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Q4 2012 GWMR

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

April 1, 2013

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

Re: 4th Quarter 2012 Periodic Progress Report
Benson-Montin-Greer Highway 537 Llaves Pipeline 2008 Oil Release
Rio Arriba County, New Mexico

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 4th quarter of 2012 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 - December 2012

AES personnel conducted groundwater monitoring and sampling at the project area on December 4, 2012. 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 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 December 2012 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 7,048.50 feet above mean sea level (AMSL) in MW-2 to 7,050.41 feet AMSL in MW-7. Groundwater gradient was calculated to be 0.006 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 8.50°C temperature, 7.43 pH, 4.92 mg/L dissolved oxygen (DO), -91.2 mV oxidation reduction potential (ORP), and 0.315 mS/cm conductivity. Depth to groundwater measurements and water quality data are presented in Table 1. Groundwater elevation contours for December 2012 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 December 2012 sampling event with a measured thickness of 1.96 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 December 4, 2012. Free product was observed in six of the MPE wells with free product thicknesses ranging from 1.00 feet in MPE-2 to 2.78 feet in MPE-5. Note that free product was not observed in MPE-7 during the December 2012 sampling event. MPE well data are included in Table 1, and free product thickness contours from December 2012 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 Operation & Maintenance

The MPE unit was installed in May 2011 and operated until October 2011, when it was removed for the winter season. An estimated 26,250 lbs of petroleum hydrocarbons have been removed via the MPE system to date. The system remained off-line (pulse mode) through the end of the fourth quarter 2012. AES anticipates re-activating the unit in the spring of 2013 for continued remedial operations.

4.0 Conclusions and Recommendations

AES conducted a groundwater monitoring and sampling event on December 4, 2012. 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 seven 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 continued quarterly monitoring and sampling of MW-8 and MW-9.

5.0 Scheduled Site Activities

The first quarter 2013 sampling event is scheduled to be conducted in early March 2013.

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 R. Cupps

Landrea Cupps
Environmental Scientist

Elizabeth McNally

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, December 2012
Figure 4. Free Product Thickness Contours, December 2012

Appendix

Water Sample Collection Forms
Groundwater Laboratory Analytical Report (Hall 1212334)

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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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-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				
MW-2	09-May-11	7079.94		29.99		7049.95	7.62	2.134	2.54	13.64	-34.1

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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-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-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				

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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-5	05-May-08	7087.98				NA	NM - WELL DRY				
MW-5	24-Sep-08	7087.98				NA	NM - WELL DRY				
MW-5	02-Jan-09	7087.98				NA	NM - WELL DRY				
MW-5	07-Apr-09	7087.98				NA	NM - WELL DRY				
MW-5	07-Jul-09	7087.98				NA	NM - WELL DRY				
MW-5	12-Oct-09	7087.98				NA	NM - WELL DRY				
MW-5	12-Jan-10	7087.98				NA	NM - WELL DRY				
MW-5	13-Oct-10	7087.98				NA	NM - WELL DRY				
MW-5	20-Jan-11	7087.98				NA	NM - WELL DRY				
MW-5	09-May-11	7087.98				NA	NM - WELL DRY				
MW-5	15-Aug-11	7087.98				NA	NM - WELL DRY				
MW-5	21-Nov-11	7087.98				NA	NM - WELL DRY				
MW-5	21-Feb-12	7087.98				NA	NM - WELL DRY				

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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-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-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

