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# Annual GW Mon. Report

Year: 2011



## 2011 ANNUAL MONITORING REPORT

## **MONUMENT 18**

NW ¼ NW ¼ SECTION 7, TOWNSHIP 20 SOUTH, RANGE 37 EAST LEA COUNTY, NEW MEXICO PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN NMOCD Reference 1R-0124

## Prepared For:

PLAINS MARKETING, L.P. 333 CLAY STREET, SUITE 1600 HOUSTON, TEXAS 77002



Prepared By:

NOVA Safety and Environmental 2057 Commerce Street

Midland, Texas 79703

March 2012

Ronald K. Rounsaville Senior Project Manager Brittan K. Byerly, P.G.

President



March 22, 2012

Mr. Edward Hansen New Mexico Oil Conservation Division Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Re:

Plains All American - 2011 Annual Monitoring Reports

15 Sites in Lea County, New Mexico

MAR 26 2012 A

Oil Conservation Division 1220 S. St. Francis Drive Santa Fe. NM 87505

Dear Mr. Hansen:

Plains All American is an operator of crude oil pipelines and terminal facilities in the state of New Mexico. Plains All American actively monitors certain historical release sites exhibiting groundwater impacts, consistent with assessments and work plans developed in consultation with the New Mexico Oil Conservation Division (NMOCD). In accordance with the rules and regulations of the NMOCD, Plains All American hereby submits our Annual Monitoring reports for the following sites:

	· /	
<u>34 Junc. to Lea Sta.</u>	1R-0386	Section 21, Township 20 South, Range 37 East, Lea County
34 Junction South	1R-0456 ′	Section 02, Township 17 South, Range 36 East, Lea County
Bob Durham	AP-0016 ′	Section 32, Township 19 South, Range 37 East. Lea County
HDO-90-23	AP-009	Section 06, Township 20 South, Range 37 East, Lea County
LF-59	1R-0103	Section 32, Township 19 South, Range 37 East, Lea County
Monument 2	1R-0110 <sup>-</sup>	Section 06, Township 20 South, Range 37 East, Lea County
		Section 07, Township 20 South, Range 37 East, Lea, County
Monument 10	1R-0119	Section 30, Township 19 South, Range 37 East, Lea County
Monument 17	1R-123	Section 29, Township 19 South, Range 37 East, Lea County
Monument 18	1R-0124	Section 07, Township 20 South, Range 37 East, Lea County
SPS-11	GW-0140	Section 18, Township 18 South, Range 36 East, Lea County
Texaco Skelly F	1R-0420	Section 11, Township 21 South, Range 37 East, Lea County
TNM 97-04	GW-0294 -	Section 11, Township 16 South, Range 35 East, Lea County
TNM 97-17	AP-017 ~	Section 21, Township 20 South, Range 37 East, Lea County
TNM 97-18	AP-0013	Section 28, Township 20 South, Range 37 East, Lea County
TNM 98-05A	AP-12 (	Section 26, Township 21 South, Range 37 East, Lea County

Nova Safety and Environmental (Nova) prepared these documents and has vouched for their accuracy and completeness, and on behalf of Plains All American, I have personally reviewed the documents and interviewed Nova personnel in order to verify the accuracy and completeness of these documents. It is based upon these inquiries and reviews that Plains All American submits the enclosed Annual Monitoring Reports for the above facilities.



If you have any questions or require further information, please contact me at (575) 441-1099.

Sincerely,

∮ason Henry

Remediation Coordinator

Plains All American

CC: Geoff Leking, NMOCD, Hobbs, NM

Enclosures

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ENCLOSED ON DATA DISK 2011 Annual Monitoring Report

2011 Tables 1, 2 and 3 – Groundwater Elevation and BTEX Concentration Data

2011 Figures 1, 2A-2D, and 3A-3D

Electronic Copies of Laboratory Reports

Historic Table 1, 2 and 3 – Groundwater Elevation, BTEX and PAH Concentration Tables

## INTRODUCTION

On behalf of Plains Marketing, L.P., (Plains), NOVA Safety and Environmental (NOVA) is pleased to submit this Annual Monitoring Report in compliance with the New Mexico Oil Conservation Division (NMOCD) letter of May 1998, requiring submittal of an Annual Monitoring Report by April 1 of each year. Beginning on May 29, 2004, project management responsibilities were assumed by NOVA. The Monument 18 Site (the site), formally the responsibility of Enron Oil Trading and Transportation (EOTT), is now the responsibility of Plains. This report is intended to be viewed as a complete document with figures, attachments, tables and text. The report presents the results of the quarterly groundwater monitoring events conducted in calendar year 2011 only. For reference, the Site Location Map is provided as Figure 1. Cumulative tables and laboratory data are provided on the enclosed data disk.

Groundwater monitoring was conducted each quarter of 2011 to assess the levels and extent of dissolved phase constituents and Phase Separated Hydrocarbon (PSH). The groundwater monitoring events consisted of measuring static water levels in the monitor wells, checking for the presence of PSH and purging and sampling of each well exhibiting sufficient recharge. Monitor wells containing a thickness of PSH greater than 0.01 foot were not sampled.

## SITE DESCRIPTION AND BACKGROUND INFORMATION

The legal description of the site location is NW ¼ NW ¼, Section 7, Township 20 South, Range 37 East, Lea County, New Mexico. No information with respect to the release date or volume of crude oil released and recovered is available as the release occurred while the pipeline was operated by Texas New Mexico Pipe Line Company (TNM). The Release Notification and Corrective Action Form (C-141) is provided as Appendix A.

Currently, there are nine monitor wells (MW-1 and MW-3 through MW-10) on site. Manual recovery of PSH is performed on a weekly schedule.

## FIELD ACTIVITIES

## **Product Recovery Efforts**

A measurable thickness of PSH was present in monitor wells MW-3 and MW-4 during all four quarters of the reporting period. The average PSH thickness in monitor well MW-3 was 0.32 feet. The average PSH thickness in monitor well MW-4 was 1.25 feet. The maximum measured PSH thickness of 1.99 feet was observed in monitor well MW-4 on May 2, 2011. PSH data for the 2011 gauging events can be found in Table 1. Approximately 171.25 gallons (approximately 4.1 barrels) of PSH was recovered from the site during the 2011 reporting period. Approximately 526 gallons (12.52 barrels) of PSH have been recovered since project inception. Recovery of PSH at the site is by manual recovery methods and is performed on a weekly schedule.

During the reporting period, Plains contracted a third party to conduct Mobile Dual Phase Extraction (MDPE) events at the Monument 18 site to assist in PSH recovery efforts. On May 6 and September 12, 2011, two, 12-hour MDPE events were conducted on monitor wells MW-3 and MW-4. During the two MDPE events, approximately 64 gallons of liquid PSH and 5.93 equivalent off-gas vapor gallons were recovered.

## **Groundwater Monitoring**

Quarterly monitoring events for the reporting period were performed according to the following sampling schedule, which was approved by the NMOCD in correspondence dated April 28, 2004 and amend by NMOCD correspondence dated June 22, 2005.

NMOCD APPROVED SAMPLING SCHEDULE									
Location	Schedule	Location	Schedule						
MW-1	Quarterly	MW-6	Annually						
MW-2	Plugged and Abandoned	MW-7	Annually						
MW-3	Quarterly	MW-8	Annually						
MW-4	Quarterly	MW-9	Quarterly						
MW-5	Semi-Annually	MW-10	Quarterly						

The site monitor wells were gauged and sampled on February 8, May 10, August 9, and October 31, 2011. During each sampling event the monitor wells were purged of a minimum of three well volumes of water or until the wells were dry using a disposable polyethylene bailer or electrical Grundfos pump. Groundwater was allowed to recharge and samples were obtained using disposable Teflon samplers. Water samples were collected in clean glass containers provided by the laboratory and placed on ice in the field. Purge water was collected in a polystyrene tank and disposed of at a licensed disposal facility.

Locations of the monitor wells and the inferred groundwater gradient, which were constructed from measurements collected during the four quarterly monitoring events, are depicted on Figures 2A through 2D, the Inferred Groundwater Gradient Map(s). Groundwater elevation data for 2011 is provided as Table 1. Historic groundwater elevation data beginning at project inception is provided on the enclosed data disk.

The most recent Groundwater Gradient Map, Figure 2D, indicates a general gradient of approximately 0.0014 feet/foot to the south. This is consistent with data presented on Figures 2A through 2C from earlier in the year. The corrected groundwater elevations ranged between 3,525.91 to 3,527.14 feet above mean sea level, in monitor well MW-8 on February 8, 2011 and in monitor well MW-9 on October 31, 2011, respectively.

## LABORATORY RESULTS

Groundwater samples obtained during the quarterly sampling events of 2011 were delivered to Trace Analysis, Inc. in Midland, Texas for determination of Benzene, Toluene, Ethylbenzene and Xylene (BTEX) constituent concentrations by EPA Method 8021B. Polynuclear Aromatic Hydrocarbons (PAH) analysis was conducted only on monitor wells MW-1, MW-3, MW-4 and MW-7 during 2011. Based upon historic PAH analytical data, only those wells exhibiting elevated constituent concentrations above WQCC standards are sampled, with the exclusion of those wells containing measurable PSH thicknesses. A listing of BTEX constituent concentrations for 2011 are summarized in Table 2 and the historic PAH constituent concentrations are summarized in Table 3. Copies of the laboratory reports generated for 2011 are provided on the enclosed data disk. The quarterly groundwater sample results for BTEX constituent concentrations are depicted on Figures 3A through 3D

Monitor well MW-1 is sampled on a quarterly schedule. Analytical results indicate benzene concentrations ranged from <0.001 mg/L during the 3<sup>rd</sup> quarter to 0.0139 mg/L during the 2<sup>nd</sup> quarter of 2011. Benzene concentrations were above NMOCD regulatory standards of 0.01 mg/L, during 1<sup>st</sup> and 2<sup>nd</sup> quarters of the reporting period. Toluene concentrations were below the MDL of <0.001 mg/L and the NMOCD regulatory standard of 0.75 mg/L during all four quarters of the reporting period. Ethyl-benzene concentrations ranged from <0.001 mg/L during the 3<sup>rd</sup> quarter to 0.0105 mg/L during the 2<sup>nd</sup> quarter of 2011. Ethyl-benzene concentrations were below NMOCD regulatory standard of 0.75 mg/L, during all four quarters of the reporting period. Xylene concentrations ranged from 0.0102 mg/L during the 4<sup>th</sup> quarter to 0.0409 mg/L during the 2<sup>nd</sup> quarter of 2011. Xylene concentrations were below NMOCD regulatory standard of 0.62 mg/L, during all four quarters of the reporting period. PAH analysis during the 4th quarter sampling event indicated elevated concentrations above WOCC Drinking Water Standards of 1methylnaphthalene (0.0326 mg/L) and phenanthrene (0.0095 mg/L). constituents detected above MDLs include dibenzofuran (0.0104 mg/L), which is below the WQCC Drinking Water Standards. The PAH constituents detected in MW-1 during 2011 have decreased in respect to the number of analytes detected in 2008 and 2009.

Monitor well MW-3 is sampled on a quarterly schedule. Monitor well MW-3 was not sampled during the four quarters of the reporting period, due to the reported presence of PSH in the monitor well. PSH thicknesses of 0.37 feet, 0.05 feet, 0.50 feet and 0.41 feet were reported during the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2011, respectively. PAH analysis was not conducted during the 4<sup>th</sup> quarter sampling event due to the presence of PSH.

Monitor well MW-4 is sampled on a quarterly schedule. Monitor well MW-4 was not sampled during the four quarters of the reporting period, due to the reported presence of PSH in the monitor well. PSH thicknesses of 1.56 feet, 1.78 feet, 1.90 feet and 0.86 feet were reported during the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2011, respectively. PAH analysis was not conducted during the 4<sup>th</sup> quarter sampling event due to the presence of PSH.

**Monitor well MW-5** is sampled on a semi-annual schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the 2<sup>nd</sup> and 4<sup>th</sup> quarter sampling events. Monitor well MW-5 has exhibited thirty-six consecutive monitoring events below NMOCD regulatory limits. PAH analysis was not required by the NMOCD.

Monitor well MW-6 is sampled on an annual schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the 4<sup>th</sup> quarter sampling event. Monitor well MW-6 has exhibited thirty consecutive monitoring events below NMOCD regulatory limits. PAH analysis was not required by the NMOCD.

Monitor well MW-7 is sampled on an annual schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the 4<sup>th</sup> quarter sampling event. Monitor well MW-7 has exhibited thirty consecutive monitoring events below NMOCD regulatory limits. PAH analysis during the 4<sup>th</sup> quarter sampling event indicated elevated concentrations above MDLs for dibenzofuran (0.004443 mg/L), which is below WOCC standards.

Monitor well MW-8 is sampled on an annual schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the 4<sup>th</sup> quarter sampling event. Monitor well MW-8 has exhibited twenty-six consecutive monitoring events below NMOCD regulatory limits. PAH analysis was not required by the NMOCD.

Monitor well MW-9 is sampled on a quarterly schedule. During the 2011 monitoring period, no BTEX constituent concentrations exceeded the NMOCD regulatory standards. Analytical results indicate benzene and toluene concentrations were below NMOCD regulatory standards during all four quarters of the reporting period. Ethyl-benzene concentrations ranged from <0.001 mg/L during the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarters to 0.0078 mg/L during the 1<sup>st</sup> quarter of 2011. Ethyl-benzene concentrations were below NMOCD regulatory standard during all four quarters of the reporting period. Xylene concentrations ranged from <0.001 during the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarters to 0.0218 mg/L during the 1<sup>st</sup> quarter of 2011. Xylene concentrations were below NMOCD regulatory standard during all four quarters of the reporting period. PAH analysis was not required by the NMOCD.

Monitor well MW-10 is sampled on a quarterly schedule. During the 2011 monitoring period, no BTEX constituent concentrations exceeded the NMOCD regulatory standards. Analytical results indicate benzene concentrations ranged from <0.001 mg/L during the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> quarters to 0.0012 mg/L during the 4<sup>th</sup> quarter of 2011. Benzene concentrations were below NMOCD regulatory standards during all four quarters of the reporting period. Toluene, ethylbenzene and xylene concentrations were below the MDL and the NMOCD regulatory standard during all four quarters of the reporting period. PAH analysis was not required by the NMOCD.

Laboratory analytical results were compared to NMOCD regulatory limits based on the New Mexico groundwater standards found in section 20.6.2.3103 of the New Mexico Administrative Code.

## **SUMMARY**

This report presents the results of monitoring activities for the 2011 annual monitoring period. Currently, there are nine groundwater monitor wells (MW-1 and MW-3 through MW-10) on site. Recovery of PSH at the site is achieved using manual recovery methods and is monitored on a bi-weekly schedule. The most recent Groundwater Gradient Map, Figure 2D, indicates a general gradient of approximately 0.0014 feet/foot to the south.

As discussed above, two monitor wells (MW-3 and MW-4) contained measurable PSH thicknesses during each of the four sampling events of the reporting period with an average PSH thickness of 0.32 feet in monitor well MW-3 and 1.25 feet in monitor well MW-4.

Approximately 171.25 gallons (approximately 4.1 barrels) of PSH was recovered from the site during the 2011 reporting period. Approximately 526 gallons (12.52 barrels) of PSH have been recovered since project inception. Recovery of PSH at the site is by manual recovery methods and is monitored on a weekly schedule.

During the reporting period, Plains contracted a third party to conduct Mobile Dual Phase Extraction (MDPE) events at the Monument 18 site to assist in PSH recovery efforts. On May 6

and September 12, 2011, two, 12-hour MDPE events were conducted on monitor wells MW-3 and MW-4. During the two MDPE events, approximately 64 gallons of liquid PSH and 5.93 equivalent off-gas vapor gallons were recovered.

BTEX constituent concentrations were below NMOCD regulatory standards in six of the nine monitor wells during 2011. Dissolved phase and phase separated hydrocarbon impact appears to be limited to monitor wells MW-1, MW-3 and MW-4. Review of PAH analysis indicates an increasing trend in constituent concentrations in monitor well MW-1 and a decreasing trend in MW-7.

## ANTICIPATED ACTIONS

Quarterly monitoring, aggressive PSH recovery and groundwater sampling will continue in 2012. Manual product recovery and gauging well be conducted on a bi-weekly schedule and will be adjusted according to site conditions. Additional MDPE events will be scheduled as necessary.

An Annual Monitoring Report will be submitted to the NMOCD before April 1, 2013.

## **LIMITATIONS**

NOVA has prepared this Annual Monitoring Report to the best of its ability. No other warranty, expressed or implied, is made or intended.

NOVA has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. NOVA has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. NOVA has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. NOVA also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of Plains. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of NOVA and/or Plains.

## **DISTRIBUTION**

Copy 1 Ed Hansen

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Santa Fe, NM 87505

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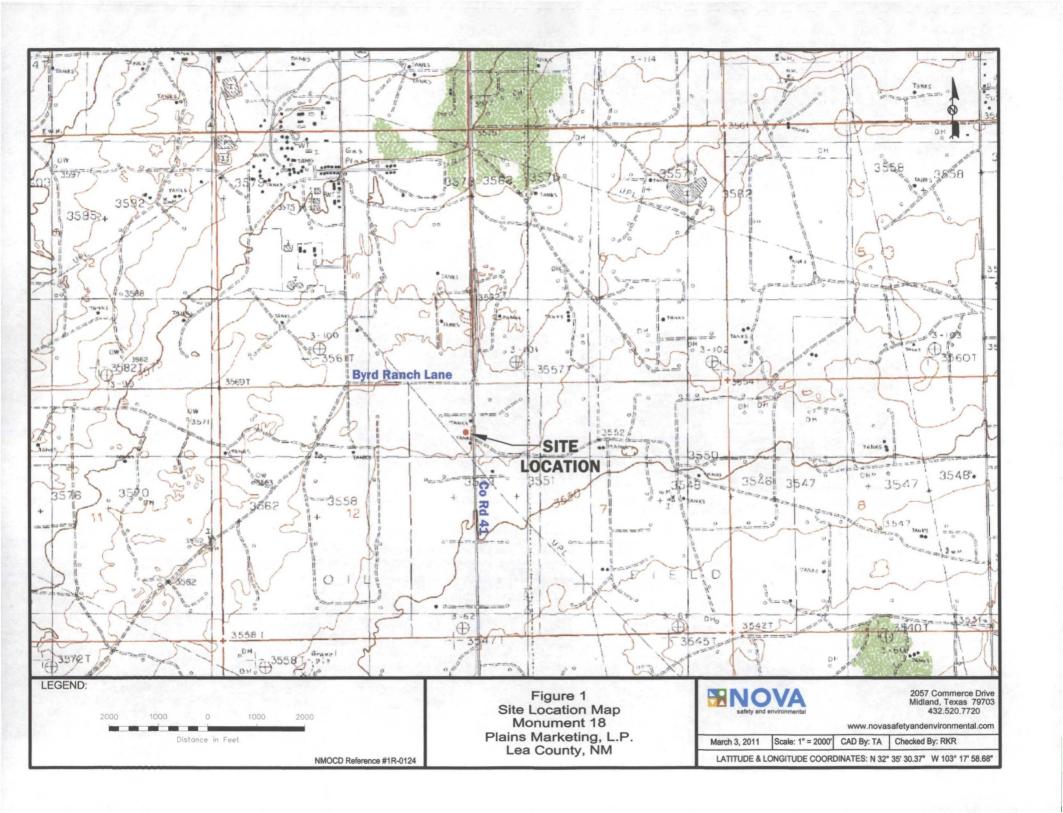
Houston, TX 77002 jpdann@paalp.com

