

**3R – 449**

**Q2 2012 GWMR**

**09/04/2012**



# Animas Environmental Services, LLC

624 E. Comanche . Farmington, NM 87401 . TEL 505-564-2281 . FAX 505-324-2022 . www.animasenvironmental.com

RECEIVED OCD

2011 MAY 12 A 11:50

May 6, 2011

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

RE: 2nd Quarter 2011 Groundwater Monitoring Report for Williams Four Corners, LLC, Sammons #2 Pipeline December 2009 Release, Flora Vista, San Juan County, New Mexico

Dear Mr. von Gonten:

Animas Environmental Services, LLC (AES), on behalf of Williams Four Corners, LLC, has prepared this 2<sup>nd</sup> Quarter Groundwater Monitoring Report for the Sammons #2 Pipeline December 2009 Release in accordance with New Mexico Oil Conservation Division (NMOCD) and New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB) regulations. The subject site is located near Flora Vista, San Juan County, New Mexico.

A second quarterly groundwater monitoring and sampling event was completed April 27, 2011, in accordance with a workplan previously prepared by AES and dated March 3, 2011. The workplan was submitted to the NMOCD for review prior to implementing the proposed scope of work.

## 1.0 Site Information

### 1.1 Site Location

The general project area is located in a rural area approximately 0.1 mile east of County Road 3000 on private property owned by Ms. Helen Clark. The spill location is located approximately 140 feet southeast of a wetland area that is adjacent to the Animas River. The project area is described legally as within the SE¼ NE¼ Section 32, T30N, R12W, in Flora Vista, San Juan County, New Mexico. Longitude and latitude were recorded as being N36°46'18.240" and W108°06'54.540". A topographic site location map is included as Figure 1, and a Site Vicinity Map is presented as Figure 2.



## 1.2 Spill History

On December 3, 2009, trenching operations during routine pipeline replacement activities uncovered petroleum hydrocarbon contaminated soils. Williams was in the process of replacing an in-service 2-inch diameter natural gas pipeline with a new 4-inch diameter natural gas pipeline. The pipeline connects the Sammons 2 well locations, which are owned by Conoco Phillips. The volume of natural gas condensate released into the surrounding environment and the length of time that the 2-inch diameter pipeline was leaking are unknown.

Initial remedial activities were completed between December 7 and 17, 2009, and included excavation of approximately 1,884 cubic yards of petroleum contaminated soil (PCS) and removal of 1,122 barrels (bbls) of petroleum contaminated groundwater. Petroleum contaminated soil and groundwater were transported to Industrial Ecosystems, Inc. (IEI) on Crouch Mesa, San Juan County, for disposal. Soil excavation and removal activities were documented in the *Remedial Activities Report for Sammons #2 Pipeline 2009 Spill*, prepared by AES and dated January 11, 2010.

Six 1-inch diameter groundwater monitoring wells were installed and sampled at the site in April 2010. Analytical results from groundwater samples collected during the sampling event showed benzene concentrations exceeded the New Mexico Water Quality Control Commission (WQCC) standard of 10 µg/L in one well, MW-1 (11 µg/L). The remaining wells had benzene, toluene, ethylbenzene, and xylene (BTEX) concentrations either below laboratory detection limits or well below applicable WQCC standards.

Diesel and motor oil range organics were below laboratory detection limits for all wells sampled. Low level gasoline range organics (GRO) were detected in MW-2, MW-4, MW-5, and MW-6. Based on the laboratory results, AES recommended continued quarterly groundwater monitoring at the site for at least a year.

Groundwater investigation details are included within the *Site Investigation Report* prepared by AES and dated May 5, 2010. Subsequent quarterly groundwater monitoring events were conducted in July 2010, October 2010, and January 2011, with quarterly monitoring reports submitted in August 2010, November 2010, and February 2011.

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## 2.0 Groundwater Monitoring and Sampling April 2011

On April 27, 2011, groundwater monitoring and sampling activities were conducted by AES. Work was completed in accordance with the workplan prepared by AES and dated March 3, 2011, and also in accordance with U.S. Environmental Protection Agency

(USEPA) Environmental Response Team's Standard Operating Procedures (SOPs), and applicable American Society of Testing and Materials (ASTM) standards.

## **2.1 Notification**

AES notified Aaron Dailey of Williams and Nick Clark, land owner, via telephone before initiating sampling activities. AES also notified NMOCD via electronic mail prior to the scheduled field work.

## **2.2 Groundwater Monitor Well Monitoring and Sampling**

AES personnel completed groundwater monitoring and sampling of the wells on April 27, 2011. Groundwater samples were collected with new disposable bailers from a total of six monitor wells and transferred into appropriate sample containers, labeled accordingly, and documented on Water Sample Collection Forms.

Prior to sample collection, water quality measurements were recorded and included depth to groundwater, pH, temperature, conductivity, dissolved oxygen (DO), and oxidation reduction potential (ORP). Depth to groundwater was measured with a Keck Water Level Indicator, and water quality data was measured with a YSI Water Quality Meter. Samples were shipped in insulated coolers containing ice at less than 6°C via Greyhound bus to Hall Environmental Analytical Laboratory (Hall) in Albuquerque, New Mexico.

### **2.2.1 Laboratory Analyses - Groundwater**

All groundwater analytical samples were analyzed for the following parameters:

- BTEX – EPA Method 8021

### **2.2.2 Measurement Data**

Depths to groundwater varied across the site and were observed to range from 0.81 feet below top of casing (TOC) in MW-6 to 1.97 feet below TOC in MW-1. The groundwater gradient was calculated to be approximately 0.09 ft/ft to the northwest, which is consistent with previous site data. Note that the site is considered to be groundwater under the direct influence (GUDI) of the Animas River.

Following depth to water measurement, each well was purged with a disposable bailer until recorded temperature, pH, conductivity, and DO measurements were stabilized. All data was recorded onto Water Sample Collection Forms. Groundwater temperature ranged from 9.69°C to 11.76°C, and conductivity ranged from 1.481 mS to 3.472 mS. DO ranged from 1.40 mg/L in MW04 to 3.92 mg/L in MW-1, and pH ranged from 7.12 to 7.35. Although DO was recorded during field activities, it should be noted that due to the use of

bailers, the accuracy of dissolved oxygen measurements is limited. Depth to groundwater measurements and water quality data are summarized in Table 1, and groundwater elevation contours are presented in Figure 3. Water Sample Collection forms are presented in Appendix A.

