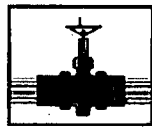


GW - 294

**Enhanced Product Recovery
System Start-Up Report**

June 2, 2011



PLAINS
PIPELINE, L.P.

June 2, 2011

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

RE: Plains Pipeline, L.P. TNM 97-04 Site
NMOCD Reference # GW-0294
Unit Letter P of Section 11, Township 16 South, Range 35 East
Lea County, New Mexico

Dear Mr. Griswold:

Plains Pipeline, L.P. is pleased to submit the attached *Enhanced Product Recovery System Start-Up Report*, dated May 2011, for the above referenced site. This document provides details regarding the installation and operation of the groundwater remediation system that is currently being utilized at the subject site.

Should you have any questions or comments, please contact me at (575) 441-1099.

Sincerely,

Jason Henry
Remediation Coordinator
Plains Pipeline, L.P.

CC: Geoff Leking, NMOCD, Hobbs Office

Enclosure

RECEIVED OGD
2011 JUN -6 P 1:26



ENHANCED PRODUCT RECOVERY SYSTEM START-UP REPORT

TNM 97-04

**SE ¼, SE ¼, SECTION 11, TOWNSHIP 16 SOUTH, RANGE 35 EAST
LEA COUNTY, NEW MEXICO
PLAINS SRS NUMBER: TNM 97-04
NMOCD Reference GW-0294**



NOVA
safety and environmental

Prepared for:

Plains Marketing, L.P.
333 Clay Street, Suite 1600
Houston, Texas 77002

Prepared by:

NOVA Safety and Environmental
2057 Commerce Drive
Midland, Texas 79703

May 2011

Ronald K. Rounsaville
Senior Project Manager

Brittan K. Byerly, P.G.
President

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1.0 INTRODUCTION AND PURPOSE

On behalf of Plains Marketing, L.P. (Plains), NOVA Safety and Environmental (NOVA) has prepared this Enhanced Product Recovery System Start-Up Report for the groundwater treatment system at TNM 97-04 Townsend Site (the site). The purpose of this report is to summarize the system start-up activities involved with the abatement process and provide current treated groundwater discharge and laboratory analytical data to Plains and the New Mexico Oil Conservation Division (NMOCD). The two part remediation system air sparges the down gradient edge of the dissolved phase hydrocarbon plume while a pump and treat system recovers groundwater and phase separated hydrocarbons from the central plume area. The recovered groundwater is then treated by sparging and granulated activated carbon and returned to the subsurface through an infiltration gallery located up gradient of the plume.

The site, which was formerly the responsibility of Texas New Mexico Pipe Line Company (TNM), is now the responsibility of Plains. The site is located in the SE 1/4 of the SE 1/4 of Section 11, Township 16 South, Range 35 East in Lea County, New Mexico, approximately four miles west of Lovington, New Mexico on Gill Road. A Site Location Map is included as Figure 1.

Fourteen monitor wells (MW-2 through MW-7 and MW-9 through MW-16) and one recovery well (RW-1) were located at the site to delineate and remediate the hydrocarbon plume. In March 2009, eight air sparging wells and three additional recovery wells were installed at the site. A Site Details Map featuring the system layout with the air sparging and recovery well locations is included as Figure 2; Figure 3 illustrates the remediation system layout.

2.0 SYSTEM INSTALLATION AND OPERATION

Eight air-sparging wells (AS-1 through AS-8) were installed in March 2009, each to a depth of approximately 65 feet below ground surface (bgs) along the southern and eastern edges of the PSH plume and spaced approximately 20 feet apart (please refer to figure 2 for the location of the sparge wells and Appendix A for geologic logs of the sparging wells). Each sparging well was constructed with 60 feet of 2-inch diameter schedule 40 PVC casing and 2 feet of 0.020 inch slotted screen. The upper 7 feet of the sparging wells consisted of 2-inch diameter galvanized steel piping as the manifold for the compressed air tubing (please refer to Figure 4 for a schematic of sparging well completions).

Three recovery wells (RW-2 through RW-4) were installed in March 2009, within the central area of the PSH plume to a depth of 65 feet bgs and constructed with 40 feet of 2-inch diameter schedule 40 PVC casing and 25 feet of 0.010 inch slotted screen. As per the approved system installation proposal, soil samples were not collected and analyzed during the installation activities of the sparging and recovery wells. Soil boring logs with well construction details along with State of New Mexico well drillers reports are included in Appendix A.

The enhanced recovery system utilizes compressed air generated by a trailer mounted blower to provide air to the eight air-sparging wells at approximately four to six pounds per square inch (psi). The blower makes excess pressure which is either utilized to aerate a water holding tank in

the pump-and-treat system or vented to atmosphere. The sparging system operates 24 hours a day in an effort to aerate the groundwater on the down gradient edge of the hydrocarbon plume, as well as creating a rise in the water table along the axis of the sparging wells. Monitor wells MW-13 and MW-15 will be used to quantify the effectiveness of the sparging system in reducing the dissolved phase hydrocarbons.

Total fluid pumps were placed in recovery wells RW-1, RW-2, RW-3 and RW-4 to lower the groundwater in the central plume area to capture phase separated hydrocarbons and are powered by compressed air generated by a compressor located in the mechanical shed on the east side of the site (please refer to Figure 2 for the location of the mechanical shed). The total fluid pumps operate at a pumping rate of approximately 2-3 gallons per minute (gpm) from each recovery well with a combined pumping rate of 8-12 gpm. Recovered oil and water is then passed through an oil-water separator with the oil transferred to a 550 gallon poly tank for staging and later transport off site. Recovered groundwater is pumped to a large poly aeration tank to allow for volatilization of the hydrocarbons. Air is injected into this tank by the trailer mounted blower. Groundwater is then transferred through a two bag particulate filter system prior to being pumped through two-500 lbs. carbon filtration canisters plumbed in sequence. The treated groundwater is sampled from post carbon sampling ports on a monthly basis. The treated groundwater is then discharged continually, under Discharge Permit GW-294, to an infiltration gallery located upgradient of the release point (Please see Figure 2 for the location of the treatment system, air sparging and recovery wells and Figure 3 for an operational schematic of the system).

A NMOCD permitted injection/infiltration system was installed prior to Plains assuming operational responsibilities in 2004. Plains rehabilitated the existing infiltration gallery for the acceptance of the treated groundwater by over-excavating the existing gallery to a depth of 35 feet bgs and replacement of the gallery piping and filter media in accordance with Discharge Permit GW-294. The average daily pumping volume for the four recovery wells is approximately 29 bbls per day. The average monthly pumping volume is approximately 962 bbls. Flow meter readings indicated approximately 26,378 barrels of treated groundwater have been discharged through the infiltration gallery since system start up on September 2, 2010. Discharge Flow Meter Readings for 2010-2011 are presented as Table 1. Approximately 108 gallons of PSH have been recovered since system start up.

3.0 LABORATORY RESULTS

Treated groundwater samples are collected from a sampling port located after the second carbon filter (post carbon) installed between the second carbon vessel and the header for the infiltration gallery. As per permit requirements, samples are collected from the system effluent and analyzed according to the following schedule:

Initial - weekly basis for the first month of operation

BTEX and PAH concentrations, Method 8270, WQCC Metals

Monthly – BTEX and PAH concentrations, Method 8270

Annually - BTEX and PAH concentrations, Method 8270, WQCC Metals

Treated groundwater samples obtained from the post carbon sampling port 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) by EPA method 8270 and WQCC Metals by EPA method 6010C. A listing of Post Carbon effluent BTEX constituent concentrations is summarized in Table 2, PAH constituent concentrations are summarized in Table 3 and the WQCC Metal concentrations are listed in Table 4. Copies of the laboratory reports generated for the Post Carbon Effluent initial and monthly sampling events are provided in Appendix A.

Initial weekly system sampling events were conducted on September 2, September 10, September 16 and September 23, 2010 followed by monthly sampling events beginning in October 2010. Post carbon effluent analytical results on samples collected during the initial start up event and subsequent monthly sampling events indicate BTEX constituent concentrations were below laboratory method detection limits (MDLs) and the NMOCD regulatory standards, with the exception of the February 28, 2011 sampling event. The February 28, 2011 post carbon effluent sample exhibited a benzene concentration of 0.0319 mg/L. Upon receipt of the February 28, 2011 laboratory results, the system was turned off and the carbon filter media within the two vessels was replaced. Additional analytical results on post carbon effluent groundwater samples indicated PAH and WQCC metals concentrations to be below regulatory limits.

4.0 SUMMARY

This report documents the installation, start up activities and operations of the Enhanced Product Recovery System at the Plains TNM 97-04 site. The recovery system consists of eight air sparging wells utilizing compressed air operating at approximately 4-6 psi from a trailer mounted blower. Four recovery wells powered by compressed air, operating at a combined rate of 8-12 gpm, supply oil and impacted groundwater to a trailer mounted groundwater treatment system consisting of an oil/water separator, three poly holding tanks, two particulate bag filters and two 500 lbs. carbon filter canisters prior to discharge into an infiltration gallery under discharge permit GW-294. To date, approximately 26,378 barrels of treated groundwater have been discharged through the infiltration gallery. Currently, the system is operating normally with the most recent laboratory analytical results indicating the post carbon groundwater concentrations of BTEX constituents to be below laboratory method detection limits.

Future monitoring of dissolved phase hydrocarbon concentration in downgradient monitor wells MW-13 and MW-15 will be evaluated in forthcoming quarterly status update reports.

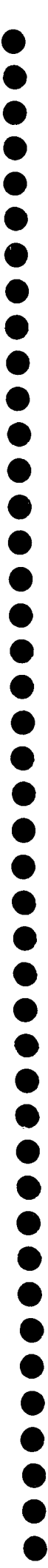
5.0 LIMITATIONS

NOVA has prepared this *Enhanced Product Recovery System Initial Start Up 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.

6.0 DISTRIBUTION

- Copy 1: Jim Griswold
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
- Copy 2: Geoffrey R. Leking
New Mexico Oil Conservation Division (District 1)
1625 French Drive
Hobbs, NM 88240
- Copy 3: Jason Henry
Plains Pipeline, L.P.
2530 State Highway 214
Denver City, Texas 79323
jhenry@paalp.com
- Copy 4: Jeff Dann
Plains Pipeline, L.P.
333 Clay Street, Suite 1600
Houston, Texas 77002
jpdann@paalp.com
- Copy 5: NOVA Safety and Environmental.
2057 Commerce Drive
Midland, Texas 79703
rrounsaville@novatraining.cc



FIGURES

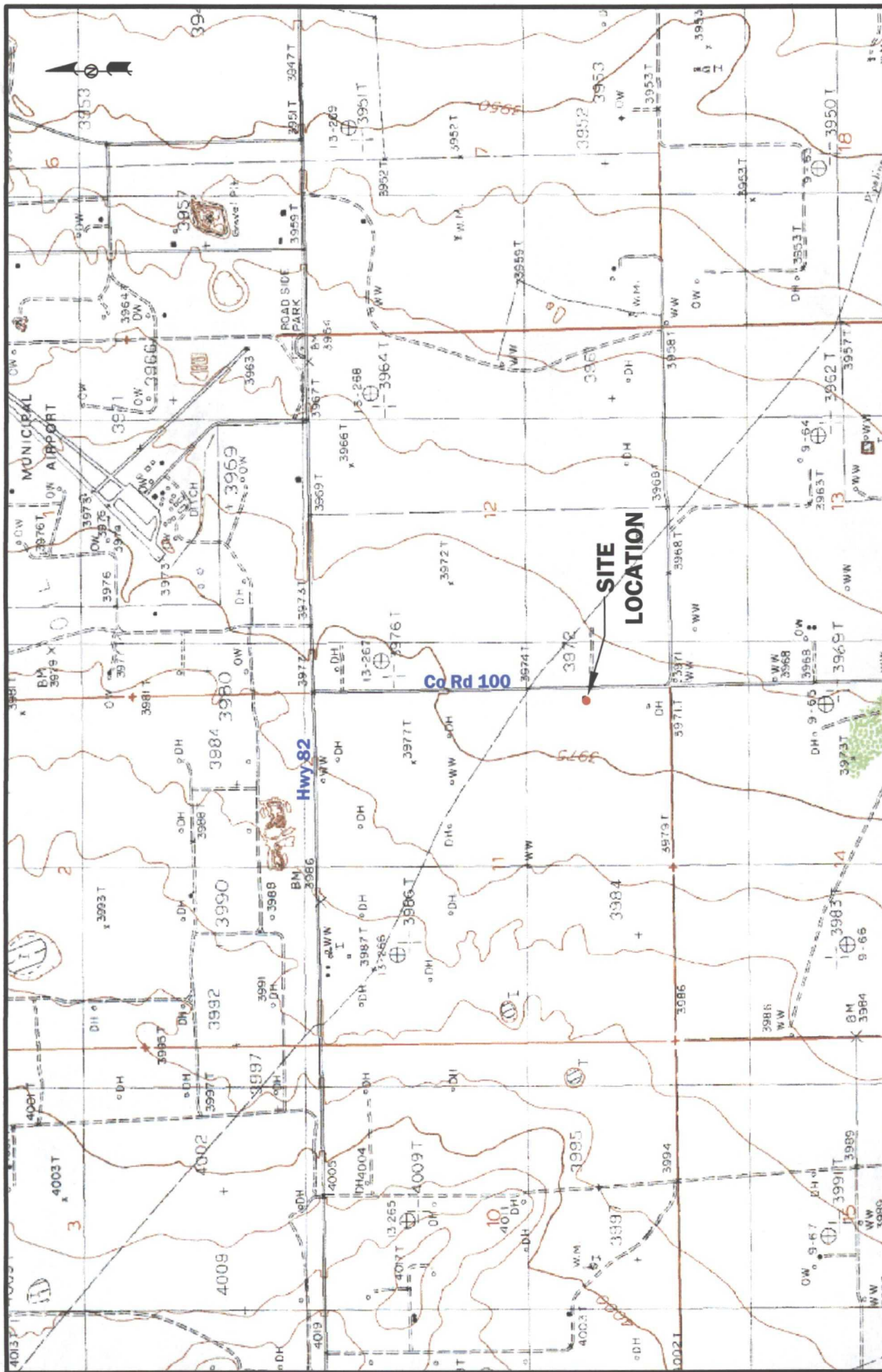


Figure 1
Site Location Map
TNM 97-04
Plains Marketing, L.P.
Lea County, NM

NMOC Reference #GW-0294

LEGEND:

A vertical scale bar labeled "Distance in Feet". The scale has markings at 2000, 1000, 0, 1000, and 2000. The bar is divided into segments: a solid black segment from 0 to 1000 feet, a white segment from 1000 to 2000 feet, and another solid black segment from 2000 to 4000 feet.



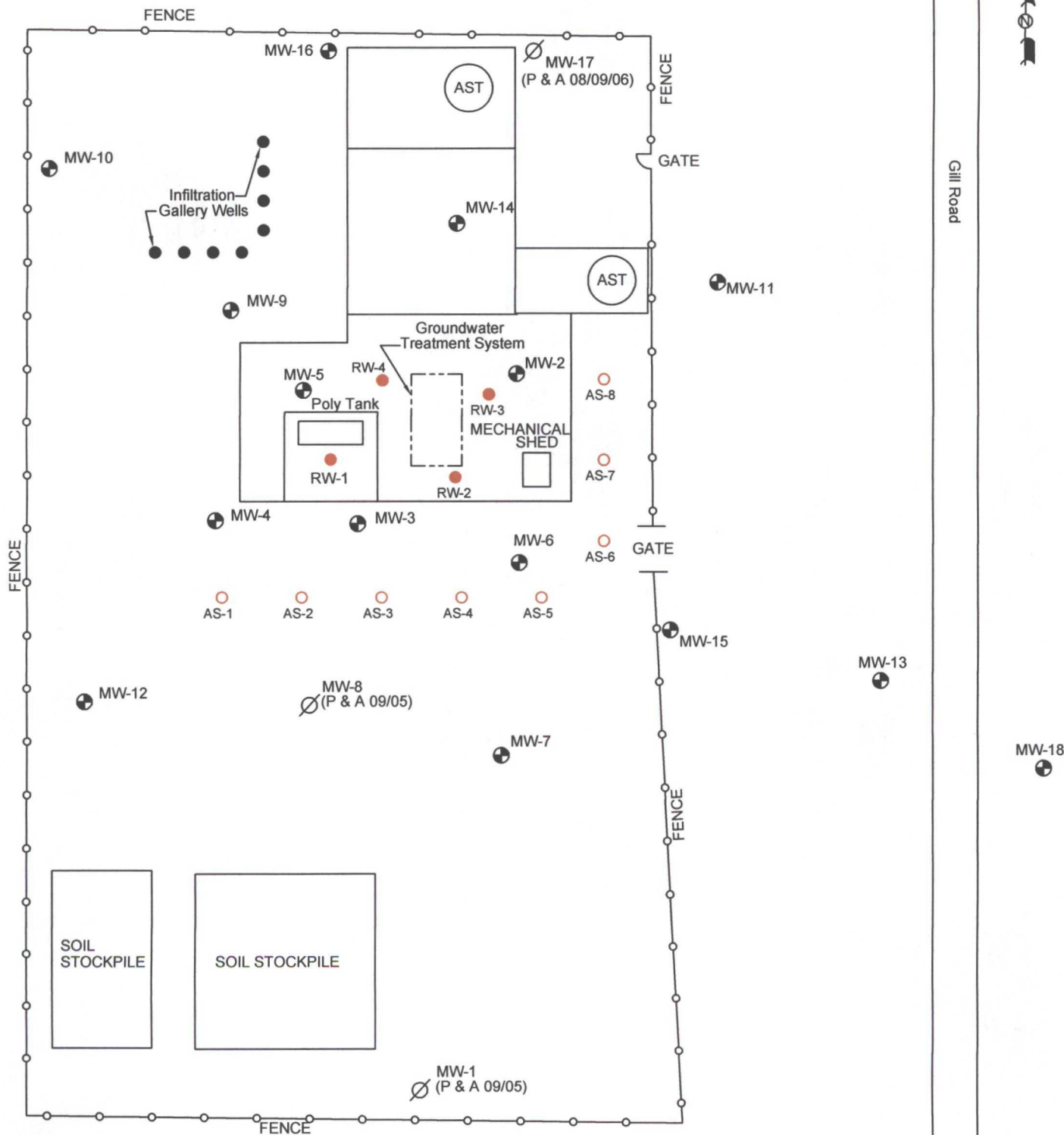
NOVA
safety and environmental

2057 Commerce Drive
Midland, Texas 79703
432.520.7720

www.novafetyandenvironmental.com

March 3, 2011	Scale: 1" = 2000'	CAD By: TA	Checked By: RKR
---------------	-------------------	------------	-----------------