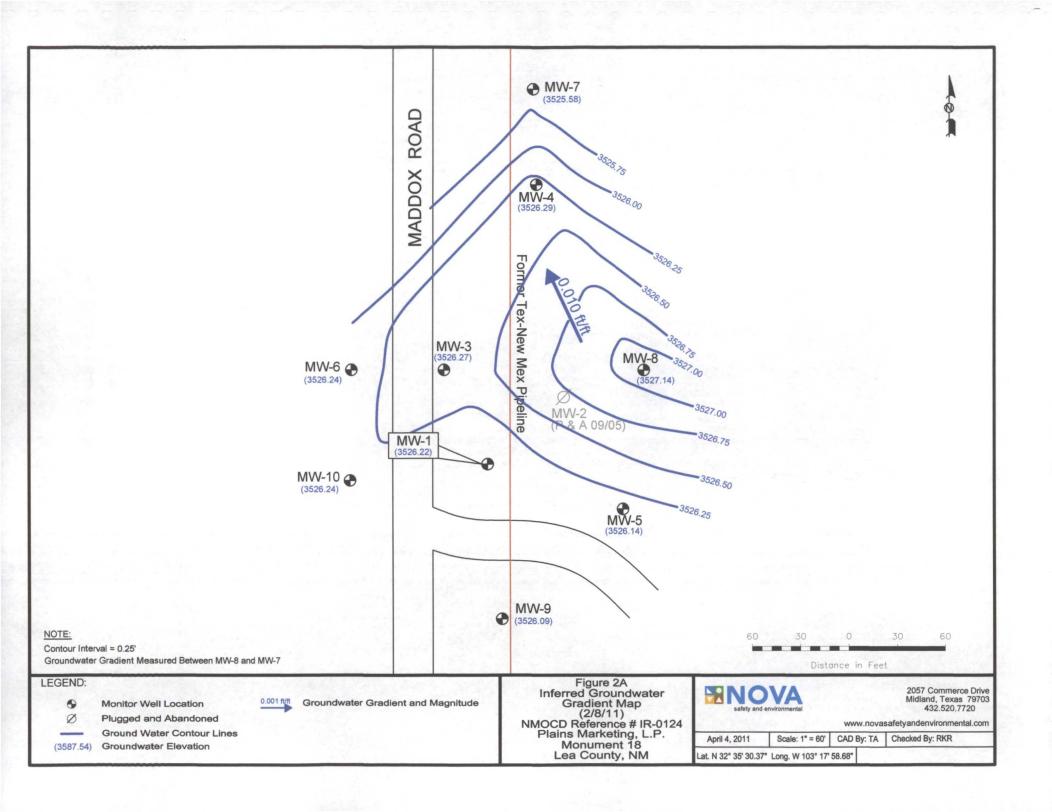
Copy 5: NOVA Safety and Environmental

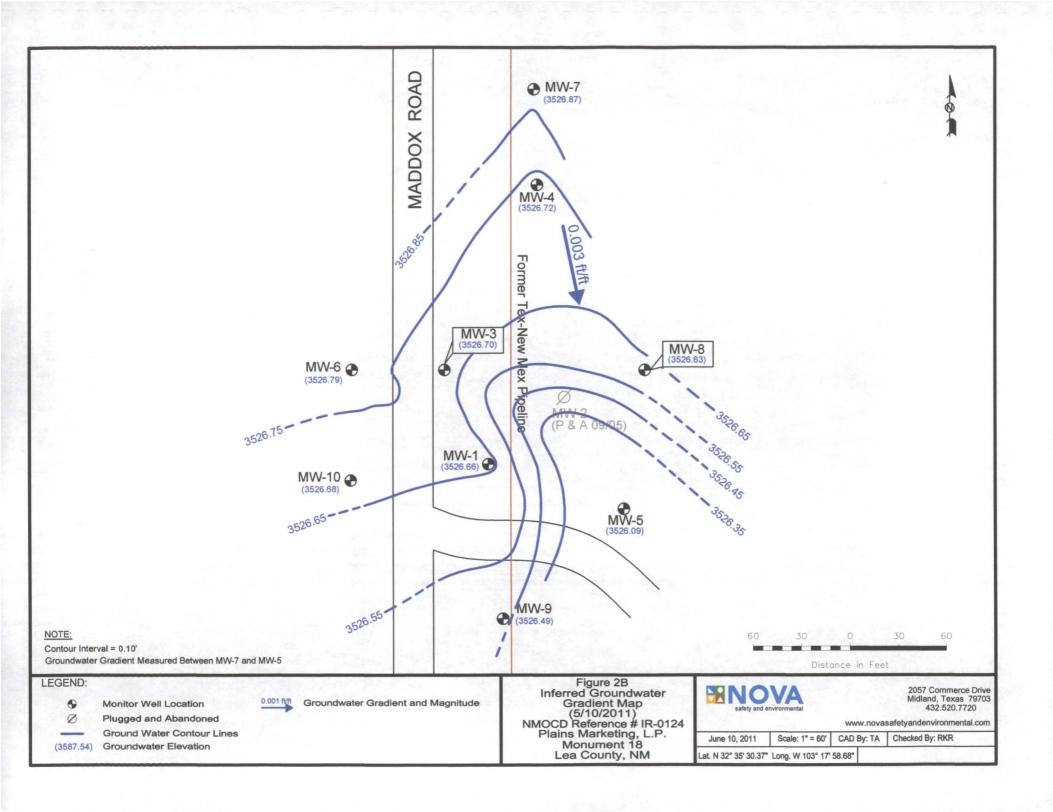
2057 Commerce Street Midland, TX 79703

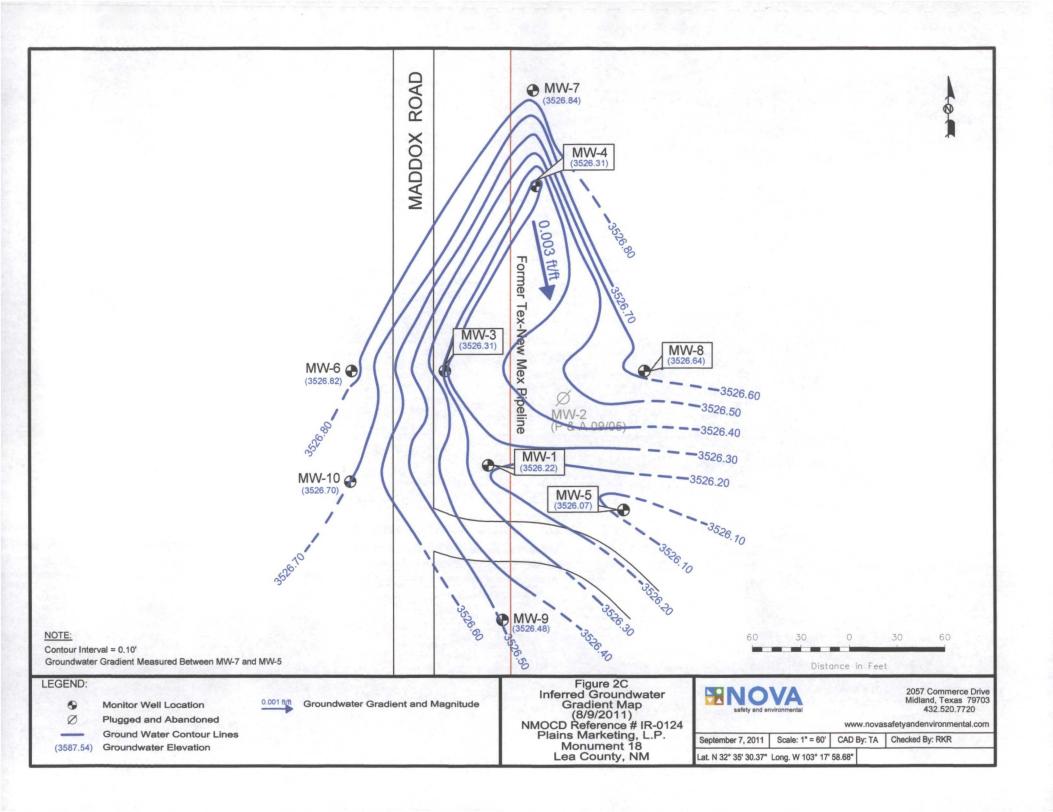
rrounsaville@novatraining.cc

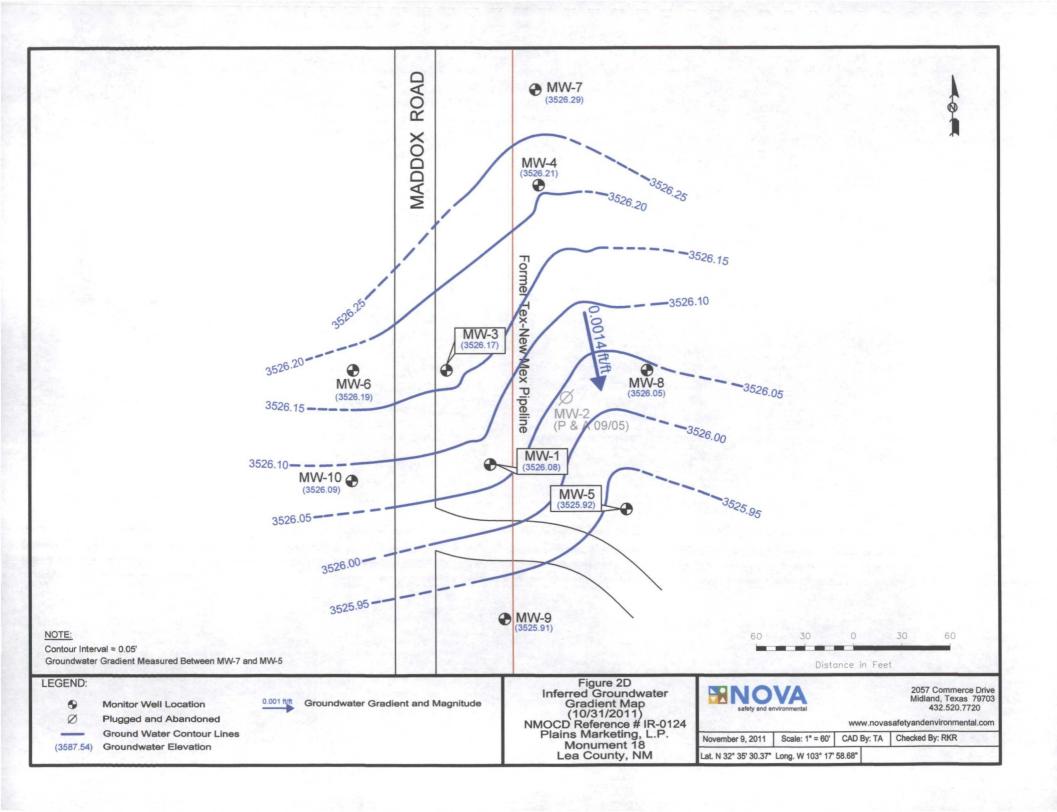
Figures

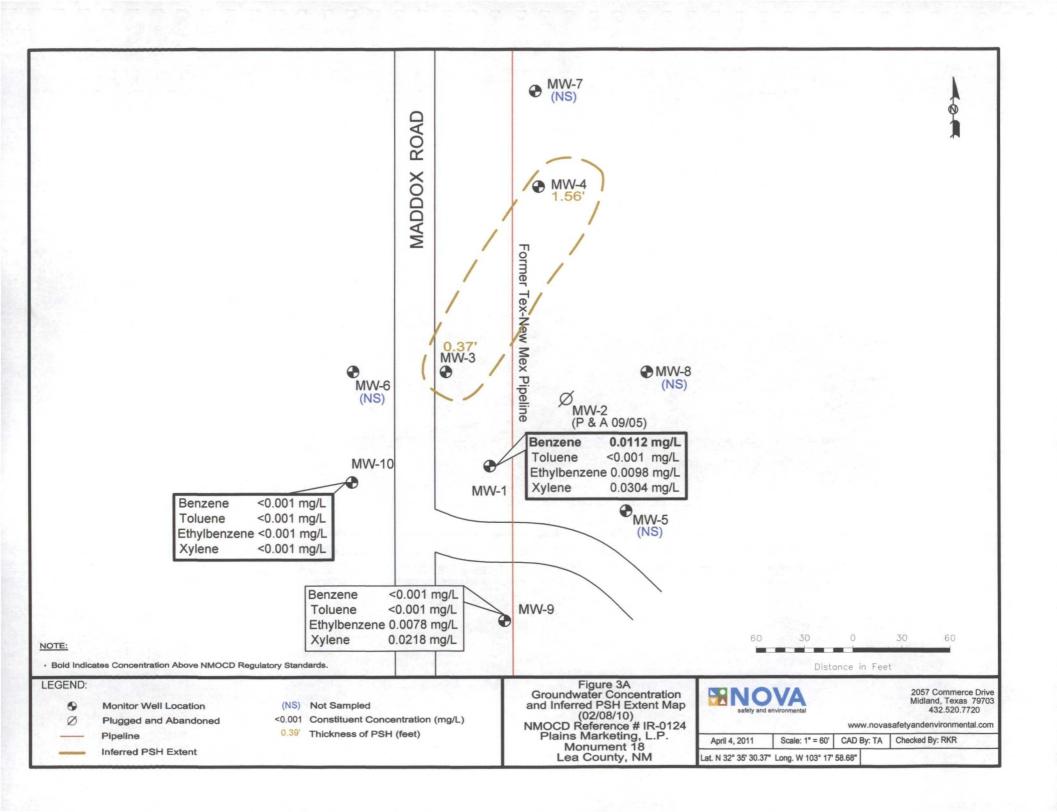


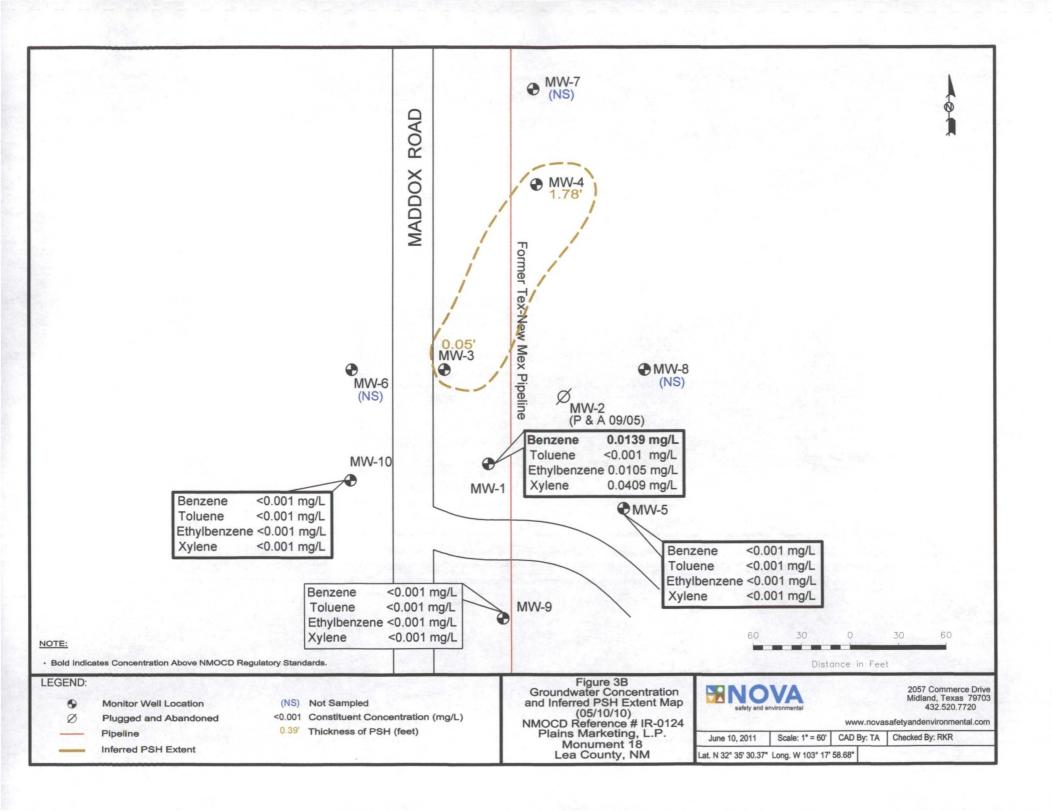


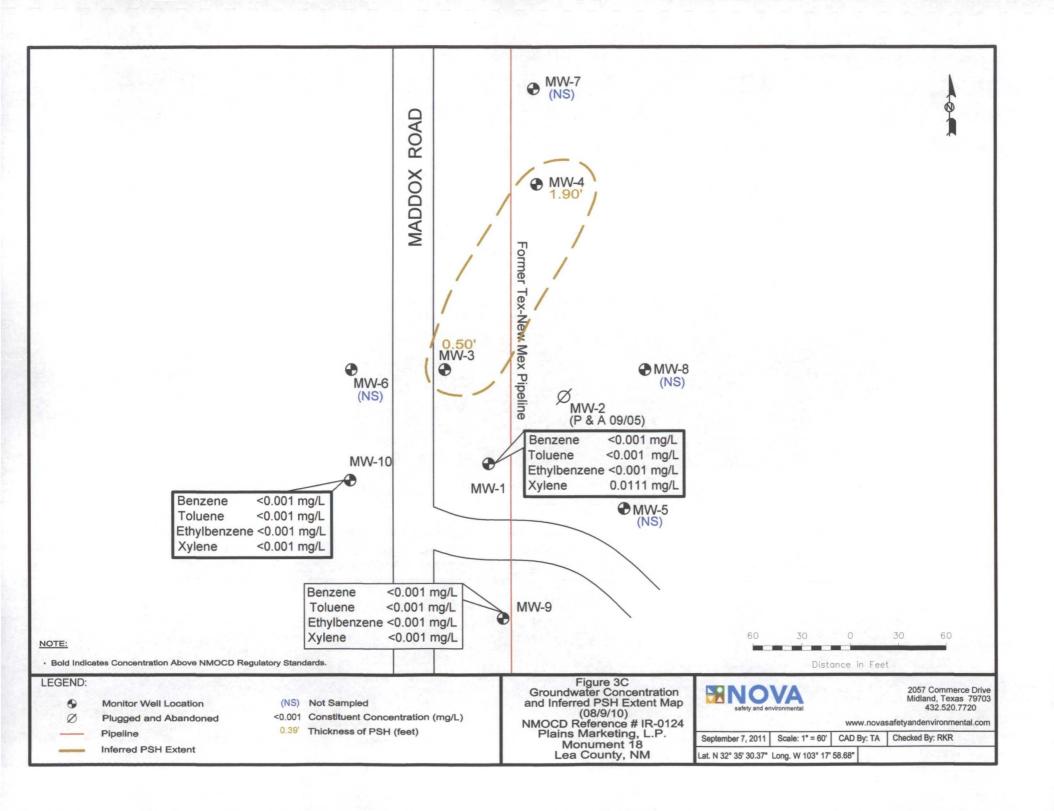


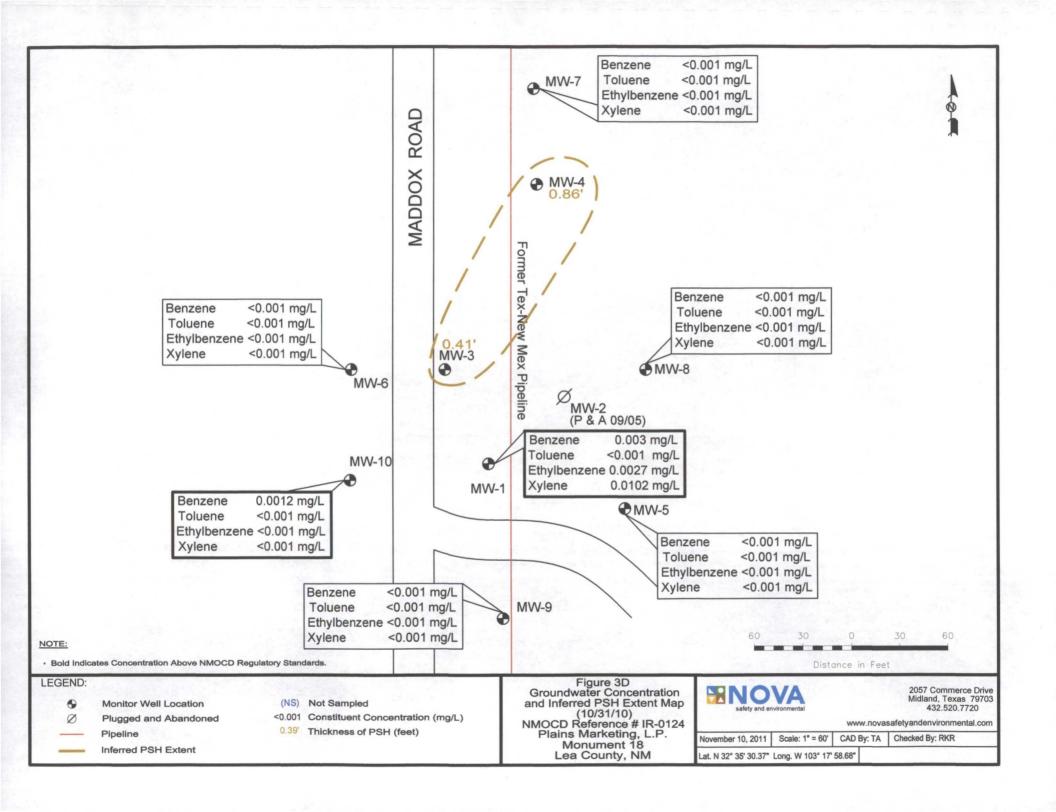












Tables

## **GROUNDWATER ELEVATION DATA - 2011**

## PLAINS MAREKTING, L.P. MONUMENT 18 LEA COUNTY, NEW MEXICO NMOCD REFERENCE NUMBER 1R-0124

SAMPLE LOCATION	SAMPLE DATE	TOP OF CASING ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUND WATER ELEVATION
MW - 1	02/08/11	3,558.71	-	32.49	0.00	3,526.22
MW - 1	05/02/11	3,558.71	-	32.12	0.00	3,526.59
MW - 1	05/09/11	3,558.71	-	32.05	0.00	3,526.66
MW - 1	05/10/11	3,558.71	-	32.05	0.00	3,526.66
MW - 1	05/12/11	3,558.71	-	32.38 .	0.00	3,526.33
MW - 1	08/09/11	3,558.71	-	32.49	0.00	3,526.22
MW - 1	09/14/11	3,558.71	-	32.63	0.00	3,526.08
MW - 1	10/31/11	3,558.71	-	32.63	0.00	3,526.08
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MW - 3	02/08/11	3,558.53	32.20	32.57	0.37	3,526.27
MW - 3	05/02/11	3,558.53	31.77	31.97	0.20	3,526.73
MW - 3	05/09/11	3,558.53	31.82	31.87	0.05	3,526.70
MW - 3	05/10/11	3,558.53	31.82	31.87	0.05	3,526.70
MW - 3	05/19/11	3,558.53	-	31.82	0.00	3,526.71
MW - 3	05/27/11	3,558.53	-	31.82	0.00	3,526.71
MW - 3	06/10/11	3,558.53	_	31.86	0.00	3,526.67
MW - 3	06/24/11	3,558.53	-	31.86	0.00	3,526.67
MW - 3	07/01/11	3,558.53	-	31.90	0.00	3,526.63
MW - 3	07/12/11	3,558.53	-	31.94	0.00	3,526.59
MW - 3	08/09/11	3,558.53	32.15	32.65	0.50	3,526.31
MW - 3	09/07/11	3,558.53	32.23	33.06	0.83	3,526.18
MW - 3	09/14/11	3,558.53	32.34	32.49	0.15	3,526.17
MW - 3	10/31/11	3,558.53	32.30	32.71	0.41	3,526.17
(f) (i)				- 750×		
MW - 4	02/08/11	3,558.14	31.62	33.18	1.56	3,526.29
MW - 4	05/02/11	3,558.14	31.13	33.12	1.99	3,526.71
MW - 4	05/09/11	3,558.14	31.15	32.93	1.78	3,526.72
MW - 4	05/10/11	3,558.14	31.15	32.93	1.78	3,526.72
MW - 4	05/19/11	3,558.14	31.28	32.01	0.73	3,526.75
MW - 4	05/27/11	3,558.14	31.31	31.91	0.60	3,526.74
MW - 4	06/10/11	3,558.14	31.35	32.26	0.91	3,526.65
MW - 4	06/24/11	3,558.14	31.37	32.11	0.74	3,526.66
MW - 4	07/01/11	3,558.14	31.45	32.39	0.94	3,526.55
MW - 4	07/12/11	3,558.14	31.51	32.53	1.02	3,526.48
MW - 4	08/09/11	3,558.14	31.55	33.45	1.90	3,526.31
MW - 4	09/07/11	3,558.14	31.67	33.63	1.96	3,526.18
MW - 4	09/14/11	3,558.14	-31.83	32.57	0.74	3,526.20
MW - 4	10/31/11	3,558.14	31.80	32.66	0.86	3,526.21
			A Company			
MW - 5	02/08/11	3,560.07	-	33.93	0.00	3,526.14
MW - 5	05/02/11	3,560.07	-	33.60	0.00	3,526.47
MW - 5	05/09/11	3,560.07	-	33.98	0.00	3,526.09
MW - 5	05/10/11	3,560.07	-	33.98	0.00	3,526.09
MW - 5	08/09/11	3,560.07	-	34.00	0.00	3,526.07
MW - 5	09/14/11	3,560.07	-	34.13	0.00	3,525.94
MW - 5	10/31/11	3,560.07	i -	34.15	0.00	3,525.92

## **GROUNDWATER ELEVATION DATA - 2011**

## PLAINS MAREKTING, L.P. MONUMENT 18 LEA COUNTY, NEW MEXICO NMOCD REFERENCE NUMBER 1R-0124

SAMPLE LOCATION	SAMPLE DATE	TOP OF CASING ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUND WATER ELEVATION
MW - 6	02/08/11	3,557.64	-	31.40	0.00	3,526.24
MW - 6	05/02/11	3,557.64	-	30.89	0.00	3,526.75
MW - 6	05/09/11	3,557.64	-	30.85	0.00	3,526.79
MW - 6	05/10/11	3,557.64	-	30.85	0.00	3,526.79
MW - 6	08/09/11	3,557.64	-	30.82	0.00	3,526.82
MW - 6	09/14/11	3,557.64	-	31.40	0.00	3,526.24
MW - 6	10/31/11	3,557.64	-	31.45	0.00	3,526.19
TORSE TO THE		10 TAN 76 S		CARL TYPE		
MW - 7	02/08/11	3,558.65	_	33.07	0.00	3,525.58
MW - 7	05/02/11	3,558.65	-	31.79	0.00	3,526.86
MW - 7	05/09/11	3,558.65	_	31.78	0.00	3,526.87
MW - 7	05/10/11	3,558.65	-	31.78	0.00	3,526.87
MW - 7	08/09/11	3,558.65	-	31.81	0.00	3,526.84
MW - 7	09/14/11	3,558.65	-	32.34	0.00	3,526.31
MW - 7	10/31/11	3,558.65	-	32.36	0.00	3,526.29
			Sing of the state			500000000000000000000000000000000000000
MW - 8	02/08/11	3,559.30	-	32.16	0.00	3,527.14
MW - 8	05/02/11	3,559.30	-	32.70	0.00	3,526.60
MW - 8	05/09/11	3,559.30	-	32.67	0.00	3,526.63
MW - 8	05/10/11	3,559.30	-	32.67	0.00	3,526.63
MW - 8	08/09/11	3,559.30	-	32.66	0.00	3,526.64
MW - 8	09/14/11	3,559.30	- '	33.24	0.00	3,526.06
MW - 8	10/31/11	3,559.30	-	33.25	0.00	3,526.05
to control 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					4	
MW - 9	02/08/11	3,559.94	-	33.85	0.00	3,526.09
MW - 9	05/02/11	3,559.94	-	33.45	0.00	3,526.49
MW - 9	05/09/11	3,559.94	-	33.45	0.00	3,526.49
MW - 9	05/10/11	3,559.94	-	33.45	0.00	3,526.49
MW - 9	08/09/11	3,559.94		33.46	. 0.00	3,526.48
MW - 9	09/14/11	3,559.94	-	33.99	0.00	3,525.95
MW - 9	10/31/11	3,559.94	-	34.03	0.00	3,525.91
eresistin was		***	1		1 / January - 1 / January - 1	
MW - 10	02/08/11	3558.06	-	31.82	0.00	3526.24
MW - 10	05/02/11	3558.06	-	31.41	0.00	3526.65
MW - 10	05/09/11	3558.06	-	31.38	0.00	3526.68
MW - 10	05/10/11	3558.06	-	31.38	0.00	3526.68
MW - 10	08/09/11	3558.06	-	31.36	0.00	3526.70
MW - 10	09/14/11	3558.06	-	31.95	0.00	3526.11
MW - 10	10/31/11	3558.06	-	31.97	0.00	3526.09

<sup>\*</sup> Complete Historical Tables are provided on the attached CD.

## **CONCENTRATIONS OF BTEX IN GROUNDWATER - 2011**

## PLAINS MARKETING, L.P.

## **MONUMENT 18**

## LEA COUNTY, NEW MEXICO NMOCD REFERENCE NUMBER 1R-0124

All concentrations are reported in mg/L.

ILOCATIONI DATE IRENZENEITOLBENEI I '* 1	LENE
NMOCD REGULATORY   NMOCD REGUL	
NMOCD REGULATORY LIMIT         0.01         0.750         0.750         0.620           MW - 1         02/08/11         0.0112         <0.001         0.0098         0.0304           MW - 1         05/10/11         0.0139         <0.001         0.0105         0.0409           MW - 1         08/09/11         <0.001         <0.001         <0.001         0.0111           MW - 1         10/31/11         0.0030         <0.001         0.0027         0.0102           MW - 3         05/10/11         Not Sampled due to PSH in Well         Well         Well           MW - 3         10/31/11         Not Sampled due to PSH in Well         Well           MW - 3         10/31/11         Not Sampled due to PSH in Well           MW - 4         05/10/11         Not Sampled due to PSH in Well           MW - 4         08/09/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         08/09/11         Not sampled due to sample reduction           MW - 5         08/09/11         Not sampled due to sample reduction           MW - 5         10/31/11         <0.001         <0.00	·
LIMIT         0.01         0.750         0.750         0.620           MW - 1         02/08/11         0.0112         <0.001         0.0098         0.0304           MW - 1         05/10/11         0.0139         <0.001         0.0105         0.0409           MW - 1         08/09/11         <0.001         <0.001         <0.001         0.0111           MW - 3         02/08/11         Not Sampled due to PSH in Well         0.0027         0.0102           MW - 3         08/09/11         Not Sampled due to PSH in Well         0.001         0.001           MW - 3         10/31/11         Not Sampled due to PSH in Well         0.001         0.001           MW - 4         02/08/11         Not Sampled due to PSH in Well         0.001         0.001           MW - 4         08/09/11         Not Sampled due to PSH in Well         0.001         0.001           MW - 5         02/08/11         Not sampled due to PSH in Well         0.001         0.001           MW - 5         05/10/11         0.001         0.001         0.001         0.001           MW - 5         08/09/11         Not sampled due to sample reduction         0.001         0.001         0.001           MW - 5         08/09/11         Not sampled d	