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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-8	05-May-08	7085.20		33.71		7051.49	NM - LOW YIELD				
MW-8	24-Sep-08	7085.20		34.20		7051.00	6.88	1.672	3.06	15.24	-9.6
MW-8	05-Jan-09	7085.20		34.21		7050.99	NM				
MW-8	07-Apr-09	7085.20		34.28		7050.92	6.98	2.061	1.81	13.30	-108.8
MW-8	07-Jul-09	7085.20		34.31		7050.89	7.11	1.811	1.17	16.26	-74.0
MW-8	12-Oct-09	7085.20		34.54		7050.66	7.00	1.416	1.48	13.27	-102.1
MW-8	12-Jan-10	7085.20		34.69		7050.51	7.02	1.699	1.73	11.13	-159.8
MW-8	13-Oct-10	7085.20		34.92		7050.28	7.32	1.786	0.77	14.65	-126.5
MW-8	20-Jan-11	7085.20		34.99		7050.21	7.40	1.776	1.32	11.42	-71.1
MW-8	20-Jan-11	7085.20		34.99		7050.21	7.40	1.776	1.32	11.42	-71.1
MW-8	10-May-11	7085.20		34.67		7050.53	7.44	1.698	1.06	12.74	-52.5
MW-8	15-Aug-11	7085.20		35.33		7049.87	7.42	1.717	3.67	17.56	-124.4
MW-8	21-Nov-11	7085.20		35.25		7049.95	7.38	1.430	1.83	11.77	95.8
MW-8	21-Feb-12	7085.20		35.30		7049.90	7.74	1.377	2.46	10.21	-85.2
MW-8	24-May-12	7085.20		35.25		7049.95	7.20	1.485	2.09	18.68	28.4
MW-8	18-Sep-12	7085.20		35.63		7049.57	NM	NM	NM	NM	NM

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MW-8	04-Dec-12	7085.20		35.81		7049.39	7.43	0.315	4.92	8.50	-91.2