LATITUDE & LONGITUDE COORDINATES:	N 32° 55' 57.1"	W 103° 25' 12.3"
-----------------------------------	-----------------	------------------



NOTE:
MW-1 and MW-8 Were Plugged and Abandoned
September 2005 Per NMOCD Approval

LEGEND:

- Monitoring Well Location
- Recovery Well Location
- Air Sparging Well Location
- Infiltration Gallery Well Location

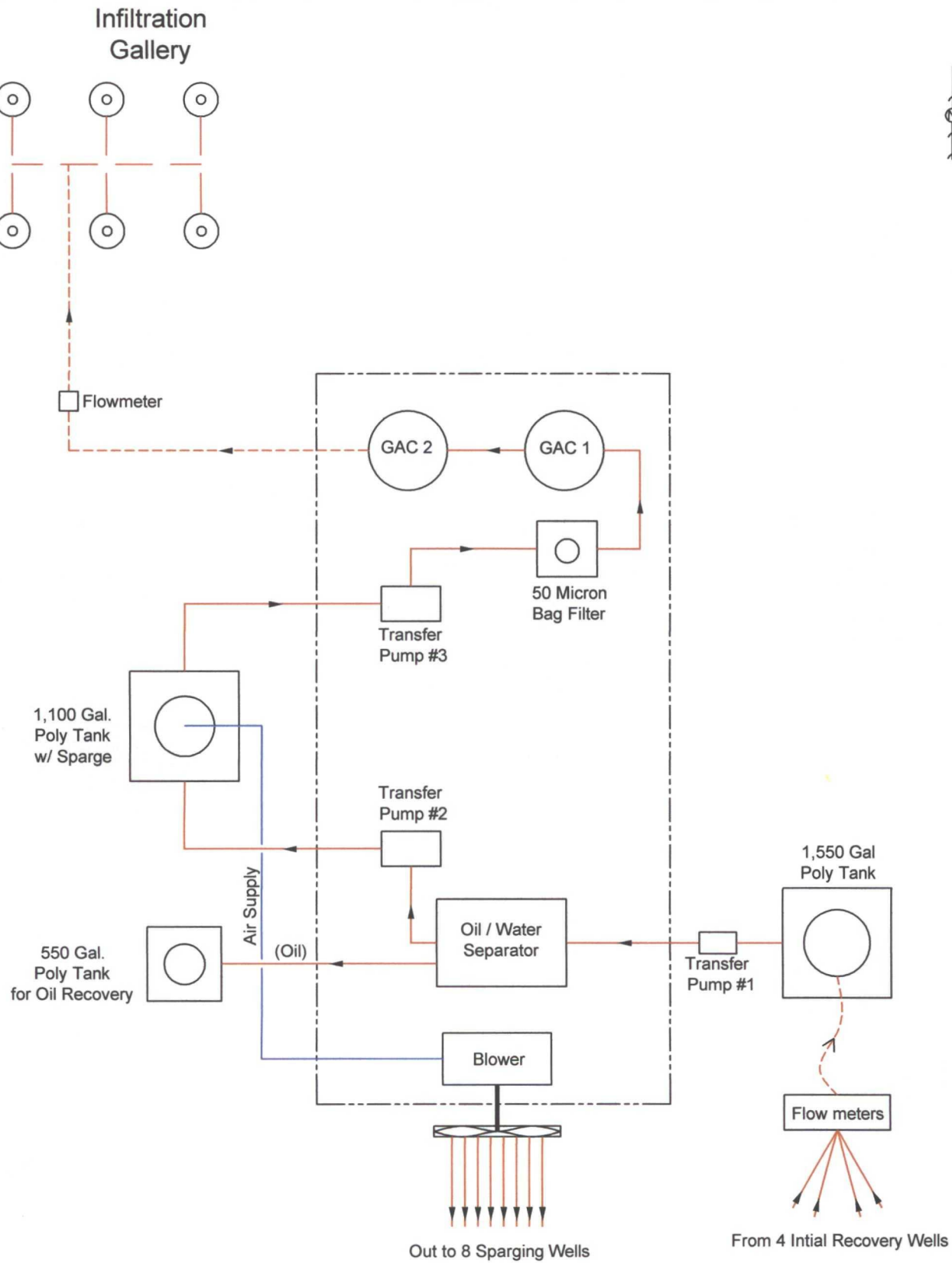
Figure 2
Site Map and System
Well Locations Map
NMOCD Reference # GW-0294
Plains Marketing, L.P.
TNM 97-04
Lea County, NM



2057 Commerce Drive
Midland, Texas 79703
432.520.7720

www.novasafetyandenvironmental.com

March 31, 2011	Scale: 1" = 40'	CAD By: TA	Checked By: RKR
Lat. N 32° 44' 50.3" Long. W 103° 23' 38.5" NW1/4 SE1/4 Sec 18 T18S R36E			



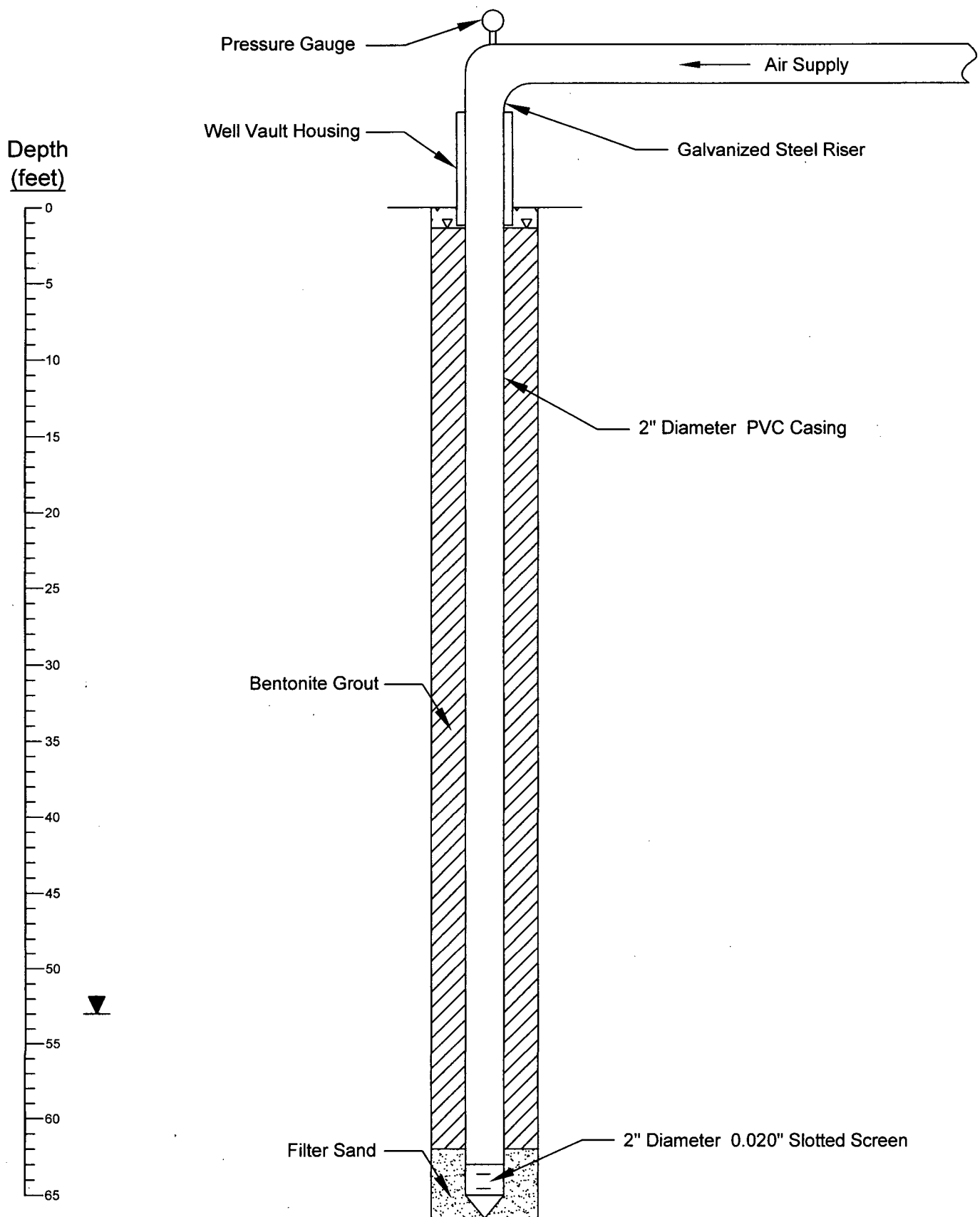
- LEGEND:**
- 2" Hose
 - - - 2" Poly Line
 - GAC Granular Activated Carbon
 - Trailer Limits
 - Air Supply Line

Figure 3
Treatment System
Design Schematic
Plains Marketing, L.P.
TNM 97-04 Townsend
Lea County, NM



2057 Commerce Drive
Midland, Texas 79703
432.520.7720
www.novasafetyandenvironmental.com

November 18, 2010	Scale: NTS	CAD By: TA	Checked By: RKR
Lat. N32° 44' 50.3" Long. W103° 23' 38.5"			NW1/4 SE1/4 Sec 18 T18S R36E



LEGEND:

Figure 4
Air Sparging Well
Schematic
 NMOCD Reference # GW-0294
 Plains Marketing, L.P.
 TNM 97-04
 Lea County, NM



2057 Commerce Drive
 Midland, Texas 79703
 432.520.7720

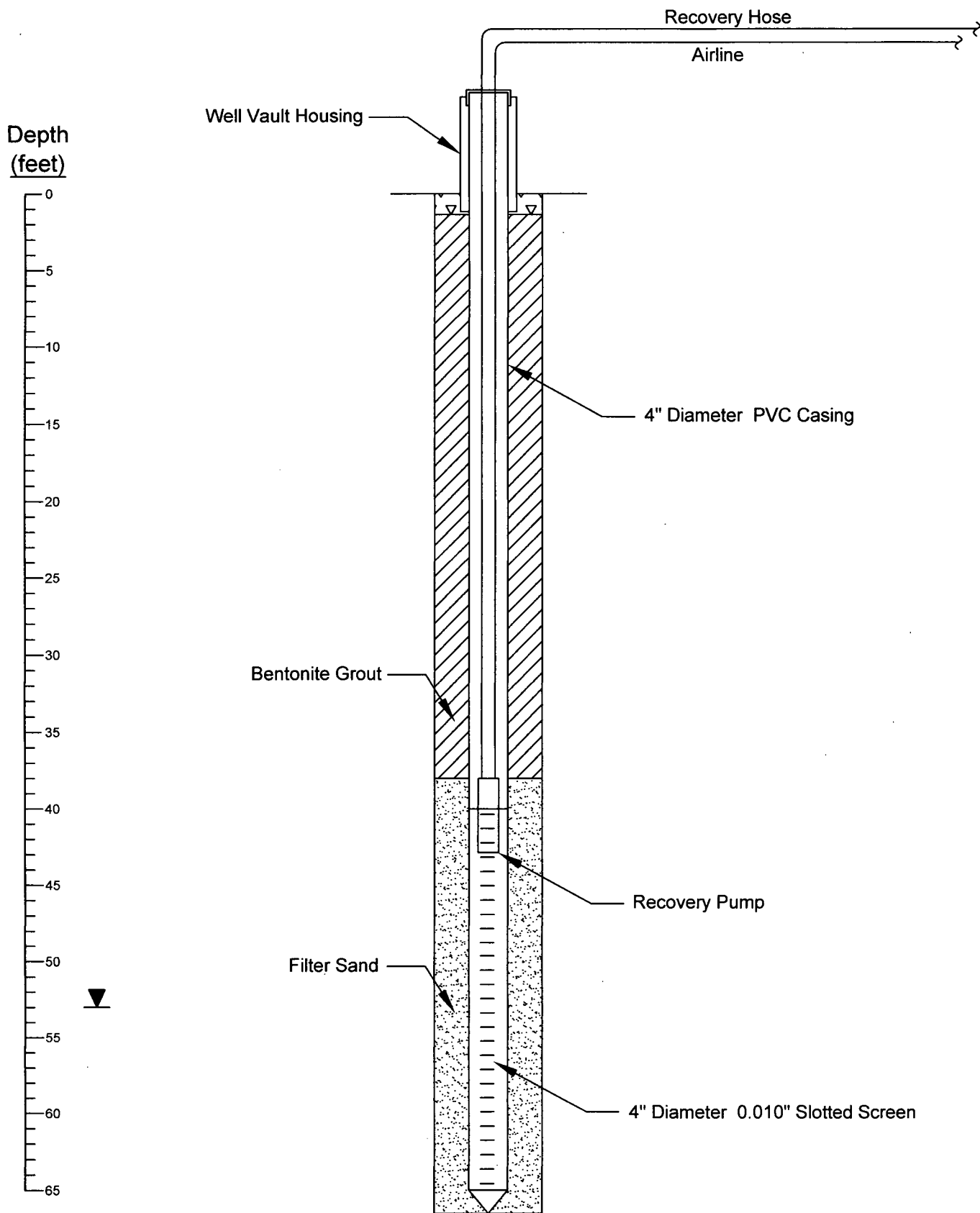
www.novasafetyandenvironmental.com

May 9, 2011

Scale: 1" = NTS

CAD By: TA

Checked By: RKR



LEGEND:

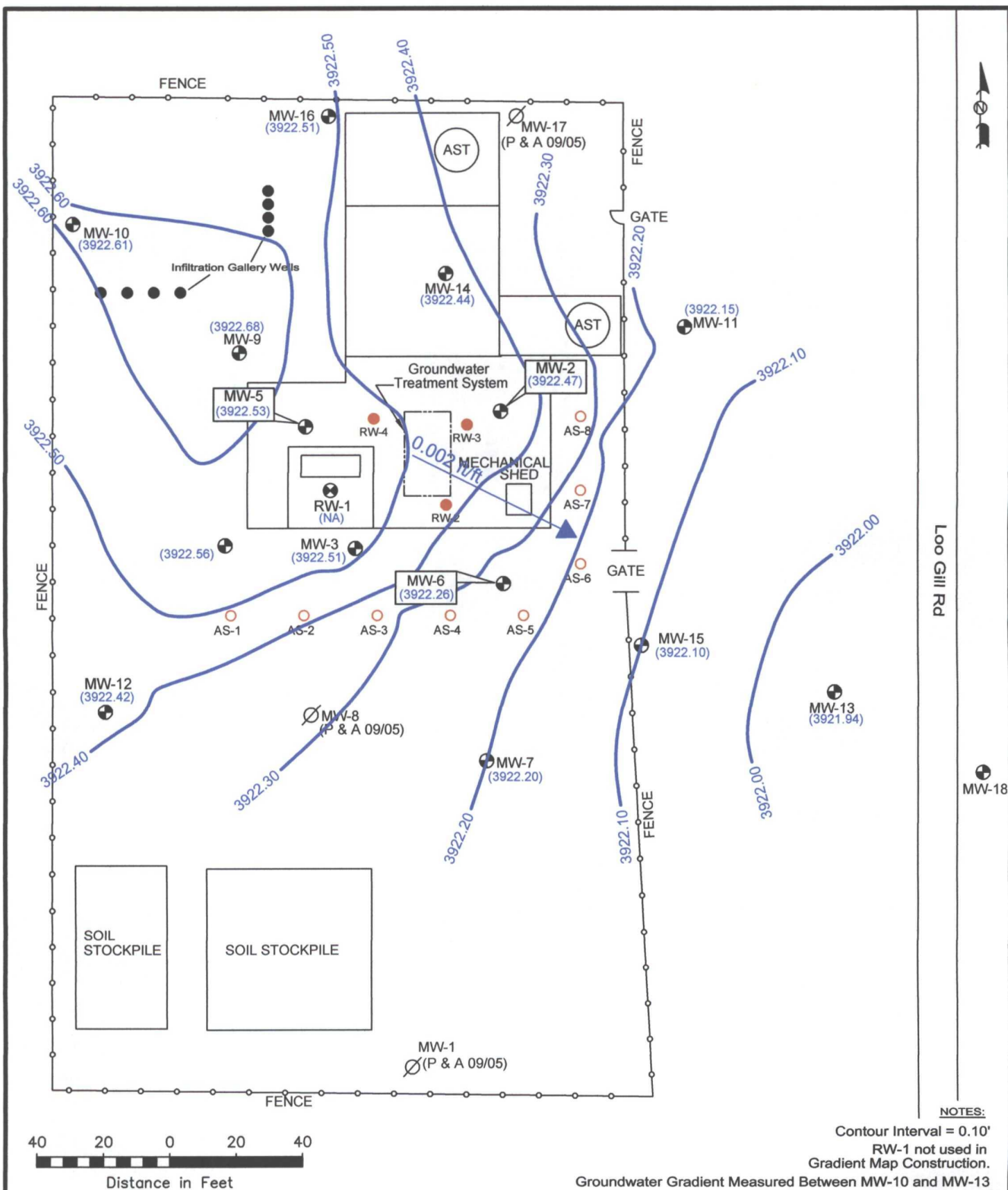
Figure 5
Recovery Well
Schematic
NMOCD Reference # GW-0294
Plains Marketing, L.P.
TNM 97-04
Lea County, NM