### **2.2.3 Groundwater Analytical Results**

Analytical results from groundwater samples collected during the April 2011 sampling event showed that BTEX concentrations were below laboratory detection limits in monitoring wells MW-1, MW-2, MW-3, MW-5, and MW-6. Dissolved phase benzene concentrations were detected in MW-4 at 2.1 µg/L, which is well below the New Mexico WQCC regulatory limit of 10 µg/L for benzene concentrations in groundwater. Groundwater analytical laboratory reports are presented in Appendix A.

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## **3.0 Conclusion and Recommendations**

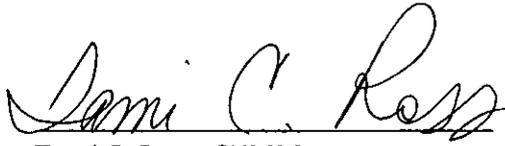
AES personnel conducted groundwater monitoring and sampling at the location of the Sammons #2 Pipeline December 2009 Release in April 2011. Depths to groundwater varied across the site and were observed to exist at about 0.81 to 1.97 feet below TOC, and groundwater gradient was calculated to be approximately 0.09 ft/ft to the northwest, which is consistent with previous site data.

Groundwater analytical results showed that contaminants of concern (BTEX) were below applicable WQCC standards. Dissolved phase benzene concentrations in MW-2 have remained below the WQCC standard for benzene for four consecutive quarters. Remaining wells, MW-1, MW-3, MW-4, MW-5, and MW-6 have remained below applicable standards for five consecutive quarters.

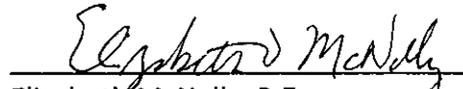
Based on the presented information and in accordance with per the subject workplan, AES will continue quarterly sampling for three additional quarterly monitoring and sampling events for MW-1, MW-3, MW-4, MW-5, and MW-6. This will ensure compliance with WQCC standards for eight consecutive quarters of groundwater contaminant concentrations below standards. Additionally, MW-2 will be sampled for an additional four quarters to ensure compliance with WQCC standards. The next sampling event is tentatively scheduled for July 2011.

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

Sincerely,



Tami C. Ross, CHMM  
Project Manager



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Elizabeth McNally, P.E.  
New Mexico Registration #15799

Attachments:

Tables

Table 1. Groundwater Measurement and Water Quality Data

Table 2. Groundwater Analytical Results

Figures

Figure 1. Topographic Site Location Map

Figure 2. Site Plan

Figure 3. Groundwater Elevations, April 2011

Figure 4. Groundwater Analytical Results, April 2011

Appendix A

Water Sample Collection Forms

Groundwater Analytical Laboratory Reports

Cc: Mr. Brandon Powell  
New Mexico Oil Conservation Division  
1000 Rio Brazos Road  
Aztec, New Mexico 87410

Mr. Aaron Dailey  
Williams Four Corners, LLC  
188 CR 4900  
Bloomfield, NM 87413

Mr. Nick Clark  
719 Otten Street  
Aztec, NM 87410

Files:2011/Williams/Sammons#2/Groundwater/Reports/2nd Qutr Investigation Report 050511

TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
Williams Four Corners #2 Pipeline December 2009 Release  
Flora Vista, San Juan County, New Mexico

<i>Well ID</i>	<i>Date Sampled</i>	<i>Depth to Water (ft)</i>	<i>Surveyed TOC (ft)</i>	<i>GW Elev. (ft)</i>	<i>Temperature (C)</i>	<i>Conductivity (mS)</i>	<i>DO (mg/L)</i>	<i>pH</i>	<i>ORP (mV)</i>
MW-1	20-Apr-10	2.43	5427.26	5424.83	10.19	4.392	0.43	7.05	35.1
MW-1	20-Jul-10	2.05	5427.26	5425.21	14.75	1.108	1.76	7.14	-89.7
MW-1	28-Oct-10	1.95	5427.26	5425.31	11.84	3.797	0.67	7.03	-71.0
MW-1	25-Jan-11	3.21	5427.26	5424.05	6.45	3.357	2.77	7.40	-13.8
MW-1	27-Apr-11	1.97	5427.26	5425.29	10.16	3.472	3.92	7.12	-6.7
MW-2	20-Apr-10	1.11	5424.98	5423.87	10.37	1.670	0.20	7.39	-132.7
MW-2	20-Jul-10	0.91	5424.98	5424.07	19.09	0.930	1.84	7.26	-99.3
MW-2	28-Oct-10	0.92	5424.98	5424.06	11.52	0.719	0.22	7.45	-103.5
MW-2	25-Jan-11	1.74	5424.98	5423.24	4.55	1.621	2.20	7.59	-66.8
MW-2	27-Apr-11	0.95	5424.98	5424.03	9.69	1.659	1.76	7.31	-102.5
MW-3	20-Apr-10	1.77	5425.44	5423.67	9.73	2.005	0.24	7.21	-69.0
MW-3	20-Jul-10	1.56	5425.44	5423.88	17.89	0.842	1.52	7.22	-85.6
MW-3	28-Oct-10	1.66	5425.44	5423.78	12.61	0.670	0.18	7.43	-108.4
MW-3	25-Jan-11	2.36	5425.44	5423.08	6.13	1.438	1.70	7.63	-63.5
MW-3	27-Apr-11	1.61	5425.44	5423.83	10.70	1.481	1.80	7.34	-111.5
MW-4	20-Apr-10	1.59	5424.38	5422.79	9.60	2.174	0.22	7.29	-88.4
MW-4	20-Jul-10	1.44	5424.38	5422.94	16.39	1.061	1.29	7.17	-87.7
MW-4	28-Oct-10	1.39	5424.38	5422.99	14.48	1.026	0.22	7.28	-111.1
MW-4	25-Jan-11	1.84	5424.38	5422.54	6.88	1.465	2.55	7.52	-56.2
MW-4	27-Apr-11	1.40	5424.38	5422.98	11.21	1.560	1.40	7.35	-136.8
MW-5	20-Apr-10	1.00	5424.17	5423.17	9.88	3.140	0.21	7.37	-102.6
MW-5	20-Jul-10	0.86	5424.17	5423.31	20.50	1.440	1.03	6.98	-93.5
MW-5	28-Oct-10	0.75	5424.17	5423.42	15.62	1.650	0.30	7.09	-91.7
MW-5	25-Jan-11	1.32	5424.17	5422.85	6.15	1.707	2.94	7.49	-53.3