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				
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				

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	04-Dec-12	TBS	35.06	37.54	2.48	NA	NM - 2.48 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-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-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				

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	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-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-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-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				

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-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

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

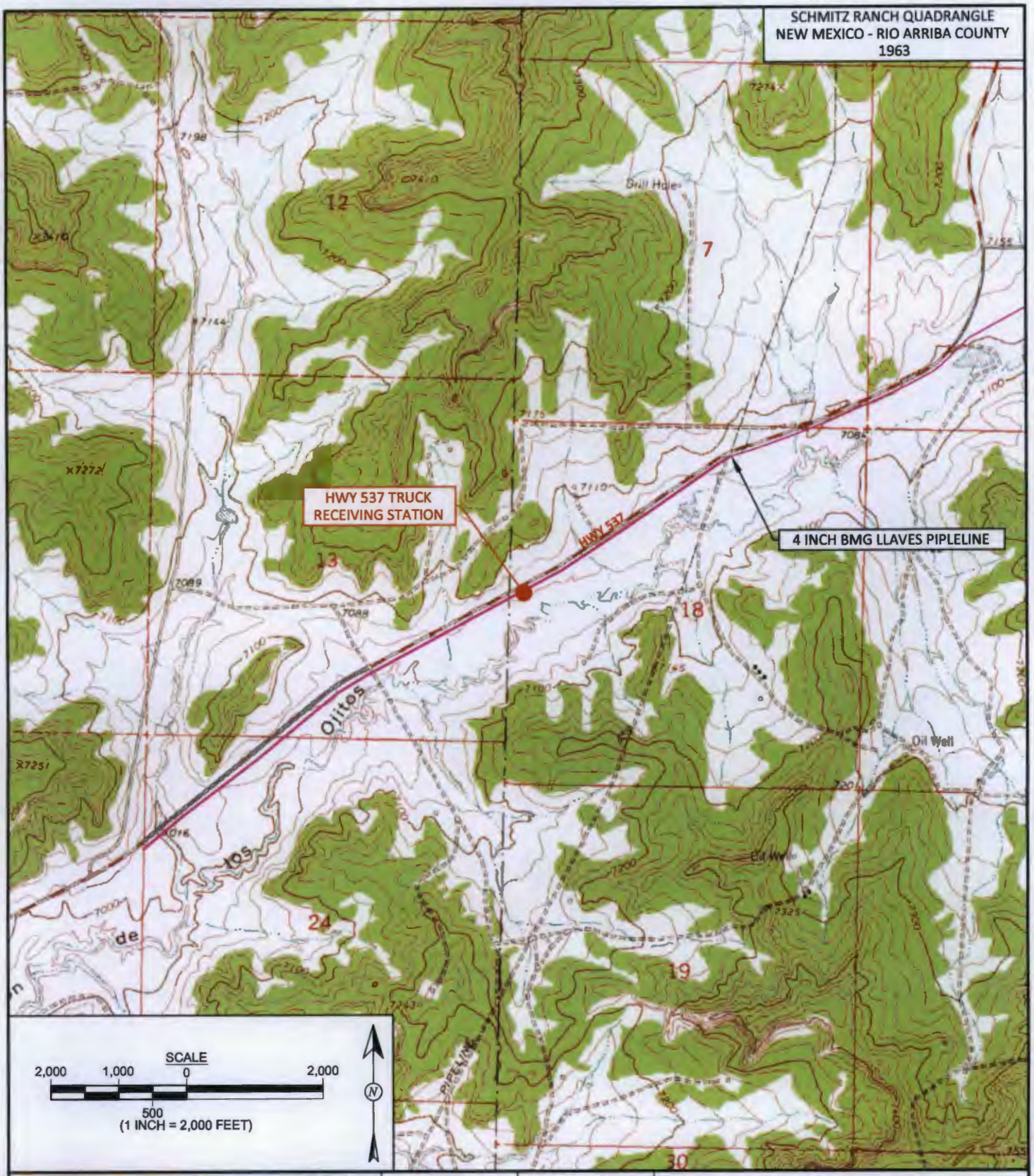
Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	GRO	DRO	MRO
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
Analytical Method		8021B	8021B	8021B	8021B	8015B	8015B	8015B
New Mexico WQCC		*10*	*750*	*750*	*620*	*NE*	*NE*	*NE*
MW-7	20-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-7	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-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 - 1.66 FEET OF CRUDE OIL						