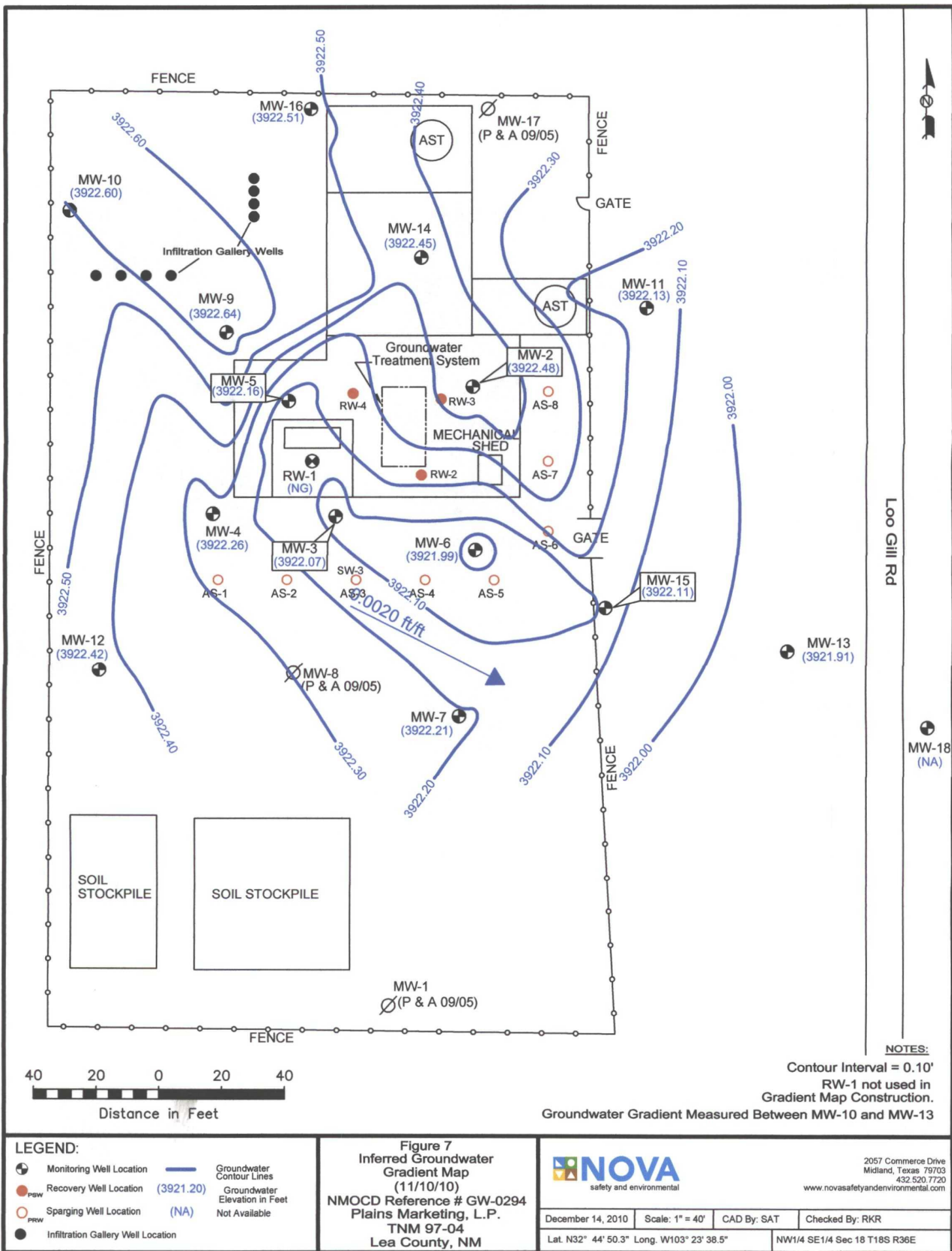


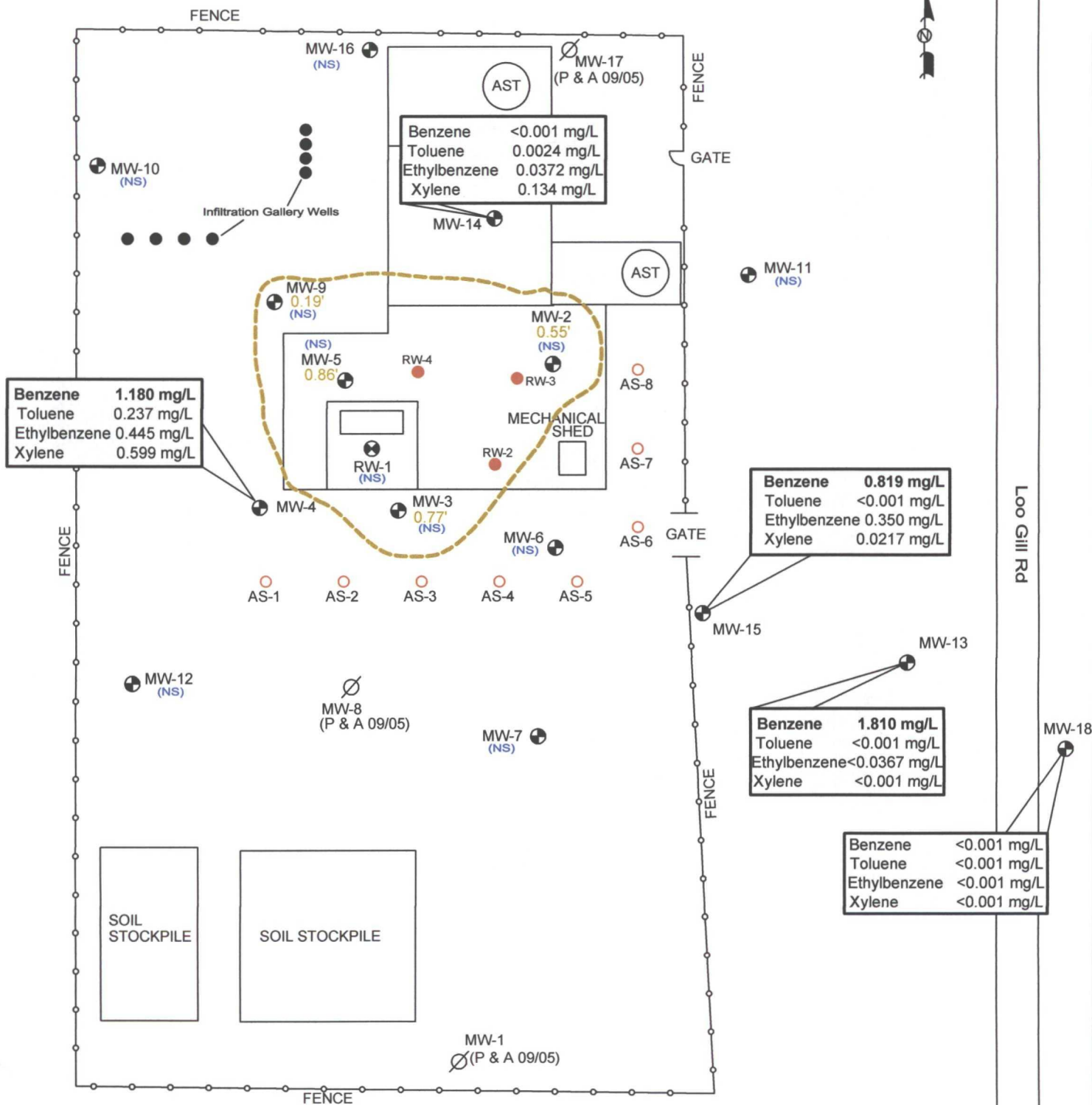
2057 Commerce Drive
Midland, Texas 79703
432.520.7720

www.novasafetyandenvironmental.com

May 9, 2011 Scale: 1" = NTS CAD By: TA Checked By: RKR







NOTES:

BOLD Indicates Constituent Above NMOC Regulatory Standards

LEGEND:

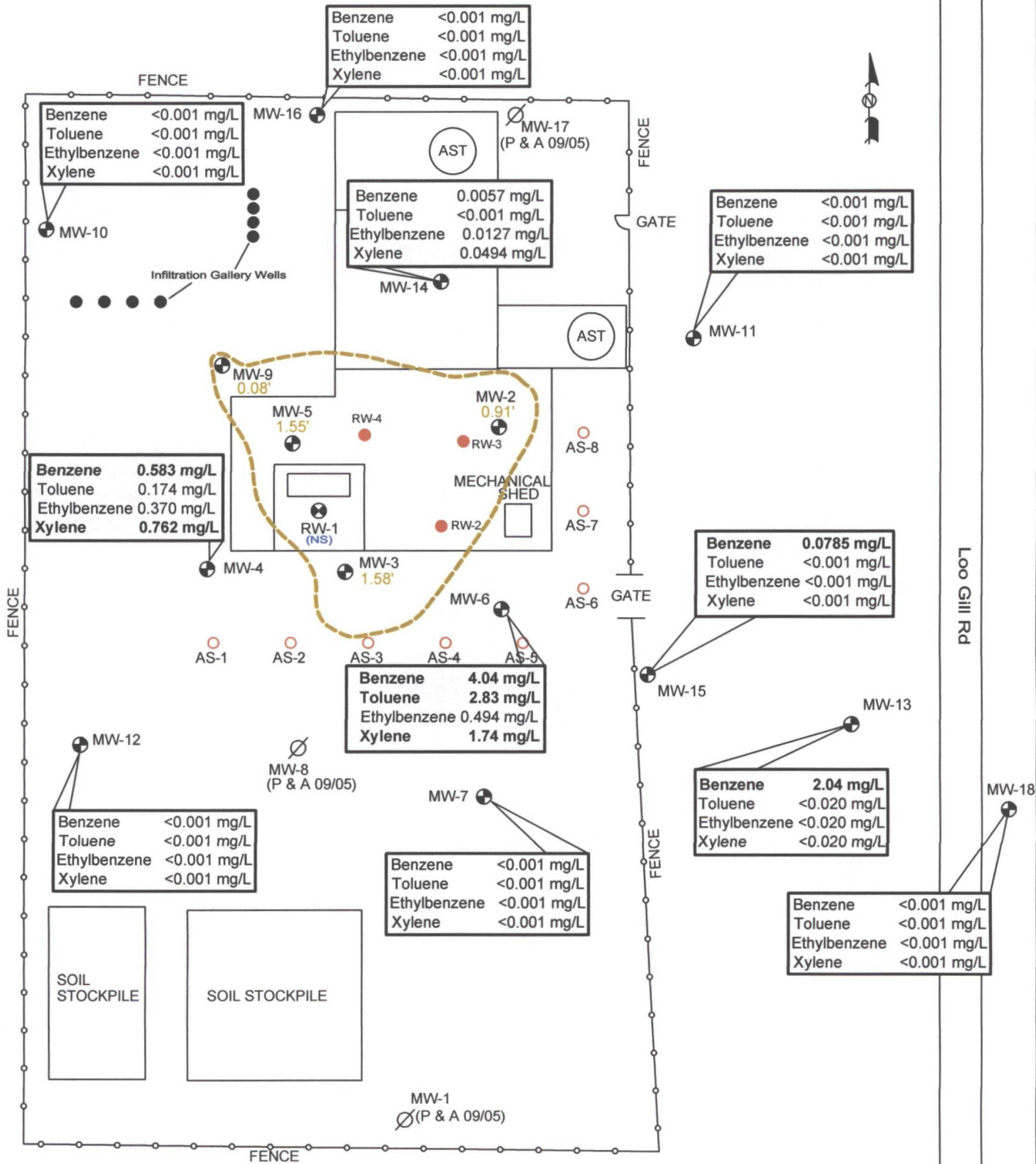
- Monitor Well Location
- Recovery Well Location
- Sparging Well Location
- Infiltration Gallery Well Location
- Inferred PSH Extent
- Constituent Concentration (mg/L)
- Thickness of PSH (feet)
- Not Sampled

Figure 8
Groundwater Concentration
and Inferred PSH Extent Map
(08/16/2010)
NMOC Reference # GW-0294
Plains Marketing, L.P.
TNM 97-04
Lea County, NM



2057 Commerce Drive
Midland, Texas 79703
432.520.7720
www.novasafetyandenvironmental.com

September 20, 2010 Scale: 1" = 40' CAD By: TA Checked By: RKR
Lat. N32° 44' 50.3" Long. W103° 23' 38.5" NW1/4 SE1/4 Sec 18 T18S R36E



NOTES:

BOLD Indicates Constituent Above NMOCD Regulatory Standards

LEGEND:

- Monitor Well Location
- Recovery Well Location
- Sparging Well Location
- Infiltration Gallery Well Location
- Inferred PSH Extent
- Constituent Concentration (mg/L)
- Thickness of PSH (feet)
- Not Sampled

Figure 9
Groundwater Concentration and Inferred PSH Extent Map (11/10/2010)
NMOCD Reference # GW-0294
Plains Marketing, L.P.
TNM 97-04
Lea County, NM



2057 Commerce Drive
Midland, Texas 79703
432.520.7720
www.novasafetyandenvironmental.com

December 14, 2010 Scale: 1" = 40' CAD By: TA Checked By: RKR
Lat. N32° 44' 50.3" Long. W103° 23' 38.5" NW1/4 SE1/4 Sec 18 T18S R36E



TABLES

FLOW METER READINGS - 2010

PLAINS MARKETING, L.P.
 TNM-9704 TOWNSEND
 LEA COUNTY, NEW MEXICO
 NMOCD REFERENCE NUMBER GW-0294

WELL LOCATION	DATE MEASURED	BEFORE	Current Reading	GALLONS PUMPED	BARRELS PUMPED	MONTHLY TOTAL (BARRELS)	Days per month	Average BBLS per day	Max One Day Volume	Min One Day Volume
RW-1	9/2/2010	101742	132397	30655	729.88	729.88	1	364.9405		
RW-1	9/8/2010	132397	165285	32888	783.05	1512.93	1	130.5079		
RW-1	9/16/2010	165285	192590	27305	650.12	2163.05	1	92.8741		
RW-1	9/22/2010	192590	211350	18760	446.67	2609.71	1	74.4444		
RW-1	9/23/2010	211350	213530	2180	51.90	2661.62	1	51.9048		
RW-1	9/28/2010	213530	218020	4490	106.90	2768.52	1	21.3810		
RW-1	9/30/2010	218020	218020	0	0.00	2768.52	0	0.0000		
September Totals				116278	2768.52					
RW-1	10/7/2010	218020	234540	16520	393.33	3161.86	1	56.1905		
RW-1	10/14/2010	234540	241090	6550	155.95	3317.81	1	22.2789		
RW-1	10/19/2010	241090	256090	15000	357.14	3674.95	1	71.4286		
RW-1	10/21/2010	256090	261890	5800	138.10	3813.05	1	69.0476		
RW-1	10/28/2010	261890	278460	16570	394.52	4207.57	1	56.3605		
October Totals				60440	1439.05		1			
RW-1	11/1/2010	278460	290210	11750	279.76	4487.33	1	69.9405		
RW-1	11/2/2010	290210	293150	2940	70.00	4557.33	1	70.0000		
RW-1	11/4/2010	293150	299270	6120	145.71	4703.05	1	72.8571		
RW-1	11/8/2010	299270	309260	9990	237.86	4940.90	1	59.4643		
RW-1	11/12/2010	309260	312070	2810	66.90	5007.81	1	16.7262		
RW-1	11/16/2010	312070	312980	910	21.67	5029.48	1	5.4167		
RW-1	11/23/2010	312980	317210	4230	100.71	5130.19	1	12.5893		
RW-1	11/29/2010	317210	321520	4310	102.62	5232.81	1	17.1032		
November Totals				43060	1025.24					
RW-1	12/1/2010	321520	321850	330	7.86	5240.67	1	3.9286		
RW-1	12/2/2010	321850	321990	140	3.33	5244.00	1	3.3333		
RW-1	12/22/2010	321990	322190	200	4.76	5248.76		0.2381		
December Totals				670	15.95					

TABLE 1

FLOW METER READINGS - 2010

PLAINS MARKETING, L.P.

TNM-9704 TOWNSEND

LEA COUNTY, NEW MEXICO

NMOCD REFERENCE NUMBER GW-0294

WELL LOCATION	DATE MEASURED	BEFORE	Current Reading	GALLONS PUMPED	BARRELS PUMPED	MONTHLY TOTAL (BARRELS)	Days per month	Average BBLs per day	Max One Day Volume	Min One Day Volume
RW-2	9/2/2010	268438	293869	25431	605.50	605.50	1	605.5000		
RW-2	9/8/2010	293869	322630	28761	684.79	1290.29	1	136.9571		
RW-2	9/16/2010	322630	362890	40260	958.57	2248.86	1	136.9388		
RW-2	9/22/2010	362890	393860	30970	737.38	2986.24	1	122.8968		
RW-2	9/23/2010	393860	396030	2170	51.67	3037.90	1	51.6667		
RW-2	9/28/2010	396030	401130	5100	121.43	3159.33	1	30.3571		
RW-2	9/30/2010	401130	401130	0	0.00	3159.33	0	0.0000		
September Totals				132692	3159.33					
RW-2	10/7/2010	401130	443150	42020	1000.48	4159.81	1	142.9252		
RW-2	10/14/2010	443150	451220	8070	192.14	4351.95	1	27.4490		
RW-2	10/19/2010	451220	479040	27820	662.38	5014.33	1	132.4762		
RW-2	10/21/2010	479040	496360	17320	412.38	5426.71	1	206.1905		
RW-2	10/28/2010	496360	528920	32560	775.24	6201.95	1	110.7483		
October Totals				127790	3042.62					
RW-2	11/1/2010	528920	543710	14790	352.14	6554.10	1	88.0357		
RW-2	11/2/2010	543710	547730	4020	95.71	6649.81	1	95.7143		
RW-2	11/4/2010	547730	556310	8580	204.29	6854.10	1	102.1429		
RW-2	11/8/2010	556310	570410	14100	335.71	7189.81	1	83.9286		
RW-2	11/12/2010	570410	573980	3570	85.00	7274.81	1	21.2500		
RW-2	11/16/2010	573980	574960	980	23.33	7298.14	1	5.8333		
RW-2	11/23/2010	574960	583330	8370	199.29	7497.43	1	24.9107		
RW-2	11/29/2010	583330	588090	4760	113.33	7610.76	1	18.8889		
November Totals				59170	1408.81					
RW-2	12/1/2010	588090	588470	380	9.05	7619.81	1	4.5238		
RW-2	12/2/2010	588470	588610	140	3.33	7623.14	1	3.3333		
RW-2	12/22/2010	588610	588850	240	5.71	7628.86				
December Totals				760	18.10					

FLOW METER READINGS - 2010

PLAINS MARKETING, L.P.