MW - 1         05/10/11         0.0139         <0.001	
MW - 1         08/09/11         <0.001         <0.001         <0.001         0.0111           MW - 1         10/31/11         0.0030         <0.001	
MW - 1         10/31/11         0.0030         <0.001         0.0027         0.0102           MW - 3         02/08/11         Not Sampled due to PSH in Well           MW - 3         08/09/11         Not Sampled due to PSH in Well           MW - 3         10/31/11         Not Sampled due to PSH in Well           MW - 4         02/08/11         Not Sampled due to PSH in Well           MW - 4         05/10/11         Not Sampled due to PSH in Well           MW - 4         08/09/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         05/10/11         <0.001	
MW - 3         02/08/11         Not Sampled due to PSH in Well           MW - 3         05/10/11         Not Sampled due to PSH in Well           MW - 3         08/09/11         Not Sampled due to PSH in Well           MW - 3         10/31/11         Not Sampled due to PSH in Well           MW - 4         02/08/11         Not Sampled due to PSH in Well           MW - 4         08/09/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not sampled due to PSH in Well           MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         05/10/11         <0.001	
MW - 3         02/08/11         Not Sampled due to PSH in Well           MW - 3         05/10/11         Not Sampled due to PSH in Well           MW - 3         08/09/11         Not Sampled due to PSH in Well           MW - 3         10/31/11         Not Sampled due to PSH in Well           MW - 4         02/08/11         Not Sampled due to PSH in Well           MW - 4         05/10/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         05/10/11         <0.001	
MW - 3         05/10/11         Not Sampled due to PSH in Well           MW - 3         08/09/11         Not Sampled due to PSH in Well           MW - 3         10/31/11         Not Sampled due to PSH in Well           MW - 4         02/08/11         Not Sampled due to PSH in Well           MW - 4         05/10/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not sampled due to PSH in Well           MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         05/10/11         <0.001	
MW - 3         08/09/11         Not Sampled due to PSH in Well           MW - 3         10/31/11         Not Sampled due to PSH in Well           MW - 4         02/08/11         Not Sampled due to PSH in Well           MW - 4         05/10/11         Not Sampled due to PSH in Well           MW - 4         08/09/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         05/10/11         <0.001	
MW - 3       10/31/11       Not Sampled due to PSH in Well         MW - 4       02/08/11       Not Sampled due to PSH in Well         MW - 4       05/10/11       Not Sampled due to PSH in Well         MW - 4       08/09/11       Not Sampled due to PSH in Well         MW - 4       10/31/11       Not Sampled due to PSH in Well         MW - 5       02/08/11       Not sampled due to sample reduction         MW - 5       05/10/11       <0.001       <0.001       <0.001         MW - 5       08/09/11       Not sampled due to sample reduction         MW - 5       10/31/11       <0.001       <0.001       <0.001       <0.001         MW - 5       10/31/11       <0.001       <0.001       <0.001       <0.001	
MW - 4         02/08/11         Not Sampled due to PSH in Well           MW - 4         05/10/11         Not Sampled due to PSH in Well           MW - 4         08/09/11         Not Sampled due to PSH in Well           MW - 4         10/31/11         Not Sampled due to PSH in Well           MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         05/10/11         <0.001	
MW - 4       05/10/11       Not Sampled due to PSH in Well         MW - 4       08/09/11       Not Sampled due to PSH in Well         MW - 4       10/31/11       Not Sampled due to PSH in Well         MW - 5       02/08/11       Not sampled due to sample reduction         MW - 5       05/10/11       <0.001	
MW - 4       05/10/11       Not Sampled due to PSH in Well         MW - 4       08/09/11       Not Sampled due to PSH in Well         MW - 4       10/31/11       Not Sampled due to PSH in Well         MW - 5       02/08/11       Not sampled due to sample reduction         MW - 5       05/10/11       <0.001	
MW - 4       08/09/11       Not Sampled due to PSH in Well         MW - 4       10/31/11       Not Sampled due to PSH in Well         MW - 5       02/08/11       Not sampled due to sample reduction         MW - 5       05/10/11       <0.001	
MW - 4       10/31/11       Not Sampled due to PSH in Well         MW - 5       02/08/11       Not sampled due to sample reduction         MW - 5       05/10/11       <0.001       <0.001       <0.001       <0.001         MW - 5       08/09/11       Not sampled due to sample reduction         MW - 5       10/31/11       <0.001       <0.001       <0.001       <0.001	
MW - 5     02/08/11     Not sampled due to sample reduction       MW - 5     05/10/11     <0.001	
MW - 5         02/08/11         Not sampled due to sample reduction           MW - 5         05/10/11         <0.001	
MW - 5     05/10/11     <0.001     <0.001     <0.001     <0.001       MW - 5     08/09/11     Not sampled due to sample reduction       MW - 5     10/31/11     <0.001	1.00
MW - 5 08/09/11 Not sampled due to sample reduction MW - 5 10/31/11 <0.001 <0.001 <0.001 <0.001	
MW - 5 10/31/11 <0.001 <0.001 <0.001 <0.001	
MW - 5 10/31/11 <0.001 <0.001 <0.001 <0.001	
MW - 6 02/08/11 Not sampled due to sample reduction	
11. 11 0   Object 1   11.00 Sumpled due to Sumple feduciton	
MW - 6 05/10/11 Not sampled due to sample reduction	
MW - 6 08/09/11 Not sampled due to sample reduction	-
MW - 6 10/31/11 <0.001 <0.001 <0.001 <0.001	
	1
MW - 7 02/08/11 Not sampled due to sample reduction	
MW - 7 05/10/11 Not sampled due to sample reduction	
MW - 7 08/09/11 Not sampled due to sample reduction	
MW - 7 10/31/11 <0.001 <0.001 <0.001 <0.001	
MW - 8 02/08/11 Not sampled due to sample reduction	
MW - 8 05/10/11 Not sampled due to sample reduction	•
MW - 8 08/09/11 Not sampled due to sample reduction	
MW - 8 10/31/11 <0.001 <0.001 <0.001 <0.001	
MW - 9 02/08/11 <0.001 <0.001 0.0078 0.0218	
MW - 9 05/10/11 <0.001 <0.001 <0.001 <0.001	
MW - 9 08/09/11 <0.001 <0.001 <0.001 <0.001	
MW - 9 10/31/11 <0.001 <0.001 <0.001 <0.001	
MW - 10   02/08/11   <0.001   <0.001   <0.001   <0.001	The said of
MW - 10	alian mana
MW - 10 08/09/11 <0.001 <0.001 <0.001 <0.001	
MW - 10	

<sup>\*</sup> Complete Historical Tables are provided on the attached CD.