NOTE: NS = Not Sampled

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

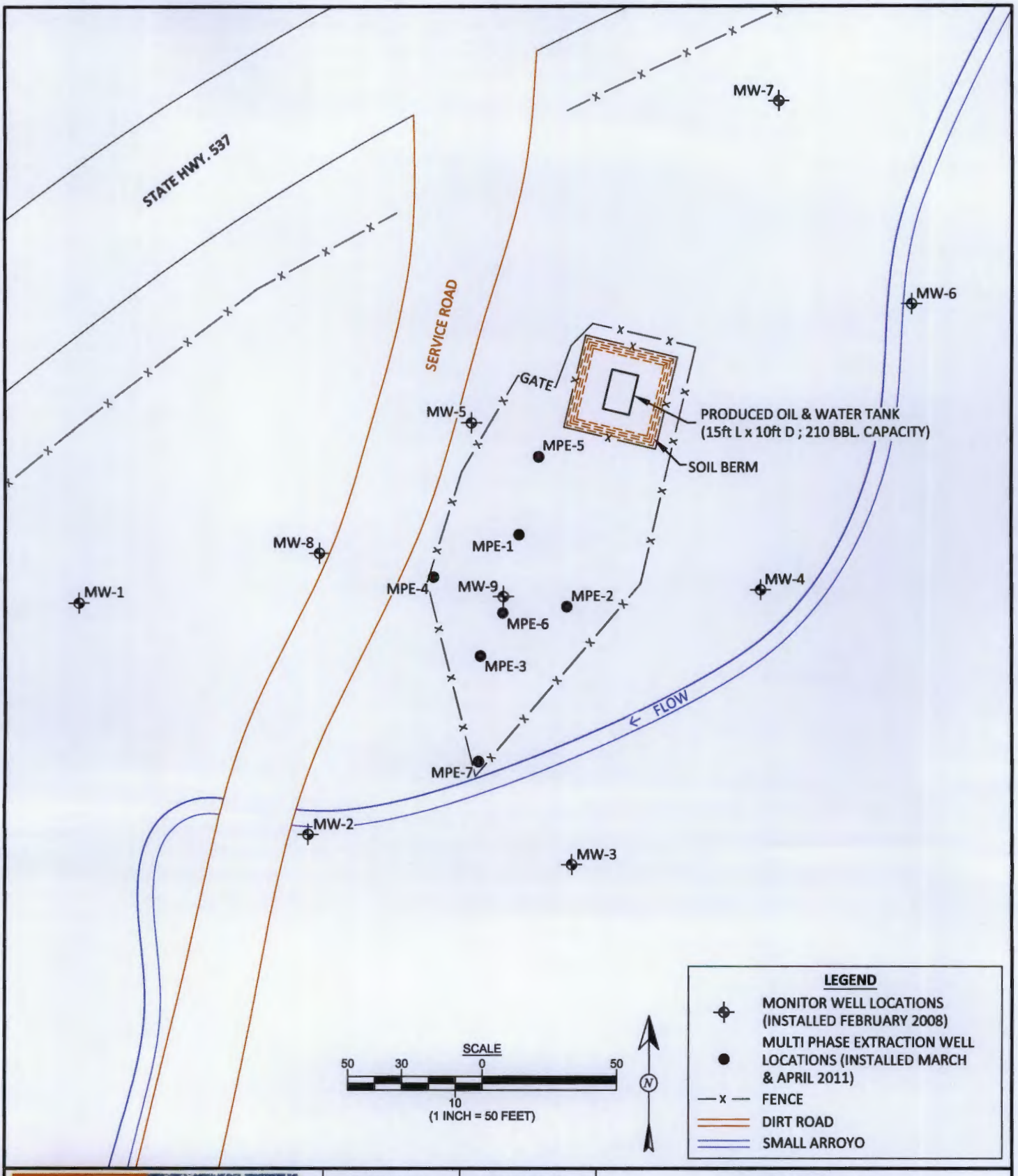
Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	GRO	DRO	MRO
		(µg/L)	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
Analytical Method		**8021B**	**8021B**	**8021B**	**8021B**	**8015B**	**8015B**	**8015B**
New Mexico WQCC		***10***	***750***	***750***	***620***	***NE***	***NE***	***NE***