TNM-9704 TOWNSEND

LEA COUNTY, NEW MEXICO

NMOC REFERENCE NUMBER GW-0294

WELL LOCATION	DATE MEASURED	BEFORE	Current Reading	GALLONS PUMPED	BARRELS PUMPED	MONTHLY TOTAL (BARRELS)	Days per month	Average BBLs per day	Max One Day Volume	Min One Day Volume
RW-3	9/2/2010	195740	199635	3895	92.74	92.74	1	92.7381		
RW-3	9/8/2010	199635	202476	2841	67.64	160.38	1	13.5286		
RW-3	9/16/2010	202476	205770	3294	78.43	238.81	1	11.2041		
RW-3	9/22/2010	205770	207920	2150	51.19	290.00	1	8.5317		
RW-3	9/23/2010	207920	207920	0	0.00	290.00	0	0.0000		
RW-3	9/28/2010	207920	208890	970	23.10	313.10	1	4.6190		
RW-3	9/30/2010	208890	208890	0	0.00	313.10	0	0.0000		
September Totals				13150	313.10					
RW-3	10/7/2010	208890	212730	3840	91.43	404.52	1	13.0612		
RW-3	10/14/2010	212730	214080	1350	32.14	436.67	1	4.5918		
RW-3	10/19/2010	214080	214570	490	11.67	448.33	1	2.3333		
RW-3	10/21/2010	214570	214570	0	0.00	448.33	0	0.0000		
RW-3	10/28/2010	214570	220760	6190	147.38	595.71	1	21.0544		
October Totals				11870	282.62		1			
RW-3	11/1/2010	220760	228580	7820	186.19	781.90	1	46.5476		
RW-3	11/2/2010	228580	230250	1670	39.76	821.67	1	39.7619		
RW-3	11/4/2010	230250	235130	4880	116.19	937.86	1	58.0952		
RW-3	11/8/2010	235130	235840	710	16.90	954.76	1	4.2262		
RW-3	11/12/2010	235840	236920	1080	25.71	980.48	1	6.4286		
RW-3	11/16/2010	236920	237610	690	16.43	996.90	1	4.1071		
RW-3	11/23/2010	237610	240550	2940	70.00	1066.90	1	8.7500		
RW-3	11/29/2010	240550	243770	3220	76.67	1143.57	1	12.7778		
November Totals				23010	547.86					
RW-3	12/1/2010	243770	244040	270	6.43	1150.00	1	3.2143		
RW-3	12/2/2010	244040	244140	100	2.38	1152.38	1	2.3810		
RW-3	12/22/2010	244140	244320	180	4.29	1156.67	1	0.2143		
December Totals				550	13.10					

TABLE 1

FLOW METER READINGS - 2010

PLAINS MARKETING, L.P.

TNM-9704 TOWNSEND

LEA COUNTY, NEW MEXICO

NMOC D REFERENCE NUMBER GW-0294

WELL LOCATION	DATE MEASURED	BEFORE	Current Reading	GALLONS PUMPED	BARRELS PUMPED	MONTHLY TOTAL (BARRELS)	Days per month	Average BBLs per day	Max One Day Volume	Min One Day Volume
RW-4	9/2/2010	212415	225398	12983	309.12	309.12	1	309.1190		
RW-4	9/8/2010	225398	244140	18742	446.24	755.36	1	89.2476		
RW-4	9/16/2010	244140	266130	21990	523.57	1278.93	1	74.7959		
RW-4	9/22/2010	266130	281360	15230	362.62	1641.55	1	60.4365		
RW-4	9/23/2010	281360	283180	1820	43.33	1684.88	1	43.3333		
RW-4	9/28/2010	283180	287980	4800	114.29	1799.17	1	22.8571		
RW-4	9/30/2010	287980	287980	0	0.00	1799.17	0	0.0000		
September Totals				75565	1799.17					
RW-4	10/7/2010	287980	304370	16390	390.24	2189.40	1	55.7483		
RW-4	10/14/2010	304370	310490	6120	145.71	2335.12	1	20.8163		
RW-4	10/19/2010	310490	324370	13880	330.48	2665.60	1	66.0952		
RW-4	10/21/2010	324370	329350	4980	118.57	2784.17	1	59.2857		
RW-4	10/28/2010	329350	343490	14140	336.67	3120.83	1	48.0952		
October Totals				55510	1321.67					
RW-4	11/1/2010	343490	353070	9580	228.10	3348.93	1	57.0238		
RW-4	11/2/2010	353070	355030	1960	46.67	3395.60	1	46.6667		
RW-4	11/4/2010	355030	357810	2780	66.19	3461.79	1	33.0952		
RW-4	11/8/2010	357810	359710	1900	45.24	3507.02	1	11.3095		
RW-4	11/12/2010	359710	361050	1340	31.90	3538.93	1	7.9762		
RW-4	11/16/2010	361050	361610	560	13.33	3552.26	1	3.3333		
RW-4	11/23/2010	361610	362460	850	20.24	3572.50	1	2.5298		
RW-4	11/29/2010	362460	363940	1480	35.24	3607.74	1	5.8730		
November Totals				20450	486.90					
RW-4	12/1/2010	363940	364190	250	5.95	3613.69	1	2.9762		
RW-4	12/2/2010	364190	364210	20	0.48	3614.17	1	0.4762		
RW-4	12/22/2010	364210	364350	140	3.33	3617.50	1	0.1667		
December Totals				410	9.76					

TABLE 1

FLOW METER READINGS - 2010

PLAINS MARKETING, L.P.

TNM-9704 TOWNSEND

LEA COUNTY, NEW MEXICO

NMOC D REFERENCE NUMBER GW-0294

WELL LOCATION	DATE MEASURED	BEFORE	Current Reading	GALLONS PUMPED	BARRELS PUMPED	MONTHLY TOTAL (BARRELS)	Days per month	Average BBLs per day	Max One Day Volume	Min One Day Volume
IFM	9/2/2010	208014	280978	72964	1737.24	1737.24	1	1737.2381		
IFM	9/8/2010	280978	364210	83232	1981.71	3718.95	1	396.3429		
IFM	9/16/2010	364210	643300	279090	6645.00	10363.95	1	949.2857		
IFM	9/22/2010	643300	681400	38100	907.14	11271.10	1	151.1905		
IFM	9/23/2010	681400	686700	5300	126.19	11397.29	1	126.1905		
IFM	9/28/2010	686700	686900	200	4.76	11402.05	1	0.9524		
IFM	9/30/2010	686900	700400	13500	321.43	11723.48	1	160.7143		
September Totals				492386	11723.48					
IFM	10/7/2010	700400	723600	23200	552.38	12275.86	1	78.9116		
IFM	10/14/2010	723600	742700	19100	454.76	12730.62	1	64.9660		
IFM	10/19/2010	742700	776000	33300	792.86	13523.48	1	158.5714		
IFM	10/21/2010	776000	786600	10600	252.38	13775.86	1	126.1905		
IFM	10/28/2010	786600	818800	32200	766.67	14542.52	1	109.5238		
October Totals				118400	2819.05		1			
IFM	11/1/2010	818800	859500	40700	969.05	15511.57	1	242.2619		
IFM	11/2/2010	859500	869200	9700	230.95	15742.52	1	230.9524		
IFM	11/4/2010	869200	887200	18000	428.57	16171.10	1	214.2857		
IFM	11/8/2010	887200	902800	15600	371.43	16542.52	1	92.8571		
IFM	11/12/2010	902800	904700	1900	45.24	16587.76	1	11.3095		
IFM	11/16/2010	904700	908000	3300	78.57	16666.33	1	19.6429		
IFM	11/23/2010	908000	911500	3500	83.33	16749.67	1	10.4167		
IFM	11/29/2010	911500	923200	11700	278.57	17028.24	1	46.4286		
November Totals				104400	2485.71					
IFM	12/1/2010	923200	923773	573	13.64	17041.88	0	13.6429		
IFM	12/2/2010	923773	924671	898	21.38	17063.26	0	21.3810		
IFM	12/22/2010	924671	925590	919	21.88	17085.14	0	1.0940		
December Totals				2390	56.90					

FLOW METER READINGS - 2011

PLAINS MARKETING, L.P.

TNM-9704 TOWNSEND

LEA COUNTY, NEW MEXICO

NMOCD REFERENCE NUMBER GW-0294

WELL LOCATION	DATE MEASURED	BEFORE	Current Reading	GALLONS PUMPED	BARRELS PUMPED	MONTHLY TOTAL (BARRELS)	Days per month	Average BBLs per day	Max One Day Volume	Min One Day Volume
RW-1	1/5/2011	322,190	325,900	3,710	88.33	88.33	1.00	6.31		
RW-1	1/6/2011	325,900	326,050	150	3.57	91.90	2.00	3.57		
RW-1	1/7/2011	326,050	328,820	2,770	65.95	157.86	3.00	65.95		
	January Totals			6,630	157.86					
RW-1**	2/16/2011	0	7,240	7,240	172.38	172.38	1.00	4.31		
	February Totals			7,240	172.38					
RW-1	3/9/2011	7,240	25,690	18,450	439.29	439.29	1.00	20.92		
	March Totals			18,450	439.29					
RW-2	1/5/2011	588,850	593,210	4,360	103.81	103.81	1.00	7.41		
RW-2	1/6/2011	593,210	593,380	170	4.05	107.86	2.00	4.05		
RW-2	1/7/2011	593,380	606,270	12,890	306.90	414.76	3.00	306.90		
	January Totals			17,420	414.76					
RW-2**	2/16/2011	0	11,700	11,700	278.57	278.57	1.00	6.96		
	February Totals			11,700	278.57					
RW-2	3/9/2011	11,700	27,650	15,950	379.76	379.76	1.00	18.08		
	March Totals			15,950	379.76					
RW-3	1/5/2011	244,320	247,460	3,140	74.76	74.76	1.00	5.34		
RW-3	1/6/2011	247,460	247,590	130	3.10	77.86	2.00	3.10		
RW-3	1/7/2011	247,590	249,920	2,330	55.48	133.33	3.00	55.48		
	January Totals			5,600	133.33					
RW-3**	2/16/2011	0	7,880	7,880	187.62	187.62	1.00	4.69		
	February Totals			7,880	187.62					
RW-3	3/9/2011	7,880	8,500	620	14.76	14.76	1.00	0.70		
	March Totals			620	14.76					

FLOW METER READINGS - 2011

PLAINS MARKETING, L.P.
 TNM-9704 TOWNSEND
 LEA COUNTY, NEW MEXICO
 NMOC D REFERENCE NUMBER GW-0294

WELL LOCATION	DATE MEASURED	BEFORE	Current Reading	GALLONS PUMPED	BARRELS PUMPED	MONTHLY TOTAL (BARRELS)	Days per month	Average BBLS per day	Max One Day Volume	Min One Day Volume
RW-4	1/5/2011	364,350	367,210	2,860	68.10	68.10	1.00	4.86		
RW-4	1/6/2011	367,210	367,320	110	2.62	70.71	2.00	2.62		
RW-4	1/7/2011	367,320	369,500	2,180	51.90	122.62	3.00	51.90		
	January Totals			5,150	122.62					
RW-4**	2/16/2011	0	270,210	270,210	6,433.57	6,433.57	1.00	160.84		
	February Totals			270,210	6,433.57					
RW-4	3/9/2011	270,210	293,550	23,340	555.71	555.71	1.00	555.71		
	March Totals			23,340	555.71					
IFM*	1/5/2011	0	77,750	77,750	1,851.19	1,851.19	1.00	132.23		
IFM	1/6/2011	77,750	77,820	70	1.67	1,852.86	2.00	1.67		
IFM	1/7/2011	77,820	80,530	2,710	64.52	1,917.38	3.00	64.52		
	January Totals			80,530	1,917.38					
IFM	2/16/2011	80,530	97,690	17,160	408.57	408.57	1.00	10.21		
	February Totals			17,160	408.57					
IFM	3/9/2011	97,690	159,050	61,360	1,460.95	1,460.95	1.00	69.57		
	March Totals			61,360	1,460.95					

* Flow Meter identified as IFM was replaced on January 3, 2011

** Flow Meters for RW-1 through RW-4 were replaced on February 15, 2011

TABLE 2

BTEX CONCENTRATIONS IN EFFLUENT GROUNDWATER

PLAINS MARKETING, L.P.
 TNM 97-04 TOWNSEND
 LEA COUNTY, NEW MEXICO
 NMOCD REFERENCE NUMBER GW-0294

Results and Regulatory Limits in mg/L

Sample Date	Sample Location	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX
NMOCD Regulatory Limits		0.010	0.75	0.75	0.62	-
09/02/10	Post Carbon	<0.001	<0.001	<0.001	<0.001	<0.001
09/10/10	Post Carbon	<0.001	<0.001	<0.001	<0.001	<0.001
09/16/10	Post Carbon	<0.001	<0.001	<0.001	<0.001	<0.001
09/23/10	Post Carbon	<0.001	<0.001	<0.001	<0.001	<0.001
10/25/10	Post Carbon	<0.001	<0.001	<0.001	<0.001	<0.001
11/23/10	Post Carbon	0.0047	<0.001	<0.001	<0.001	0.0047
01/28/11	Post Carbon	<0.001	<0.001	<0.001	<0.001	<0.001
02/28/11	Post Carbon	0.0319	0.037	0.0338	0.0992	0.2019
03/18/11	Post Carbon	<0.001	<0.001	<0.001	<0.001	<0.001

POLYNUCLEAR AROMATIC HYDROCARBON CONCENTRATIONS IN EFFLUENT GROUNDWATER

PLAINS MARKETING, L.P.
TNM 97-04 TOWNSEND
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE NUMBER GW-0294

All water concentrations are reported in mg/L

EPA SW846-8270C, 3510

[illegible]

TABLE 4

WQCC METALS CONCENTRATIONS IN EFFLUENT GROUNDWATER

PLAINS MARKETING, L.P.

TNM 97-04 TOWNSEND

LEA COUNTY, NEW MEXICO

NMOC D REFERENCE NUMBER GW-0294

All water concentrations are reported in mg/L

SAMPLE LOCATION	SAMPLE DATE	Total Aluminum	Total Boron	Total Cobalt	Total Copper	Total Iron	Total Manganese	Total Molybdenum	Total Nickel	Total Arsenic	Total Barium	Total Cadmium	Total Chromium	Total Mercury	Total Lead	Total Selenium	Total Silver	Total Zinc
Maximum Contaminant Levels from NM WQCC Drinking water standards Sections 1-101.UU and 3-103.A.		5.0 mg/L	0.75 mg/L	0.05 mg/L	1.0 mg/L	1.0 mg/L	0.2 mg/L	1.0 mg/L	0.2 mg/L	0.1 mg/L	1.0 mg/L	0.01 mg/L	0.05 mg/L	0.002 mg/L	0.05 mg/L	0.05 mg/L	0.05 mg/L	10 mg/L
	Post Carbon	0.533	0.105	<0.005	<0.005	0.119	0.197	<0.010	<0.005	<0.010	0.171	<0.005	<0.005	<0.0002	0.005	<0.020	<0.005	0.01
	09/02/10																	
	Post Carbon	<0.050	0.168	<0.005	<0.005	0.177	0.091	<0.050	<0.010	<0.010	0.243	<0.005	<0.010	<0.0002	<0.005	<0.020	<0.005	<0.005
Post Carbon	09/16/10	0.057	0.216	<0.005	0.005	0.044	0.101	<0.050	<0.010	<0.010	0.28	<0.005	<0.010	<0.0002	<0.005	<0.020	<0.005	0.01
	09/23/10	0.053	0.112	<0.005	<0.005	0.311	0.034	<0.050	<0.010	<0.010	0.194	<0.005	<0.010	<0.0002	<0.005	<0.020	<0.005	0.015

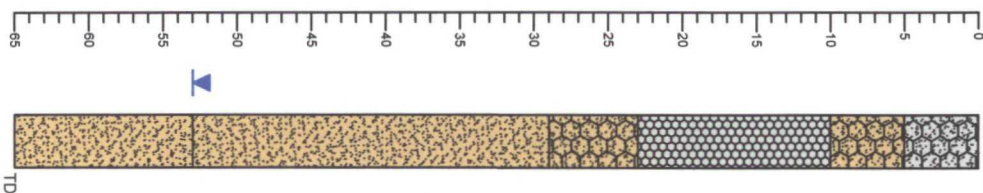


APPENDICES

APPENDIX A:
Boring Logs & Well Details

Air Sparging Well AS-1

Depth (feet) Soil Columns



Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10- 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation _____

- Grout Surface Seal
- Bentonite Pellet Seal
- Sand Pack
- Screen

- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface. (bgs)

