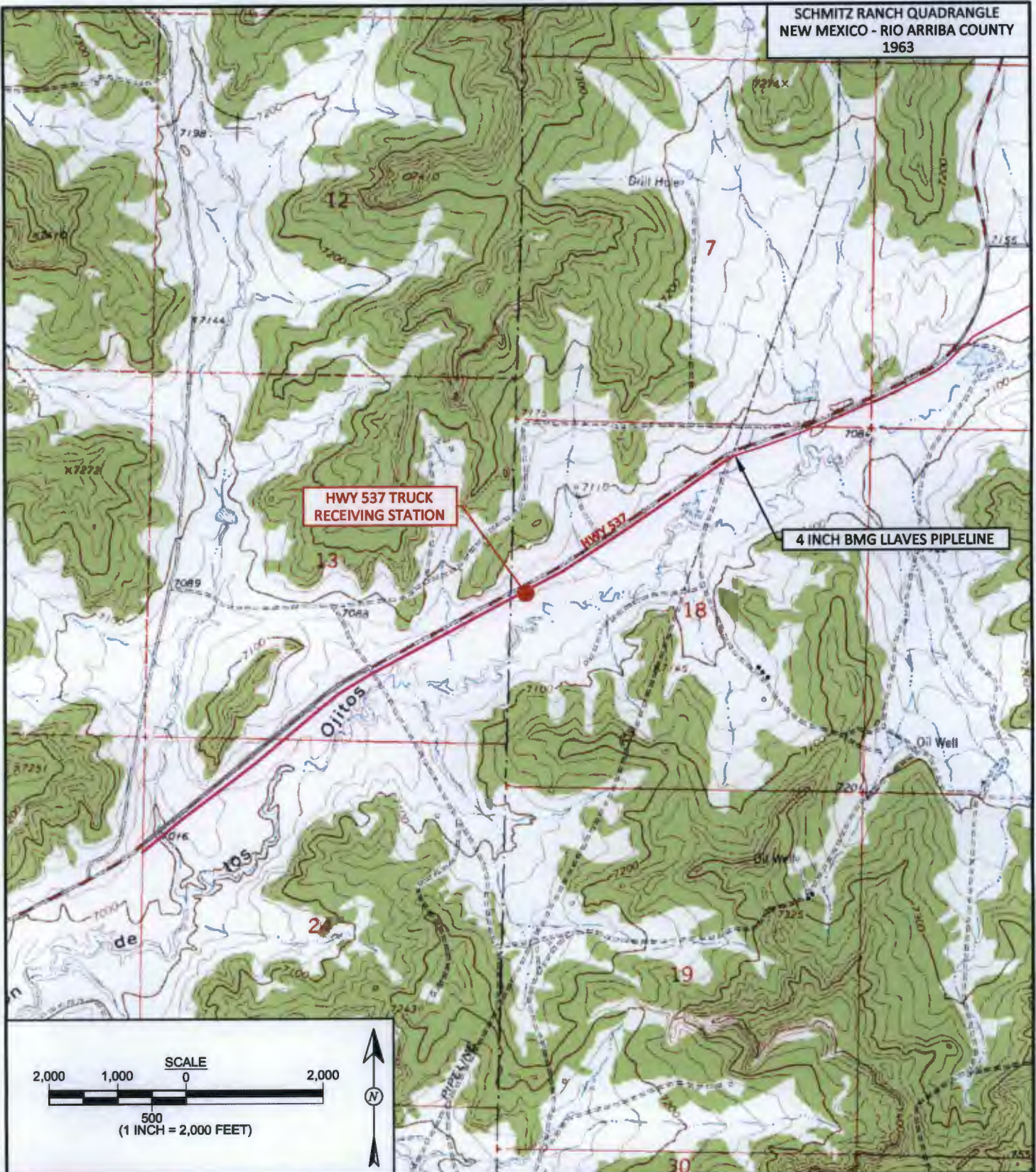