NA = Not Analyzed
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
MRO = Motor Oil Range Organics



DRAWN BY: C. Lameman	**DATE DRAWN:** January 11, 2013	**FIGURE 1**
REVISIONS BY: C. Lameman	**DATE REVISED:** January 11, 2013	**TOPOGRAPHIC SITE LOCATION MAP**
CHECKED BY: D. Watson	**DATE CHECKED:** January 11, 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
APPROVED BY: E. McNally	**DATE APPROVED:** January 11, 2013	

AES
Animas Environmental Services, LLC



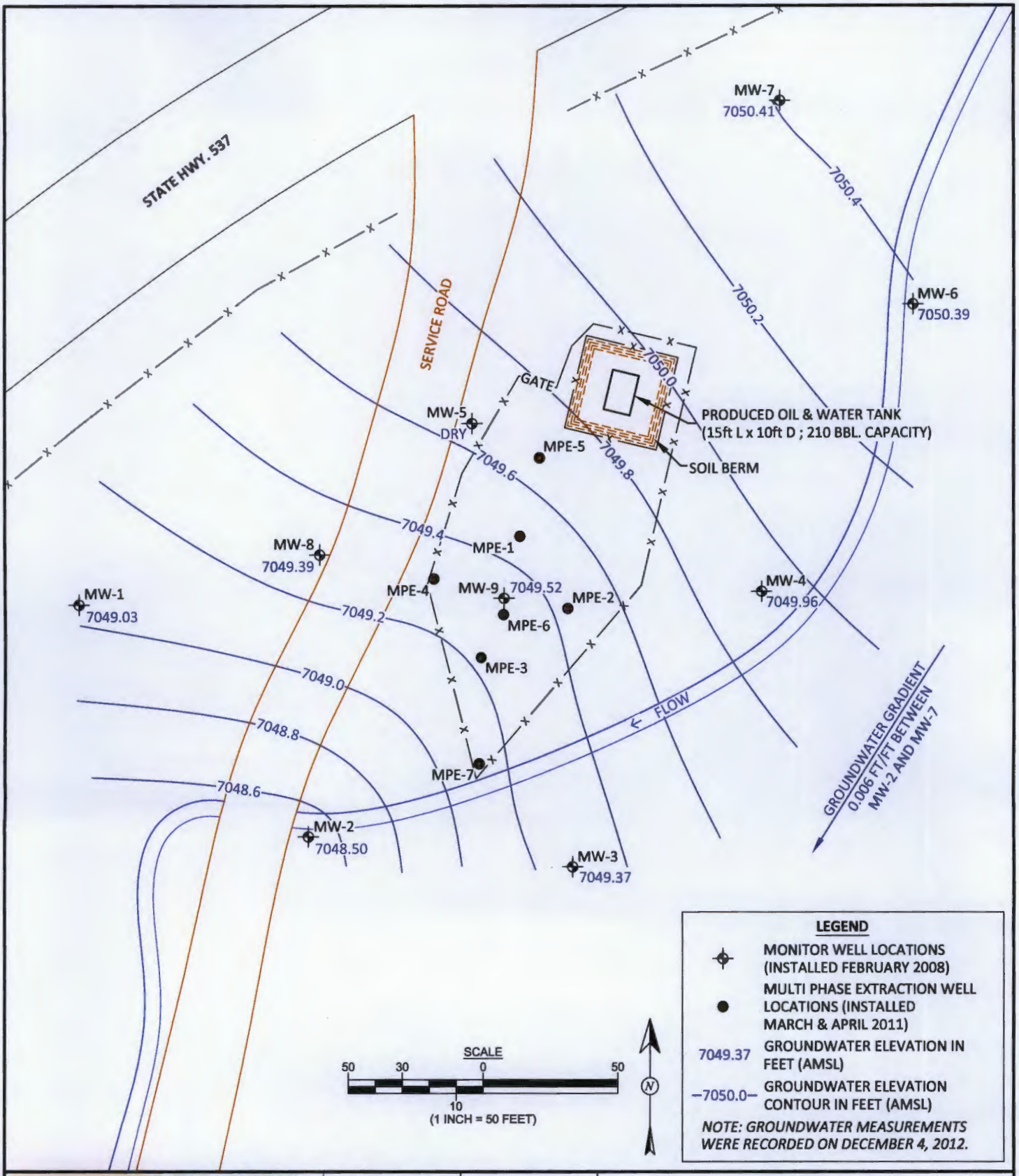
Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** January 11, 2013
REVISIONS BY: C. Lameman	**DATE REVISED:** January 11, 2013
CHECKED BY: D. Watson	**DATE CHECKED:** January 11, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** January 11, 2013