Boring Log And Monitor Well Details

Air Sparging Well AS-1

TNM 97-04 Lea County, New Mexico

Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA

Checked By: RKR

May 9, 2009



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-1				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO								
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
HYDROGRAPHIC SURVEY					MAP NUMBER		TRACT NUMBER	
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION		
	DRILLING STARTED 3-23-09		DRILLING ENDED 3-23-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT) FROM TO		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	65 63		6	SCH 40 PVC .020 SCREEN	BE	2	0.154	.020
	63 7		6	SCH 40 PVC RISER	BE	2	0.154	RISER
	7 +43		6	SCH 40 GALVANIZED STEEL	NPT	2		
4. WATER BEARING STRATA	DEPTH (FT) FROM TO		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)				YIELD (GPM)
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA						TOTAL ESTIMATED WELL YIELD (GPM)		

FOR OSE INTERNAL USE

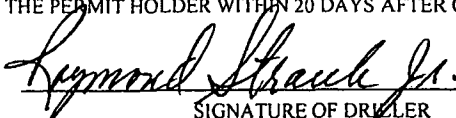
WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION	PAGE 1 OF 2	

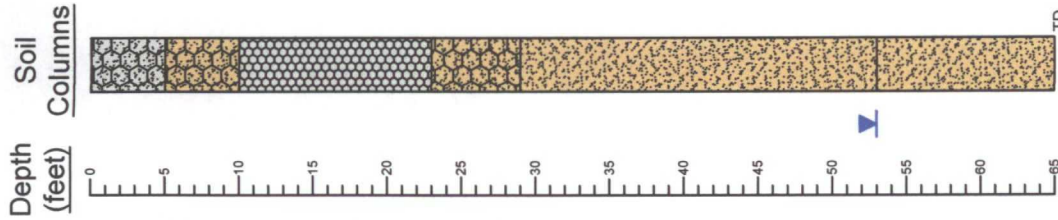
5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60				
		60	11				
	11	0	6	2 BAGS OF CEMENT		TOPLOAD	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	3	3	LIGHT BROWN CLAYEY SAND WITH CALICHE	☐ YES ☒ NO	
	3	6	3	CALICHE	☐ YES ☒ NO	
	6	10	4	TAN SANDY CLAY	☐ YES ☐ NO	
	10	65	55	TAN SAND	☐ YES ☐ NO	
	TD	65			☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:			
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.			
	ADDITIONAL STATEMENTS OR EXPLANATIONS:				

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	4-20-09 DATE

Air Sparging Well AS-2

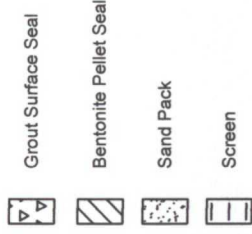


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10 - 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface (bgs)

Boring Log And Monitor Well Details
 Air Sparging Well AS-2
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-2				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
	LONGITUDE 103		25		13.00 W			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO								
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
	HYDROGRAPHIC SURVEY					MAP NUMBER	TRACT NUMBER	
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION		
	DRILLING STARTED 3-24-09		DRILLING ENDED 3-24-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	FROM	TO						
	65	63	6	SCH 40 PVC .020 SCREEN	BE	2	0.154	.020
	63	6	6	SCH 40 PVC RISER	BE	2	0.154	RISER
	6	+43	6	SCH 40 GALVANIZED STEEL	NPT	2		
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)			
	FROM	TO						
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA					TOTAL ESTIMATED WELL YIELD (GPM)			

FOR OSE INTERNAL USE

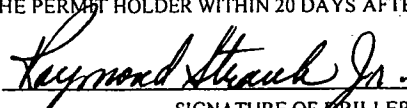
WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION	PAGE 1 OF 2	

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP – WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER – SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60				
		60	10				
10	0	6	2 BAGS OF CEMENT		TOPLOAD		

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	20	20	CALICHE WITH SILICATED LAYERS	☐ YES ☒ NO	
	20	65	45	LIGHT TAN SAND WITH SANDSTONE LAYERS	☐ YES ☒ NO	
	TD	65			☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

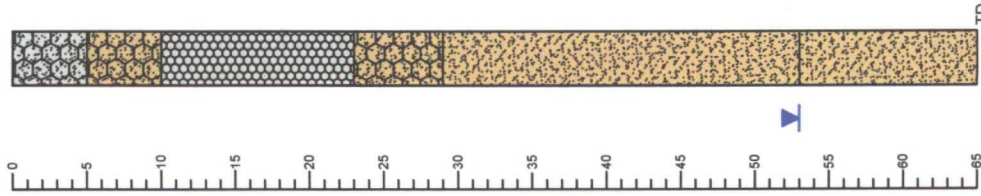
7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER – SPECIFY:	
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.	
	ADDITIONAL STATEMENTS OR EXPLANATIONS: ODOR 47'		

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	4-20-09 DATE

Air Sparging Well AS-3

Depth (feet)

Soil Columns

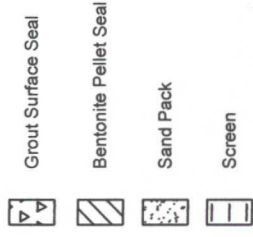


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10- 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface (bgs)

Boring Log And Monitor Well Details
 Air Sparging Well AS-3
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-3					OSE FILE NUMBER(S)										
	WELL OWNER NAME(S) PLAINS MARKETING LP					PHONE (OPTIONAL)										
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600					CITY HOUSTON		STATE TX		ZIP 77078						
	WELL LOCATION (FROM GPS)		DEGREES 32		MINUTES 55		SECONDS 57.00 N		* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84							
		LONGITUDE 103		25		13.00 W										
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO																
2. OPTIONAL	(2.5 ACRE) ¼		(10 ACRE) ¼		(40 ACRE) ¼		(160 ACRE) ¼		SECTION		TOWNSHIP ☐ NORTH ☒ SOUTH		RANGE ☒ EAST ☐ WEST			
	SUBDIVISION NAME								LOT NUMBER		BLOCK NUMBER		UNIT/TRACT			
	HYDROGRAPHIC SURVEY										MAP NUMBER		TRACT NUMBER			
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR					NAME OF WELL DRILLING COMPANY STRAUB CORPORATION								
	DRILLING STARTED 3-24-09		DRILLING ENDED 3-24-09		DEPTH OF COMPLETED WELL (FT) 65		BORE HOLE DEPTH (FT) 65		DEPTH WATER FIRST ENCOUNTERED (FT)							
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)								STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A							
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:															
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:															
	DEPTH (FT)		BORE HOLE DIA. (IN)		CASING MATERIAL		CONNECTION TYPE (CASING)		INSIDE DIA. CASING (IN)		CASING WALL THICKNESS (IN)		SLOT SIZE (IN)			
	FROM	TO														
	65		63		6		SCH 40 PVC .020 SCREEN		BE		2		0.154		.020	
	63		6		6		SCH 40 PVC RISER		BE		2		0.154		RISER	
	6		+43		6		SCH 40 GALVANIZED STEEL		NPT		2					
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)		FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)							YIELD (GPM)				
	FROM	TO														
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA										TOTAL ESTIMATED WELL YIELD (GPM)						

FOR OSE INTERNAL USE

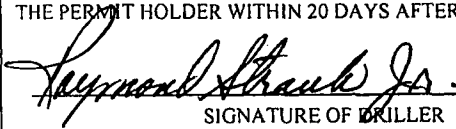
WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER		POD NUMBER	TRN NUMBER
LOCATION			PAGE 1 OF 2

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60				
		60	10				
	10	0	6	2 BAGS OF CEMENT		TOPLOAD	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	2	2	DARK BROWN SILTY CLAYEY SAND	☐ YES	☒ NO
	2	10	8	CALICHE (DENSE HARD LAYERS)	☐ YES	☒ NO
	10	65	55	BROWN SILTY SAND	☐ YES	☒ NO
	TD	65			☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:	
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.	
	ADDITIONAL STATEMENTS OR EXPLANATIONS:		

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	<u>4-20-09</u> DATE

FOR USE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER

POD NUMBER

TRN NUMBER

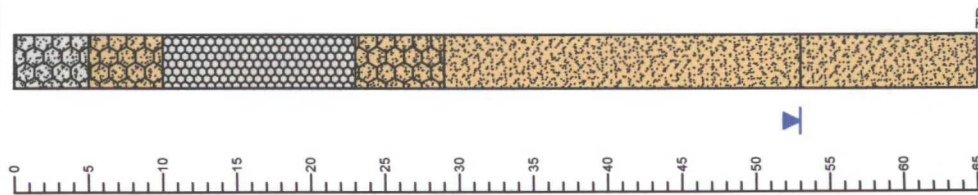
LOCATION

PAGE 2 OF 2

Air Sparging Well AS-4

Depth (feet)

Soil Columns

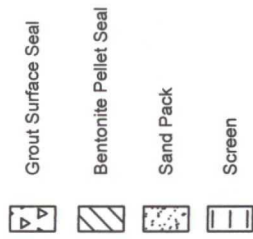


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10 - 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface (bgs)

Boring Log And Monitor Well Details
 Air Sparging Well AS-4
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-4				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO								
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
	HYDROGRAPHIC SURVEY					MAP NUMBER	TRACT NUMBER	
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION		
	DRILLING STARTED 3-24-09		DRILLING ENDED 3-24-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	FROM	TO						
	65 63		6	SCH 40 PVC .020 SCREEN	BE	2	0.154	.020
	63 6		6	SCH 40 PVC RISER	BE	2	0.154	RISER
	6 +43		6	SCH 40 GALVANIZED STEEL	NPT	2		
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)			
	FROM	TO						
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA					TOTAL ESTIMATED WELL YIELD (GPM)			

FOR OSE INTERNAL USE

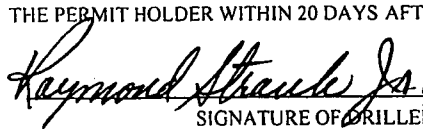
WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION	PAGE 1 OF 2	

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60	6	2 BAGS OF 8/16 SAND		TOPLOAD
		60	10	6	12 BAGS OF 3/8 PLUG		TOPLOAD
	10	0	6	2 BAGS OF CEMENT		TOPLOAD	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	1	1	DARK BROWN CLAYEY SAND	☐ YES	☒ NO
	1	10	9	CALICHE (DENSE LAYERS)	☐ YES	☒ NO
	10	62	52	TAN CALCIFIED SAND SANDSTONE	☐ YES	☒ NO
	62	65	3	TAN SAND	☐ YES	☒ NO
	TD	65			☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:				
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.				
	ADDITIONAL STATEMENTS OR EXPLANATIONS: ODOR 50'					

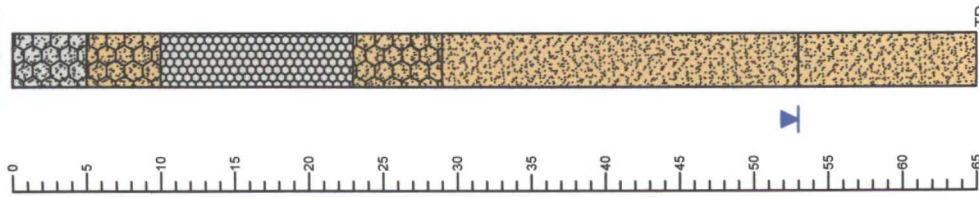
8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	4-20-09 DATE

FOR USE INTERNAL USE		WELL RECORD & LOG (Version 6/9/08)	
FILE NUMBER	POD NUMBER	TRN NUMBER	
LOCATION			PAGE 2 OF 2

Air Sparging Well AS-5

Depth (feet)

Soil Columns

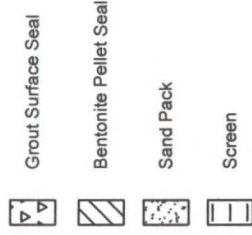


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10 - 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface. (bgs)

Boring Log And Monitor Well Details
 Air Sparging Well AS-5
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-5				OSE FILE NUMBER(S)											
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)											
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX		ZIP 77078							
	WELL LOCATION (FROM GPS)		DEGREES LATITUDE 32		MINUTES 55		SECONDS 57.00 N		* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84							
		LONGITUDE 103		25		13.00 W										
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO																
2. OPTIONAL	(2.5 ACRE) 1/4		(10 ACRE) 1/4		(40 ACRE) 1/4		(160 ACRE) 1/4		SECTION		TOWNSHIP ☐ NORTH ☒ SOUTH		RANGE ☒ EAST ☐ WEST			
	SUBDIVISION NAME				LOT NUMBER				BLOCK NUMBER				UNIT/TRACT			
	HYDROGRAPHIC SURVEY								MAP NUMBER				TRACT NUMBER			
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR						NAME OF WELL DRILLING COMPANY STRAUB CORPORATION							
	DRILLING STARTED 3-24-09		DRILLING ENDED 3-24-09		DEPTH OF COMPLETED WELL (FT) 65		BORE HOLE DEPTH (FT) 65		DEPTH WATER FIRST ENCOUNTERED (FT)							
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)								STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A							
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:															
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:															
	DEPTH (FT)		BORE HOLE DIA. (IN)		CASING MATERIAL		CONNECTION TYPE (CASING)		INSIDE DIA. CASING (IN)		CASING WALL THICKNESS (IN)		SLOT SIZE (IN)			
	FROM TO															
	65 63		6		SCH 40 PVC .020 SCREEN		BE		2		0.154		.020			
	63 6		6		SCH 40 PVC RISER		BE		2		0.154		RISER			
	6 +43		6		SCH 40 GALVANIZED STEEL		NPT		2							
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)		FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)						YIELD (GPM)					
	FROM TO															
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA								TOTAL ESTIMATED WELL YIELD (GPM)								

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER

POD NUMBER

TRN NUMBER

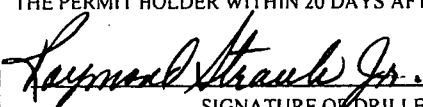
LOCATION

PAGE 1 OF 2

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60				
		60	10				
10	0	6	2 BAGS OF CEMENT		TOPLOAD		

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?		
	FROM	TO					
	0	1	1	DARK BROWN SANDY CLAY	☐ YES	☒ NO	
	1	10	9	CALICHE (DENSE LAYERS)	☐ YES	☒ NO	
	10	25	15	TAN CALCIFIED SANDSTONE	☐ YES	☒ NO	
	25	65	40	TAN SANDSTONE (SOFT)	☐ YES	☒ NO	
	TD	65			☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL						

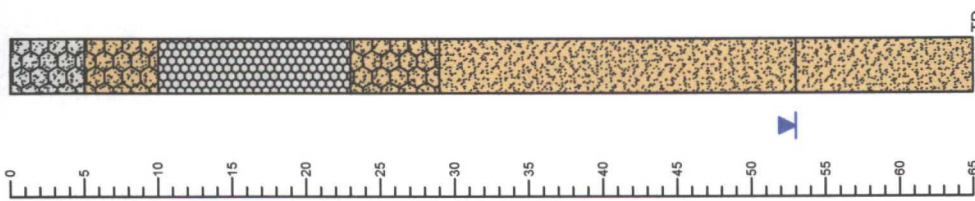
7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:				
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.				
	ADDITIONAL STATEMENTS OR EXPLANATIONS: ODOR 50'					

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	<u>4-20-09</u> DATE

Air Sparging Well AS-6

Depth (feet)

Soil Columns

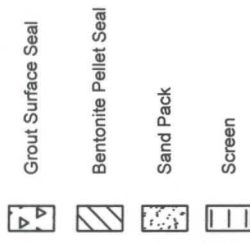


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10- 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface. (bgs)

Boring Log And Monitor Well Details
 Air Sparging Well AS-6
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-6				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO								
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
	HYDROGRAPHIC SURVEY					MAP NUMBER	TRACT NUMBER	
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION		
	DRILLING STARTED 3-25-09		DRILLING ENDED 3-25-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	FROM	TO						
	65 63		6	SCH 40 PVC .020 SCREEN	BE	2	0.154	.020
	63 6		6	SCH 40 PVC RISER	BE	2	0.154	RISER
	6 +43		6	SCH 40 GALVANIZED STEEL	NPT	2		
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)			
	FROM	TO						
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA					TOTAL ESTIMATED WELL YIELD (GPM)			

FOR USE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION	PAGE 1 OF 2	

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60				
		60	10				
	10	0	6	2 BAGS OF CEMENT		TOPLOAD	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?		
	FROM	TO					
	0	1	1	DARK BROWN SANDY CLAY	☐ YES	☒ NO	
	1	9	8	CALICHE (DENSE LAYERS)	☐ YES	☒ NO	
	9	20	11	HARD SILICATED CALICHE	☐ YES	☒ NO	
	20	62	42	TAN CALCIFIED SANDSTONE	☐ YES	☒ NO	
	62	65	3	TAN SAND	☐ YES	☒ NO	
	TD	65			☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
					☐ YES	☐ NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL						

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:				
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.				
	ADDITIONAL STATEMENTS OR EXPLANATIONS:					

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	4-20-09 DATE

FOR USE INTERNAL USE

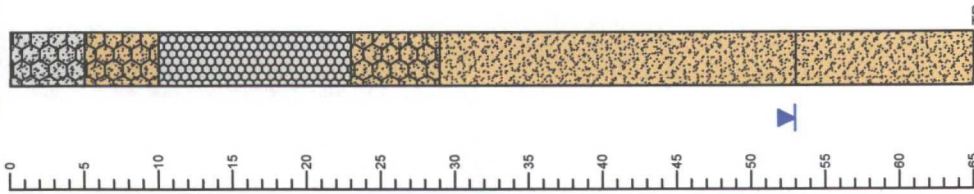
WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

Air Sparging Well AS-7

Depth (feet)

Soil Columns

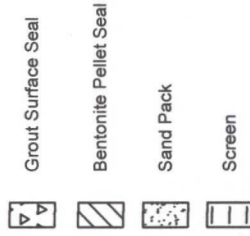


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10- 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface. (bgs)

Boring Log And Monitor Well Details
 Air Sparging Well AS-7
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA