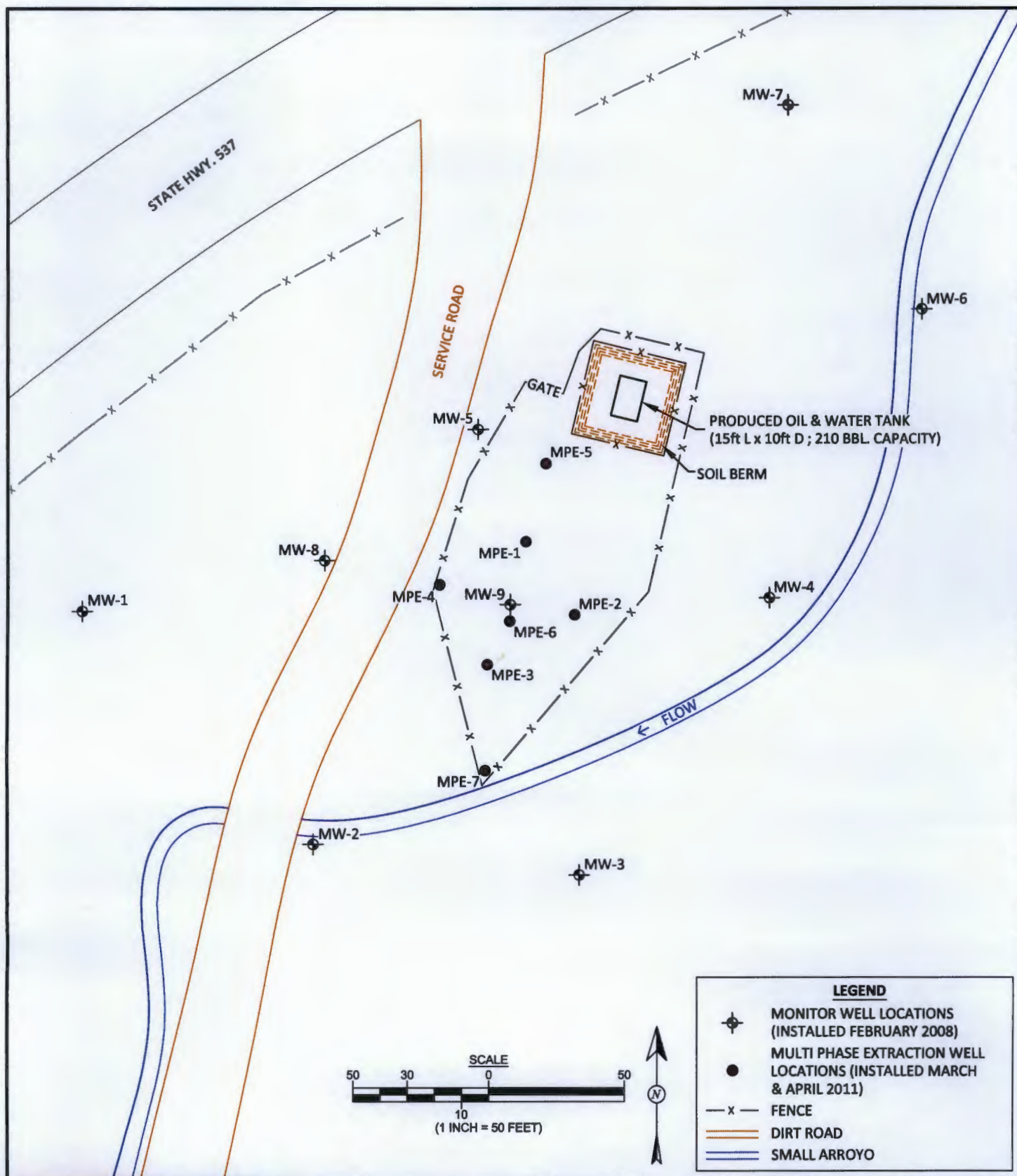