## POLYNUCLEAR AROMATIC HYDROCARBON CONCENTRATIONS IN GROUNDWATER

## PLAINS MARKETING, L.P. MONUMENT 18 LEA COUNTY, NEW MEXICO NMOCD REFERENCE NUMBER 1R-0124

All water concentrations are reported in mg/L

										EPA S	W846-82700	C, <b>351</b> 0								
	SAMPLE DATE	Acenaphthene	Acenaphthylene	Anthracene	Benzo a anthracene	Benzolalpyrene	Benzo b]fluoranthene	Benzo[g,h,i]perylene	Benzo[k]fluoranthene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd)pyrene	Phenauthrene	Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Dibenzofuran
Maximum Cont Levels from NM WQCC Drinkin standards Section 101.UU and 3-1	M ing water ions 1-	-	I .	0.001 mg/L	0.0001 mg/L	0.0007 mg/L	0.001 mg/L	ı	0.001 mg/L	0.0002 mg/L	0.0003 mg/L	0.001 mg/L	0.001 mg/L	0.0004 mg/L	0.001 mg/L	0.001 mg/L		0.03 mg/L		1
MW-1	11/05/08	< 0.000917	< 0.000917	0.00362	< 0.000917	< 0.000917	< 0.000917	<0.000917	< 0.000917	< 0.000917	<0.000917	< 0.000917	0.0169	<0.000917	0.01654	< 0.000917	0.00796	0.0678	0.0197	0.0134
	11/04/09	< 0.000184	<0.000184											<0.000184	0.0019	<0.000184	0.000736	0.00928	0.00135	0.00276
	11/03/10				Not San	npled as part	of Quarterly	Monitoring	Event.											
	12/15/11	<0.00186	< 0.00186	<0.00186	<0.00186	< 0.00186	<0.00186	<0.00186	<0.00186	<0.00186	<0.00186	< 0.00186	<0.00186	<0.00186	0.0095	<0.00186	<0.00186	0.0326	<0.00186	0.0104
		11112				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			المراد ال	1.6 25 2		~				12	- B			
MW-3 1	11/05/08	< 0.000930						< 0.000930						<0.000930	0.0187	<0.000930		0.0563	0.0259	0.0122
!	11/04/09	< 0.000184	< 0.000184	<0.000184					< 0.000184	< 0.000184	<0.000184	<0.000184	<0.000184	<0.000184	0.0078	<0.000184	0.00188	0.0290	0.00342	0.00481
	11/03/10					Not Sampled														
	12/15/11					Not Sampled	due to prese	nce of PSH.		• silm										
Minimage, 7 Year H A 14 F FA		No hille 建酸		area de la companya d			Sec. 2.	227.39	12.1		erit in the	The state of	tic delic	(At - 78)	· ·	· JUZ	ADD >	1 3 × 2 1 1 1 1		- 40/4 <b>18</b>
	11/05/08				<0.000930									<0.000930	0.0084	<0.000930		0.0163	0.00778	0.00584
	11/04/09	<0.000184	<0.000184	<0.000184	<0.000184					<0.000184	<0.000184	< 0.000184	<0.000184	<0.000184	0.00174	<0.000184	0.00141	0.00559	0.00389	0.00118
	11/03/10							/ Monitoring	Event.								<u>                                     </u>	L	· '	
1	12/15/11				1	Not Sampled	due to prese	ence of PSH.										لـــــا	L	
		11/4/4/14			1,459		f			年·元章			TO ALTER			100 374			- 4	<b>5</b> €
	11/05/08	< 0.000184																	<0.000184	
-	11/04/09	< 0.000183	<0.000183	<0.000183						<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	< 0.000183	<0.000183	<0.000183	0.000555
	11/03/10							Monitoring						$\vdash$		<b></b>	igwdown	<b>├</b> ─		
ļ <del> '</del>	12/15/11				Not San	npied as part	of Quarterly	Monitoring	Event.	Б : ».	ĭ		- W. C.S. 3		<u> </u>	بـــــا	V. 1. K. 1	<b> </b>		7 77 4, 800-7
1 NOV.	11/05/00	-0.000100	-0.000100	-0.000103	r0 000102	-0.0001.00	-0.000100	-0.000103	<0.000102	±0.000102	<0.000102	×0.000103	-0.000102	<0.000193	-0.000103	r0 000102	-0.000103	<0.000100	-0.000100	0.000420
	11/05/08	<0.000183 <0.000183																		
	11/04/09	~0.000183	<0.000183	<0.000183						1~0.000183	<u></u>	~0.000183	<u> ~0.000183</u>	~0.000183	~0.000183	~0.000183	~0.000183	~0.000183	<0.000183	<0.000183
	11/03/10 12/15/11	Not Sampled as part of Quarterly Monitoring Event.  Not Sampled as part of Quarterly Monitoring Event.																		
	12/13/11	1.2		house described in the part of	NOT SAIL		or Quarterly	VIVIOIIIOTIIIg	Event.	Tall of a	light water to	1 to 1 % 55 M	CHEST OF S		100 at 100 at	DAZJAĐI	AZZZA	-		i de la companya da l La companya da la co
B	11/05/08	A James L. Williamski.	INTERNITY I SOUND IN A SA	0.000538	S 0.00 0.00 at the	material allow from . Add 300	<0.000196	<0.000186	ACALL PORTER! TO ANALYSIS	0 000371	<0.000196	0.000407	<0.000186	< 0.000186	0.000577			< 0.000186		
	11/04/09				< 0.000403															
	11/04/07	-0.000163	~0.000103	-0.000103	-0.000103	-0.000103				-0.000103	-0.000103	-0.000103	-0.000103	-0.000163	~0.000103	1 -0.000103	-0.000103	-0.000103	~0.000103	0.000303
	11/03/10				Not San	nnled as nart	of Quarterly	Monitoring	Event					, –	1		( i		,	i .
1	11/03/10	< 0.000186	<0.000186	<0.000186		npled as part				I<0.000186	I<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	<0.000186	0.000443

## POLYNUCLEAR AROMATIC HYDROCARBON CONCENTRATIONS IN GROUNDWATER

## PLAINS MARKETING, L.P. MONUMENT 18 LEA COUNTY, NEW MEXICO NMOCD REFERENCE NUMBER 1R-0124

								All	water concent		1									
										EPA S	W846-8270	C, 3510								
SAMPLE LOCATION	SAMPLE DATE	Acenaphthene	Acenaphthylene	Anthracene	Benzo[a]anthracene	Benzolalpyrene	Benzo[b]fluoranthene	Benzolg,h,i]perylene	Benzo[k]fluoranthene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Phenanthrene	Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Dibenzofuran
Maximum Co Levels from N WQCC Drinl standards Sec 101.UU and 3	NM king water ctions 1-										.									
MW-8	11/05/08		< 0.000185																	
	11/04/09	<0.000184	< 0.000184	< 0.000184	<0.000184	<0.000184	< 0.000184	< 0.000184	< 0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184	<0.000184
	11/03/10				Not Sam	pled as part	of Quarterly	y Monitoring	Event.											
	12/15/11				Not Sam	pled as part	of Quarterly	y Monitoring	Event.											
1495H				A LINEAR OF		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1.	*	* * * * *								1 1 1	*.	
MW-9	11/05/08	< 0.000183			<0.000183															
	11/04/09	< 0.000183	< 0.000183	<0.000183	<0.000183	< 0.000183	<0.000183	<0.000183	< 0.000183	< 0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	< 0.000183
	11/03/10					<u> </u>		y Monitoring												
	12/15/11	Not Sampled as part of Quarterly Monitoring Event.																		
<b>PERIMIT</b>	10年間に	11/10/50	The		N. F. (\$2)	4 4	Andread all			11 11 11 11	14 575							* **	1.0	
MW-10	11/05/08		<0.000185																	
	11/04/09	<0.000183	<0.000183	<0.000183						<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	<0.000183	< 0.000183	< 0.000183	0.000511
	11/03/10					<u> </u>		y Monitoring								ļ				
	12/15/11				Not Sam	pled as part	of Quarterly	y Monitoring	Event.					<u> </u>	<u> </u>	<u> </u>				L

Appendices

## Appendix A Release Notification and Corrective Action (Form C-141)

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

## State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505

Form C-141 Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

						C, 14141 075				**			
			Rele	ase Notifi	icatio	n and Co	orrective A	ction					
						OPER/	ATOR	,	x Initia	al Report		Final Report	
Name of Co			Pipeline,			Contact:		le Reynolo	is	•			
Address:				d, TX 79706		Telephone No. 505-441-0965							
Facility Na	me	Monum	nent # 18			Facility Typ	e: Pipelii	ne					
Surface Ov	ner:			Mineral	Owner	***************************************			Lease N	lo.			
	Jim B Co	oper											
				1.00	ATIO	N OF RE	IFASE						
Unit Letter	Section	Township	Range	Feet from the		h/South Line	Feet from the	East/Wes	t Line	County			
D	7	208	37E			South Bille	Total montane	2000 11 00		Lea			
			Latitu	de 32 degrees	35' 30	0" Longitud	e 103 degrees 1	7' 55 9"					
			Datitu	•									
T CD I				NA	TURE	OF REL			7.1 T			·-···	
Type of Rele Source of Re	ase:					Volume of	Hour of Occurrence			Recovered Hour of Dis	covery		
Source of Re	nease.					Unknov		· .	ate and	riour or Dis	00,019		
Was Immedi	iate Notice (					If YES, To	Whom?						
		<u>)</u>	es ∐ N	lo · Not Red	quired	December 1							
By Whom?						Date and I							
Was a Water	course Read		] Yes ⊠	1 No	•	If YES, V	olume Impacting	the Waterco	ourse.				
If a Waterco	urse was Im	pacted, Descr	ribe Fully.*	•									
:												'	
Describe Ca	use of Drobl	em and Reme	dial Action	Taken *									
Describe Ca	use of Floor	em and Keme	ulai Actioi	i i akcii.			,						
		and Cleanup							····				
NOTE: Tex unavailable		xico Pipeline	was the o	wner/operator	of the p	oipeline systen	n at the time of t	he release,	initial r	esponse inf	ormati	on is	
unavanable	•												
I hereby cert	ify that the	information g	iven above	is true and con	nplete to	the best of my	knowledge and u	understand t	that purs	suant to NM	OCD n	ules and	
							nd perform corre						
							narked as "Final R ion that pose a thi						
							ve the operator of						
		ws and/or reg			•		-						
							OIL CON	<u>ISERVA</u>	<u>TION</u>	DIVISIO	<u>)N</u>		
Signature:				•									
Printed Nam	ie: Ca	mille Reynol	ds			Approved by	District Supervis	sor:				-	
Title:	Re	mediation Co	ordinator			Approval Da	ite:	Ex <sub>1</sub>	piration	Date:		·	
E mail Add		roumalda@='a-	ılm oom			• •		•					
E-mail Addr	ess. CJI	reynolds@paa	up.com			Conditions o	Approvar:			Attached			

Phone:

Date: 3/21/2005

<sup>\*</sup> Attach Additional Sheets If Necessary

Laboratory Analytical Reports



6701 Aberdeen Ävenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1

6015 Harris Parkway, Suite 110

Lubbock, Texas 79424 El Paso; Texas 79922 Midland, Texas 79703

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FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

Ft. Worth, Texas 76132 E-Mail: lab@traceanalysis.com

Certifications

**WBENC:** 237019

HUB:

1752439743100-86536

DBE:

VN 20657

NCTRCA WFWB38444Y0909

**NELAP Certifications** 

Lubbock:

T104704219-08-TX

LELAP-02003

Kansas E-10317

T104704221-08-TX El Paso:

LELAP-02002

Midland:

T104704392-08-TX

## Analytical and Quality Control Report

Ron Rounsaville Nova Safety & Environmental 2057 Commerce St. Midland, TX, 79703

Report Date: February 10, 2011

Work Order:

11020910 

Project Location:

Monument, Lea Co., NM

Project Name: Project Number:

TNM Monument #18 TNM Monument #18

SRS#:

Monument #18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	${f Time}$	$\operatorname{Date}$
Sample	Description	Matrix	Taken	Taken	Received
256925	MW-9	water	2011-02-08	11:00	2011-02-09
256926	MW-10	water	2011-02-08	11:45	2011-02-09
256927	MW-1	water	2011-02-08	12:30	2011-02-09

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 6 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Bank the

Michael april

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

## Standard Flags

 ${\bf B}$  - The sample contains less than ten times the concentration found in the method blank.

Samples for project TNM Monument #18 were received by TraceAnalysis, Inc. on 2011-02-09 and assigned to work order 11020910. Samples for work order 11020910 were received intact without headspace and at a temperature of 5.2 C.

Samples were analyzed for the following tests using their respective methods.

		$\operatorname{Prep}$	$\operatorname{Prep}$	$_{ m QC}$	Analysis
$\operatorname{Test}$	Method	Batch	Date	Batch	Date
$\overline{\mathrm{BTEX}}$	S 8021B	66485	2011-02-09 at 10:50	77507	2011-02-09 at 10:50

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11020910 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: February 10, 2011

TNM Monument #18

Work Order: 11020910 TNM Monument #18

Page Number: 4 of 6 Monument, Lea Co., NM

## **Analytical Report**

Sample: 256925 - MW-9

Laboratory: Midland

Analysis:

**BTEX** 77507

Analytical Method: Date Analyzed:

S 8021B 2011-02-09 Prep Method: S 5030B Analyzed By:

QC Batch: Prep Batch: 66485

Sample Preparation:

2011-02-09

MEPrepared By: ME

RL

Parameter	Flag	Result	Units	Dilution	$^{\cdot}$ RL
Benzene		< 0.00100	m mg/L	1	0.00100
Toluene		< 0.00100	m mg/L	1	0.00100
Ethylbenzene		0.00780	m mg/L	1	0.00100
Xylene		0.0218	m mg/L	1	0.00100

					Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.104	mg/L	1	0.100	104	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)	1	0.0746	${ m mg/L}$	1	0.100	75	78.6 - 122.8

Sample: 256926 - MW-10

Laboratory:

Midland

Analysis: QC Batch:

Prep Batch: 66485

**BTEX** 77507

Analytical Method: Date Analyzed:

S 8021B

2011-02-09 2011-02-09 Prep Method: Analyzed By:

S 5030B ME

Prepared By: ME

RL

Sample Preparation:

		1023			
Parameter	$\operatorname{Flag}$	Result	${ m Units}$	Dilution	RL
Benzene		< 0.00100	m mg/L	1	0.00100
Toluene		< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene		< 0.00100	${ m mg/L}$	1	0.00100
Xylene		< 0.00100	$\mathrm{mg/L}$	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.106	mg/L	1	0.100	106	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0815	mg/L	1	0.100	82	78.6 - 122.8

Sample: 256927 - MW-1

Laboratory:

Midland

Analysis: QC Batch:

Prep Batch:

**BTEX** 77507

66485

Analytical Method: Date Analyzed:

S 8021B

2011-02-09 Sample Preparation: 2011-02-09 Prep Method: Analyzed By: Prepared By:

S 5030B MEME

<sup>1</sup>Surrogate out due to peak interference.

Report Date: February 10, 2011 TNM Monument #18

Work Order: 11020910 TNM Monument #18

Page Number: 5 of 6 Monument, Lea Co., NM

		$\mathrm{RL}$			
Parameter	Flag	Result	Units	Dilution	$\mathrm{RL}$
Benzene		0.0112	mg/L	1	0.00100
Toluene		< 0.00100	m mg/L	1	0.00100
Ethylbenzene		0.00980	mg/L	1	0.00100
Xylene		0.0304	mg/L	1	0.00100

					$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.109	mg/L	1	0.100	109	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0905	${ m mg/L}$	1	0.100	90	78.6 - 122.8

Method Blank (1)

QC Batch: 77507

QC Batch: 77507 Date Analyzed: 2011-02-09

Analyzed By: ME

Prep Batch: 66485 QC Preparation: 2011-02-09

Prepared By: ME

		$\operatorname{MDL}$		
Parameter	$\operatorname{Flag}$	Result	Units	RL
Benzene		< 0.000400	mg/L	0.001
Toluene		< 0.000300	${ m mg/L}$	0.001
Ethylbenzene		< 0.000300	${ m mg/L}$	0.001
Xylene		< 0.000333	${ m mg/L}$	0.001

Surrogate	Flag	Result	Units	Dilution	$egin{array}{c}  ext{Spike} \  ext{Amount} \end{array}$	Percent Recovery	$egin{array}{c}  ext{Recovery} \  ext{Limits} \end{array}$
Trifluorotoluene (TFT)		0.0978	mg/L	1	0.100	98	70.8 - 117.4
4-Bromofluorobenzene (4-BFB)		0.0921	mg/L	1	0.100	92	79 - 113.4

## Laboratory Control Spike (LCS-1)

QC Batch: 77507 Prep Batch: 66485 Date Analyzed: 2011-02-09 QC Preparation: 2011-02-09 Analyzed By: ME Prepared By: ME

	LCS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.104	mg/L	1	0.100	< 0.000400	104	76.8 - 110.3
Toluene	0.104	$\mathrm{mg/L}$	1	0.100	< 0.000300	104	81 - 108.2
Ethylbenzene	0.103	mg/L	1	0.100	< 0.000300	103	78.8 - 111
Xylene	0.309	mg/L	1	0.300	< 0.000333	103	80.3 - 111.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: February 10, 2011

TNM Monument #18

Work Order: 11020910 TNM Monument #18 Page Number: 6 of 6 Monument, Lea Co., NM

Param	LCSD Result	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.103	mg/L	1	0.100	< 0.000400	103	76.8 - 110.3	1	20
Toluene	0.104	mg/L	1	0.100	< 0.000300	104	81 - 108.2	0	20
Ethylbenzene	0.104	mg/L	1	0.100	< 0.000300	104	78.8 - 111	1	20
Xylene	0.310	mg/L	1	0.300	< 0.000333	103	80.3 - 111.4	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	$\operatorname{Units}$	Dil.	Amount	Rec.	Rec.	${f Limit}$
Trifluorotoluene (TFT)	0.108	0.101	mg/L.	1	0.100	108	101	66.6 - 114.5
4-Bromofluorobenzene (4-BFB)	0.104	0.0964	$_{ m mg/L}$	1	0.100	104	96	77.1 - 114.4

#### Standard (CCV-2)

QC Batch: 77507

Date Analyzed: 2011-02-09

Analyzed By: ME

Param	$\operatorname{Flag}$	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	$\begin{array}{c} \text{Date} \\ \text{Analyzed} \end{array}$
Benzene		mg/L	0.100	0.0958	96	80 - 120	2011-02-09
Toluene		$_{ m mg/L}$	0.100	0.0942	94	80 - 120	2011-02-09
Ethylbenzene		$\mathrm{mg/L}$	0.100	0.0934	93	80 - 120	2011-02-09
Xylene		${ m mg/L}$	0.300	0.270	90	80 - 120	2011-02-09

#### Standard (CCV-3)

QC Batch: 77507

Date Analyzed: 2011-02-09

Analyzed By: ME

			CCVs	$\mathrm{CCVs}$	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0968	97	80 - 120	2011-02-09
Toluene		mg/L	0.100	0.0954	95	80 - 120	2011-02-09
Ethylbenzene		${ m mg/L}$	0.100	0.0961	96	80 - 120	2011-02-09
Xylene		m mg/L	0.300	0.279	93	80 - 120	2011-02-09

LAB Order ID #	V	020910

Page	of	_/_

# TraceAnalysis, Inc.

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BioAquatic Testing 2501 Mayes Rd., Ste 100 Carrollton, Texas 75006 Tel (972) 242-7750

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FAX 432 • 589 • 6313

E-Mail: lab@traceanalysis.com

### Certifications

#### HUB NCTRCA DBE NELAP DoD LELAP Oklahoma ISO 17025 Kansas

### Analytical and Quality Control Report

Ron Rounsaville Nova Safety & Environmental 2057 Commerce St. Midland, TX, 79703

Report Date: May 13, 2011

Work Order:

11051105

Project Location: Project Name:

Monument, Lea Co., NM TNM Monument #18 TNM Monument #18

Project Number: SRS#:

Monument #18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
266108	MW-5	water	2011-05-10	00:00	2011-05-11
266109	MW-9	water	2011-05-10	00:00	2011-05-11
266110	MW-10	water	2011-05-10	00:00	2011-05-11
266111	MW-1	water	2011-05-10	00:00	2011-05-11

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 11 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael abel

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

# **Report Contents**

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Sample 266109 (MW-9)	
Sample 266110 (MW-10)	E
Sample 266111 (MW-1)	$\epsilon$
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QC Batch 81212 - Method Blank (1)	7
Laboratory Control Spikes	8
QC Batch 81212 - LCS (1)	8
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Calibration Standards	10
QC Batch 81212 - CCV (1)	10
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Appendix Laboratory Certifications	11
Standard Flags	
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### Case Narrative

Samples for project TNM Monument #18 were received by TraceAnalysis, Inc. on 2011-05-11 and assigned to work order 11051105. Samples for work order 11051105 were received intact without headspace and at a temperature of 8.8 C.

Samples were analyzed for the following tests using their respective methods.