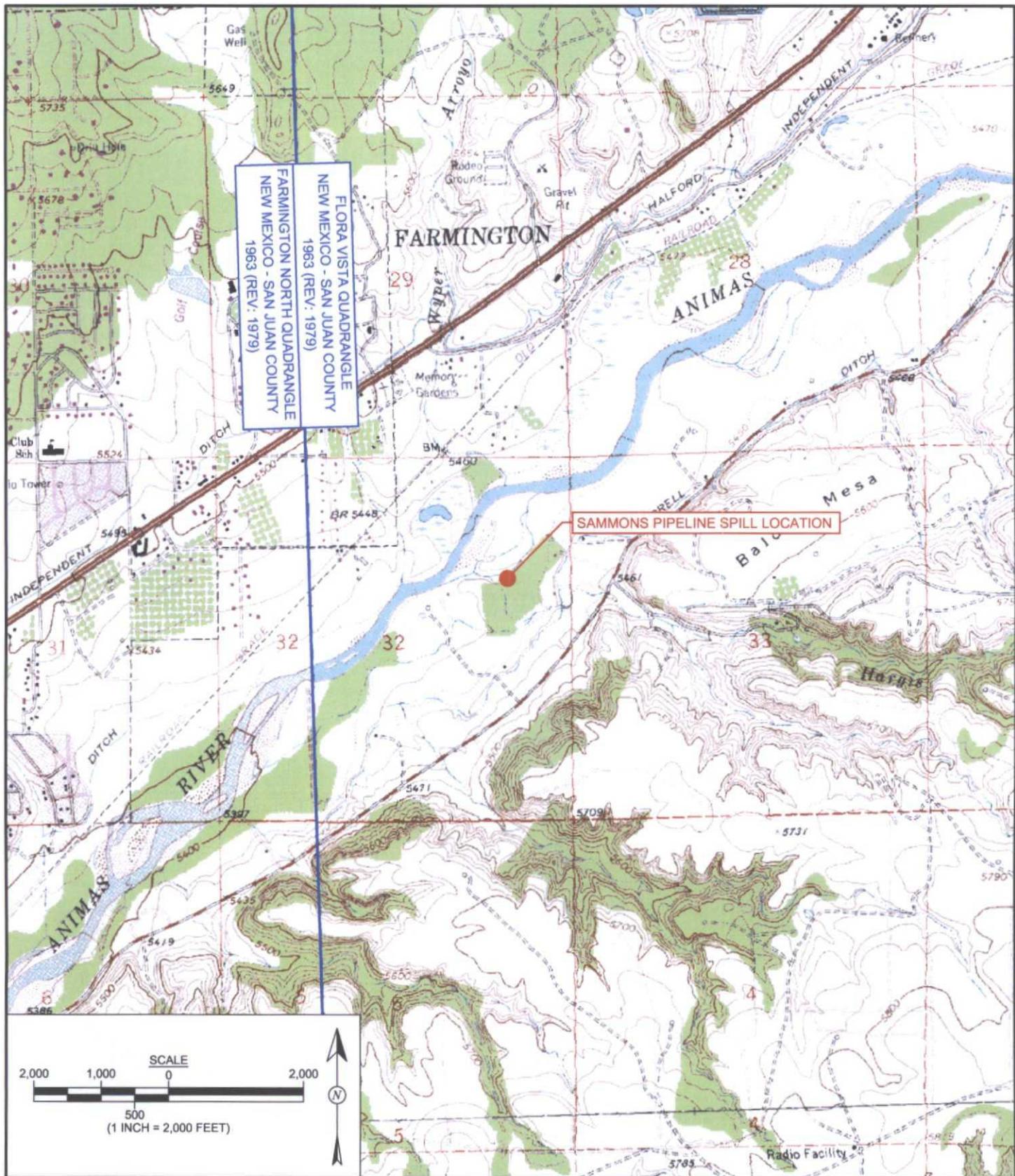
TABLE 1  
SUMMARY OF GROUNDWATER MEASUREMENT AND WATER QUALITY DATA  
Williams Four Corners #2 Pipeline December 2009 Release  
Flora Vista, San Juan County, New Mexico

<i>Well ID</i>	<i>Date Sampled</i>	<i>Depth to Water (ft)</i>	<i>Surveyed TOC (ft)</i>	<i>GW Elev. (ft)</i>	<i>Temperature (C)</i>	<i>Conductivity (mS)</i>	<i>DO (mg/L)</i>	<i>pH</i>	<i>ORP (mV)</i>
MW-5	27-Apr-11	0.84	5424.17	5423.33	10.69	1.948	0.73	7.22	-111.1
MW-6	20-Apr-10	1.04	5424.91	5423.87	11.09	2.277	0.22	7.28	-113.6
MW-6	20-Jul-10	0.89	5424.91	5424.02	21.57	1.399	1.06	6.93	-82.3
MW-6	28-Oct-10	0.68	5424.91	5424.23	11.93	1.482	0.21	7.12	-89.6
MW-6	25-Jan-11	1.51	5424.91	5423.40	4.67	1.726	6.51	7.47	-30.9
MW-6	27-Apr-11	0.81	5424.91	5424.10	11.76	1.662	2.38	7.20	-96.5

TABLE 2  
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS  
Williams Four Corners #2 Pipeline December 2009 Release  
Flora Vista, San Juan County, New Mexico