FIGURE 1

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: April 8, 2013
CHECKED BY: D. Watson	DATE CHECKED: April 8, 2013
APPROVED BY: E. McNally	DATE APPROVED: August 2, 2013



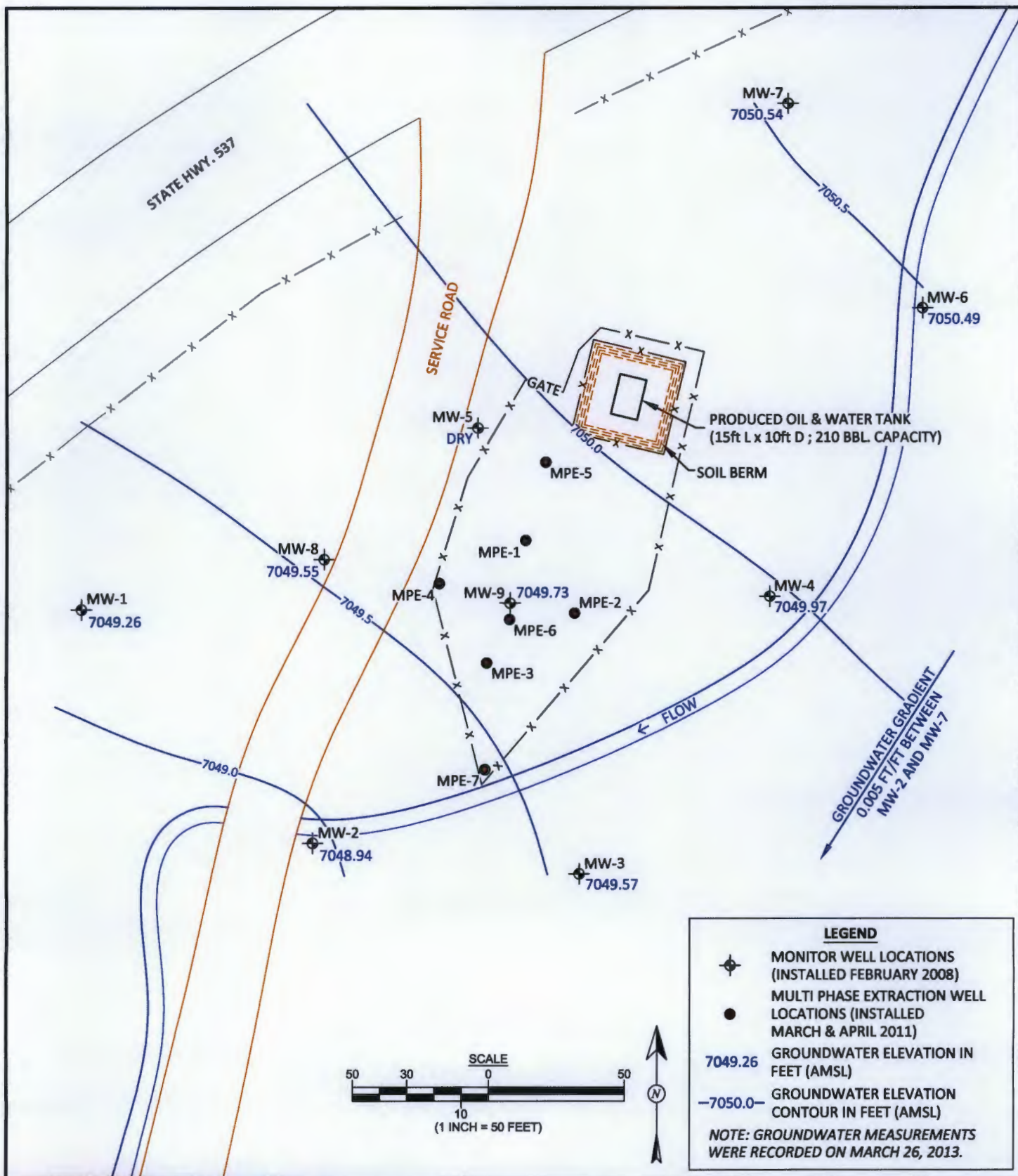


FIGURE 3

GROUNDWATER ELEVATION CONTOURS, MARCH 2013

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

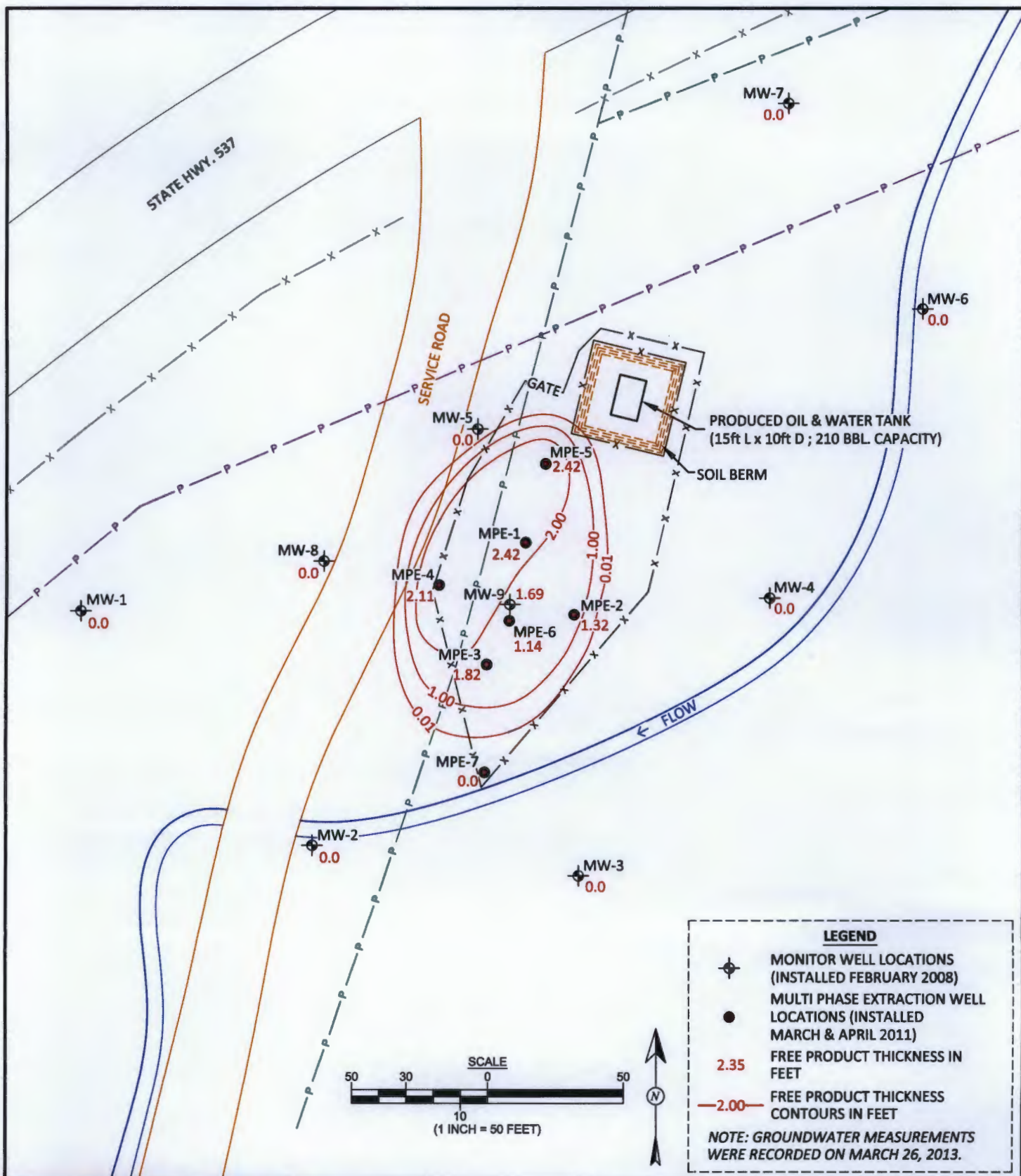


FIGURE 4

**FREE PRODUCT THICKNESS
CONTOURS, MARCH 2013**

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

DEPTH TO GROUNDWATER MEASUREMENT FORM

Animas Environmental Services

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

Project: Groundwater Monitoring

Project No.: AES 080101

Site: Hwy 537 2008 Spill

Date: ~~8-23-13~~ 8-26-13

Location: Rio Arriba County, New Mexico

Time:

Tech: Lavina Lamore

Form: 1 of 1

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MW-1	0936		33.31		39.78 1" well No cap. 37" Above ground well
MW-2	0931		31.00		35.06 1" well No cap. 34" Above ground well
MW-3	0923		31.53		37.68 1" well No cap. 42" Above ground well
MW-4	0920		34.82		39.56 1" well No cap 44" Above ground well
MW-5	0945		-		34.88 TDW 1" well no cap Dry 34" Above ground well
MW-6	0917		37.94		39.96
MW-7	0912		39.61		43.56 TDW 1" well No cap.
MW-8	0941		35.65		39.05 1" well 40" Above ground well
MW-9	1026	33.53	35.22		38.75 No cap 2" well 32"
MPE-1	1039	34.91	37.33		43.33 2" well 33"
MPE-2	0954	33.50	34.82		42.70 2" well 30" Above ground well
MPE-3	1009	33.49	35.31		41.60 2" well 34" Above ground well
MPE-4	1033	34.47	36.58		41.51 3" well 35"
MPE-5	1047	35.94	38.36		42.62 2" well 3' well
MPE-6	1019	34.71	35.85		39.63 2" well 32" Above ground well
MPE-7	0949		31.87		39.66 2" well 33" Above ground well

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

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

Animas Environmental Services

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

Project No.: AES 080101

Date: 3/26/2013

Arrival Time: 1113 AT26 Sample

Air Temp:

T.O.C. Elev. (ft): 7085.2

Total Well Depth (ft): 39.15

Time: 0941 (taken at initial gauging of all wells)

Time: 11124 (taken prior to purging well)

Time: _____ (taken after sample collection)

D.T.W.: _____ **Thickness:** _____ **Time:** _____

[illegible]

BTEX per EPA Method 8021 (3 40mL Vials w/ HCl preserve)
TPH C6-C36 per EPA Method 8015B (2 40mL Vials w/ HCl preserve)
TPH C6-C36 per EPA Method 8015B (40mL Vial w/ no preservative)
Disposal of Purged Water: <u>unto ground</u>
Collected Samples Stored on Ice in Cooler: <u>yes</u>
Chain of Custody Record Complete: <u>yes</u>
Analytical Laboratory: <u>Hall Environmental Analysis Laboratory, Albuquerque, NM</u>
Equipment Used During Sampling: <u>Keck Water Level or Keck Interface Level, YSI Water Quality Meter</u> <u>and New Disposable Bailer</u>

1-01/00110



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

April 03, 2013

Debbie Watson

Animas Environmental Services
624 East Comanche
Farmington, NM 87401
TEL: (505) 486-4071
FAX

RE: BMG Hwy 537 2008 Release

OrderNo.: 1303A45

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/27/2013 for the analyses presented in the following report.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1303A45

Date Reported: 4/3/2013

CLIENT: Animas Environmental Services

Client Sample ID: Trip Blank

Project: BMG Hwy 537 2008 Release

Collection Date:

Lab ID: 1303A45-001

Matrix: TRIP BLANK

Received Date: 3/27/2013 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/28/2013 4:47:05 PM
Toluene	ND	1.0		µg/L	1	3/28/2013 4:47:05 PM
Ethylbenzene	ND	1.0		µg/L	1	3/28/2013 4:47:05 PM
Xylenes, Total	ND	2.0		µg/L	1	3/28/2013 4:47:05 PM
Surr: 4-Bromofluorobenzene	78.5	69.4-129		%REC	1	3/28/2013 4:47:05 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Analytical Report

Lab Order 1303A45

Date Reported: 4/3/2013

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Animas Environmental Services**Client Sample ID:** MW-8**Project:** BMG Hwy 537 2008 Release**Collection Date:** 3/26/2013 11:26:00 AM**Lab ID:** 1303A45-002**Matrix:** AQUEOUS**Received Date:** 3/27/2013 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: GSA
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/1/2013 6:13:32 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/1/2013 6:13:32 PM
Surr: DNOP	119	75.4-146		%REC	1	4/1/2013 6:13:32 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/28/2013 5:15:43 PM
Surr: BFB	74.6	51.9-148		%REC	1	3/28/2013 5:15:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/28/2013 5:15:43 PM
Toluene	ND	1.0		µg/L	1	3/28/2013 5:15:43 PM
Ethylbenzene	ND	1.0		µg/L	1	3/28/2013 5:15:43 PM
Xylenes, Total	ND	2.0		µg/L	1	3/28/2013 5:15:43 PM
Surr: 4-Bromofluorobenzene	79.6	69.4-129		%REC	1	3/28/2013 5:15:43 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1303A45