		$\operatorname{Prep}$	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	68937	2011-05-12 at 08:30	81212	2011-05-12 at 08:30

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11051105 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 11051105 TNM Monument #18

Page Number: 5 of 11 Monument, Lea Co., NM

### **Analytical Report**

Sample: 266108 - MW-5

Laboratory:

Midland

Analysis: QC Batch:

BTEX 81212

Analytical Method: Date Analyzed:

S 8021B

2011-05-12 Sample Preparation: 2011-05-12

Prep Method: Analyzed By:

MEPrepared By: ME

S 5030B

Prep Batch: 68937

RL

Parameter Cert Dilution Flag Result Units RLBenzene < 0.00100 mg/L 0.00100 1 Toluene < 0.00100 mg/L 1 0.00100 Ethylbenzene < 0.00100 mg/L1 0.00100 Xylene < 0.00100 mg/L0.001001

						Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0861	mg/L	1	0.100	86	67.8 - 129
4-Bromofluorobenzene (4-BFB)			0.0796	mg/L	1	0.100	80	51.1 - 128

Sample: 266109 - MW-9

Laboratory: Midland

Analysis: QC Batch:

Prep Batch:

BTEX 81212 68937

)

Analytical Method: Date Analyzed:

S 8021B2011-05-12 Sample Preparation: 2011 - 05 - 12 Prep Method: S 5030B Analyzed By: MEPrepared By: ME

RLParameter Flag Cert Result Units Dilution RLBenzene < 0.00100 mg/L 1 0.00100 1 Toluene < 0.00100 mg/L 0.00100 1 Ethylbenzene < 0.00100 0.00100 mg/L 1 Xylene < 0.00100 0.00100 mg/L1

Surrogate	Flag	Cert	Result	Units	Dilution	${ m Spike} \ { m Amount}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0854	mg/L	1	0.100	85	67.8 - 129
4-Bromofluorobenzene (4-BFB)			0.0790	mg/L	1	0.100	79	51.1 - 128

Work Order: 11051105 TNM Monument #18

Page Number: 6 of 11 Monument, Lea Co., NM

#### Sample: 266110 - MW-10

Laboratory: Analysis: QC Batch:

Midland

BTEX 81212 Prep Batch: 68937

Analytical Method: Date Analyzed: Sample Preparation:

S 8021B 2011-05-12 2011-05-12 Prep Method: S 5030B Analyzed By: MEPrepared By: ME

			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
Benzene		1	< 0.00100	${ m mg/L}$	1	0.00100
Toluene		1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene		1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene		1	< 0.00100	mg/L	1	0.00100

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0878	mg/L	1	0.100	88	67.8 - 129
4-Bromofluorobenzene (4-BFB)			0.0784	mg/L	1	0.100	78	51.1 - 128

#### Sample: 266111 - MW-1

Midland

Laboratory:

Analysis: **BTEX** QC Batch: 81212 Prep Batch: 68937

Analytical Method: Date Analyzed:

S 8021B 2011-05-12 Sample Preparation: 2011-05-12 Prep Method: S 5030B Analyzed By: ME Prepared By: ME

			RL			
Parameter	$\operatorname{Flag}$	Cert	Result	Units	Dilution	$\operatorname{RL}$
Benzene		1	0.0139	m mg/L	1	0.00100
Toluene		1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene		1	0.0105	${ m mg/L}$	1	0.00100
Xylene		1	0.0409	mg/L	1	0.00100

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0924	m mg/L	1	0.100	92	67.8 - 129
4-Bromofluorobenzene (4-BFB)			0.102	${ m mg/L}$	1	0.100	102	51.1 - 128

Work Order: 11051105 TNM Monument #18 Page Number: 7 of 11 Monument, Lea Co., NM

### Method Blanks

Method Blank (1)

QC Batch: 81212

QC Batch: 81212 Prep Batch: 68937

Date Analyzed:

Date Analyzed: 2011-05-12 QC Preparation: 2011-05-12 Analyzed By: ME Prepared By: ME

MDL Parameter Flag Cert Result Units RLBenzene < 0.000400 mg/L 0.001 Toluene < 0.000300 mg/L 0.001Ethylbenzene < 0.000300 mg/L 0.001

Xylene < 0.000333 mg/L 0.001 Spike Percent Recovery Surrogate Flag Dilution Cert Result Units Amount Recovery Limits

Work Order: 11051105 TNM Monument #18

Page Number: 8 of 11 Monument, Lea Co., NM

## Laboratory Control Spikes

#### Laboratory Control Spike (LCS-1)

QC Batch:

81212

Date Analyzed:

2011-05-12

Analyzed By: ME Prepared By: ME

Prep Batch:

68937

QC Preparation: 2011-05-12

LCS Spike Matrix Rec. Param F Result Dil. Units Amount Result Rec. Limit Benzene 0.0976 mg/L 0.100 < 0.000400 1 98 76.8 - 110 Toluene 81 - 108 0.105mg/L 1 0.100< 0.000300 105 Ethylbenzene 0.0928 mg/L 0.100 < 0.000300 78.8 - 118 1 93 Xylene 0.276mg/L 0.300 < 0.000333 92 80.3 - 119

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$_{ m Limit}$
Benzene		1	0.104	mg/L	1	0.100	< 0.000400	104	76.8 - 110	6	20
Toluene		1	0.108	${ m mg/L}$	1	0.100	< 0.000300	108	81 - 108	3	20
Ethylbenzene		1	0.0987	${ m mg/L}$	1	0.100	< 0.000300	99	78.8 - 118	6	20
Xylene		1	0.295	mg/L	1	0.300	< 0.000333	98	80.3 - 119	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$_{ m Limit}$
Trifluorotoluene (TFT)	0.0823	0.0868	mg/L	1	0.100	82	87	66.6 - 114
4-Bromofluorobenzene (4-BFB)	0.0815	0.0862	mg/L	1	0.100	82	86	68.2 - 124

Matrix Spike (MS-1) Spiked Sample: 266004

QC Batch: 81212Prep Batch:

68937

Date Analyzed: QC Preparation:

2011-05-12 2011-05-12 Analyzed By: ME Prepared By:

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Benzene		1	14.4	mg/L	50	5.00	9.7315	93	77.9 - 114
Toluene		1	5.25	${ m mg/L}$	50	5.00	< 0.0150	105	78.3 - 111
Ethylbenzene		1	5.95	mg/L	50	5.00	1.59	87	75.3 - 110
Xylene		1	13.8	mg/L	50	15.0	0.9838	85	75.7 - 109

Work Order: 11051105 TNM Monument #18 Page Number: 9 of 11 Monument, Lea Co., NM

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Benzene		1	14.3	mg/L	50	5.00	9.7315	91	77.9 - 114	1	20
Toluene		1	5.53	mg/L	50	5.00	< 0.0150	111	78.3 - 111	5	20
Ethylbenzene		1	6.13	mg/L	50	5.00	1.59	91	75.3 - 110	3	20
Xylene		1	14.5	mg/L	50	15.0	0.9838	90	75.7 - 109	5	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$_{ m Limit}$
Trifluorotoluene (TFT)	4.41	4.32	mg/L	50	5	88	86	68.3 - 107
4-Bromofluorobenzene (4-BFB)	4.35	4.32	mg/L	50	5	87	86	60.1 - 135

Report Date: May 13, 2011 Work Order: 11051105 Page Number: 10 of 11 TNM Monument #18 TNM Monument #18 Monument, Lea Co., NM

## Calibration Standards

#### Standard (CCV-1)

QC Batch: 81212

Date Analyzed: 2011-05-12

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.107	107	80 - 120	2011-05-12
Toluene		1	${ m mg/L}$	0.100	0.115	115	80 - 120	2011-05-12
Ethylbenzene		1	mg/L	0.100	0.100	100	80 - 120	2011-05-12
Xylene		1	m mg/L	0.300	0.300	100	80 - 120	2011-05-12

#### Standard (CCV-2)

QC Batch: 81212

Date Analyzed: 2011-05-12

Analyzed By: ME

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.0999	100	80 - 120	2011-05-12
Toluene		1	$_{ m mg/L}$	0.100	0.105	105 .	80 - 120	2011-05-12
Ethylbenzene		1	${ m mg/L}$	0.100	0.0919	92	80 - 120	2011-05-12
Xylene		1	${ m mg/L}$	0.300	0.274	91	80 - 120	2011-05-12

Work Order: 11051105 TNM Monument #18 Page Number: 11 of 11 Monument, Lea Co., NM

## **Appendix**

#### **Laboratory Certifications**

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

### Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

#### Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

LAB Order ID # 11051105

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5002 Basin Street, Suite A1

El Paso, Texas 79922 888 • 588 • 3443 Midlanó, Texas 79703

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FAX 806 • 794 • 1298 FAX 915 • 585 • 4944

5015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

817 = 201 = 5260

FAX 432 • 889 • 6313

E-Mail: lab@traceanalysis.com

### Certifications

#### DoD LELAP HUBNCTRCA DBE**NELAP** Kansas Oklahoma ISO 17025

### Analytical and Quality Control Report

Ron Rounsaville Nova Safety & Environmental 2057 Commerce St. Midland, TX, 79703

Report Date: August 17, 2011

Work Order: 11081024 62 62 62 62 62 62 62 62 62 62 62

Project Location: Project Name:

Monument, Lea Co., NM TNM Monument #18 TNM Monument #18

Project Number: SRS#:

Monument #18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
274206	MW-9	water	2011-08-09	10:00	2011-08-10
274207	MW-10	water	2011-08-09	10:45	2011-08-10
274208	MW-1	water	2011-08-09	11:30	2011-08-10

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 10 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

> Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

# Report Contents

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Sample 274207 (MW-10)	4
Sample 274208 (MW-1)	4
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### Case Narrative

Samples for project TNM Monument #18 were received by TraceAnalysis, Inc. on 2011-08-10 and assigned to work order 11081024. Samples for work order 11081024 were received intact without headspace and at a temperature of 3.6 C.

Samples were analyzed for the following tests using their respective methods.

		$\operatorname{Prep}$	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	$\operatorname{Date}$	Batch	Date
$\overline{\mathrm{BTEX}}$	S 8021B	71215	2011-08-16 at 09:24	83858	2011-08-16 at 09:24

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11081024 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 11081024 Report Date: August 17, 2011 Page Number: 4 of 10 TNM Monument #18 TNM Monument #18 Monument, Lea Co., NM

### **Analytical Report**

Sample: 274206 - MW-9

Midland Laboratory:

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 83858 Date Analyzed: 2011-08-16 Analyzed By: ME Prep Batch: 71215 Sample Preparation: 2011-08-16 Prepared By:

RLFlag Dilution Cert RLParameter Result Units Benzene < 0.00100 0.00100 mg/L U 1 Toluene mg/L < 0.00100 1 0.00100 U Ethylbenzene < 0.00100 mg/L 1 0.00100 U Xylene < 0.00100 mg/L 1 0.00100 U

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.108	mg/L	1	0.100	108	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.108	${ m mg/L}$	1	0.100	108	67.5 - 140.8

Sample: 274207 - MW-10

Laboratory: Midland BTEX

Analytical Method: Analysis: S 8021B Prep Method: S 5030B QC Batch: 83858 Date Analyzed: 2011-08-16 Analyzed By: ME Prep Batch: 71215 Sample Preparation: 2011-08-16 Prepared By: ME

RLFlag Cert Dilution Parameter Result Units RLBenzene 0.00100 υ 1 < 0.00100 mg/L Toluene < 0.00100 mg/L 1 0.00100 U Ethylbenzene < 0.00100 mg/L 1 0.00100 U Xylene < 0.00100  $\mathrm{mg}/\mathrm{L}$ 0.00100 1 U

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.108	mg/L	1	0.100	108	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.106	${ m mg/L}$	1	0.100	106	67.5 - 140.8

Report Date: August 17, 2011

Work Order: 11081024

1.46

Page Number: 5 of 10

TNM Monument #18

TNM Monument #18

Monument, Lea Co., NM

Sample: 274208 - MW-1

Laboratory: Midland Analysis:

 $\operatorname{BTEX}$ 83858

Analytical Method:

S 8021B

2011-08-16

Analyzed By:

Prep Method: S 5030B

QC Batch: Prep Batch: 71215

Date Analyzed: Sample Preparation: 2011-08-16

Prepared By:

MEME

			m RL			
Parameter	$\operatorname{Flag}$	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.00100	mg/L	1	0.00100
Toluene	υ	1	< 0.00100	$_{ m mg/L}$	1	0.00100
Ethylbenzene	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene		1	0.0111	mg/L	1	0.00100

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.102	mg/L	1	0.100	102	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.102	${ m mg/L}$	1	0.100	102	67.5 - 140.8

Report Date: August 17, 2011 TNM Monument #18 Work Order: 11081024 TNM Monument #18 Page Number: 6 of 10 Monument, Lea Co., NM

### Method Blanks

Method Blank (1)

QC Batch: 83858

QC Batch: 83858

Date Analyzed: 2011-08-16

Analyzed By: ME

Prep Batch: 71215

QC Preparation: 2011-08-16

Prepared By: ME

MDL Parameter Flag Cert Result Units RLBenzene < 0.000400 mg/L 0.001 1 Toluene < 0.000300 mg/L0.001 1 Ethylbenzene < 0.000300 mg/L 0.001 1 < 0.000333 Xylene mg/L0.001

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0931	mg/L	1	0.100	93	61.1 - 118.4
4-Bromofluorobenzene (4-BFB)			0.0869	${ m mg/L}$	1	0.100	87	45.9 - 126.4

Report Date: August 17, 2011

TNM Monument #18

Work Order: 11081024 TNM Monument #18

Page Number: 7 of 10 Monument, Lea Co., NM

## Laboratory Control Spikes

#### Laboratory Control Spike (LCS-1)

QC Batch:

Prep Batch: 71215

83858

Date Analyzed:

2011-08-16

Analyzed By: ME

QC Preparation: 2011-08-16

Prepared By: ME

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.0984	mg/L	1	0.100	< 0.000400	98	88 - 116.8
Toluene		1	0.103	mg/L	1	0.100	< 0.000300	103	90.9 - 122.2
Ethylbenzene		1	0.105	mg/L	1	0.100	< 0.000300	105	72.7 - 120.2
Xylene		1	0.317	mg/L	1	0.300	< 0.000333	106	72.1 - 121.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.0979	mg/L	1	0.100	< 0.000400	98	88 - 116.8	0	20
Toluene		1	0.103	${ m mg/L}$	1	0.100	< 0.000300	103	90.9 - 122.2	0	20
Ethylbenzene		1	0.105	mg/L	1	0.100	< 0.000300	105	72.7 - 120.2	0	20
Xylene		1	0.317	mg/L	1	0.300	< 0.000333	106	72.1 - 121.5	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	${f Limit}$
Trifluorotoluene (TFT)	0.0996	0.0987	mg/L	1	0.100	100	99	61.9 - 119.2
4-Bromofluorobenzene (4-BFB)	0.0998	0.0988	mg/L	1	0.100	100	99	56.4 - 127.9

Matrix Spike (MS-1)

Spiked Sample: 274394

QC Batch:

83858

Date Analyzed:

2011-08-16

Analyzed By: ME

Prep Batch: 71215

QC Preparation: 2011-08-16

Prepared By: ME

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.17	mg/L	20	2.00	0.3037	93	66.9 - 128.2
Toluene		1	1.94	mg/L	20	2.00	< 0.00600	97	81.6 - 122.9
Ethylbenzene		1	2.03	mg/L	20	2.00	< 0.00600	102	62.7 - 117.9
Xylene		1	5.98	mg/L	20	6.00	< 0.00666	100	62.9 - 118.2

Report Date: August 17, 2011 TNM Monument #18 Work Order: 11081024 TNM Monument #18 Page Number: 8 of 10 Monument, Lea Co., NM

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.06	mg/L	20	2.00	0.3037	88	66.9 - 128.2	5	20
Toluene		1	1.89	mg/L	20	2.00	< 0.00600	94	81.6 - 122.9	3	20
Ethylbenzene		1	1.96	mg/L	20	2.00	< 0.00600	98	62.7 - 117.9	4	20
Xylene		1	5.80	mg/L	20	6.00	< 0.00666	97	62.9 - 118.2	3	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.02	1.81	${ m mg/L}$	20	2	101	90	58.6 - 119.7
4-Bromofluorobenzene (4-BFB)	2.05	1.87	${ m mg/L}$	20	2	102	94	52.2 - 135.8

Report Date: August 17, 2011

TNM Monument #18

Work Order: 11081024 TNM Monument #18 Page Number: 9 of 10 Monument, Lea Co., NM

## Calibration Standards

#### Standard (CCV-1)

QC Batch: 83858

Date Analyzed: 2011-08-16

Analyzed By: ME

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\operatorname{Cert}$	$_{ m Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.0968	97	80 - 120	2011-08-16
Toluene		1	$_{ m mg/L}$	0.100	0.0994	99	80 - 120	2011-08-16
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.101	101	80 - 120	2011-08-16
Xylene		1	mg/L	0.300	0.308	103	80 - 120	2011-08-16

#### Standard (CCV-2)

QC Batch: 83858

Date Analyzed: 2011-08-16

Analyzed By: ME

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.101	101	80 - 120	2011-08-16
Toluene		1	mg/L	0.100	0.105	105	80 - 120	2011-08-16
Ethylbenzene		1	mg/L	0.100	0.107	107	80 - 120	2011-08-16
Xylene		1	mg/L	0.300	0.321	107	80 - 120	2011-08-16

Report Date: August 17, 2011 TNM Monument #18 Work Order: 11081024 TNM Monument #18 Page Number: 10 of 10 Monument, Lea Co., NM

### **Appendix**

### **Laboratory Certifications**

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

### Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit.
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

#### Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.



E-Mait: lab@traceanalysis.com

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5002 Basin Street, Suite A1 -6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

El Paso, Texas 79922 Midland, Texas 79703 888 • 588 • 3443

.915 • 585 • 3443 432 • 689 • 6301 FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

#### 817 \* 201 \* 5260

### Certifications

#### NCTRCA DBE WBE HUB **NELAP** DoD LELAP Kansas Oklahoma ISO 17025

### Analytical and Quality Control Report

Ron Rounsaville

Nova Safety & Environmental

2057 Commerce St.

Midland, TX, 79703

Report Date: November 7, 2011

Work Order:

11110306

Project Location: Project Name:

Monument, Lea Co., NM TNM Monument #18 TNM Monument #18

Project Number: SRS#:

Monument #18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

	•		Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
281396	MW-1	water	2011-10-31	13:10	2011-11-02
281397	MW-5	water	2011-10-31	12:45	2011-11-02
281398	MW-6	water	2011-10-31	12:25	2011-11-02
281399	MW-7	water	2011-10-31	12:35	2011-11-02
281400	MW-8	water	2011-10-31	12:40	2011-11-02
281401	MW-9	water	2011-10-31	12:55	2011-11-02
281402	MW-10	water	2011-10-31	13:05	2011-11-02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

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### Case Narrative

Samples for project TNM Monument #18 were received by TraceAnalysis, Inc. on 2011-11-02 and assigned to work order 11110306. Samples for work order 11110306 were received intact without headspace and at a temperature of 6.7 C.

Samples were analyzed for the following tests using their respective methods.