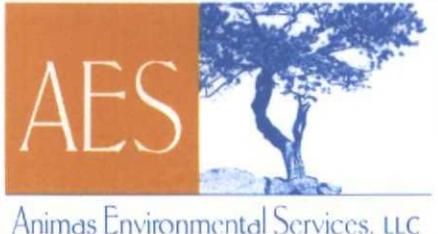
Well ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	GRO (C6-C10) (mg/L)	DRO (C10-C22) (mg/L)	MRO (C22-C32) (mg/L)
Analytical Method		8260B/8021	8260B/8021	8260B/8021	8260B/8021	8015	8015	8015
WQCC Standard		10	10	10	10	NE	NE	NE
MW-1	20-Apr-10	<1.0	<1.0	<1.0	<1.5	<0.050	<1.0	<5.0
MW-1	20-Jul-10	<1.0	<1.0	<1.0	<1.5	<0.050	<1.0	<5.0
MW-1	28-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	25-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-1	27-Apr-11	<1.0	<1.0	<1.0	<2.0	NA	NA	NA
MW-2	20-Apr-10	11	<1.0	2.4	22	1.1	<1.0	<5.0
MW-2	20-Jul-10	<1.0	<1.0	<1.0	<1.5	<0.050	<1.0	<5.0
MW-2	28-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	25-Jan-11	2.6	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-2	27-Apr-11	<1.0	<1.0	<1.0	<2.0	NA	NA	NA
MW-3	20-Apr-10	<1.0	<1.0	<1.0	<1.5	<0.050	<1.0	<5.0
MW-3	20-Jul-10	<1.0	<1.0	<1.0	<1.5	<0.050	<1.0	<5.0
MW-3	28-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	25-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-3	27-Apr-11	<1.0	<1.0	<1.0	<2.0	NA	NA	NA
MW-4	20-Apr-10	9.9	<1.0	<1.0	<1.5	0.074	<1.0	<5.0
MW-4	20-Jul-10	<1.0	<1.0	<1.0	<1.5	<0.050	<1.0	<5.0
MW-4	28-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	25-Jan-11	2.5	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-4	27-Apr-11	2.1	<1.0	<1.0	<2.0	NA	NA	NA
MW-5	20-Apr-10	9.7	<1.0	<1.0	<1.5	0.055	<1.0	<5.0
MW-5	20-Jul-10	<1.0	<1.0	<1.0	<1.5	<0.050	<1.0	<5.0
MW-5	28-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-5	25-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-5	27-Apr-11	<1.0	<1.0	<1.0	<2.0	NA	NA	NA
MW-6	20-Apr-10	4.6	<1.0	11	47	3.2	<1.0	<5.0
MW-6	20-Jul-10	<1.0	<1.0	<1.0	<1.5	0.079	<1.0	<5.0
MW-6	28-Oct-10	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	25-Jan-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
MW-6	27-Apr-11	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0	<5.0
Field Blank	22-Apr-10	<1.0	<1.0	<1.0	<1.5	NA	NA	NA

Notes: < - Analyte below laboratory detection limit  
NA - Not Analyzed  
NE - Not Established



FLORA VISTA QUADRANGLE  
NEW MEXICO - SAN JUAN COUNTY  
1963 (REV. 1979)

FARMINGTON NORTH QUADRANGLE  
NEW MEXICO - SAN JUAN COUNTY  
1963 (REV. 1979)

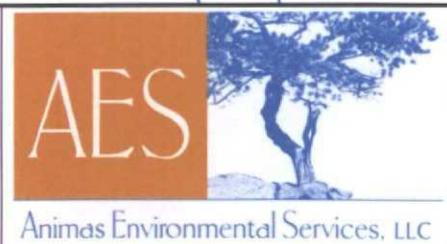
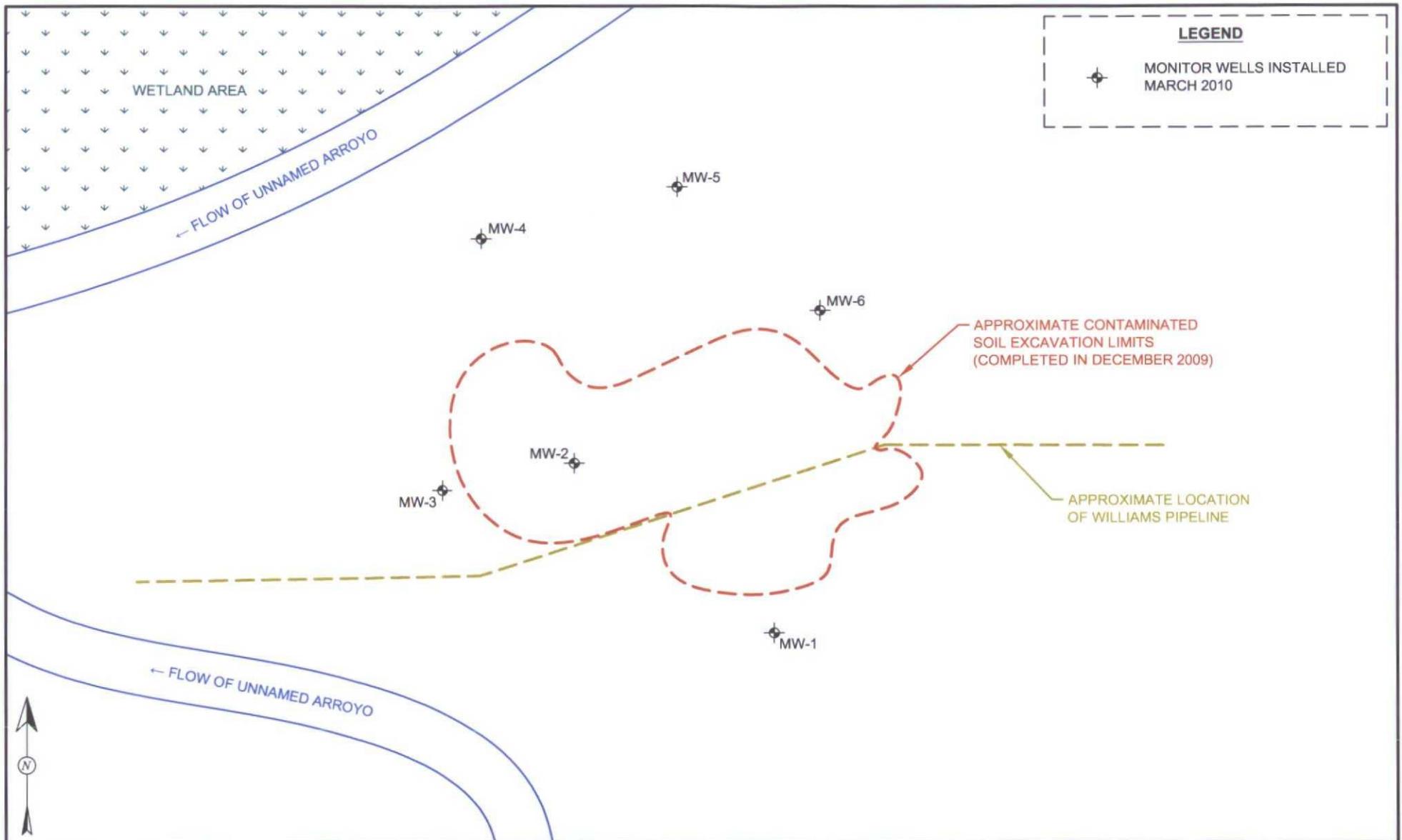