Checked By: RKR

May 9, 2009



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-7				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO								
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
	HYDROGRAPHIC SURVEY				MAP NUMBER	TRACT NUMBER		
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION		
	DRILLING STARTED 3-24-09		DRILLING ENDED 3-24-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT) FROM TO		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	65 63		6	SCH 40 PVC .020 SCREEN	BE	2	0.154	.020
63 6		6	SCH 40 PVC RISER	BE	2	0.154	RISER	
6 +43		6	SCH 40 GALVANIZED STEEL	NPT	2			
4. WATER BEARING STRATA	DEPTH (FT) FROM TO		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)				YIELD (GPM)
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA						TOTAL ESTIMATED WELL YIELD (GPM)		

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER

POD NUMBER

TRN NUMBER

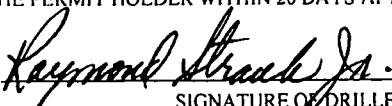
LOCATION

PAGE 1 OF 2

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60				
		60	10	6	10 BAGS OF 3/8 PLUG		TOPLOAD
		10	0	6	2 BAGS OF CEMENT		TOPLOAD

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	1	1	DARK BROWN SANDY CLAY	☐ YES	☒ NO
	1	10	9	CALICHE (DENSE LAYERS)	☐ YES	☒ NO
	10	26	16	CALCIFIED SANDSTONE	☐ YES	☒ NO
	26	65	23	TAN SAND	☐ YES	☒ NO
	TD	65			☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST		METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:	
	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.			
	ADDITIONAL STATEMENTS OR EXPLANATIONS:			

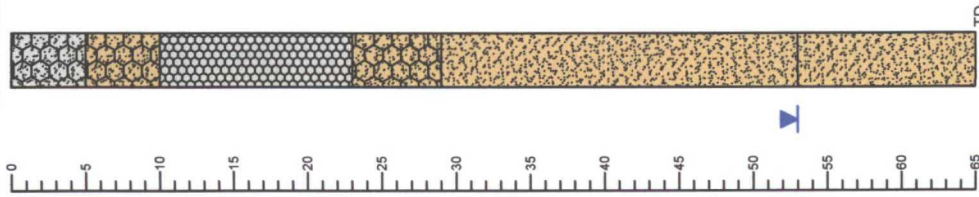
8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	<u>4-20-09</u> DATE

FOR USE INTERNAL USE		WELL RECORD & LOG (Version 6/9/08)	
FILE NUMBER	POD NUMBER	TRN NUMBER	
LOCATION			PAGE 2 OF 2

Air Sparging Well AS-8

Depth (feet)

Soil Columns

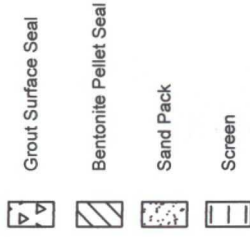


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10 - 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-24-09
 Thickness of Bentonite Seal 60 Ft
 Length of PVC Well Screen 2 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface (bgs)

Boring Log And Monitor Well Details
 Air Sparging Well AS-8
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 AS-8				OSE FILE NUMBER(S)									
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)									
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078						
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84									
LONGITUDE 103 25 13.00 W														
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO														
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST							
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT							
	HYDROGRAPHIC SURVEY				MAP NUMBER		TRACT NUMBER							
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION								
	DRILLING STARTED 3-25-09		DRILLING ENDED 3-25-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)							
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A								
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:													
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:													
	DEPTH (FT) FROM TO		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)						
	65	63							6	SCH 40 PVC .020 SCREEN	BE	2	0.154	.020
	63	6							6	SCH 40 PVC RISER	BE	2	0.154	RISER
	6	+43							6	SCH 40 GALVANIZED STEEL	NPT	2		
4. WATER BEARING STRATA	DEPTH (FT) FROM TO		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)				YIELD (GPM)						
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA						TOTAL ESTIMATED WELL YIELD (GPM)								

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER

POD NUMBER

TRN NUMBER

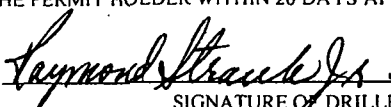
LOCATION

PAGE 1 OF 2

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	60				
		60	10				
	10	0	6	1 BAGS OF CEMENT		TOPLOAD	

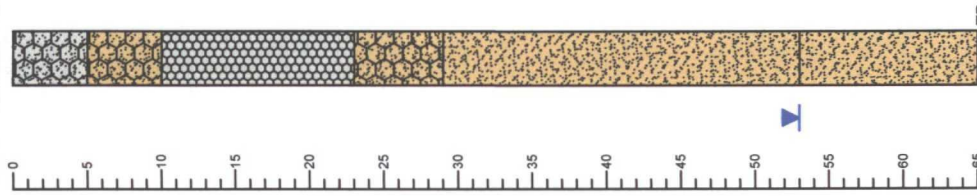
6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	1	1	DARK BROWN SILTY CLAY	☐ YES ☒ NO	
	1	20	19	CALICHE (DENSE LAYERS)	☐ YES ☒ NO	
	20	64	44	TAN CALCIFIED SANDSTONE	☐ YES ☒ NO	
	64	65	1	TAN SAND	☐ YES ☒ NO	
	TD	65			☐ YES ☒ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:	
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.	
	ADDITIONAL STATEMENTS OR EXPLANATIONS:		

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	<u>4-20-09</u> DATE

Recovery Well RW-2

Depth (feet)

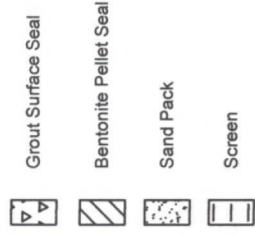


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10 - 23' - Sand, brown, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-25-09
 Thickness of Bentonite Seal 33 Ft
 Length of PVC Well Screen 25 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface (bgs)

Boring Log And Monitor Well Details
 Recovery Well RW-2
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 RW-2				OSE FILE NUMBER(S)				
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)				
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078	
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84				
LONGITUDE 103 25 13.00 W									
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO									
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST		
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT		
	HYDROGRAPHIC SURVEY					MAP NUMBER	TRACT NUMBER		
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION			
	DRILLING STARTED 3-25-09		DRILLING ENDED 3-26-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)		
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A			
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:								
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:								
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)	
	FROM	TO							
	65	40	7	SCH 40 PVC .010 SCREEN	FJ	4	0.154	0.10	
	40	+43	7	SCH 40 PVC RISER	FJ	4	0.154	RISER	
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)				
	FROM	TO							
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA					TOTAL ESTIMATED WELL YIELD (GPM)				

FOR OSE INTERNAL USE

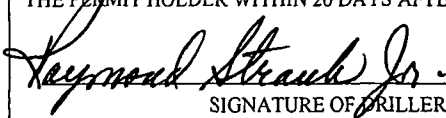
WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION	PAGE 1 OF 2	

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	37				
		37	2				
	2	0	7	1 BAGS OF CEMENT		TOPLOAD	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	1	1	DARK BROWN SILTY CLAY	☐ YES ☒ NO	
	1	12	11	DENSE CALICHE LAYERS	☐ YES ☒ NO	
	12	20	8	SILICATED CALICHE LAYERS	☐ YES ☒ NO	
	20	65	45	TAN CALCIFIED SAND	☐ YES ☒ NO	
	TD	65			☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:	
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.	
	ADDITIONAL STATEMENTS OR EXPLANATIONS: HYDROCARBON 50'		

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	 DATE

FOR USE INTERNAL USE

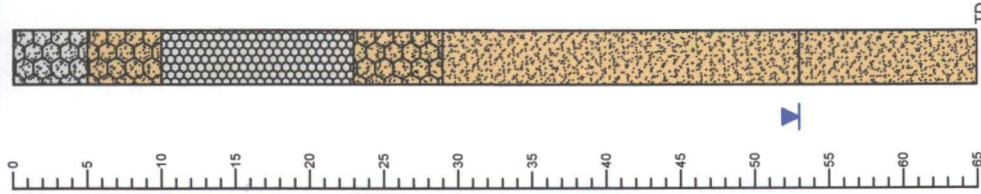
WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

Recovery Well RW-3

Depth (feet)

Soil Columns

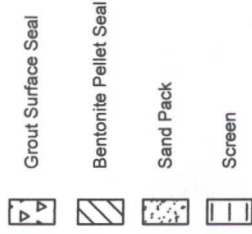


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10 - 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-25-09
 Thickness of Bentonite Seal 33 Ft
 Length of PVC Well Screen 25 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on dates using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface (bgs)

Boring Log And Monitor Well Details
 Recovery Well RW-3
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 RW-3				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 55	SECONDS 57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
		LONGITUDE 103	25	13.00 W				
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GILLS ROAD, LOVINGTON NM, LEA CO								
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
	HYDROGRAPHIC SURVEY				MAP NUMBER	TRACT NUMBER		
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION		
	DRILLING STARTED 3-25-09		DRILLING ENDED 3-26-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	FROM	TO						
	65	40	7	SCH 40 PVC .010 SCREEN	FJ	4	0.154	0.10
	40	+43	7	SCH 40 PVC RISER	FJ	4	0.154	RISER
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)			
	FROM	TO						
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA					TOTAL ESTIMATED WELL YIELD (GPM)			

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER

POD NUMBER

TRN NUMBER

LOCATION

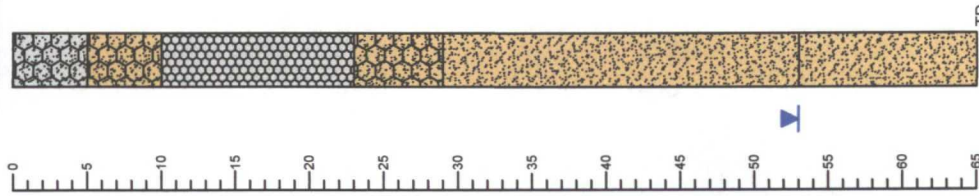
PAGE 1 OF 2

PAGE 2 OF 2

Recovery Well RW-4

Depth (feet)

Soil Columns

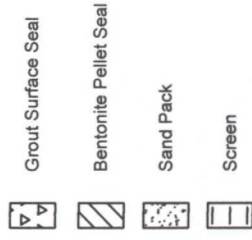


Soil Description

- 0 - 5' - Caliche, greyish white, sandy
- 5 - 10' - Sand, brown, caliche, greyish white
- 10- 23' - Sand, brown, sandstone, interbedded
- 23 - 29' - Sand, tan with some caliche fragments very fine grained
- 29 - 53' - Sand, brown, very fine grained
- 53 - 65' - Sand, brown, very fine grained, saturated with depth

Monitor Well Details

Date Drilled 3-25-09
 Thickness of Bentonite Seal 33 Ft
 Length of PVC Well Screen 25 Ft
 Depth of PVC Well 65 Ft
 Depth of Exploratory Well 65 Ft
 Depth to Groundwater 53 Ft
 Ground Water Elevation



- Indicates the PSH level measured on NA
- Indicates the groundwater level measured on 3/26/09
- Indicates samples selected for Laboratory Analysis.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

- The monitor well was installed on date using air rotary drilling techniques.
- The well was constructed with 2" ID, 0.020 inch factory slotted, belled end joint, schedule 40 PVC pipe.
- The well is protected with a locked stick up steel cover and a compression cap.
- The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- The depths indicated are referenced from below ground surface (bgs)

Boring Log And Monitor Well Details
 Recovery Well RW-4
 TNM 97-04 Lea County, New Mexico
 Plains Marketing, L.P.



NOVA Safety and Environmental

Drawn By: TA
 May 9, 2009
 Checked By: RKR



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) TNM 97-04 RW-4				OSE FILE NUMBER(S)			
	WELL OWNER NAME(S) PLAINS MARKETING LP				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 333 CLAY STREET, SUITE 1600				CITY HOUSTON		STATE TX	ZIP 77078
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE	MINUTES 32	SECONDS 55	57.00 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84		
		LONGITUDE	103	25	13.00 W			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS GRILL ROAD								
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☒ SOUTH	RANGE ☒ EAST ☐ WEST	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
	HYDROGRAPHIC SURVEY					MAP NUMBER	TRACT NUMBER	
3. DRILLING INFORMATION	LICENSE NUMBER WD1478		NAME OF LICENSED DRILLER RAYMOND STRAUB JR			NAME OF WELL DRILLING COMPANY STRAUB CORPORATION		
	DRILLING STARTED 3-26-09		DRILLING ENDED 3-26-09		DEPTH OF COMPLETED WELL (FT) 65	BORE HOLE DEPTH (FT) 65	DEPTH WATER FIRST ENCOUNTERED (FT)	
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☒ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: ☒ AIR ☐ MUD ☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	FROM	TO						
	65	40	7	SCH 40 PVC .010 SCREEN	FJ	4	0.154	0.10
	40	+43	7	SCH 40 PVC RISER	FJ	4	0.154	RISER
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)			YIELD (GPM)	
	FROM	TO						
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA						TOTAL ESTIMATED WELL YIELD (GPM)		

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION	PAGE 1 OF 2	

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		65	37				
	37	2	7	9 BAGS OF 3/8 PLUG		TOPLOAD	
	2	0	7	1 BAGS OF CEMENT		TOPLOAD	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	1	1	DARK BROWN SILTY CLAY WITH COBBLES	☐ YES	☒ NO
	1	18	17	DENSE CALICHE	☐ YES	☒ NO
	18	40	22	TAN SAND	☐ YES	☒ NO
	40	65	25	TAN SAND (SOFT SANDSTONE)	☐ YES	☒ NO
	TD	65			☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
					☐ YES	☐ NO
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:	
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.	
	ADDITIONAL STATEMENTS OR EXPLANATIONS: HYDROCARBON 18-40 ODOR		

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	<u>4-20-09</u> DATE

**APPENDIX C:
NMOCD C-141 Form**

DISTRICT I
P.O. BOX 1980, HOBBS, NM 88241-1980

State of New Mexico
Energy, Minerals and Natural Resources Department

SUBMIT 2 COPIES TO
APPROPRIATE DISTRICT
OFFICE IN ACCORDANCE
WITH RULE 116 PRINTED
ON BACK SIDE OF FORM

DISTRICT II
P.O. DRAWER DD, ARTESIA, NM 88211-
0719

OIL CONSERVATION DIVISION

DISTRICT III
1000 Rio Brazos Rd, Aztec, NM 87410

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Initial Report

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

OPERATOR Texas-New Mexico Pipe Line Company			ADDRESS P. O. Box 60028, San Angelo, TX 76906			TELEPHONE (915) 947-9000	
REPORT OF	FIRE	BREAK	SPILL	LEAK X	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRUG WELL	PROD WELL	TANK BTRY	PIPE LINE X	GASO PLANT	OIL RFY	OTHER*
FACILITY NAME: 4" gathering line							
LOCATION OF FACILITY Qtr/Qtr Sec. or Footage. SW/4 SW/4 SE/4 SE/4			SEC. 11	TWP. 11S 16E	RGE. 35E	COUNTY Lea	
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK 2 miles west of Lovington							
DATE AND HOUR OF OCCURRENCE Unknown			DATE AND HOUR OF DISCOVERY April 16, 1997 4:00 p.m.				
WAS IMMEDIATE NOTICE GIVEN?		YES	NO	NOT RE- QUIRED X	IF YES, TO WHOM Wayne Price		
BY WHOM B. D. Chapman (reported that quantity may be more than 10 barrels)				DATE AND HOUR April 25, 1997 9:00 a.m.			
TYPE OF FLUID LOST Sweet Crude		QUANTITY OF LOSS Unknown (*see note below)		VOLUME RECOVERED None			
DID ANY FLUIDS REACH A WATERCOURSE?		YES	NO X	QUANTITY			
IF YES, DESCRIBE FULLY**							
DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN**							
External Corrosion. Leak successfully clamped off.							
DESCRIBE AREA AFFECTED AND CLEANUP ACTION TAKEN**							
Approximately 1500 sq. ft. pasture land. Will remediate on site.							
*Originally estimated at 10 barrels. Under investigation. An amended report will be issued when quantity is determined.							
DESCRIPTION OF AREA		FARMING	GRAZING X	URBAN	OTHER*		
SURFACE CONDITION		SANDY	SANDY LOAM	CLAY	ROCKY X	WET	DRY X
GENERAL CONDITIONS PREVAILING (TEMPERATURE, PRECIPITATION, ETC.)**							
75 degrees, clear							
I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF							
SIGNED <i>[Signature]</i>		PRINTED NAME AND TITLE Edwin H. Gripp, District Manager			DATE April 25, 1997		

*SPECIFY

State Corp. Commission
Pipe Line Division

**ATTACH ADDITIONAL SHEETS IF NECESSARY

Hazardous Waste Section
NM Environmental Improvement Div.

INM-97-04

BDC



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: September 16, 2010

Work Order: 10090707



Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
243703	Post-Carbon	water	2010-09-02	13:30	2010-09-03

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 28 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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2010-09-03 and assigned to work order 10090707. Samples for work order 10090707 were received intact without headspace and at a temperature of 3.7 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Al, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
As, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Ba, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
BTEX	S 8021B	62854	2010-09-07 at 07:58	73276	2010-09-07 at 07:58
B, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Cd, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Co, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Cr, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Cu, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Fe, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Hg, Total	S 7470A	62883	2010-09-08 at 09:41	73330	2010-09-08 at 14:11
Mn, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Mo, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Ni, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
PAH	S 8270D	63094	2010-09-09 at 15:00	73544	2010-09-15 at 23:44
Pb, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Se, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59
Zn, Total	S 6010C	62910	2010-09-09 at 08:12	73359	2010-09-09 at 13:59

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 10090707 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.