		$\operatorname{Prep}$	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	73081	2011-11-03 at 14:10	86073	2011-11-03 at 14:10
BTEX	S 8021B	73126	2011-11-04 at 12:58	86112	2011-11-04 at 12:58

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11110306 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: November 7, 2011

Work Order: 11110306 TNM Monument #18 TNM Monument #18

Page Number: 5 of 15 Monument, Lea Co., NM

## **Analytical Report**

Sample: 281396 - MW-1

Laboratory: Lubbock

Prep Batch:

Analysis: QC Batch: BTEX

73126

86112

Analytical Method:

Date Analyzed:

S 8021B 2011-11-04 Sample Preparation:

2011-11-04

S 5030B Prep Method: Analyzed By: MTPrepared By: MT

RL

Parameter		$\operatorname{Flag}$	Cert	Result	$\mathbf{U}_{\mathbf{nits}}$	Dilution	RL
Benzene	Qr,Qs	Qr,Qs	1	0.00300	mg/L	1	0.00100
Toluene	Qr,Qs,U	$_{ m Qr,Qs,U}$	1	< 0.00100	mg/L	1	0.00100
Ethylbenzene	Qr,Qs	$_{ m Qr,Qs}$	1	0.00270	${ m mg/L}$	1	0.00100
Xylene	Qr,Qs	$_{ m Qr,Qs}$	1	0.0102	${ m mg/L}$	1	0.00100

						Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.107	mg/L	1	0.100	107	70 - 130
4-Bromofluorobenzene (4-BFB)			0.124	${ m mg/L}$	1	0.100	124	70 - 130

Sample: 281397 - MW-5

Laboratory: Analysis:

QC Batch:

Prep Batch:

Lubbock

BTEX 86073 73081

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-11-03 2011-11-03

S 5030B Prep Method: Analyzed By: MTPrepared By: MT

RLParameter Flag Cert Result Units Dilution RLBenzene Ū < 0.00100 mg/L 0.00100 U U Toluene U < 0.00100 mg/L1 0.00100Ethylbenzene U < 0.00100 1 0.00100 U mg/LXylene U < 0.00100 1 0.00100 mg/L

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.110	mg/L	1	0.100	110	70 - 130
4-Bromofluorobenzene (4-BFB)			0.114	${ m mg/L}$	1	0.100	114	70 - 130

Work Order: 11110306 Report Date: November 7, 2011 Page Number: 6 of 15 TNM Monument #18 TNM Monument #18 Monument, Lea Co., NM

#### Sample: 281398 - MW-6

Laboratory: Lubbock Analysis: BTEX

QC Batch: 86073 Prep Batch: 73081

Analytical Method: Date Analyzed: Sample Preparation: 2011-11-03

S 8021B 2011-11-03 Prep Method: S 5030B Analyzed By: MTPrepared By: MT

				m RL			
Parameter		Flag	$\operatorname{Cert}$	Result	Units	Dilution	$\mathrm{RL}$
Benzene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Toluene	υ	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene	υ	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.109	${ m mg/L}$	1	0.100	109	70 - 130
4-Bromofluorobenzene (4-BFB)			0.112	${ m mg/L}$	1	0.100	112	70 - 130

#### Sample: 281399 - MW-7

Laboratory: Lubbock

Analysis: BTEX QC Batch: 86073 Prep Batch: 73081

Analytical Method: S 8021B Date Analyzed: 2011-11-03 Sample Preparation: 2011-11-03

Prep Method: S 5030B Analyzed By: MTPrepared By: MT

				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Benzene	U	Ü	1	< 0.00100	mg/L	1	0.00100
Toluene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene	U	U	1	< 0.00100	$_{ m mg/L}$	1	0.00100

Surrogate Flag Cert Result Units Dilution Amount Recovery Limi						Spike	Percent	Recovery	
	ırrogate	$\operatorname{Flag}$		Units	Dilution	Amount	Recovery	Limits	
	rifluorotoluene (TFT)			mg/L	1	0.100	111	70 - 130	_
4-Bromofluorobenzene (4-BFB) 0.114 mg/L 1 0.100 114 70 - 1			 0.114	mg/L	1	0.100	114	70 - 130	

Report Date: November 7, 2011 TNM Monument #18 Work Order: 11110306 TNM Monument #18 Page Number: 7 of 15 Monument, Lea Co., NM

#### Sample: 281400 - MW-8

Laboratory: Lubbock

Analysis: BTEX QC Batch: 86073 Prep Batch: 73081

Analytical Method: S 8021B Date Analyzed: 2011-11-03 Sample Preparation: 2011-11-03 Prep Method: S 5030B Analyzed By: MT Prepared By: MT

				RL			
Parameter		$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	RL
Benzene	U	U	1	< 0.00100	$_{ m mg/L}$	1	0.00100
Toluene	U	$\mathbf{U}$	1	< 0.00100	m mg/L	1	0.00100
Ethylbenzene	U	$\mathbf{U}$	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100

						Spike	Percent	Recovery	
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	$\mathbf{A}\mathbf{mount}$	Recovery	Limits	
Trifluorotoluene (TFT)			0.108	m mg/L	1	0.100	108	70 - 130	
4-Bromofluorobenzene (4-BFB)			0.112	${ m mg/L}$	1	0.100	112	70 - 130	

#### Sample: 281401 - MW-9

Laboratory: Lubbock

Analysis: BTEX QC Batch: 86073 Prep Batch: 73081 Analytical Method: S 8021B Date Analyzed: 2011-11-03 Sample Preparation: 2011-11-03

Prep Method: S 5030B Analyzed By: MT Prepared By: MT

				RL			
Parameter		$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	RL
Benzene	Ū	U	1	< 0.00100	m mg/L	1	0.00100
Toluene	υ	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene	U	U	1	< 0.00100	m mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.108	mg/L	1	0.100	108	70 - 130
4-Bromofluorobenzene (4-BFB)			0.110	mg/L	1	0.100	110	70 - 130

Report Date: November 7, 2011 Work Order: 11110306 Page Number: 8 of 15 TNM Monument #18 Monument, Lea Co., NM

Sample: 281402 - MW-10

Laboratory: Lubbock Analysis: BTEX QC Batch: 86112

Prep Batch:

BTEX Analytical Method:
86112 Date Analyzed:
73126 Sample Preparation:

llytical Method: S 8021B Prep Method: S 5030B e Analyzed: 2011-11-04 Analyzed By: MT ple Preparation: 2011-11-04 Prepared By: MT

RLFlag Parameter  $\operatorname{Cert}$ Result Units Dilution RLBenzene Qr,Qs 0.00120 mg/L 0.00100 Qr,Qs 1 Toluene Qr,Qs,U< 0.00100 mg/L1 0.00100Qr,Qs,U Ethylbenzene < 0.00100 mg/L1 0.00100Qr,Qs,U Qr,Qs,U Xylene < 0.00100 Qr,Qs,Umg/L 1 0.00100Qr,Qs,U

						$_{ m Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.109	mg/L	1	0.100	109	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	${ m mg/L}$	1	0.100	108	70 - 130

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 9 of 15 Monument, Lea Co., NM

### Method Blanks

Method Blank (1)

QC Batch: 86073

QC Batch:

86073

Date Analyzed:

2011-11-03

Analyzed By: MT

Prep Batch: 73081

QC Preparation: 2011-11-03

Prepared By: MT

			$\operatorname{MDL}$		
Parameter	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	RL
Benzene		1	< 0.000765	mg/L	0.001
Toluene		1	< 0.000719	${ m mg/L}$	0.001
Ethylbenzene		1	< 0.000860	$\mathrm{mg/L}$	0.001
Xylene		1	< 0.000942	${ m mg/L}$	0.001

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	${f Amount}$	Recovery	Limits
Trifluorotoluene (TFT)			0.0968	mg/L	1	0.100	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.100	mg/L	1	0.100	100	70 - 130

Method Blank (1)

QC Batch: 86112

QC Batch: 86112Prep Batch: 73126 Date Analyzed: QC Preparation: 2011-11-04

2011-11-04

Analyzed By: MT Prepared By: MT

			$\mathrm{MDL}$		
Parameter	Flag	$\operatorname{Cert}$	Result	Units	RL
Benzene		1	< 0.000765	mg/L	0.001
Toluene		1	< 0.000719	m mg/L	0.001
Ethylbenzene		1	< 0.000860	${ m mg/L}$	0.001
Xylene		1	< 0.000942	m mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.107	mg/L	1	0.100	107	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	mg/L	1	0.100	108	70 - 130

Report Date: November 7, 2011 TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 10 of 15 Monument, Lea Co., NM

## Laboratory Control Spikes

#### Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2011-11-03

Analyzed By: MT

Prep Batch: 73081

QC Preparation: 2011-11-03

Prepared By: MT

Param	I.	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
					1711.			nec.	LIMITO
Benzene		1	0.108	${ m mg/L}$	1	0.100	< 0.000765	108	70 - 130
Toluene		1	0.104	$\mathrm{mg/L}$	1	0.100	< 0.000719	104	70 - 130
Ethylbenzene		1	0.106	$\mathrm{mg/L}$	1	0.100	< 0.000860	106	70 - 130
Xylene		1	0.310	mg/L	1	0.300	< 0.000942	103	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$\operatorname{Limit}$
Benzene		1	0.105	mg/L	1	0.100	< 0.000765	105	70 - 130	3	20
Toluene		1	0.102	${ m mg/L}$	1	0.100	< 0.000719	102	70 - 130	2	20
Ethylbenzene		1	0.101	mg/L	1	0.100	< 0.000860	101	70 - 130	5	20
Xylene		1	0.301	mg/L	1	0.300	< 0.000942	100	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.101	0.0941	mg/L	1	0.100	101	94	70 - 130
4-Bromofluorobenzene (4-BFB)	0.100	0.0939	${ m mg/L}$	1	0.100	100	94	70 - 130

#### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 73126 Date Analyzed: 2011-11-04 QC Preparation: 2011-11-04

Analyzed By: MT Prepared By: MT

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$
Benzene		1	0.105	${ m mg/L}$	1	0.100	< 0.000765	105	70 - 130
Toluene		1	0.101	$\mathrm{mg/L}$	1	0.100	< 0.000719	101	70 - 130
Ethylbenzene		1	0.100	${ m mg/L}$	1	0.100	< 0.000860	100	70 - 130
Xylene		1	0.293	${ m mg/L}$	1	0.300	< 0.000942	98	70 - 130

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 11 of 15 Monument, Lea Co., NM

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.108	mg/L	1	0.100	< 0.000765	108	70 - 130	3	20
Toluene		1	0.101	mg/L	1	0.100	< 0.000719	101	70 - 130	0	20
Ethylbenzene		1	0.0990	mg/L	1	0.100	< 0.000860	99	70 - 130	1	20
Xylene		1	0.294	mg/L	1	0.300	< 0.000942	98	70 - 130	0	20

···.

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$_{ m Limit}$
Trifluorotoluene (TFT)	0.103	0.102	mg/L	1	0.100	103	102	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0952	0.0962	mg/L	1	0.100	95	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 281205

QC Batch: 86073 Prep Batch: 73081

Date Analyzed:

2011-11-03 QC Preparation: 2011-11-03

Analyzed By: MT

Prepared By: MT

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.521	mg/L	5	0.500	< 0.00382	104	70 - 130
Toluene		1	0.501	mg/L	5	0.500	< 0.00360	100	70 - 130
Ethylbenzene		1	0.504	mg/L	5	0.500	< 0.00430	101	70 - 130
Xylene		1	1.48	mg/L	5	1.50	< 0.00471	99	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$	RPD	Limit
Benzene		1	0.526	mg/L	5	0.500	< 0.00382	105	70 - 130	1	20
Toluene		1	0.508	mg/L	5	0.500	< 0.00360	102	70 - 130	1	20
Ethylbenzene		1	0.509	mg/L	5	0.500	< 0.00430	102	70 - 130	1	20
Xylene		1	1.50	mg/L	5	1.50	< 0.00471	100	70 - 130	1	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.534	0.524	${ m mg/L}$	5	0.5	107	105	70 - 130
4-Bromofluorobenzene (4-BFB)	0.528	0.525	$\mathrm{mg/L}$	5	0.5	106	105	70 - 130

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18 Page Number: 12 of 15 Monument, Lea Co., NM

Matrix Spike (MS-1)

Spiked Sample: 281561

QC Batch:

Date Analyzed:

2011-11-04

Analyzed By: MT

Prep Batch: 73126

86112 73126

QC Preparation: 2011-11-04

Prepared By: MT

Param	F	C	$\begin{array}{c} \text{MS} \\ \text{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.111	mg/L	1	0.100	< 0.000765	111	70 - 130
Toluene		1	0.106	mg/L	1	0.100	< 0.000719	106	70 - 130
Ethylbenzene		1	0.106	mg/L	1	0.100	< 0.000860	106	70 - 130
Xylene		l	0.312	$\mathrm{mg/L}$	1	0.300	< 0.000942	104	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

				MSD			Spike	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$\mathbf{Limit}$
Benzene	Qr,Qs	Qr,Qs	1	0.0623	mg/L	1	0.100	< 0.000765	62	70 - 130	56	20
Toluene	Qr,Qs	Qr,Qs	1	0.0595	${ m mg/L}$	1	0.100	< 0.000719	60	70 - 130	56	20
Ethylbenzene	$_{ m Qr,Qs}$	Qr,Qs	1	0.0606	${ m mg/L}$	1	0.100	< 0.000860	61	70 - 130	54	20
Xylene	Qr,Qs	$_{ m Qr,Qs}$	1	0.178	mg/L	1	0.300	< 0.000942	59	70 - 130	55	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.103	0.0940	m mg/L	1	0.1	103	94	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0988	0.0914	${ m mg/L}$	1	0.1	99	91	70 - 130

Report Date: November 7, 2011 TNM Monument #18

Work Order: 11110306 TNM Monument #18 Page Number: 13 of 15 Monument, Lea Co., NM

Calibration Standards

Standard (CCV-1)

QC Batch: 86073

Date Analyzed: 2011-11-03

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.107	107	80 - 120	2011-11-03
Toluene	•	1	$_{ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Ethylbenzene		1	mg/L	0.100	0.104	104	80 - 120	2011-11-03
Xylene		1	$_{ m mg/L}$	0.300	0.307	102	80 - 120	2011-11-03

Standard (CCV-2)

QC Batch: 86073

Date Analyzed: 2011-11-03

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	$_{ m mg/L}$	0.100	0.108	108	80 - 120	2011-11-03
Toluene		1	mg/L	0.100	0.104	104	80 - 120	2011-11-03
Ethylbenzene		1	${ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Xylene		1	$\mathrm{mg/L}$	0.300	0.307	102	80 - 120	2011-11-03

Standard (CCV-3)

QC Batch: 86073

Date Analyzed: 2011-11-03

Analyzed By: MT

				$\mathrm{CCVs}$	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.108	108	80 - 120	2011-11-03
Toluene		1	${ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Ethylbenzene		1	${ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Xylene		1	mg/L	0.300	0.304	101	80 - 120	2011-11-03

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18 Page Number: 14 of 15 Monument, Lea Co., NM

Standard (CCV-1)

QC Batch: 86112

Date Analyzed: 2011-11-04

Analyzed By: MT

				CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	*	1	mg/L	0.100	0.108	108	80 - 120	2011-11-04
Toluene		1	$_{ m mg/L}$	0.100	0.102	102	80 - 120	2011-11-04
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.102	102	80 - 120	2011-11-04
Xylene		1	mg/L	0.300	0.297	99	80 - 120	2011-11-04

#### Standard (CCV-2)

QC Batch: 86112

Date Analyzed: 2011-11-04

Analyzed By: MT

				CCVs True	$\operatorname{CCVs}$	${ m CCVs} \ { m Percent}$	Percent	Date
**		~ .	TT 1.				Recovery	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	$\operatorname{Limits}$	Analyzed
Benzene		1	$_{ m mg/L}$	0.100	0.106	106	80 - 120	2011-11-04
Toluene		1	${ m mg/L}$	0.100	0.100	100	80 - 120	2011-11-04
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.0999	100	80 - 120	2011-11-04
Xylene		1	mg/L	0.300	0.292	97	80 - 120	2011-11-04

Work Order: 11110306 TNM Monument #18 Page Number: 15 of 15 Monument, Lea Co., NM

**Appendix** 

TNM Monument #18

#### **Laboratory Certifications**

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-4	Lubbock

#### Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
  - $\,{\rm U}\,\,$  The analyte is not detected above the SDL

#### Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

LAB Order ID #	10304

	i /
Page	of

# TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9 **Lubbock, Texas 79424** Tel (806) 794-1296 Fax (806) 794-1298 1 (800) 378-1296 5002 Basin Street, Suite A1 Midland, Texas 79703 Tel (432) 689-6301 Fax (432) 689-6313 200 East Sunset Rd., Suite E El Paso, Texas 79922 Tel (915) 585-3443 Fax (915) 585-4944 1 (888) 588-3443 BioAquatic Testing 2501 Mayes Rd., Ste 100 Carrollton, Texas 75006 Tel (972) 242-7750

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6701 Aberdeen Avenue: Suite 9 200 East Sunset Road; Suite E 5002 Basin Street, Suite A1 -

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817 \* 201 \* 5260

### E-Mait: lab@traceanalysis.com Certifications

#### WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

### Analytical and Quality Control Report

Ron Rounsaville Nova Safety & Environmental 2057 Commerce St. Midland, TX, 79703

Report Date: November 7, 2011

Work Order:

11110306

Monument, Lea Co., NM Project Location: Project Name: TNM Monument #18 Project Number: TNM Monument #18

SRS#:

Monument #18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	1 ime	Date
Sample	Description	Matrix	Taken	Taken	Received
281396	MW-1	water	2011-10-31	13:10	2011-11-02
281397	MW-5	water	2011-10-31	12:45	2011-11-02
281398	MW-6	water	2011-10-31	12:25	2011-11-02
281399	MW-7	water	2011-10-31	12:35	2011-11-02
281400	MW-8	water	2011-10-31	12:40	2011-11-02
281401	MW-9	water	2011-10-31	12:55	2011-11-02
281402	MW-10	water	2011-10-31	13:05	2011-11-02

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael abel

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

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Sample 281396 (MW-1)	į
Sample 281397 (MW-5)	
Sample 281398 (MW-6)	
Sample 281399 (MW-7)	(
Sample 281400 (MW-8)	•
Sample 281401 (MW-9)	•
Sample 281402 (MW-10)	
Method Blanks	9
QC Batch 86073 - Method Blank (1)	Ç
QC Batch 86112 - Method Blank (1)	
Laboratory Control Spikes	10
QC Batch 86073 - LCS (1)	
QC Batch 86112 - LCS (1)	
QC Batch 86073 - MS (1)	
QC Batch 86112 - MS (1)	
Calibration Standards	1:
QC Batch 86073 - CCV (1)	
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## Case Narrative

Samples for project TNM Monument #18 were received by TraceAnalysis, Inc. on 2011-11-02 and assigned to work order 11110306. Samples for work order 11110306 were received intact without headspace and at a temperature of 6.7 C.

Samples were analyzed for the following tests using their respective methods.