03-Apr-13

Client: Animas Environmental Services

Project: BMG Hwy 537 2008 Release

Sample ID	MB-6755	SampType:	MBLK	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID:	6755	RunNo:	9559					
Prep Date:	4/1/2013	Analysis Date:	4/1/2013	SeqNo:	272748	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		111	75.4	146			

Sample ID	LCS-6755	SampType:	LCS	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSW	Batch ID:	6755	RunNo:	9559					
Prep Date:	4/1/2013	Analysis Date:	4/1/2013	SeqNo:	272749	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.7	1.0	5.000	0	115	64.4	132			
Surr: DNOP	0.57		0.5000		115	75.4	146			

Sample ID	LCSD-6755	SampType:	LCSD	TestCode:	EPA Method 8015B: Diesel Range					
Client ID:	LCSS02	Batch ID:	6755	RunNo:	9559					
Prep Date:	4/1/2013	Analysis Date:	4/1/2013	SeqNo:	272750	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	115	64.4	132	0.341	20	
Surr: DNOP	0.59		0.5000		117	75.4	146	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1303A45

03-Apr-13

Client: Animas Environmental Services

Project: BMG Hwy 537 2008 Release

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	PBW	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271158	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	15		20.00		74.3	51.9	148			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	LCSW	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271159	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	107	73.2	124			
Surr: BFB	16		20.00		82.4	51.9	148			

Sample ID	1303A45-002AMS	SampType:	MS	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	MW-8	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271166	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	101	65.2	137			
Surr: BFB	16		20.00		80.2	51.9	148			

Sample ID	1303A45-002AMSD	SampType:	MSD	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	MW-8	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271167	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.8	65.2	137	2.04	20	
Surr: BFB	16		20.00		79.4	51.9	148	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1303A45

03-Apr-13

Client: Animas Environmental Services

Project: BMG Hwy 537 2008 Release

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271172	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	16		20.00		80.5	69.4	129			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271173	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	80	120			
Toluene	20	1.0	20.00	0	102	80	120			
Ethylbenzene	21	1.0	20.00	0	104	80	120			
Xylenes, Total	62	2.0	60.00	0	104	80	120			
Surr: 4-Bromofluorobenzene	17		20.00		86.3	69.4	129			

Sample ID	1303A45-002AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	MW-8	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271183	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	80	120			
Toluene	20	1.0	20.00	0	101	80	120			
Ethylbenzene	20	1.0	20.00	0	102	80	120			
Xylenes, Total	62	2.0	60.00	0	103	80	120			
Surr: 4-Bromofluorobenzene	17		20.00		86.1	69.4	129			

Sample ID	1303A45-002AMSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	MW-8	Batch ID:	R9484	RunNo:	9484					
Prep Date:		Analysis Date:	3/28/2013	SeqNo:	271184	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.5	80	120	2.99	20	
Toluene	20	1.0	20.00	0	99.7	80	120	1.11	20	
Ethylbenzene	20	1.0	20.00	0	101	80	120	1.53	20	
Xylenes, Total	61	2.0	60.00	0	101	80	120	1.62	20	
Surr: 4-Bromofluorobenzene	17		20.00		86.1	69.4	129	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Animas Environmental

Work Order Number: 1303A45

RcptNo: 1

Received by/date:

AG

03/27/13

Logged By: Michelle Garcia

3/27/2013 9:55:00 AM

Completed By: Michelle Garcia

3/27/2013 10:44:24 AM

Reviewed By:

TO

03/27/2013

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered?

Log In

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

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via:

eMail

Phone

Fax

In Person

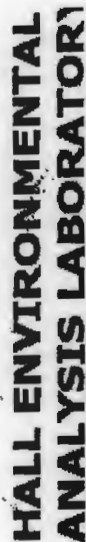
Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

if necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.