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



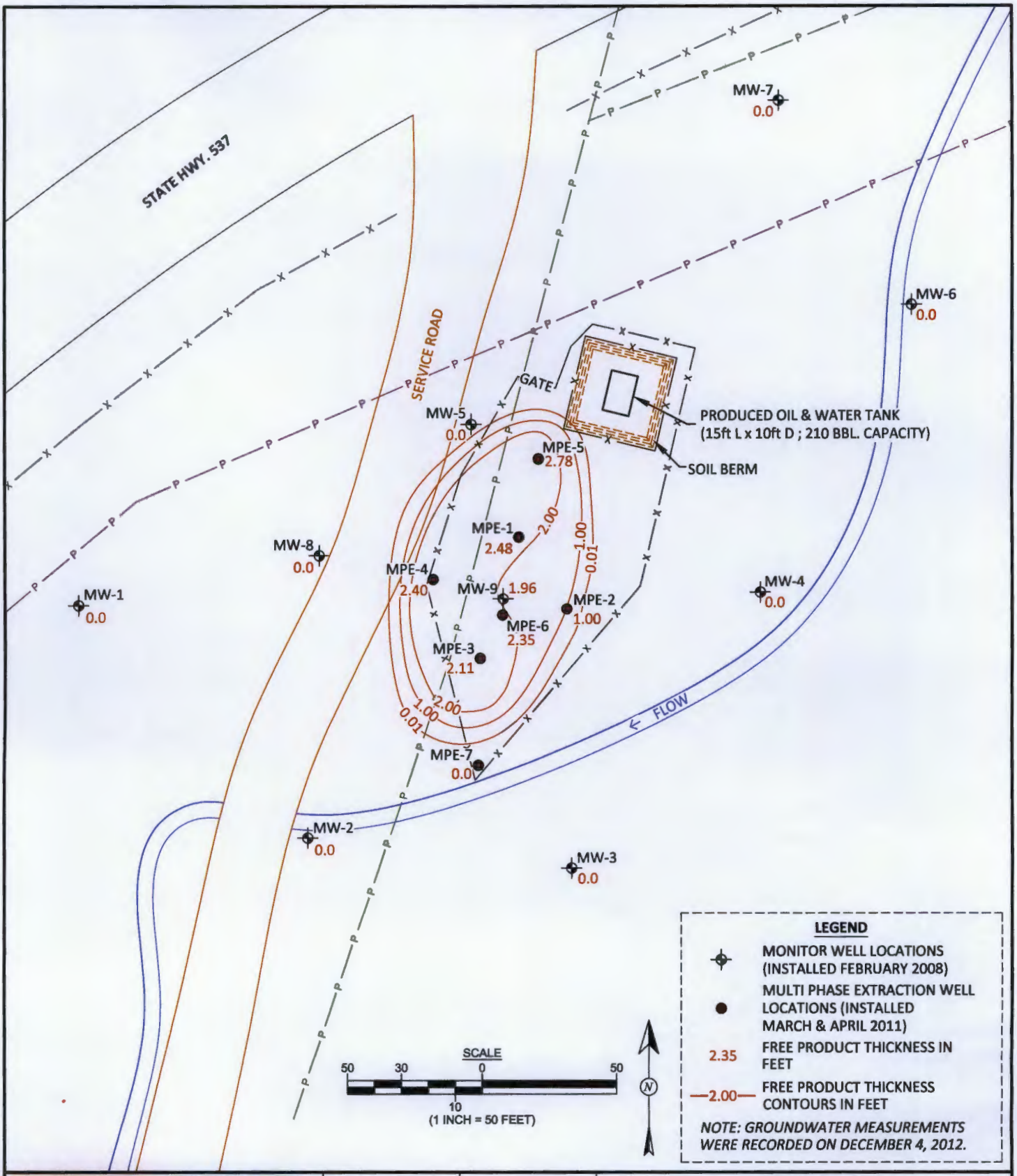
Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** January 11, 2013
REVISIONS BY: C. Lameman	**DATE REVISED:** January 11, 2013
CHECKED BY: D. Watson	**DATE CHECKED:** January 11, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** January 11, 2013

FIGURE 3

GROUNDWATER ELEVATION CONTOURS, DECEMBER 2012

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



Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** January 11, 2013
REVISIONS BY: C. Lameman	**DATE REVISED:** January 11, 2013
CHECKED BY: D. Watson	**DATE CHECKED:** January 11, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** January 11, 2013

FIGURE 4

FREE PRODUCT THICKNESS CONTOURS, DECEMBER 2012

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
Site: Hwy 537 2008 Spill
Location: Rio Arriba County, New Mexico
Tech: L. Lamone

Project No.: AES 080101
Date: 12-4-2012
Time: 0810
Form: 1 of 1

Well I.D.	Time	Depth to NAPL (ft.)	Depth to Water (ft.)	NAPL Thickness (ft.)	Notes / Observations
MW-1	0840		33.54		1" PVC Pipe needs cap
MW-2	0836		31.44		1" PVC Pipe needs cap
MW-3	0824		31.73		1" PVC Pipe needs cap
MW-4	0832 ~~0830~~		34.83 ~~34.73~~		1" PVC Pipe needs cap
MW-5	0847		DRY		34.90 - TDW NEEDS CAP 1" PVC
MW-6	0824 ~~0826~~		37.04 ~~37.03~~		1" PVC NEEDS CAP
MW-7	0850 ~~0854~~		39.74 ~~39.75~~		1" PVC NEEDS CAP 3' Above ground well
MW-8	0844		35.81		1" PVC 3' Above ground
MW-9	0929	33.68	35.64		1" Well PVC needs CAP 3' Above grnd
MPE-1	0921	35.06	37.54		2" well 3' Above ground
MPE-2	0917	33.68	34.68		2" well 3' Above ground
MPE-3	0857	33.64	35.75		2" well 3' Above ground
MPE-4	0902	34.63	37.03		2" well 3' Above ground
MPE-5	0926	36.06	38.84		2" well 3' Above ground
MPE-6	0910	33.88	36.23		2" well 3' Above ground Need cap.
MPE-7	0855		32.09		2" well 3' Above ground