		$\operatorname{Prep}$	Prep	$_{ m QC}$	Analysis
$\operatorname{Test}$	Method	$\operatorname{Batch}$	Date	Batch	Date
BTEX	S 8021B	73081	2011-11-03 at 14:10	86073	2011-11-03 at 14:10
BTEX	S 8021B	73126	2011-11-04 at 12:58	86112	2011-11-04 at 12:58

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11110306 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 5 of 15 Monument, Lea Co., NM

# **Analytical Report**

Sample: 281396 - MW-1

Laboratory: Lubbock

Analysis: QC Batch:

86112

BTEX

Prep Batch: 73126

Date Analyzed: Sample Preparation:

Analytical Method:

2011-11-04 2011-11-04

S 8021B Prep Method: S 5030B

Analyzed By: MTPrepared By: MT

				RL			
Parameter		$\operatorname{Flag}$	Cert	Result	Units	Dilution	RL
Benzene	Qr,Qs	Qr,Qs	1	0.00300	mg/L	1	0.00100
Toluene	Qr,Qs,U	$_{ m Qr,Qs,U}$	1	< 0.00100	$\mathrm{mg/L}$	1	0.00100
Ethylbenzene	Qr,Qs	$_{ m Qr,Qs}$	1	0.00270	m mg/L	1	0.00100
Xylene	Qr,Qs	$_{ m Qr,Qs}$	1	0.0102	mg/L	1	0.00100

						$_{ m Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.107	mg/L	1	0.100	107	70 - 130
4-Bromofluorobenzene (4-BFB)			0.124	mg/L	1	0.100	124	70 - 130

Sample: 281397 - MW-5

Laboratory: Lubbock Analysis: QC Batch:

**BTEX** 

86073 Prep Batch: 73081 Analytical Method: Date Analyzed:

S 8021B 2011-11-03 Sample Preparation: 2011-11-03

Prep Method: S 5030B MTAnalyzed By: Prepared By:

RL

				10.13			
Parameter		Flag	$\operatorname{Cert}$	Result	$\mathbf{Units}$	Dilution	RL
Benzene	Ų	U	1	< 0.00100	m mg/L	1	0.00100
Toluene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene	υ	U	1	< 0.00100	$\mathrm{mg/L}$	1	0.00100
Xylene	υ	U	1	< 0.00100	${ m mg/L}$	1	0.00100

						Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.110	mg/L	1	0.100	110	70 - 130
4-Bromofluorobenzene (4-BFB)			0.114	$\mathrm{mg/L}$	1	0.100	114	70 - 130

Report Date: November 7, 2011 Work Order: 11110306 Page Number: 6 of 15 TNM Monument #18 TNM Monument #18 Monument, Lea Co., NM

#### Sample: 281398 - MW-6

Laboratory: Lubbock Analysis: BTEX Analytical Method: QC Batch: 86073 Date Analyzed: Prep Batch: 73081

S 8021B 2011-11-03 Sample Preparation: 2011-11-03 Prep Method: S 5030B Analyzed By: MTPrepared By: MT

				RL			
Parameter		$\operatorname{Flag}$	Cert	Result	Units	Dilution	RL
Benzene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Toluene	υ	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene	υ	$\mathbf{U}$	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.109	mg/L	1	0.100	109	70 - 130
4-Bromofluorobenzene (4-BFB)			0.112	${ m mg/L}$	1	0.100	112	70 - 130

#### Sample: 281399 - MW-7

Laboratory: Lubbock

Analysis: BTEX Analytical Method: S 8021B QC Batch: 86073 Date Analyzed: 2011-11-03 Prep Batch: 73081 Sample Preparation: 2011-11-03 Prep Method: S 5030B Analyzed By: MTPrepared By: MT

				RL			
Parameter		$\operatorname{Flag}$	Cert	Result	Units	Dilution	RL
Benzene	U	U	1	< 0.00100	m mg/L	1	0.00100
Toluene	U	$\mathbf{U}$	1	< 0.00100	${ m mg/L}$	1	0.00100
Ethylbenzene	U	U	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene	U	U	1	< 0.00100	$\mathrm{mg/L}$	1	0.00100

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.111	mg/L	1	0.100	111	70 - 130
4-Bromofluorobenzene (4-BFB)			0.114	mg/L	1	0.100	114	70 - 130

Report Date: November 7, 2011 TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 7 of 15 Monument, Lea Co., NM

Sample: 281400 - MW-8

Laboratory: Lubbock Analysis:

BTEX

Analytical Method: 86073

S 8021B 2011-11-03 Prep Method: S 5030B

QC Batch: Prep Batch: 73081 Date Analyzed: Sample Preparation: 2011-11-03

Analyzed By: MTPrepared By: MT

RL

Parameter Flag Cert Dilution Result Units RLBenzene U < 0.00100 0.00100 mg/L Toluene U < 0.00100 mg/L 1 0.00100 U Ethylbenzene U < 0.00100 mg/L 1 0.00100 Xylene U < 0.00100 0.00100 mg/L1

						Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			0.108	mg/L	1	0.100	108	70 - 130	
4-Bromofluorobenzene (4-BFB)			0.112	$\mathrm{mg/L}$	1	0.100	112	70 - 130	

Sample: 281401 - MW-9

Laboratory:

Lubbock

Analysis: **BTEX** QC Batch: 86073 Prep Batch: 73081

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-11-03 2011-11-03 Prep Method: S 5030B Analyzed By: MTPrepared By: MT

RLParameter Flag Cert Result Units Dilution RLBenzene Ū U < 0.00100 mg/L 1 0.00100 1 Toluene U < 0.00100 0.00100  $\mathrm{mg}/\mathrm{L}$ 1 U Ethylbenzene U < 0.00100 mg/L1 0.00100 U Xylene U < 0.00100 mg/L 0.001001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.108	mg/L	1	0.100	108	70 - 130
4-Bromofluorobenzene (4-BFB)			0.110	mg/L	1	0.100	110	70 - 130

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306

TNM Monument #18

Page Number: 8 of 15 Monument, Lea Co., NM

Sample: 281402 - MW-10

Laboratory: Lubbock

Analysis: QC Batch:

BTEX86112 Prep Batch: 73126

Analytical Method: Date Analyzed:

S 8021B 2011-11-04

Sample Preparation: 2011-11-04

Prep Method: S 5030B

Analyzed By: MTPrepared By: MT

RL

				A 11.4.3			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Benzene	Qr,Qs	$\mathrm{Qr},\mathrm{Qs}$	1	0.00120	m mg/L	1	0.00100
Toluene	Qr,Qs,U	$\mathrm{Qr},\!\mathrm{Qs},\!\mathrm{U}$	1	< 0.00100	$\mathrm{mg/L}$	1	0.00100
Ethylbenzene	Qr,Qs,U	$_{ m Qr,Qs,U}$	1	< 0.00100	${ m mg/L}$	1	0.00100
Xylene	Qr,Qs,U	$_{ m Qr,Qs,U}$	1	< 0.00100	${ m mg/L}$	1	0.00100

a .		~ .	<b>.</b>	<b>T</b> T 4:	<b>5</b> 0	Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.109	mg/L	1	0.100	109	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	${ m mg/L}$	1	0.100	108	70 - 130

Report Date: November 7, 2011 TNM Monument #18

Work Order: 11110306 TNM Monument #18

40/20

Page Number: 9 of 15 Monument, Lea Co., NM

## Method Blanks

Method Blank (1)

QC Batch: 86073

QC Batch:

86073

Date Analyzed:

2011-11-03

Analyzed By: MT

Prep Batch: 73081

QC Preparation: 2011-11-03

Prepared By: MT

			MDL		
Parameter	Flag	$\operatorname{Cert}$	Result	Units	RL
Benzene		1	< 0.000765	mg/L	0.001
Toluene		1	< 0.000719	${ m mg/L}$	0.001
Ethylbenzene		1	< 0.000860	m mg/L	0.001
Xylene		1	< 0.000942	m mg/L	0.001

						Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0968	mg/L	1	0.100	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.100	$\mathrm{mg/L}$	1	0.100	100	70 - 130

Method Blank (1)

QC Batch: 86112

QC Batch: Prep Batch: 73126

86112

Date Analyzed: QC Preparation: 2011-11-04

2011-11-04

Analyzed By: MT

Prepared By: MT

			$\mathrm{MDL}$		
Parameter	$\operatorname{Flag}$	Cert	Result	Units	RL
Benzene		1	< 0.000765	mg/L	0.001
Toluene		1	< 0.000719	$\mathrm{mg/L}$	0.001
Ethylbenzene		1	< 0.000860	m mg/L	0.001
Xylene		1	< 0.000942	${ m mg/L}$	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.107	mg/L	1	0.100	107	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	${ m mg/L}$	1	0.100	108	70 - 130

Report Date: November 7, 2011 TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 10 of 15 Monument, Lea Co., NM

# Laboratory Control Spikes

#### Laboratory Control Spike (LCS-1)

QC Batch:

86073

Date Analyzed:

2011-11-03

Analyzed By: MT

Prep Batch: 73081

QC Preparation: 2011-11-03

Prepared By: MT

Param	${f F}$	C	$\begin{array}{c}  ext{LCS} \\  ext{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.108	mg/L	1	0.100	< 0.000765	108	70 - 130
Toluene		1	0.104	mg/L	1	0.100	< 0.000719	104	70 - 130
Ethylbenzene		1	0.106	mg/L	1	0.100	< 0.000860	106	70 - 130
Xylene		1	0.310	mg/L	1	0.300	< 0.000942	103	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.105	mg/L	1	0.100	< 0.000765	105	70 - 130	3	20
Toluene		1	0.102	${ m mg/L}$	1	0.100	< 0.000719	102	70 - 130	2	20
Ethylbenzene		1	0.101	${ m mg/L}$	1	0.100	< 0.000860	101	70 - 130	5	20
Xylene		1	0.301	mg/L	1	0.300	< 0.000942	100	70 - 130	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	$\operatorname{Dil}$ .	Amount	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	0.101	0.0941	mg/L	1	0.100	101	94	70 - 130
4-Bromofluorobenzene (4-BFB)	0.100	0.0939	mg/L	1	0.100	100	94	70 - 130

#### Laboratory Control Spike (LCS-1)

QC Batch: 86112 Prep Batch: 73126 Date Analyzed: QC Preparation: 2011-11-04

2011-11-04

Analyzed By: MT Prepared By: MT

			LCS			Spike	Matrix		Rec.
Param	F	$^{\rm C}$	Result	Units	Dil.	$\mathbf{A}\mathbf{mount}$	Result	Rec.	Limit
Benzene		1	0.105	mg/L	1	0.100	< 0.000765	105	70 - 130
Toluene		1	0.101	mg/L	1	0.100	< 0.000719	101	70 - 130
Ethylbenzene		1	0.100	mg/L	1	0.100	< 0.000860	100	70 - 130
Xylene		1	0.293	mg/L	1	0.300	< 0.000942	98	70 - 130

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 11 of 15 Monument, Lea Co., NM

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$	RPD	$\operatorname{Limit}$
Benzene		1	0.108	mg/L	1	0.100	< 0.000765	108	70 - 130	3	20
Toluene		1	0.101	mg/L	1	0.100	< 0.000719	101	70 - 130	0	20
Ethylbenzene		1	0.0990	mg/L	1	0.100	< 0.000860	99	70 - 130	1	20
Xylene		1	0.294	mg/L	1	0.300	< 0.000942	98	70 - 130	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.103	0.102	mg/L	1	0.100	103	102	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0952	0.0962	mg/L	1	0.100	95	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 281205

QC Batch:

Param

Benzene

Toluene

Xylene

Ethylbenzene

86073

Date Analyzed:

MS

Result

0.521

0.501

0.504

1.48

2011-11-03

Analyzed By: MT

99

Prepared By: MT

70 - 130

Prep Batch: 73081

QC Preparation: 2011-11-03

Spike Matrix Rec. Units Dil. Amount Result Rec. Limit mg/L 5 0.500 < 0.00382 104 70 - 130 70 - 130 mg/L 5 0.500< 0.00360 100 70 - 130 mg/L 5 0.500< 0.00430 101

< 0.00471

1.50

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

C

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	-	1	0.526	mg/L	5	0.500	< 0.00382	105	70 - 130	1	20
Toluene		1	0.508	${ m mg/L}$	5	0.500	< 0.00360	102	70 - 130	1	20
Ethylbenzene		1	0.509	${ m mg/L}$	5	0.500	< 0.00430	102	70 - 130	1	20
Xylene		1	1.50	$_{ m mg/L}$	5	1.50	< 0.00471	100	70 - 130	1	20

mg/L

	MS	MSD	77.	ъ.,	Spike	MS	MSD	Rec.
Surrogate	Result	Result	$_{ m Units}$	$\operatorname{Dil}$ .	Amount	$\mathrm{Rec}.$	Rec.	Limit
Trifluorotoluene (TFT)	0.534	0.524	mg/L	5	0.5	107	105	70 - 130
4-Bromofluorobenzene (4-BFB)	0.528	0.525	${ m mg/L}$	5	0.5	106	105	70 - 130

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18

Page Number: 12 of 15 Monument, Lea Co., NM

Matrix Spike (MS-1)

Spiked Sample: 281561

QC Batch: Prep Batch: 73126

86112

Date Analyzed: QC Preparation: 2011-11-04

2011-11-04

Analyzed By: MT

Prepared By: MT

D	т.	0	MS	TT 11	מיי	Spike	Matrix	D	Rec.
Param	F	C	Result	$_{ m Units}$	$\operatorname{Dil}$ .	Amount	Result	Rec.	$\operatorname{Limit}$
Benzene		1	0.111	m mg/L	1	0.100	< 0.000765	111	70 - 130
Toluene		1	0.106	mg/L	1	0.100	< 0.000719	106	70 - 130
Ethylbenzene		1	0.106	mg/L	1	0.100	< 0.000860	106	70 - 130
Xylene		1	0.312	mg/L	1	0.300	< 0.000942	104	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD					Spike	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	$_{ m Limit}$
Benzene	Qr,Qs	Qr,Qs	1	0.0623	mg/L	1	0.100	< 0.000765	62	70 - 130	56	20
Toluene	Qr,Qs	Qr,Qs	1	0.0595	${ m mg/L}$	1	0.100	< 0.000719	60	70 - 130	56	20
Ethylbenzene	Qr,Qs	Qr,Qs	1	0.0606	mg/L	1	0.100	< 0.000860	61	70 - 130	54	20
Xylene	Qr,Qs	Qr,Qs	1	0.178	mg/L	1	0.300	< 0.000942	59	70 - 130	55	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.103	0.0940	mg/L	1	0.1	103	94	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0988	0.0914	${ m mg/L}$	1	0.1	99	91	70 - 130

Report Date: November 7, 2011 TNM Monument #18 Work Order: 11110306 TNM Monument #18 Page Number: 13 of 15 Monument, Lea Co., NM

## Calibration Standards

#### Standard (CCV-1)

QC Batch: 86073

Date Analyzed: 2011-11-03

Analyzed By: MT

				CCVs	CCVs	CCVs	Percent	
				$\operatorname{True}$	Found	$\operatorname{Percent}$	Recovery	$\operatorname{Date}$
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	-	1	mg/L	0.100	0.107	107	80 - 120	2011-11-03
Toluene	4	1	${ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Ethylbenzene		1	${ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Xylene		1	${ m mg/L}$	0.300	0.307	102	80 - 120	2011-11-03

#### Standard (CCV-2)

QC Batch: 86073

Date Analyzed: 2011-11-03

Analyzed By: MT

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	$\operatorname{Flag}$	$\operatorname{Cert}$	$\operatorname{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	$_{ m mg/L}$	0.100	0.108	108	80 - 120	2011-11-03
Toluene		1	${ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Ethylbenzene		1	${ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Xylene		1	$\mathrm{mg/L}$	0.300	0.307	102	80 - 120	2011-11-03

#### Standard (CCV-3)

QC Batch: 86073

Date Analyzed: 2011-11-03

Analyzed By: MT

				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	${ m mg/L}$	0.100	0.108	108	80 - 120	2011-11-03
Toluene		1	$_{ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-03
Xylene		1	${ m mg/L}$	0.300	0.304	101	80 - 120	2011-11-03

Report Date: November 7, 2011

TNM Monument #18

Work Order: 11110306 TNM Monument #18 Page Number: 14 of 15 Monument, Lea Co., NM

Standard (CCV-1)

QC Batch: 86112

Date Analyzed: 2011-11-04

Analyzed By: MT

Param	$\operatorname{Flag}$	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.108	108	80 - 120	2011-11-04
Toluene		1	${ m mg/L}$	0.100	0.102	102	80 - 120	2011-11-04
Ethylbenzene		1	${ m mg/L}$	0.100	0.102	102	80 - 120	2011-11-04
Xylene		1	$_{ m mg/L}$	0.300	0.297	99	80 - 120	2011-11-04

Standard (CCV-2)

QC Batch: 86112

Date Analyzed: 2011-11-04

Analyzed By: MT

				CCVs	CCVs	CCVs	Percent	
				$\operatorname{True}$	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.106	106	80 - 120	2011-11-04
Toluene		1	${ m mg/L}$	0.100	0.100	100	80 - 120	2011-11-04
Ethylbenzene		1	${ m mg/L}$	0.100	0.0999	100	80 - 120	2011-11-04
Xylene		1	${ m mg/L}$	0.300	0.292	97	80 - 120	2011-11-04

Report Date: November 7, 2011 TNM Monument #18 Work Order: 11110306 TNM Monument #18 Page Number: 15 of 15 Monument, Lea Co., NM

# **Appendix**

#### **Laboratory Certifications**

	Certifying	Certification	Laboratory
C	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-4	Lubbock

#### Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
  - U The analyte is not detected above the SDL

#### Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

Hold

LAB Order ID #\_

LAB Order ID#	108/024	

_	1	_	/
Page_		_ of	

# TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 Tel (806) 794-1296 Fax (806) 794-1298 1 (800) 378-1296

5002 Basin Street, Suite A1 Midland, Texas 79703 Tel (432) 689-6301 Fax (432) 689-6313

200 East Sunset Rd., Suite E El Paso, Texas 79922 Tel (915) 585-3443 Fax (915) 585-4944 1 (888) 588-3443

BioAquatic Testing 2501 Mayes Rd., Ste 100 Carrollton, Texas 75006 Tel (972) 242-7750

Company N		Phone #:  432-520-7720  Fax #:  ANALYSIS REQUEST  (Circle or Specify Method No.)																															
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5701 Aberdeen Avenue: Suite 9 200 East Sunset Road, Suite E

5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

Lubbock, Texas 79424 El Paso, Texas 79922 Midland, Texas 79703

800 • 378 • 1296 888 • 588 • 3443 806 • 794 • 1296 915 • 585 • 3443 432 • 689 • 6301

FAX 806 • 794 • 1298 FAX 915 • 585 • 4944.

FAX 432 • 589 • 6313

817 • 201 • 5260

# Certifications

E-Mail: lab@tradeanalysis.com

#### WBE HUB NCTRCA DBE NELAP DoD LELAP Oklahoma ISO 17025 Kansas

### Analytical and Quality Control Report

Ron Rounsaville Nova Safety & Environmental 2057 Commerce St. Midland, TX, 79703

Report Date: January 4, 2012

Work Order:

11121921

Project Location: Project Name:

Monument, Lea Co., NM TNM Monument #18 TNM Monument #18

Project Number: SRS#:

Monument #18

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	${f Time}$	Date
Sample	Description	Matrix	Taken	Taken	Received
284809	MW-1	water	2011-12-15	17:40	2011-12-17
284810	MW-7	water	2011-12-15	17:25	2011-12-17

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 11 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

> Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

# **Report Contents**

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### Case Narrative

Samples for project TNM Monument #18 were received by TraceAnalysis, Inc. on 2011-12-17 and assigned to work order 11121921. Samples for work order 11121921 were received intact at a temperature of 11.3 C.

Samples were analyzed for the following tests using their respective methods.