<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> December 29, 2009
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> January 26, 2011
<b>CHECKED BY:</b> T. Ross	<b>DATE CHECKED:</b> May 6, 2011
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> May 10, 2011

**FIGURE 1**

**TOPOGRAPHIC SITE LOCATION MAP**

WILLIAMS FOUR CORNERS, LLC  
SAMMONS #2 PIPELINE DECEMBER 2009 RELEASE  
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO  
N36°45'18.240" , W108°06'54.540"

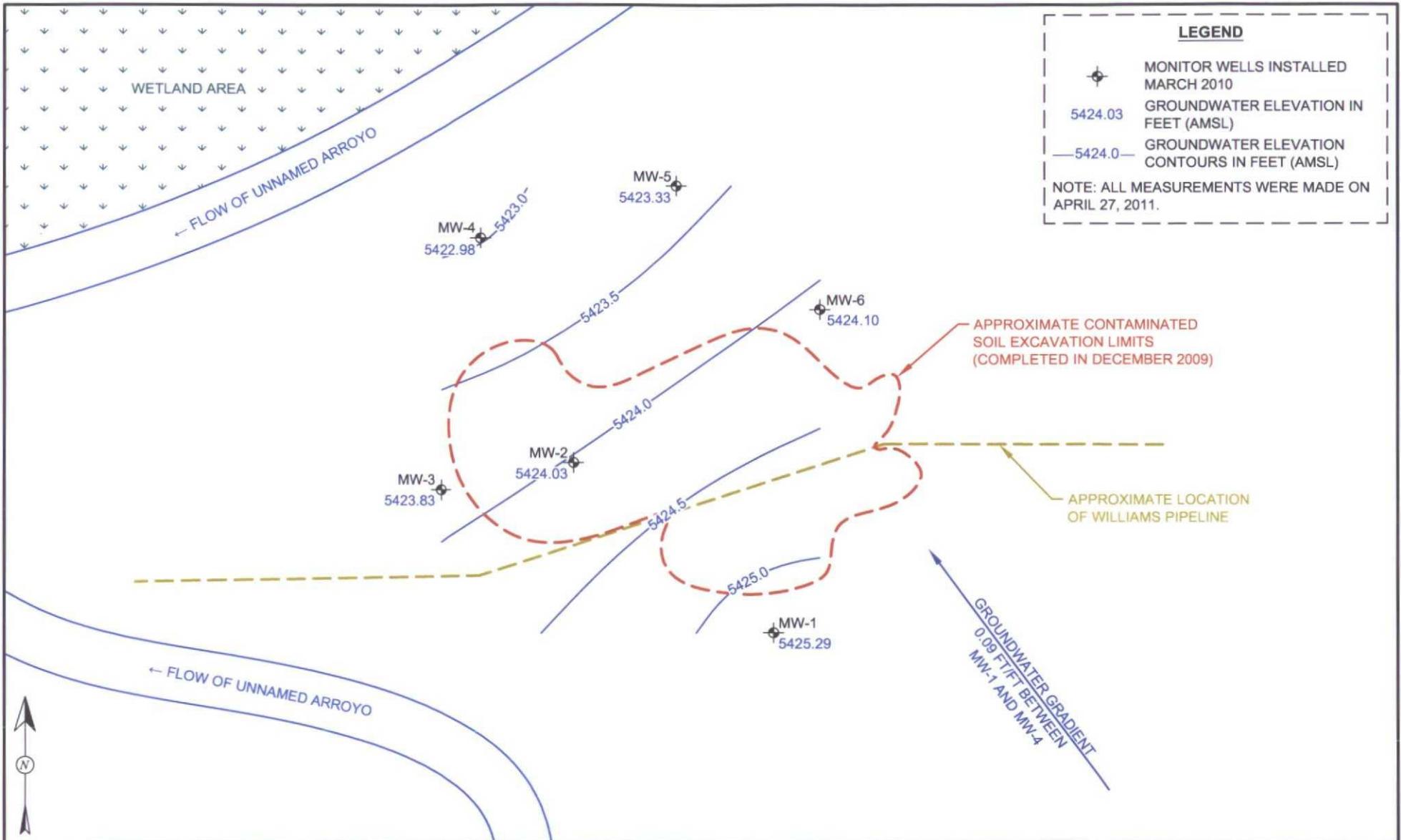


<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> April 13, 2010
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> February 26, 2011
<b>CHECKED BY:</b> T. Ross	<b>DATE CHECKED:</b> May 6, 2011
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> May 6, 2011