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

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

MONITORING WELL SAMPLING RECORD

Monitor Well No: MW-8

Animas Environmental Services

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

Site: Highway 537 2008 Spill
Location: Rio Arriba County, New Mexico
Project: Groundwater Monitoring and Sampling
Sampling Technician: ~~Nathan Wills~~ L. LAMONE
Purge / No Purge: No Purge
Well Diameter (in): 0.75

Project No.: AES 080101
Date: 12/4/2012
Arrival Time: 0940
Air Temp: 42° F
T.O.C. Elev. (ft): 7085.2
Total Well Depth (ft): 39.15

Initial D.T.W. (ft): 35.81 **Time:** 0844 *(taken at initial gauging of all wells)*
Confirm D.T.W. (ft): 35.81 **Time:** 0942 *(taken prior to purging well)*
Final D.T.W. (ft): 38.00 **Time:** 1030 *(taken after sample collection)*
If NAPL Present: **D.T.P.:** _____ **D.T.W.:** _____ **Thickness:** _____ **Time:** _____

Water Quality Parameters - Recorded During Well Purging

Time	Temp (deg C)	Conductivity (µS) (mS)	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (see reverse for calc.)	Notes/Observations
1020	8.150	0.315	4.92	7.43	-91.2	1 cup	Clear
							Organic Floatives
							Well is ~~hard~~ hard
							to collect.
							Time consuming.

Analytical Parameters (include analysis method and number and type of sample containers)

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: ~~Water~~ None
Collected Samples Stored on Ice in Cooler: Yes
Chain of Custody Record Complete: Yes
Analytical Laboratory: Hall Environmental Analysis Laboratory, Albuquerque, NM
Equipment Used During Sampling: Keck Water Level or Keck Interface Level, YSI Water Quality Meter and New Disposable Bailer

Notes/Comments:
3.34

revised: 01/06/10

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

December 11, 2012

Debbie Watson

Animas Environmental Services
624 East Comanche
Farmington, NM 87401
TEL: (505) 486-4071
FAX (505) 324-2022

RE: BMG Hwy 537 2008 Release OrderNo.: 1212334

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/6/2012 for the analyses presented in the following report.

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1212334**
Date Reported: **12/11/2012**

CLIENT: Animas Environmental Services
Client Sample ID: Trip Blank
Project: BMG Hwy 537 2008 Release
Collection Date:
Lab ID: 1212334-001
Matrix: TRIP BLANK
Received Date: 12/6/2012 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	12/7/2012 11:57:55 PM
Toluene	ND	1.0		µg/L	1	12/7/2012 11:57:55 PM
Ethylbenzene	ND	1.0		µg/L	1	12/7/2012 11:57:55 PM
Xylenes, Total	ND	2.0		µg/L	1	12/7/2012 11:57:55 PM
Surr: 4-Bromofluorobenzene	95.9	69.7-152		%REC	1	12/7/2012 11:57:55 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Animas Environmental Services
Client Sample ID: MW-8
Project: BMG Hwy 537 2008 Release
Collection Date: 12/4/2012 10:20:00 AM
Lab ID: 1212334-002 **Matrix:** AQUEOUS **Received Date:** 12/6/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **MMD**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/7/2012 11:13:51 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/7/2012 11:13:51 PM
Surr: DNOP	112	79.5-166		%REC	1	12/7/2012 11:13:51 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/8/2012 12:28:11 AM
Surr: BFB	97.3	51.9-148		%REC	1	12/8/2012 12:28:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	12/8/2012 12:28:11 AM
Toluene	ND	1.0		µg/L	1	12/8/2012 12:28:11 AM
Ethylbenzene	ND	1.0		µg/L	1	12/8/2012 12:28:11 AM
Xylenes, Total	ND	2.0		µg/L	1	12/8/2012 12:28:11 AM
Surr: 4-Bromofluorobenzene	94.3	69.7-152		%REC	1	12/8/2012 12:28:11 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212334**