		$\operatorname{Prep}$	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
$\overline{\text{PAH}}$	S 8270D	74334	2012-12-21 at 15:00	87535	2012-01-02 at 11:40

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11121921 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 11121921 TNM Monument #18

Page Number: 4 of 11 Monument, Lea Co., NM

# **Analytical Report**

Sample: 284809 - MW-1

Laboratory: Lubbock

Analysis: PAHQC Batch: 87535 Prep Batch: 74334 Analytical Method: Date Analyzed:

S 8270D 2012-01-02 Sample Preparation: 2012-12-21

Prep Method: S 3510C Analyzed By: MN Prepared By: MN

			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
Naphthalene	U	1	< 0.00186	mg/L	9.302	0.000200
2-Methylnaphthalene	U	1	< 0.00186	${ m mg/L}$	9.302	0.000200
1-Methylnaphthalene			0.0326	$\mathrm{mg/L}$	9.302	0.000200
Acenaphthylene	U	1	< 0.00186	${ m mg/L}$	9.302	0.000200
Acenaphthene	U	1	< 0.00186	${ m mg/L}$	9.302	0.000200
Dibenzofuran		1	0.0104	$\mathrm{mg/L}$	9.302	0.000200
Fluorene	υ	1	< 0.00186	mg/L	9.302	0.000200
Anthracene	ŭ	1	< 0.00186	$\mathrm{mg/L}$	9.302	0.000200
Phenanthrene			0.00950	mg/L	9.302	0.000200
Fluoranthene	U		< 0.00186	mg/L	9.302	0.000200
Pyrene	U	1	< 0.00186	m mg/L	9.302	0.000200
Benzo(a)anthracene	υ		< 0.00186	mg/L	9.302	0.000200
Chrysene	U	1	< 0.00186	${ m mg/L}$	9.302	0.000200
Benzo(b)fluoranthene	U		< 0.00186	${ m mg/L}$	9.302	0.000200
Benzo(k)fluoranthene	U	1 .	< 0.00186	${ m mg/L}$	9.302	0.000200
Benzo(a)pyrene	U	1	< 0.00186	${ m mg/L}$	9.302	0.000200
Indeno(1,2,3-cd)pyrene	U	1	< 0.00186	${ m mg/L}$	9.302	0.000200
Dibenzo(a,h)anthracene	U	1	< 0.00186	$\mathrm{mg/L}$	9.302	0.000200
Benzo(g,h,i)perylene	U		< 0.00186	mg/L	9.302	0.000200

							Spike	Percent	Recovery
Surrogate		$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Nitrobenzene-d5	Qsr	Qsr	-	0.112	mg/L	9.302	0.0800	140	10 - 117
2-Fluorobiphenyl	Qsr	Qar		0.0999	m mg/L	9.302	0.0800	125	10 - 99
Terphenyl-d14	Qsr	Qsr		0.127	mg/L	9.302	0.0800	159	22.6 - 115

Report Date: January 4, 2012 Work Order: 11121921 Page Number: 5 of 11 TNM Monument #18 Monument, Lea Co., NM

S 3510C

MN

MN

Sample: 284810 - MW-7

Laboratory: Lubbock Analysis: PAH

Analysis: PAH Analytical Method: S 8270D Prep Method: QC Batch: 87535 Date Analyzed: 2012-01-02 Analyzed By: Prep Batch: 74334 Sample Preparation: 2012-12-21 Prepared By:

RLParameter Flag Cert Result Units Dilution RLNaphthalene < 0.000186 mg/L 0.93 0.000200 U 1 2-Methylnaphthalene < 0.000186 mg/L 0.930.000200 υ 1 1-Methylnaphthalene < 0.000186 mg/L 0.93 U 0.000200 Acenaphthylene < 0.000186 mg/L 0.93 U 0.000200 Acenaphthene mg/LU < 0.000186 0.930.000200 1 Dibenzofuran 0.000443mġ/L 0.93 0.000200 Fluorene < 0.000186 mg/L 0.93 U 0.000200 Anthracene < 0.000186 mg/L 0.93 0.000200 U Phenanthrene < 0.000186 mg/L0.93 0.000200υ Fluoranthene < 0.000186 mg/L 0.93 0.000200Pyrene < 0.000186 mg/L 0.93 0.000200 Benzo(a)anthracene mg/L υ < 0.000186 0.930.000200 Chrysene < 0.000186 mg/L 0.93 0.000200υ Benzo(b)fluoranthene < 0.000186 mg/L 0.93 0.000200 U Benzo(k)fluoranthene < 0.000186 mg/L 0.93 0.000200 U Benzo(a)pyrene < 0.000186 mg/L 0.93 0.000200 U Indeno(1,2,3-cd)pyrene < 0.000186 mg/L 0.930.000200υ 1 Dibenzo(a,h)anthracene < 0.000186 0.93mg/L 0.000200 U Benzo(g,h,i)perylene < 0.000186 mg/L0.930.000200U

						Spike	$\operatorname{Percent}$	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	$_{ m Units}$	Dilution	Amount	Recovery	Limits
Nitrobenzene-d5		•	0.0449	${ m mg/L}$	0.93	0.0800	56	10 - 117
2-Fluorobiphenyl			0.0415	${ m mg/L}$	0.93	0.0800	52	10 - 99
Terphenyl-d14			0.0630	${ m mg/L}$	0.93	0.0800	79	22.6 - 115

Work Order: 11121921 TNM Monument #18

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# Method Blanks

Method Blank (1)

QC Batch: 87535

QC Batch:

87535

Date Analyzed:

2012-01-02

Analyzed By: MN

Prep Batch: 74334

QC Preparation: 2012-12-21

Prepared By: MN

			$\mathrm{MDL}$		
Parameter	Flag	$\operatorname{Cert}$	Result	Units	$\operatorname{RL}$
Naphthalene		1	< 0.0000904	$_{ m mg/L}$	0.0002
2-Methylnaphthalene		1	< 0.000184	m mg/L	0.0002
1-Methylnaphthalene			< 0.000120	${ m mg/L}$	0.0002
Acenaphthylene		1	< 0.000101	m mg/L	0.0002
Acenaphthene		1	< 0.000122	m mg/L	0.0002
Dibenzofuran		1 .	< 0.000119	${ m mg/L}$	0.0002
Fluorene		1	< 0.000198	${ m mg/L}$	0.0002
Anthracene		1	< 0.000190	${ m mg/L}$	0.0002
Phenanthrene			< 0.000190	${ m mg/L}$	0.0002
Fluoranthene			< 0.000122	${ m mg/L}$	0.0002
Pyrene		1	< 0.000142	${ m mg/L}$	0.0002
Benzo(a)anthracene			< 0.000138	$\mathrm{mg/L}$	0.0002
Chrysene		1	< 0.000155	${ m mg/L}$	0.0002
Benzo(b)fluoranthene			< 0.000179	${ m mg/L}$	0.0002
Benzo(k)fluoranthene		1	< 0.000185	m mg/L	0.0002
Benzo(a)pyrene		1	< 0.000169	m mg/L	0.0002
Indeno(1,2,3-cd)pyrene		1	< 0.000139	${ m mg/L}$	0.0002
${ m Dibenzo(a,h)}$ anthracene		1	< 0.000107	${ m mg/L}$	0.0002
Benzo(g,h,i)perylene			< 0.000143	${ m mg/L}$	0.0002

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5			0.0450	mg/L	1	0.0800	56	10 - 117
2-Fluorobiphenyl			0.0360	${ m mg/L}$	1	0.0800	45	10 - 99
Terphenyl-d14			0.0563	${ m mg/L}$	1	0.0800	70	22.6 - 115

Work Order: 11121921 TNM Monument #18

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# **Laboratory Control Spikes**

#### Laboratory Control Spike (LCS-1)

QC Batch:

87535

Date Analyzed:

2012-01-02

Analyzed By: MN

Prep Batch: 74334

QC Preparation: 2012-12-21

Prepared By: MN

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene		1	0.0315	${ m mg/L}$	1	0.0800	< 0.0000904	39	10 - 89.9
2-Methylnaphthalene		1	0.0351	m mg/L	1	0.0800	< 0.000184	44	13.8 - 98.4
1-Methylnaphthalene			0.0407	mg/L	1	0.0800	< 0.000120	51	13.1 - 103
Acenaphthylene		1	0.0410	mg/L	1	0.0800	< 0.000101	51	20 - 104
Acenaphthene		1	0.0403	mg/L	1	0.0800	< 0.000122	50	21.6 - 94.6
Dibenzofuran		1	0.0479	$\mathrm{mg/L}$	1	0.0800	< 0.000119	60	22.9 - 74.9
Fluorene		1	0.0515	mg/L	1	0.0800	< 0.000198	64	30.8 - 109
Anthracene		1	0.0594	mg/L	1	0.0800	< 0.000190	74	37.6 - 96.4
Phenanthrene			0.0571	mg/L	1	0.0800	< 0.000190	71	42.4 - 99.8
Fluoranthene			0.0558	mg/L	1	0.0800	< 0.000122	70	48 - 118
Pyrene		1	0.0734	${ m mg/L}$	1	0.0800	< 0.000142	92	45.3 - 109
Benzo(a)anthracene			0.0642	mg/L	1	0.0800	< 0.000138	80	48 - 113
Chrysene		1	0.0598	m mg/L	1	0.0800	< 0.000155	75	35.2 - 175
Benzo(b)fluoranthene			0.0495	${ m mg/L}$	1	0.0800	< 0.000179	62	16.6 - 106
Benzo(k)fluoranthene		1	0.0456	${ m mg/L}$	1	0.0800	< 0.000185	57	36.8 - 99.4
Benzo(a)pyrene		1	0.0458	${ m mg/L}$	1	0.0800	< 0.000169	57	32.3 - 99.7
Indeno $(1,2,3$ -cd)pyrene		1	0.0512	$\mathrm{mg/L}$	1	0.0800	< 0.000139	64	34.1 - 106
Dibenzo(a,h)anthracene		1	0.0551	$\mathrm{mg/L}$	1	0.0800	< 0.000107	69	47.1 - 103
Benzo(g,h,i)perylene			0.0506	mg/L	11	0.0800	< 0.000143	63	21.9 - 112

Percent recovery is based on the spike result: RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Naphthalene		1	0.0352	mg/L	1	0.0800	< 0.0000904	44	10 - 89.9	11	20
2-Methylnaphthalene		1	0.0400	mg/L	1	0.0800	< 0.000184	50	13.8 - 98.4	13	20
1-Methylnaphthalene			0.0465	mg/L	1	0.0800	< 0.000120	58	13.1 - 103	13	20
Acenaphthylene		1 .	0.0467	mg/L	1	0.0800	< 0.000101	58	20 - 104	13	20
Acenaphthene		1	0.0455	mg/L	1	0.0800	< 0.000122	57	21.6 - 94.6	12	20
Dibenzofuran		1	0.0551	mg/L	1	0.0800	< 0.000119	69	22.9 - 74.9	14	20
Fluorene		1	0.0595	mg/L	1	0.0800	< 0.000198	74	30.8 - 109	14	20
Anthracene		1	0.0668	mg/L	1	0.0800	< 0.000190	84	37.6 - 96.4	12	20
Phenanthrene			0.0642	mg/L	1	0.0800	< 0.000190	80	42.4 - 99.8	12	20
Fluoranthene			0.0619	mg/L	1	0.0800	< 0.000122	77	48 - 118	10	20
Pyrene		1	0.0826	mg/L	1	0.0800	< 0.000142	103	45.3 - 109	12	20

continued ...

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control spikes continued . . .

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzo(a)anthracene			0.0714	mg/L	1	0.0800	< 0.000138	89	48 - 113	11	20
Chrysene		1	0.0670	${ m mg/L}$	1	0.0800	< 0.000155	84	35.2 - 175	11	20
Benzo(b)fluoranthene			0.0477	${ m mg/L}$	1	0.0800	< 0.000179	60	16.6 - 106	4	20
Benzo(k)fluoranthene		1	0.0510	${ m mg/L}$	1	0.0800	< 0.000185	64	36.8 - 99.4	11	20
Benzo(a)pyrene		1	0.0516	${ m mg/L}$	1	0.0800	< 0.000169	64	32.3 - 99.7	12	20
Indeno(1,2,3-cd)pyrene		1	0.0580	m mg/L	1	0.0800	< 0.000139	72	34.1 - 106	12	20
Dibenzo(a,h)anthracene		1	0.0632	${ m mg/L}$	1	0.0800	< 0.000107	79	47.1 - 103	14	20
Benzo(g,h,i)perylene	_		0.0581	mg/L	1	0.0800	< 0.000143	73	21.9 - 112	14	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$\mathbf{Limit}$
Nitrobenzene-d5	0.0437	0.0490	${ m mg/L}$	1	0.0800	55	. 61	10 - 117
2-Fluorobiphenyl	0.0381	0.0436	mg/L	1	0.0800	48	. 54	10 - 99
Terphenyl-d14	0.0791	0.0874	mg/L	1	0.0800	99	109	22.6 - 115

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# Calibration Standards

Standard (CCV-2)

QC Batch: 87535

Date Analyzed: 2012-01-02

Analyzed By: MN

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Naphthalene		1	m mg/L	60.0	52.7	88	80 - 120	2012-01-02
2-Methylnaphthalene		1	${ m mg/L}$	60.0	49.0	82	80 - 120	2012-01-02
1-Methylnaphthalene			${ m mg/L}$	60.0	57.6	96	80 - 120	2012-01-02
Acenaphthylene		1	${ m mg/L}$	60.0	52.9	88	80 - 120	2012-01-02
Acenaphthene		1	${ m mg/L}$	60.0	53.7	90	80 - 120	2012-01-02
Dibenzofuran		1	${ m mg/L}$	60.0	53.0	88	80 - 120	2012-01-02
Fluorene		1	${ m mg/L}$	60.0	55.6	93	80 - 120	2012-01-02
Anthracene		1	${ m mg/L}$	60.0	60.8	101	80 - 120	2012-01-02
Phenanthrene			${ m mg/L}$	60.0	59.4	99	80 - 120	2012-01-02
Fluoranthene			${ m mg/L}$	60.0	58.9	98	80 - 120	2012-01-02
Pyrene		1	${ m mg/L}$	60.0	64.4	107	80 - 120	2012-01-02
Benzo(a)anthracene			${ m mg/L}$	60.0	57.4	96	80 - 120	2012-01-02
Chrysene		1	${ m mg/L}$	60.0	51.4	86	80 - 120	2012-01-02
Benzo(b)fluoranthene			${ m mg/L}$	60.0	52.1	87	80 - 120	2012-01-02
Benzo(k)fluoranthene		1	${ m mg/L}$	60.0	55.1	92	80 - 120	2012-01-02
Benzo(a)pyrene		1	${ m mg/L}$	60.0	51.5	86	80 - 120	2012-01-02
Indeno $(1,2,3$ -cd)pyrene		1	${ m mg/L}$	60.0	53.1	88	80 - 120	2012-01-02
Dibenzo(a,h)anthracene		1	$\mathrm{mg/L}$	60.0	55.6	93	80 - 120	2012-01-02
Benzo(g,h,i)perylene			mg/L	60.0	51.8	86	80 - 120	2012-01-02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Recovery	Recovery Limit
Nitrobenzene-d5			60.3	mg/L	1	60.0	100	-
2-Fluorobiphenyl			51.9	${ m mg/L}$	1	60.0	86	-
Terphenyl-d14			64.5	${ m mg/L}$	1	60.0	108	-

Standard (CCV-3)

QC Batch: 87535

Date Analyzed: 2012-01-02

Analyzed By: MN

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Naphthalene		1	${ m mg/L}$	60.0	53.0	88	80 - 120	2012-01-02

 $continued \dots$ 

Terphenyl-d14

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$standard\ continued\ \dots$								
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Fl	ag Cei	rt Units	Conc.	Conc.	Recovery	Limits	Analyzed
2-Methylnaphthalene		1	mg/L	60.0	50.0	83	80 - 120	2012-01-02
1-Methylnaphthalene			${ m mg/L}$	60.0	59.2	99	80 - 120	2012-01-02
Acenaphthylene		1	${ m mg/L}$	60.0	52.7	88	80 - 120	2012-01-02
Acenaphthene		1	$_{ m mg/L}$	60.0	53.6	89	80 - 120	2012-01-02
Dibenzofuran		1	${ m mg/L}$	60.0	52.7	88	80 - 120	2012-01-02
Fluorene	•	1	${ m mg/L}$	60.0	55.4	92	80 - 120	2012-01-02
Anthracene		1	${ m mg/L}$	60.0	59.8	100	80 - 120	2012-01-02
Phenanthrene			m mg/L	60.0	58.7	98	80 - 120	2012-01-02
Fluoranthene			${ m mg/L}$	60.0	57.8	96	80 - 120	2012-01-02
Pyrene		1	m mg/L	60.0	64.6	108	80 - 120	2012-01-02
Benzo(a)anthracene			${ m mg/L}$	60.0	58.6	98	80 - 120	2012-01-02
Chrysene		1	$\mathrm{mg/L}$	60.0	51.7	86	80 - 120	2012-01-02
Benzo(b)fluoranthene			${ m mg/L}$	60.0	56.1	94	80 - 120	2012-01-02
Benzo(k)fluoranthene		1	$_{ m mg/L}$	60.0	52.2	87	80 - 120	2012-01-02
Benzo(a)pyrene		1	mg/L	60.0	50.4	84	80 - 120	2012-01-02
Indeno(1,2,3-cd)pyrene		1	m mg/L	60.0	53.0	88	80 - 120	2012-01-02
Dibenzo(a,h)anthracene		1	mg/L	60.0	55.4	92	80 - 120	2012-01-02
Benzo(g,h,i)perylene			m mg/L	60.0	51.8	86	80 - 120	2012-01-02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limit
Nitrobenzene-d5	1 145		60.0	mg/L	1	60.0	100	
2-Fluorobiphenyl			51.5	$\frac{mg/L}{mg/L}$	1	60.0	86	-
2-1 Idoloorphenyi			01.0	mg/L		00.0	100	

mg/L

60.0

108

64.8

Report Date: January 4, 2012 Work Order: 11121921 TNM Monument #18 TNM Monument #18 Page Number: 11 of 11

Monument, Lea Co., NM

# Appendix

#### Report Definitions

Name	Definition
$\overline{\mathrm{MDL}}$	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

#### **Laboratory Certifications**

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-5	Lubbock

#### Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit.
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

#### Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

LAB Order ID#	11121921

		_	
Page	/	of	<i></i>

# TraceAnalysis, Inc.

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BioAquatic Testing 2501 Mayes Rd., Ste 100 Carroliton, Texas 75006 Tel (972) 242-7750

Company N			<del></del>				Pi	hone	#:								ANALYSIS REQUEST																					
Address:	(Street, City, Zip)						Fa	ax #:										(Circle or Specify Method No.)																				
Contact Per Invoice to: (If different Project #:	son: Row Rounsauille from above)		E-mail:  Project Name:								4	Ext(C35)		8 %	<u>م</u>									nity		******	***************************************		Turn Around Time if different from standard									
TWO	1 MONUMENT# 18							Ma				. ,	ε					9/0	/ 62	100	Í	S Q	5					625				Alkalinity					ent fi	
Project Loc	ation (including state):						Sa	ampl	er S	gna	ature	∌:	1 1		~			/ 8260	260	XI.	5	d Cr Pb	Č g				624	20				2, AI	<u>입</u>				liffer	
			ount		M	\TR			PRESERVATIVE METHOD					E SAMPLING			LING	/ 602	602 / 8	X1005	525 625	As Ba Cd	Ag As B	olatiles	les		260 / 6	Vol. 82	608 81 / 608		tent	왿					Time if d	
LAB # (LAB USE) ONLY	FIELD CODE	# CONTAINERS	Volume / Amount	WATER	SOIL	AIR	SLUDGE	Į.	CNI	H.SO.	NaOH	ICE	NONE		DATE	:	TIME	MTBE 8021	BTEX 8021/	TPH 418.1 / TX1005 / TX1005 E	PAH 8270 / 5	Total Metals Ag As	TCLP Metals Ag As Ba Cd Cr	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 /	GC/MS Semi. Vol. 8270 /	PCB's 8082 / 608	BOD, TSS, pH	Moisture Content	CI, FI, S04, NO3,	Na, Ca, Mg, K, TDS,				Turn Around	Hold
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Refinquish	ed by: Company: Date/		ime: 105	K	eceiv	ea	oy:	•	Com	par	ıy:	İ	Date	1.	111	me:	INST OBS COR				eadsp			NA L	- (	/ /	12	~		• •	<	?		а	a			
Relinguish		T	ime:	R	eceiv	ed	gy:	M	Com	par	ıy: #	l	Date	: / 17/	Tir	me: //:/		Ū	12, 3, 14,	$\neg$	og-in-R					Wei RP R eck lits A				quire ed ortin	ed	XT _	Ł <u>·</u>	D —	eli —	il _	~	ナ
Submittal o	f samples constitutes agreement to Te							even	se si	de d	of C	. O.	c.						arrier	- /	M	1	7 -		Y	3	2		Z	Ŝ	Z	28	1	130	05			_
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