**FIGURE 2**

**GENERAL SITE PLAN**

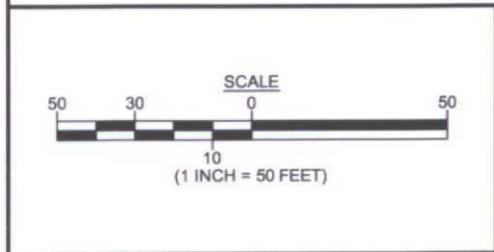
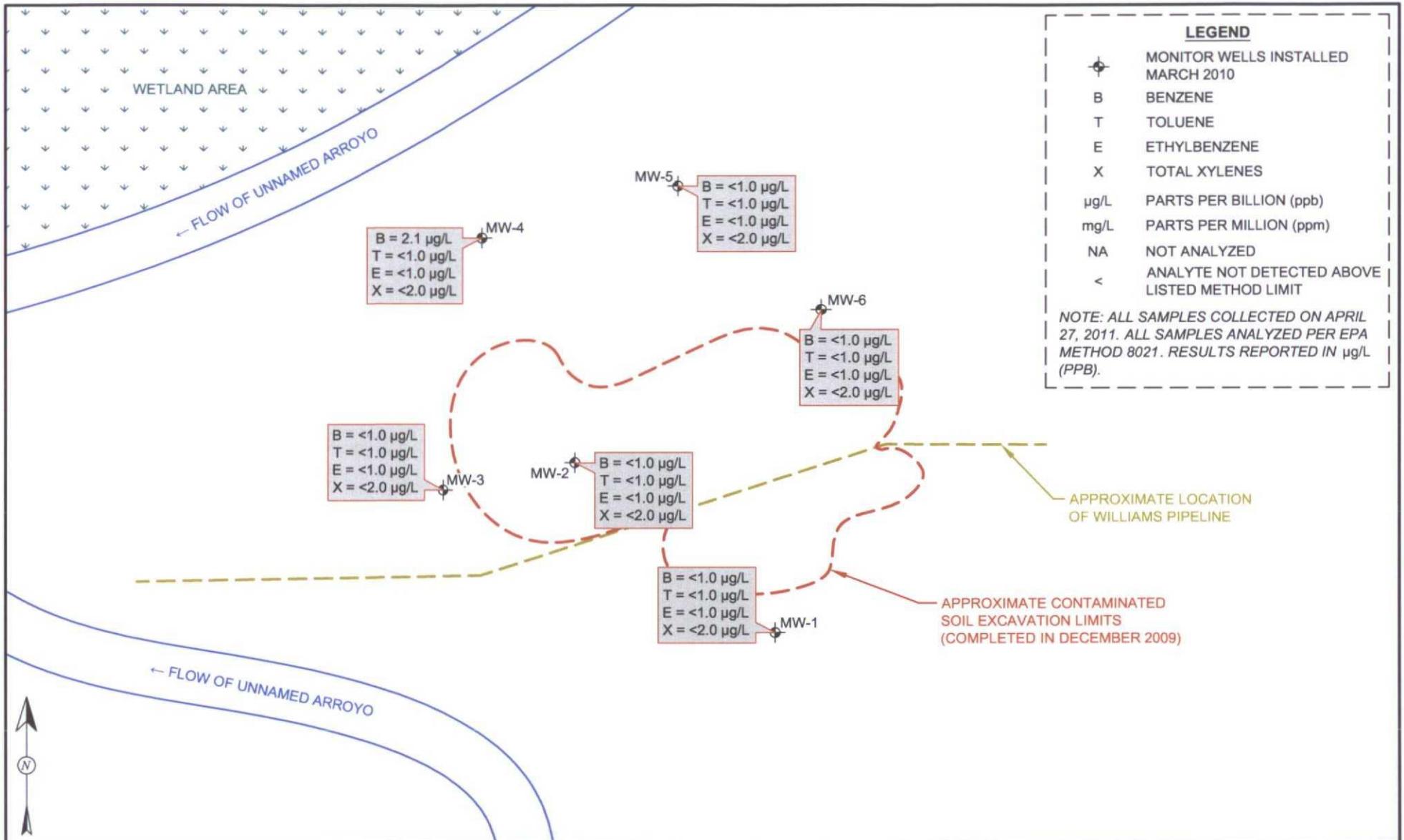
WILLIAMS FOUR CORNERS, LLC  
SAMMONS #2 PIPELINE DECEMBER 2009 RELEASE  
FARMINGTON, SAN JUAN COUNTY, NEW MEXICO  
N36°46'18.240" , W108°06'54.540"



**FIGURE 3**

**GROUNDWATER ELEVATION CONTOURS  
APRIL 2011**

WILLIAMS FOUR CORNERS, LLC  
 SAMMONS #2 PIPELINE DECEMBER 2009 RELEASE  
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO  
 N36°46'18.240" , W108°06'54.540"



<b>DRAWN BY:</b> C. Lameman	<b>DATE DRAWN:</b> April 13, 2010
<b>REVISIONS BY:</b> C. Lameman	<b>DATE REVISED:</b> May 5, 2011
<b>CHECKED BY:</b> T. Ross	<b>DATE CHECKED:</b> May 5, 2011
<b>APPROVED BY:</b> E. McNally	<b>DATE APPROVED:</b> May 6, 2011

**FIGURE 4**

**GROUNDWATER ANALYTICAL RESULTS  
APRIL 2011**

WILLIAMS FOUR CORNERS, LLC  
 SAMMONS #2 PIPELINE DECEMBER 2009 RELEASE  
 FARMINGTON, SAN JUAN COUNTY, NEW MEXICO  
 N36°46'18.240" , W108°06'54.540"







**MONITORING WELL SAMPLING RECORD**

Animas Environmental Services

Monitor Well No:     MW-3    

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

Site: Williams Sammons #2 Pipeline Spill

Project No.: AES 091204

Location: Flora Vista, San Juan County, New Mexico

Date: 4-27-11

Project: Groundwater Monitoring and Sampling

Arrival Time: 1133

Sampling Technician: N. Willis

Air Temp: 58°F

Purge / No Purge: Purge

T.O.C. Elev. (ft): 5425.44

Well Diameter (in): 1

Total Well Depth (ft): 5.9

Initial D.T.W. (ft): \_\_\_\_\_ Time: \_\_\_\_\_ (taken at initial gauging of all wells)

Confirm D.T.W. (ft): 1.61 Time: 1136 (taken prior to purging well)

Final D.T.W. (ft): \_\_\_\_\_ Time: \_\_\_\_\_ (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
1140	10.78	1.510	2.92	7.45	-100.5	0.25	Clear
1143	10.93	1.471	2.09	7.41	-103.4	0.25	
1146	10.64	1.480	2.00	7.38	-106.1	0.25	
1149	10.57	1.481	1.96	7.36	-108.3	0.25	
1152	10.72	1.480	1.88	7.34	-109.1	0.25	
1155	10.70	1.481	1.80	7.34	-111.5	0.25	
1200							Samples Collected

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

Full VOCs per EPA Method 8021 (3 - 40 mL Vials w/ HCl preserve)

Disposal of Purged Water: \_\_\_\_\_

Collected Samples Stored on Ice in Cooler: \_\_\_\_\_

Chain of Custody Record Complete: \_\_\_\_\_

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:





**MONITORING WELL SAMPLING RECORD**

Animas Environmental Services

Monitor Well No: MW-6

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

Site: Williams Sammons #2 Pipeline Spill  
 Location: Flora Vista, San Juan County, New Mexico  
 Project: Groundwater Monitoring and Sampling  
 Sampling Technician: A. Willis  
 Purge / No Purge: Purge  
 Well Diameter (in): 1  
 Initial D.T.W. (ft): \_\_\_\_\_ Time: \_\_\_\_\_  
 Confirm D.T.W. (ft): 0.81 Time: 1311  
 Final D.T.W. (ft): \_\_\_\_\_ Time: \_\_\_\_\_  
 If NAPL Present: D.T.P.: \_\_\_\_\_ D.T.W.: \_\_\_\_\_ Thickness: \_\_\_\_\_ Time: \_\_\_\_\_