11-Dec-12

Client: Animas Environmental Services

Project: BMG Hwy 537 2008 Release

Sample ID **MB-5160**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range**
Client ID: **PBW**	Batch ID: **5160**	RunNo: **7361**
Prep Date: **12/7/2012**	Analysis Date: **12/7/2012**	SeqNo: **213899** 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	1.0		1.000		103	79.5	166			

Sample ID **LCS-5160**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range**
Client ID: **LCSW**	Batch ID: **5160**	RunNo: **7361**
Prep Date: **12/7/2012**	Analysis Date: **12/7/2012**	SeqNo: **213900** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	64.4	132			
Surr: DNOP	0.48		0.5000		96.6	79.5	166			

Sample ID **LCSD-5160**	SampType: **LCSD**	TestCode: **EPA Method 8015B: Diesel Range**
Client ID: **LCSS02**	Batch ID: **5160**	RunNo: **7361**
Prep Date: **12/7/2012**	Analysis Date: **12/7/2012**	SeqNo: **213901** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.5	1.0	5.000	0	109	64.4	132	2.75	20	
Surr: DNOP	0.49		0.5000		97.9	79.5	166	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212334**

11-Dec-12

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: **R7391**	RunNo: **7391**
Prep Date:	Analysis Date: **12/7/2012**	SeqNo: **214089** 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	19		20.00		95.6	51.9	148			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R7391**	RunNo: **7391**
Prep Date:	Analysis Date: **12/7/2012**	SeqNo: **214090** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.57	0.050	0.5000	0	115	75.9	119			
Surr: BFB	20		20.00		98.9	51.9	148			

Sample ID **1212334-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **MW-8**	Batch ID: **R7391**	RunNo: **7391**
Prep Date:	Analysis Date: **12/7/2012**	SeqNo: **214102** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.57	0.050	0.5000	0.01840	111	63.5	131			
Surr: BFB	20		20.00		101	51.9	148			

Sample ID **1212334-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **MW-8**	Batch ID: **R7391**	RunNo: **7391**
Prep Date:	Analysis Date: **12/7/2012**	SeqNo: **214103** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0.01840	105	63.5	131	4.94	16.7	
Surr: BFB	20		20.00		98.0	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
- 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212334**

11-Dec-12

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: **R7391**	RunNo: **7391**
Prep Date:	Analysis Date: **12/7/2012**	SeqNo: **214172** 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	20		20.00		97.7	69.7	152			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R7391**	RunNo: **7391**
Prep Date:	Analysis Date: **12/7/2012**	SeqNo: **214173** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	80	120			
Toluene	21	1.0	20.00	0	103	80	120			
Ethylbenzene	21	1.0	20.00	0	105	80	120			
Xylenes, Total	64	2.0	60.00	0	107	80	120			
Surr: 4-Bromofluorobenzene	20		20.00		103	69.7	152			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name:	Animas Environmental	Work Order Number:	1212334
Received by/date:	AG 12/06/12		
Logged By:	Lindsay Mangin	12/6/2012 9:55:00 AM	
Completed By:	Lindsay Mangin	12/6/2012 3:58:59 PM	
Reviewed By:	TO	12/07/2012	

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

18. Additional remarks:

19. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good	Yes			

Chain-of-Custody Record

Client: Animas Environmental Services

Mailing Address: 624 E Comanche Farmington NM 87401

Phone #: 505-564-2281

email or Fax#: 505-324-2022

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

Accreditation:
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
X Standard ☐ Rush

Project Name:
BMG Hwy 537 2008 Release

Project #:
AES 080101

Project Manager:
Deborah Watson

Sampler: Lavina Lamone

On Ice: ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX 8021	TPH 8015 (C6 - C36) (GRO, DRO, MRO)
		H_2O	Trip Blank	Glass 2 - 40 mL	HCl	-001	X	
12-4-12	1020	H_2O	MW-8	Glass 5 - 40 mL	5 - HCl 1 - non	-002	X	X

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/5/12	1635	Deborah Watson	Christine Walker	12/5/12	1635
12/5/12	1710	Christine Walker		12/06/12	0955

Remarks:

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.