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Analytical Report

Sample: 243703 - Post-Carbon

Laboratory: Lubbock
Analysis: Al, Total
QC Batch: 73359
Prep Batch: 62910

Analytical Method: S 6010C
Date Analyzed: 2010-09-09
Sample Preparation: 2010-09-09

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Aluminum		0.533	mg/L	1	0.0500

Sample: 243703 - Post-Carbon

Laboratory: Lubbock
Analysis: B, Total
QC Batch: 73359
Prep Batch: 62910

Analytical Method: S 6010C
Date Analyzed: 2010-09-09
Sample Preparation: 2010-09-09

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Boron		0.105	mg/L	1	0.0100

Sample: 243703 - Post-Carbon

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 73276
Prep Batch: 62854

Analytical Method: S 8021B
Date Analyzed: 2010-09-07
Sample Preparation: 2010-09-07

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0931	mg/L	1	0.100	93	78.4 - 113
4-Bromofluorobenzene (4-BFB)		0.0977	mg/L	1	0.100	98	81.5 - 121

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Sample: 243703 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Co, Total	Analytical Method:	S 6010C
QC Batch:	73359	Date Analyzed:	2010-09-09
Prep Batch:	62910	Sample Preparation:	2010-09-09
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Cobalt		<0.00500	mg/L	1	0.00500

Sample: 243703 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Cu, Total	Analytical Method:	S 6010C
QC Batch:	73359	Date Analyzed:	2010-09-09
Prep Batch:	62910	Sample Preparation:	2010-09-09
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Copper		<0.00500	mg/L	1	0.00500

Sample: 243703 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Fe, Total	Analytical Method:	S 6010C
QC Batch:	73359	Date Analyzed:	2010-09-09
Prep Batch:	62910	Sample Preparation:	2010-09-09
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Iron		0.119	mg/L	1	0.0100

Sample: 243703 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Mn, Total	Analytical Method:	S 6010C
QC Batch:	73359	Date Analyzed:	2010-09-09
Prep Batch:	62910	Sample Preparation:	2010-09-09
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Manganese		0.197	mg/L	1	0.00250

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Sample: 243703 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Mo, Total	Analytical Method:	S 6010C
QC Batch:	73359	Date Analyzed:	2010-09-09
Prep Batch:	62910	Sample Preparation:	2010-09-09
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Molybdenum		<0.0100	mg/L	1	0.0100

Sample: 243703 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Ni, Total	Analytical Method:	S 6010C
QC Batch:	73359	Date Analyzed:	2010-09-09
Prep Batch:	62910	Sample Preparation:	2010-09-09
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Nickel		<0.00500	mg/L	1	0.00500

Sample: 243703 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	PAH	Analytical Method:	S 8270D
QC Batch:	73544	Date Analyzed:	2010-09-15
Prep Batch:	63094	Sample Preparation:	2010-09-09
		Prep Method:	S 3510C
		Analyzed By:	MN
		Prepared By:	MN

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000184	mg/L	0.922	0.000200
2-Methylnaphthalene		<0.000184	mg/L	0.922	0.000200
1-Methylnaphthalene		<0.000184	mg/L	0.922	0.000200
Acenaphthylene		<0.000184	mg/L	0.922	0.000200
Acenaphthene		<0.000184	mg/L	0.922	0.000200
Dibenzofuran		<0.000184	mg/L	0.922	0.000200
Fluorene		<0.000184	mg/L	0.922	0.000200
Anthracene		<0.000184	mg/L	0.922	0.000200
Phenanthrene		<0.000184	mg/L	0.922	0.000200
Fluoranthene		<0.000184	mg/L	0.922	0.000200
Pyrene		<0.000184	mg/L	0.922	0.000200
Benzo(a)anthracene		<0.000184	mg/L	0.922	0.000200
Chrysene		<0.000184	mg/L	0.922	0.000200
Benzo(b)fluoranthene		<0.000184	mg/L	0.922	0.000200

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sample 243703 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Benzo(k)fluoranthene		<0.000184	mg/L	0.922	0.000200
Benzo(a)pyrene		<0.000184	mg/L	0.922	0.000200
Indeno(1,2,3-cd)pyrene		<0.000184	mg/L	0.922	0.000200
Dibenzo(a,h)anthracene		<0.000184	mg/L	0.922	0.000200
Benzo(g,h,i)perylene		<0.000184	mg/L	0.922	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0515	mg/L	0.922	0.0800	64	10 - 111
2-Fluorobiphenyl		0.0569	mg/L	0.922	0.0800	71	10 - 92.7
Terphenyl-d14		0.0576	mg/L	0.922	0.0800	72	35.9 - 107

Sample: 243703 - Post-Carbon

Laboratory: Lubbock
Analysis: Total 8 Metals
QC Batch: 73330
Prep Batch: 62883
Laboratory: Lubbock
Analysis: Total 8 Metals
QC Batch: 73359
Prep Batch: 62910

Analytical Method: S 7470A
Date Analyzed: 2010-09-08
Sample Preparation: 2010-09-08

Prep Method: N/A
Analyzed By: TP
Prepared By: TP

Analytical Method: S 6010C
Date Analyzed: 2010-09-09
Sample Preparation: 2010-09-09

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver		<0.00500	mg/L	1	0.00500
Total Arsenic		<0.0100	mg/L	1	0.0100
Total Barium		0.171	mg/L	1	0.0100
Total Cadmium		<0.00500	mg/L	1	0.00500
Total Chromium		<0.00500	mg/L	1	0.00500
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		0.00500	mg/L	1	0.00500
Total Selenium		<0.0200	mg/L	1	0.0200

Sample: 243703 - Post-Carbon

Laboratory: Lubbock
Analysis: Zn, Total
QC Batch: 73359
Prep Batch: 62910

Analytical Method: S 6010C
Date Analyzed: 2010-09-09
Sample Preparation: 2010-09-09

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

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Parameter	Flag	RL Result	Units	Dilution	RL
Total Zinc		0.0100	mg/L	1	0.00500

Method Blank (1) QC Batch: 73276

QC Batch: 73276
Prep Batch: 62854

Date Analyzed: 2010-09-07
QC Preparation: 2010-09-07

Analyzed By: ER
Prepared By: ER

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000371	mg/L	0.001
Toluene		<0.000400	mg/L	0.001
Ethylbenzene		<0.000430	mg/L	0.001
Xylene		<0.000379	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0983	mg/L	1	0.100	98	78.4 - 113
4-Bromofluorobenzene (4-BFB)		0.104	mg/L	1	0.100	104	81.5 - 121

Method Blank (1) QC Batch: 73330

QC Batch: 73330
Prep Batch: 62883

Date Analyzed: 2010-09-08
QC Preparation: 2010-09-08

Analyzed By: TP
Prepared By: TP

Parameter	Flag	MDL Result	Units	RL
Total Mercury		<0.0000388	mg/L	0.0002

Method Blank (1) QC Batch: 73359

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Aluminum		<0.00404	mg/L	0.05

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Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Boron		<0.00146	mg/L	0.01

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Cobalt		<0.00247	mg/L	0.005

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Copper		<0.00205	mg/L	0.005

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Iron		<0.00300	mg/L	0.01

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

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Parameter	Flag	MDL Result	Units	RL
Total Manganese		<0.00170	mg/L	0.0025

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Molybdenum		<0.00356	mg/L	0.01

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Nickel		<0.00274	mg/L	0.005

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Zinc		<0.00204	mg/L	0.005

Method Blank (1) QC Batch: 73359

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Silver		<0.00131	mg/L	0.005
Total Arsenic		<0.00540	mg/L	0.01
Total Barium		<0.00730	mg/L	0.01
Total Cadmium		<0.00209	mg/L	0.005

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method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.000873	mg/L	0.005
Total Lead		<0.00494	mg/L	0.005
Total Selenium		<0.0140	mg/L	0.02

Method Blank (1) QC Batch: 73544

QC Batch: 73544
Prep Batch: 63094

Date Analyzed: 2010-09-15
QC Preparation: 2010-09-09

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0243	mg/L	1	0.0800	30	10 - 111
2-Fluorobiphenyl		0.0270	mg/L	1	0.0800	34	10 - 92.7
Terphenyl-d14		0.0385	mg/L	1	0.0800	48	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 73276
Prep Batch: 62854

Date Analyzed: 2010-09-07
QC Preparation: 2010-09-07

Analyzed By: ER
Prepared By: ER

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0985	mg/L	1	0.100	<0.000371	98	79.8 - 112
Toluene	0.0984	mg/L	1	0.100	<0.000400	98	76.9 - 116
Ethylbenzene	0.0980	mg/L	1	0.100	<0.000430	98	78.1 - 116
Xylene	0.292	mg/L	1	0.300	<0.000379	97	80.1 - 113

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0984	mg/L	1	0.100	<0.000371	98	79.8 - 112	0	20
Toluene	0.0985	mg/L	1	0.100	<0.000400	98	76.9 - 116	0	20
Ethylbenzene	0.0986	mg/L	1	0.100	<0.000430	99	78.1 - 116	1	20
Xylene	0.294	mg/L	1	0.300	<0.000379	98	80.1 - 113	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0933	0.0967	mg/L	1	0.100	93	97	75.8 - 111
4-Bromofluorobenzene (4-BFB)	0.0923	0.0968	mg/L	1	0.100	92	97	71.9 - 111

Laboratory Control Spike (LCS-1)

QC Batch: 73330
Prep Batch: 62883

Date Analyzed: 2010-09-08
QC Preparation: 2010-09-08

Analyzed By: TP
Prepared By: TP

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00413	mg/L	1	0.00400	<0.0000388	103	91.4 - 111

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00404	mg/L	1	0.00400	<0.0000388	101	91.4 - 111	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	1.05	mg/L	1	1.00	<0.00404	105	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	1.04	mg/L	1	1.00	<0.00404	104	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.0490	mg/L	1	0.0500	<0.00146	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.0500	mg/L	1	0.0500	<0.00146	100	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.252	mg/L	1	0.250	<0.00247	101	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.251	mg/L	1	0.250	<0.00247	100	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.131	mg/L	1	0.125	<0.00205	105	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.131	mg/L	1	0.125	<0.00205	105	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	0.508	mg/L	1	0.500	<0.00300	102	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	0.510	mg/L	1	0.500	<0.00300	102	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.253	mg/L	1	0.250	<0.00170	101	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.252	mg/L	1	0.250	<0.00170	101	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Report Date: September 16, 2010
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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.540	mg/L	1	0.500	<0.00356	108	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.540	mg/L	1	0.500	<0.00356	108	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.242	mg/L	1	0.250	<0.00274	97	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.242	mg/L	1	0.250	<0.00274	97	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.244	mg/L	1	0.250	<0.00204	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.232	mg/L	1	0.250	<0.00204	93	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.126	mg/L	1	0.125	<0.00131	101	85 - 115
Total Arsenic	0.494	mg/L	1	0.500	<0.00540	99	85 - 115
Total Barium	1.03	mg/L	1	1.00	<0.00730	103	85 - 115
Total Cadmium	0.250	mg/L	1	0.250	<0.00209	100	85 - 115
Total Chromium	0.0980	mg/L	1	0.100	<0.000873	98	85 - 115
Total Lead	0.490	mg/L	1	0.500	<0.00494	98	85 - 115
Total Selenium	0.441	mg/L	1	0.500	<0.0140	88	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.127	mg/L	1	0.125	<0.00131	102	85 - 115	1	20
Total Arsenic	0.489	mg/L	1	0.500	<0.00540	98	85 - 115	1	20
Total Barium	1.03	mg/L	1	1.00	<0.00730	103	85 - 115	0	20
Total Cadmium	0.251	mg/L	1	0.250	<0.00209	100	85 - 115	0	20
Total Chromium	0.0960	mg/L	1	0.100	<0.000873	96	85 - 115	2	20
Total Lead	0.490	mg/L	1	0.500	<0.00494	98	85 - 115	0	20
Total Selenium	0.445	mg/L	1	0.500	<0.0140	89	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73544
Prep Batch: 63094

Date Analyzed: 2010-09-15
QC Preparation: 2010-09-09

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0600	mg/L	1	0.0800	<0.0000784	75	32.2 - 80.3
2-Methylnaphthalene	0.0666	mg/L	1	0.0800	<0.0000747	83	34.8 - 87
1-Methylnaphthalene	0.0706	mg/L	1	0.0800	<0.0000575	88	36.9 - 89.6
Acenaphthylene	0.0684	mg/L	1	0.0800	<0.0000963	86	35 - 93.2
Acenaphthene	0.0673	mg/L	1	0.0800	<0.0000617	84	35.8 - 92.9
Dibenzofuran	0.0532	mg/L	1	0.0800	<0.0000952	66	35.3 - 85.1
Fluorene	0.0726	mg/L	1	0.0800	<0.000134	91	43.4 - 101
Anthracene	0.0573	mg/L	1	0.0800	<0.000441	72	44.8 - 92.4
Phenanthrene	0.0661	mg/L	1	0.0800	<0.000435	83	44 - 93.7
Fluoranthene	0.0734	mg/L	1	0.0800	<0.000476	92	52.7 - 104
Pyrene	0.0631	mg/L	1	0.0800	<0.000590	79	42.2 - 93.8
Benzo(a)anthracene	0.0584	mg/L	1	0.0800	<0.000118	73	40.4 - 91.9
Chrysene	¹ 0.0877	mg/L	1	0.0800	<0.0000766	110	44.4 - 107
Benzo(b)fluoranthene	0.0376	mg/L	1	0.0800	<0.000146	47	34.8 - 105
Benzo(k)fluoranthene	0.0507	mg/L	1	0.0800	<0.000141	63	50.2 - 158

continued ...

¹Spike analyte out of control limits. Results biased high. •

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzo(a)pyrene	0.0504	mg/L	1	0.0800	<0.000132	63	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0488	mg/L	1	0.0800	<0.0000702	61	43.2 - 115
Dibenzo(a,h)anthracene	0.0702	mg/L	1	0.0800	<0.0000534	88	43.9 - 115
Benzo(g,h,i)perylene	0.0451	mg/L	1	0.0800	<0.0000473	56	45.1 - 115

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

Param		LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	²	0.0662	mg/L	1	0.0800	<0.0000784	83	32.2 - 80.3	10	20
2-Methylnaphthalene	³	0.0746	mg/L	1	0.0800	<0.0000747	93	34.8 - 87	11	20
1-Methylnaphthalene	⁴	0.0775	mg/L	1	0.0800	<0.0000575	97	36.9 - 89.6	9	20
Acenaphthylene	⁵	0.0762	mg/L	1	0.0800	<0.0000963	95	35 - 93.2	11	20
Acenaphthene		0.0740	mg/L	1	0.0800	<0.0000617	92	35.8 - 92.9	10	20
Dibenzofuran		0.0586	mg/L	1	0.0800	<0.0000952	73	35.3 - 85.1	10	20
Fluorene		0.0794	mg/L	1	0.0800	<0.000134	99	43.4 - 101	9	20
Anthracene	⁶	0.0705	mg/L	1	0.0800	<0.000441	88	44.8 - 92.4	21	20
Phenanthrene		0.0744	mg/L	1	0.0800	<0.000435	93	44 - 93.7	12	20
Fluoranthene	⁷	0.0920	mg/L	1	0.0800	<0.000476	115	52.7 - 104	22	20
Pyrene		0.0612	mg/L	1	0.0800	<0.000590	76	42.2 - 93.8	3	20
Benzo(a)anthracene		0.0638	mg/L	1	0.0800	<0.000118	80	40.4 - 91.9	9	20
Chrysene	⁸	0.0876	mg/L	1	0.0800	<0.0000766	110	44.4 - 107	0	20
Benzo(b)fluoranthene	⁹	0.0510	mg/L	1	0.0800	<0.000146	64	34.8 - 105	30	20
Benzo(k)fluoranthene	¹⁰	0.0710	mg/L	1	0.0800	<0.000141	89	50.2 - 158	33	20
Benzo(a)pyrene		0.0589	mg/L	1	0.0800	<0.000132	74	51.3 - 151	16	20
Indeno(1,2,3-cd)pyrene	¹¹	0.0600	mg/L	1	0.0800	<0.0000702	75	43.2 - 115	21	20
Dibenzo(a,h)anthracene	¹²	0.0864	mg/L	1	0.0800	<0.0000534	108	43.9 - 115	21	20
Benzo(g,h,i)perylene	¹³	0.0574	mg/L	1	0.0800	<0.0000473	72	45.1 - 115	24	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0607	0.0650	mg/L	1	0.0800	76	81	10 - 111
2-Fluorobiphenyl	0.0602	0.0665	mg/L	1	0.0800	75	83	10 - 92.7
Terphenyl-d14	0.0617	0.0578	mg/L	1	0.0800	77	72	35.9 - 107

²LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

³LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁴LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁵LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁶RPD outside RPD control limits. Analyte not detected in samples.

⁷Spike analyte recovery and RPD out of control limits. Results biased high.

⁸Spike analyte recovery out of control limits. Results biased high.

⁹RPD outside RPD control limits. Analyte not detected in samples.

¹⁰RPD outside RPD control limits. Analyte not detected in samples.

¹¹RPD outside RPD control limits. Analyte not detected in samples.

¹²RPD outside RPD control limits. Analyte not detected in samples.

¹³RPD outside RPD control limits. Analyte not detected in samples.