Project No.: AES 091204  
 Date: 4-27-11  
 Arrival Time: 1308  
 Air Temp: 58°F  
 T.O.C. Elev. (ft): 5424.91  
 Total Well Depth (ft): 6.3  
 (taken at initial gauging of all wells)  
 (taken prior to purging well)  
 (taken after sample collection)

**Water Quality Parameters - Recorded During Well Purging**

Time	Temp (deg C)	Conductivity (µS) ( <del>ms</del> )	DO (mg/L)	pH	ORP (mV)	PURGED VOLUME (see reverse for calc.)	Notes/Observations
1318	13.61	1.635	1.74	7.50	-80.5	0.25	Clear
1321	12.72	1.656	1.81	7.29	-87.4	0.25	
1324	12.31	1.662	1.35	7.24	-91.5	0.25	
1327	11.91	1.675	1.94	7.15	-94.1	0.25	
1330	11.89	1.663	2.15	7.20	-97.4	0.25	
1333	11.76	1.662	2.38	7.20	-96.5	0.25	
1338							Samples Collected

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

Full VOCs per EPA Method 8021 (3 - 40 mL Vials w/ HCl preserve)

Disposal of Purged Water: \_\_\_\_\_

Collected Samples Stored on Ice in Cooler: \_\_\_\_\_

Chain of Custody Record Complete: \_\_\_\_\_

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:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

COVER LETTER

Monday, May 02, 2011

Tami Ross  
Animas Environmental Services  
624 East Comanche  
Farmington, NM 87401

TEL: (505) 564-2281  
FAX (505) 324-2022

RE: Williams Sammons #2 Pipeline Spill

Order No.: 1104A35

Dear Tami Ross:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 4/29/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to [www.hallenvironmental.com](http://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.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901  
AZ license # AZ0682  
ORELAP Lab # NM100001  
Texas Lab# T104704424-08-TX



# Hall Environmental Analysis Laboratory, Inc.

Date: 02-May-11

CLIENT: Animas Environmental Services  
 Lab Order: 1104A35  
 Project: Williams Sammons #2 Pipeline Spill  
 Lab ID: 1104A35-01

Client Sample ID: TRIP BLANK  
 Collection Date: 4/27/2011 10:52:00 AM  
 Date Received: 4/29/2011  
 Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/29/2011 5:01:29 PM
Toluene	ND	1.0		µg/L	1	4/29/2011 5:01:29 PM
Ethylbenzene	ND	1.0		µg/L	1	4/29/2011 5:01:29 PM
Xylenes, Total	ND	2.0		µg/L	1	4/29/2011 5:01:29 PM
Surr: 4-Bromofluorobenzene	114	96.8-145		%REC	1	4/29/2011 5:01:29 PM

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level  
 E Estimated value  
 J Analyte detected below quantitation limits  
 NC Non-Chlorinated  
 PQL Practical Quantitation Limit

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

**Hall Environmental Analysis Laboratory, Inc.**

Date: 02-May-11

**CLIENT:** Animas Environmental Services  
**Lab Order:** 1104A35  
**Project:** Williams Sammons #2 Pipeline Spill  
**Lab ID:** 1104A35-02

**Client Sample ID:** MW-1  
**Collection Date:** 4/27/2011 10:52:00 AM  
**Date Received:** 4/29/2011  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/29/2011 5:31:29 PM
Toluene	ND	1.0		µg/L	1	4/29/2011 5:31:29 PM
Ethylbenzene	ND	1.0		µg/L	1	4/29/2011 5:31:29 PM
Xylenes, Total	ND	2.0		µg/L	1	4/29/2011 5:31:29 PM
Surr: 4-Bromofluorobenzene	103	96.8-145		%REC	1	4/29/2011 5:31:29 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

**Hall Environmental Analysis Laboratory, Inc.**

Date: 02-May-11

**CLIENT:** Animas Environmental Services  
**Lab Order:** 1104A35  
**Project:** Williams Sammons #2 Pipeline Spill  
**Lab ID:** 1104A35-03

**Client Sample ID:** MW-2  
**Collection Date:** 4/27/2011 11:29:00 AM  
**Date Received:** 4/29/2011  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/29/2011 10:32:08 PM
Toluene	ND	1.0		µg/L	1	4/29/2011 10:32:08 PM
Ethylbenzene	ND	1.0		µg/L	1	4/29/2011 10:32:08 PM
Xylenes, Total	ND	2.0		µg/L	1	4/29/2011 10:32:08 PM
Surr: 4-Bromofluorobenzene	95.8	96.8-145	S	%REC	1	4/29/2011 10:32:08 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

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

**Hall Environmental Analysis Laboratory, Inc.**

Date: 02-May-11

**CLIENT:** Animas Environmental Services  
**Lab Order:** 1104A35  
**Project:** Williams Sammons #2 Pipeline Spill  
**Lab ID:** 1104A35-04

**Client Sample ID:** MW-3  
**Collection Date:** 4/27/2011 12:00:00 PM  
**Date Received:** 4/29/2011  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/29/2011 11:02:16 PM
Toluene	ND	1.0		µg/L	1	4/29/2011 11:02:16 PM
Ethylbenzene	ND	1.0		µg/L	1	4/29/2011 11:02:16 PM
Xylenes, Total	ND	2.0		µg/L	1	4/29/2011 11:02:16 PM
Surr: 4-Bromofluorobenzene	98.1	96.8-145		%REC	1	4/29/2011 11:02:16 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

**Hall Environmental Analysis Laboratory, Inc.**

Date: 02-May-11

**CLIENT:** Animas Environmental Services  
**Lab Order:** 1104A35  
**Project:** Williams Sammons #2 Pipeline Spill  
**Lab ID:** 1104A35-05

**Client Sample ID:** MW-4  
**Collection Date:** 4/27/2011 12:33:00 PM  
**Date Received:** 4/29/2011  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	2.1	1.0		µg/L	1	4/29/2011 11:32:25 PM
Toluene	ND	1.0		µg/L	1	4/29/2011 11:32:25 PM
Ethylbenzene	ND	1.0		µg/L	1	4/29/2011 11:32:25 PM
Xylenes, Total	ND	2.0		µg/L	1	4/29/2011 11:32:25 PM
Surr: 4-Bromofluorobenzene	102	96.8-145		%REC	1	4/29/2011 11:32:25 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

**Hall Environmental Analysis Laboratory, Inc.**

Date: 02-May-11

**CLIENT:** Animas Environmental Services  
**Lab Order:** 1104A35  
**Project:** Williams Sammons #2 Pipeline Spill  
**Lab ID:** 1104A35-06

**Client Sample ID:** MW-5  
**Collection Date:** 4/27/2011 1:05:00 PM  
**Date Received:** 4/29/2011  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/30/2011 12:02:27 AM
Toluene	ND	1.0		µg/L	1	4/30/2011 12:02:27 AM
Ethylbenzene	ND	1.0		µg/L	1	4/30/2011 12:02:27 AM
Xylenes, Total	ND	2.0		µg/L	1	4/30/2011 12:02:27 AM
Surr: 4-Bromofluorobenzene	109	98.8-145		%REC	1	4/30/2011 12:02:27 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

**Hall Environmental Analysis Laboratory, Inc.**

Date: 02-May-11

CLIENT: Animas Environmental Services  
 Lab Order: 1104A35  
 Project: Williams Sammons #2 Pipeline Spill  
 Lab ID: 1104A35-07

Client Sample ID: MW-6  
 Collection Date: 4/27/2011 1:38:00 PM  
 Date Received: 4/29/2011  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/30/2011 12:32:31 AM
Toluene	ND	1.0		µg/L	1	4/30/2011 12:32:31 AM
Ethylbenzene	ND	1.0		µg/L	1	4/30/2011 12:32:31 AM
Xylenes, Total	ND	2.0		µg/L	1	4/30/2011 12:32:31 AM
Surr: 4-Bromofluorobenzene	96.1	96.8-145	S	%REC	1	4/30/2011 12:32:31 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

**QA/QC SUMMARY REPORT**

**Client:** Animas Environmental Services  
**Project:** Williams Sammons #2 Pipeline Spill

**Work Order:** 1104A35

Analyte	Result	Units	PQL	SPK Val	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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**Method:** EPA Method 8021B: Volatiles

**Sample ID:** 1104A35-02A MSD *MSD* **Batch ID:** R45059 **Analysis Date:** 4/29/2011 8:01:56 PM

Benzene	21.98	µg/L	1.0	20	0	110	92.7	114	0.301	14	
Toluene	21.96	µg/L	1.0	20	0	110	94.6	116	1.19	16.2	
Ethylbenzene	20.75	µg/L	1.0	20	0	104	94.3	114	1.45	12.6	
Xylenes, Total	63.33	µg/L	2.0	60	0	108	95.7	116	1.96	11.9	

**Sample ID:** 5ML RB *MBLK* **Batch ID:** R45059 **Analysis Date:** 4/29/2011 8:29:49 AM

Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								

**Sample ID:** 100NG BTEX LCS *LCS* **Batch ID:** R45059 **Analysis Date:** 4/29/2011 12:00:45 PM

Benzene	22.94	µg/L	1.0	20	0	115	93.4	120			
Toluene	23.13	µg/L	1.0	20	0.14	115	96.2	122			
Ethylbenzene	21.97	µg/L	1.0	20	0.11	109	95	121			
Xylenes, Total	67.37	µg/L	2.0	60	0	112	97.6	122			

**Sample ID:** 1104A35-02A MS *MS* **Batch ID:** R45059 **Analysis Date:** 4/29/2011 7:32:01 PM

Benzene	21.92	µg/L	1.0	20	0	110	92.7	114			
Toluene	22.22	µg/L	1.0	20	0	111	94.6	116			
Ethylbenzene	21.05	µg/L	1.0	20	0	105	94.3	114			
Xylenes, Total	64.58	µg/L	2.0	60	0	108	95.7	116			

**Qualifiers:**

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name ANIMAS ENVIRONMENTAL

Date Received:

4/29/2011

Work Order Number 1104A35

Received by: AMG

Checklist completed by:

*[Signature]*  
Signature

4/29/11  
Date

Sample ID labels checked by:

*MG*  
Initials

Matrix:

Carrier name: Greyhound

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present  Not Shipped
- Custody seals intact on sample bottles? Yes  No  N/A
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No
- Water - Preservation labels on bottle and cap match? Yes  No  N/A
- Water - pH acceptable upon receipt? Yes  No  N/A
- Container/Temp Blank temperature? 3.8° <6° C Acceptable  
If given sufficient time to cool.

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

COMMENTS:

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

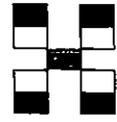
Comments: \_\_\_\_\_

Corrective Action \_\_\_\_\_

# Chain-of-Custody Record

Client: ANIMAS ENVIRONMENTAL SERVICES, LLC.  
 Mailing Address: 624 E. COMANCHE FARMINGTON, NM 87401  
 Phone #: 505-564-2281  
 email or Fax#: 505-324-2022  
 QA/QC Package:  
 Standard       Level 4 (Full Validation)  
 Accreditation:  
 NELAP       Other \_\_\_\_\_  
 EDD (Type) \_\_\_\_\_

Turn-Around Time:  
 Standard       Rush \_\_\_\_\_  
 Project Name: WILLIAMS SAMMONS #2 PIPELINE SPILL  
 Project #: AES091204  
 Project Manager: TAMI ROSS  
 Sampler: NATHAN WILLIS  
 On Ice:  Yes       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	LAB No	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	8021 BTEX ONLY	Air Bubbles (Y or N)		
		H <sub>2</sub> O	TRIP BLANK	2-40 mL glass	HCl	1021265															
4-27-11	1052	}	MW-1	3-40 mL GLASS	}	1													X		
	1129		MW-2			2														X	
	1200		MW-3			4														X	
	1233		MW-4			5														X	
	1305		MW-5			6														X	
	1338		MW-6			7														X	

Date: <u>4/27/11</u>	Time: <u>1430</u>	Relinquished by: <u>Nathan Willis</u>	Received by: <u>Cecilia</u>	Date: <u>4/27/11</u>	Time: <u>1430</u>	Remarks:
Date: <u>4/28/11</u>	Time: <u>1430</u>	Relinquished by: <u>Cecilia</u>	Received by: <u>[Signature]</u>	Date: <u>4/29/11</u>	Time: <u>9:30</u>	

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.