Matrix Spike (MS-1) Spiked Sample: 243638

QC Batch: 73276
Prep Batch: 62854

Date Analyzed: 2010-09-07
QC Preparation: 2010-09-07

Analyzed By: ER
Prepared By: ER

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		0.0352	mg/L	1	0.100	0.0009	34	29.6 - 139
Toluene	¹⁴	0.0342	mg/L	1	0.100	0.0011	33	44.3 - 131
Ethylbenzene	¹⁵	0.0338	mg/L	1	0.100	<0.000430	34	43.8 - 131
Xylene	¹⁶	0.105	mg/L	1	0.300	0.0043	34	48.8 - 126

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

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	¹⁷	0.0541	mg/L	1	0.100	0.0009	53	29.6 - 139	42	20
Toluene	¹⁸	0.0531	mg/L	1	0.100	0.0011	52	44.3 - 131	43	20
Ethylbenzene	¹⁹	0.0526	mg/L	1	0.100	<0.000430	53	43.8 - 131	44	20
Xylene	²⁰	0.161	mg/L	1	0.300	0.0043	52	48.8 - 126	42	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0988	0.0923	mg/L	1	0.1	99	92	73.9 - 118
4-Bromofluorobenzene (4-BFB)	0.101	0.0953	mg/L	1	0.1	101	95	73.8 - 116

Matrix Spike (MS-1) Spiked Sample: 243703

QC Batch: 73330
Prep Batch: 62883

Date Analyzed: 2010-09-08
QC Preparation: 2010-09-08

Analyzed By: TP
Prepared By: TP

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00384	mg/L	1	0.00400	<0.0000388	96	75 - 122

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00389	mg/L	1	0.00400	<0.0000388	97	75 - 122	1	20

¹⁴Matrix spike recovery out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

¹⁵Matrix spike recovery out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

¹⁶Matrix spike recovery out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

¹⁷MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

¹⁸MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

¹⁹MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

²⁰MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	0.875	mg/L	1	1.00	<0.00404	88	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	0.963	mg/L	1	1.00	<0.00404	96	75 - 125	10	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.0490	mg/L	1	0.0500	<0.00146	98	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.0480	mg/L	1	0.0500	<0.00146	96	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.236	mg/L	1	0.250	<0.00247	94	75 - 125

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

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.238	mg/L	1	0.250	<0.00247	95	75 - 125	1	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.126	mg/L	1	0.125	<0.00205	101	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.129	mg/L	1	0.125	<0.00205	103	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	0.507	mg/L	1	0.500	<0.00300	101	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	0.507	mg/L	1	0.500	<0.00300	101	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

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matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.242	mg/L	1	0.250	<0.00170	97	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.246	mg/L	1	0.250	<0.00170	98	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.498	mg/L	1	0.500	<0.00356	100	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.505	mg/L	1	0.500	<0.00356	101	75 - 125	1	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359 Date Analyzed: 2010-09-09 Analyzed By: RR
Prep Batch: 62910 QC Preparation: 2010-09-09 Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.239	mg/L	1	0.250	<0.00274	96	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.242	mg/L	1	0.250	<0.00274	97	75 - 125	1	20

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

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Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.234	mg/L	1	0.250	<0.00204	94	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.234	mg/L	1	0.250	<0.00204	94	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 243830

QC Batch: 73359
Prep Batch: 62910

Date Analyzed: 2010-09-09
QC Preparation: 2010-09-09

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.126	mg/L	1	0.125	<0.00131	101	75 - 125
Total Arsenic	0.499	mg/L	1	0.500	<0.00540	100	75 - 125
Total Barium	0.982	mg/L	1	1.00	<0.00730	98	75 - 125
Total Cadmium	0.232	mg/L	1	0.250	<0.00209	93	75 - 125
Total Chromium	0.0910	mg/L	1	0.100	<0.000873	91	75 - 125
Total Lead	0.454	mg/L	1	0.500	0.01	89	75 - 125
Total Selenium	0.448	mg/L	1	0.500	<0.0140	90	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.125	mg/L	1	0.125	<0.00131	100	75 - 125	1	20
Total Arsenic	0.507	mg/L	1	0.500	<0.00540	101	75 - 125	2	20
Total Barium	0.984	mg/L	1	1.00	<0.00730	98	75 - 125	0	20
Total Cadmium	0.238	mg/L	1	0.250	<0.00209	95	75 - 125	3	20
Total Chromium	0.0900	mg/L	1	0.100	<0.000873	90	75 - 125	1	20
Total Lead	0.454	mg/L	1	0.500	0.01	89	75 - 125	0	20
Total Selenium	0.441	mg/L	1	0.500	<0.0140	88	75 - 125	2	20

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

Standard (CCV-2)

QC Batch: 73276

Date Analyzed: 2010-09-07

Analyzed By: ER

Report Date: September 16, 2010
TNM 97-04

Work Order: 10090707
TNM 97-04 Townsend

Page Number: 23 of 28
Lovington, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0945	94	80 - 120	2010-09-07
Toluene		mg/L	0.100	0.0938	94	80 - 120	2010-09-07
Ethylbenzene		mg/L	0.100	0.0931	93	80 - 120	2010-09-07
Xylene		mg/L	0.300	0.280	93	80 - 120	2010-09-07

Standard (CCV-3)

QC Batch: 73276

Date Analyzed: 2010-09-07

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0959	96	80 - 120	2010-09-07
Toluene		mg/L	0.100	0.0946	95	80 - 120	2010-09-07
Ethylbenzene		mg/L	0.100	0.0939	94	80 - 120	2010-09-07
Xylene		mg/L	0.300	0.281	94	80 - 120	2010-09-07

Standard (CCV-1)

QC Batch: 73330

Date Analyzed: 2010-09-08

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00511	102	90 - 110	2010-09-08

Standard (CCV-2)

QC Batch: 73330

Date Analyzed: 2010-09-08

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00512	102	90 - 110	2010-09-08

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Report Date: September 16, 2010
TNM 97-04

Work Order: 10090707
TNM 97-04 Townsend

Page Number: 24 of 28
Lovington, NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	1.03	103	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	1.02	102	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	1.05	105	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	1.01	101	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	1.02	102	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Report Date: September 16, 2010
TNM 97-04

Work Order: 10090707
TNM 97-04 Townsend

Page Number: 25 of 28
Lovington, NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	1.05	105	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	1.03	103	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	1.06	106	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	1.03	103	90 - 110	2010-09-09

Standard (ICV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.250	0.249	100	90 - 110	2010-09-09
Total Arsenic		mg/L	2.00	2.02	101	95 - 105	2010-09-09
Total Barium		mg/L	1.00	1.04	104	90 - 110	2010-09-09
Total Cadmium		mg/L	1.00	1.04	104	90 - 110	2010-09-09
Total Chromium		mg/L	1.00	1.05	105	90 - 110	2010-09-09
Total Lead		mg/L	1.00	0.989	99	90 - 110	2010-09-09

continued ...

Report Date: September 16, 2010
TNM 97-04

Work Order: 10090707
TNM 97-04 Townsend

Page Number: 26 of 28
Lovington, NM

standard continued ...

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.986	99	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	1.02	102	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	0.993	99	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	1.00	100	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	1.01	101	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Report Date: September 16, 2010
TNM 97-04

Work Order: 10090707
TNM 97-04 Townsend

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Lovington, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	1.04	104	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	1.01	101	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	0.983	98	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	0.979	98	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	0.978	98	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73359

Date Analyzed: 2010-09-09

Analyzed By: RR

Report Date: September 16, 2010
TNM 97-04

Work Order: 10090707
TNM 97-04 Townsend

Page Number: 28 of 28
Lovington, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.126	101	90 - 110	2010-09-09
Total Arsenic		mg/L	1.00	0.953	95	90 - 110	2010-09-09
Total Barium		mg/L	1.00	1.00	100	90 - 110	2010-09-09
Total Cadmium		mg/L	1.00	0.968	97	90 - 110	2010-09-09
Total Chromium		mg/L	1.00	0.997	100	90 - 110	2010-09-09
Total Lead		mg/L	1.00	1.00	100	90 - 110	2010-09-09
Total Selenium		mg/L	1.00	0.956	96	90 - 110	2010-09-09

Standard (CCV-1)

QC Batch: 73544

Date Analyzed: 2010-09-15

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	58.4	97	80 - 120	2010-09-15
2-Methylnaphthalene		mg/L	60.0	61.9	103	80 - 120	2010-09-15
1-Methylnaphthalene		mg/L	60.0	61.7	103	80 - 120	2010-09-15
Acenaphthylene		mg/L	60.0	56.5	94	80 - 120	2010-09-15
Acenaphthene		mg/L	60.0	57.0	95	80 - 120	2010-09-15
Dibenzofuran		mg/L	60.0	60.8	101	80 - 120	2010-09-15
Fluorene		mg/L	60.0	61.6	103	80 - 120	2010-09-15
Anthracene		mg/L	60.0	52.7	88	80 - 120	2010-09-15
Phenanthrene		mg/L	60.0	56.9	95	80 - 120	2010-09-15
Fluoranthene		mg/L	60.0	54.5	91	80 - 120	2010-09-15
Pyrene		mg/L	60.0	62.3	104	80 - 120	2010-09-15
Benzo(a)anthracene		mg/L	60.0	53.3	89	80 - 120	2010-09-15
Chrysene		mg/L	60.0	68.0	113	80 - 120	2010-09-15
Benzo(b)fluoranthene		mg/L	60.0	51.8	86	80 - 120	2010-09-15
Benzo(k)fluoranthene		mg/L	60.0	67.2	112	80 - 120	2010-09-15
Benzo(a)pyrene		mg/L	60.0	60.8	101	80 - 120	2010-09-15
Indeno(1,2,3-cd)pyrene		mg/L	60.0	56.3	94	80 - 120	2010-09-15
Dibenzo(a,h)anthracene		mg/L	60.0	57.3	96	80 - 120	2010-09-15
Benzo(g,h,i)perylene		mg/L	60.0	59.5	99	80 - 120	2010-09-15

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		61.9	mg/L	1	60.0	103	80 - 120
2-Fluorobiphenyl		60.8	mg/L	1	60.0	101	80 - 120
Terphenyl-d14		63.3	mg/L	1	60.0	106	80 - 120

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-12965002 Basin Street, Suite A1
Midland, Texas 79703
Tel (432) 689-6301
Fax (432) 689-6313200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443BioAquaic Testing
2501 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Company Name:

Nova

Phone #:

520-7720

Address: (Street, City, Zip)

205 Commerce

Fax #:

520-7701

Contact Person:

Ron Rausch

E-mail:

Invoice to:

(If different from above) PARS

Project #:

TMM-97-04

Project Name:

New Mexico

Project Location (including state):

New Mexico

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX				PRESERVATIVE METHOD					SAMPLING	
				WATER	SOIL	AIR	SLUDGE	HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	NONE	DATE
													2010	

243703	Post Carbon	5		1				XX			X			912	1330
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ANALYSIS REQUEST

(Circle or Specify Method No.)

MTBE	8021 / 602 / 8260 / 624	X
TPH 418.1 / TX1005 Ex(C35)		
TPH 8015 GRO / DRO / TVHC		
FAH 8270 625		XX
TCLP Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7		X
TCLP Volatiles		
TCLP Semi Volatiles		
TCLP Pesticides		
RCI		
GC/MS Vol. 8260 / 624		
GC/MS Semi. Vol. 8270 / 625		
PCBs 8082 / 608		
Pesticides 8081 / 608		
BOD, TSS, pH		
Moisture Content		
Cl, FI, SO4, NO3, NO2, Alkalinity		
Na, Ca, Mg, K, TDS, EC		
X Total Cu, Fe, Mn, Zn, Al, B, Co, Mo		
Turn Around Time if different from standard		
Hold		

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST	OBS	COR
Dec 12	Nova	91310	11:50	my trace	my trace	1/3/10	11:50		3.7	
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST	OBS	COR
Dec 12	Trace	91310	17:00							
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST	OBS	COR

LAB USE ONLY

REMARKS:

X All tests - Lubbock

Inactivated

Headspace Y N I NA

☐ Dry Weight Basis Required
☐ TRRP Report Required
☐ Check if Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier #

Carrington by Brian



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: September 28, 2010

Work Order: 10091008



Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
243988	Post-Carbon	water	2010-09-10	11:15	2010-09-10

NOTE

Work Order 10091008: HNO3 bottle received with a pH above 2. Added HNO3 in Lubbock lab.

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 28 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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2010-09-10 and assigned to work order 10091008. Samples for work order 10091008 were received intact without headspace and at a temperature of 3.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Al, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
As, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Ba, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
BTEX	S 8021B	62959	2010-09-10 at 11:45	73407	2010-09-10 at 12:49
B, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Cd, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Co, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Cr, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Cu, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Fe, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Hg, Total	S 7470A	63181	2010-09-20 at 14:02	73659	2010-09-20 at 16:20
Mn, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Mo, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Ni, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
PAH	S 8270D	63356	2010-09-17 at 15:00	73832	2010-09-26 at 13:25
Pb, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Se, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47
Zn, Total	S 6010C	63010	2010-09-14 at 08:53	73465	2010-09-14 at 10:47

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 10091008 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: September 28, 2010
TNM 97-04

Work Order: 10091008
TNM 97-04 Townsend

Page Number: 4 of 28
Lovington, NM

Analytical Report

Sample: 243988 - Post-Carbon

Laboratory: Lubbock
Analysis: Al, Total
QC Batch: 73465
Prep Batch: 63010

Analytical Method: S 6010C
Date Analyzed: 2010-09-14
Sample Preparation: 2010-09-14

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Aluminum		<0.0500	mg/L	1	0.0500

Sample: 243988 - Post-Carbon

Laboratory: Lubbock
Analysis: B, Total
QC Batch: 73465
Prep Batch: 63010

Analytical Method: S 6010C
Date Analyzed: 2010-09-14
Sample Preparation: 2010-09-14

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Boron		0.168	mg/L	1	0.0100

Sample: 243988 - Post-Carbon

Laboratory: Midland
Analysis: BTEX
QC Batch: 73407
Prep Batch: 62959

Analytical Method: S 8021B
Date Analyzed: 2010-09-10
Sample Preparation: 2010-09-10

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0975	mg/L	1	0.100	98	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0522	mg/L	1	0.100	52	51.1 - 128

Report Date: September 28, 2010
TNM 97-04

Work Order: 10091008
TNM 97-04 Townsend

Page Number: 5 of 28
Lovington, NM

Sample: 243988 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Co, Total	Analytical Method:	S 6010C
QC Batch:	73465	Date Analyzed:	2010-09-14
Prep Batch:	63010	Sample Preparation:	2010-09-14
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Cobalt		<0.00500	mg/L	1	0.00500

Sample: 243988 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Cu, Total	Analytical Method:	S 6010C
QC Batch:	73465	Date Analyzed:	2010-09-14
Prep Batch:	63010	Sample Preparation:	2010-09-14
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Copper		<0.00500	mg/L	1	0.00500

Sample: 243988 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Fe, Total	Analytical Method:	S 6010C
QC Batch:	73465	Date Analyzed:	2010-09-14
Prep Batch:	63010	Sample Preparation:	2010-09-14
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Iron		0.177	mg/L	1	0.0100

Sample: 243988 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Mn, Total	Analytical Method:	S 6010C
QC Batch:	73465	Date Analyzed:	2010-09-14
Prep Batch:	63010	Sample Preparation:	2010-09-14
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Manganese		0.0910	mg/L	1	0.00500

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Sample: 243988 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Mo, Total	Analytical Method:	S 6010C
QC Batch:	73465	Date Analyzed:	2010-09-14
Prep Batch:	63010	Sample Preparation:	2010-09-14
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Molybdenum		<0.0500	mg/L	1	0.0500

Sample: 243988 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Ni, Total	Analytical Method:	S 6010C
QC Batch:	73465	Date Analyzed:	2010-09-14
Prep Batch:	63010	Sample Preparation:	2010-09-14
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Nickel		<0.0100	mg/L	1	0.0100

Sample: 243988 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	PAH	Analytical Method:	S 8270D
QC Batch:	73832	Date Analyzed:	2010-09-26
Prep Batch:	63356	Sample Preparation:	2010-09-17
		Prep Method:	S 3510C
		Analyzed By:	MN
		Prepared By:	MN

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000186	mg/L	0.93	0.000200
2-Methylnaphthalene		<0.000186	mg/L	0.93	0.000200
1-Methylnaphthalene		<0.000186	mg/L	0.93	0.000200
Acenaphthylene		<0.000186	mg/L	0.93	0.000200
Acenaphthene		<0.000186	mg/L	0.93	0.000200
Dibenzofuran		<0.000186	mg/L	0.93	0.000200
Fluorene		<0.000186	mg/L	0.93	0.000200
Anthracene		<0.000186	mg/L	0.93	0.000200
Phenanthrene		<0.000186	mg/L	0.93	0.000200
Fluoranthene		<0.000186	mg/L	0.93	0.000200
Pyrene		<0.000186	mg/L	0.93	0.000200
Benzo(a)anthracene		<0.000186	mg/L	0.93	0.000200
Chrysene		<0.000186	mg/L	0.93	0.000200
Benzo(b)fluoranthene		<0.000186	mg/L	0.93	0.000200

continued ...

sample 243988 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Benzo(k)fluoranthene		<0.000186	mg/L	0.93	0.000200
Benzo(a)pyrene		<0.000186	mg/L	0.93	0.000200
Indeno(1,2,3-cd)pyrene		<0.000186	mg/L	0.93	0.000200
Dibenzo(a,h)anthracene		<0.000186	mg/L	0.93	0.000200
Benzo(g,h,i)perylene		<0.000186	mg/L	0.93	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0203	mg/L	0.93	0.0800	25	10 - 111
2-Fluorobiphenyl		0.0239	mg/L	0.93	0.0800	30	10 - 92.7
Terphenyl-d14		0.0451	mg/L	0.93	0.0800	56	35.9 - 107

Sample: 243988 - Post-Carbon

Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 6010C	Prep Method: S 3010A	
QC Batch: 73465	Date Analyzed: 2010-09-14	Analyzed By: RR	
Prep Batch: 63010	Sample Preparation: 2010-09-14	Prepared By: KV	
Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 7470A	Prep Method: N/A	
QC Batch: 73659	Date Analyzed: 2010-09-20	Analyzed By: TP	
Prep Batch: 63181	Sample Preparation: 2010-09-20	Prepared By: TP	

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver		<0.00500	mg/L	1	0.00500
Total Arsenic		<0.0100	mg/L	1	0.0100
Total Barium		0.243	mg/L	1	0.0100
Total Cadmium		<0.00500	mg/L	1	0.00500
Total Chromium		<0.0100	mg/L	1	0.0100
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0200	mg/L	1	0.0200

Sample: 243988 - Post-Carbon

Laboratory: Lubbock			
Analysis: Zn, Total	Analytical Method: S 6010C	Prep Method: S 3010A	
QC Batch: 73465	Date Analyzed: 2010-09-14	Analyzed By: RR	
Prep Batch: 63010	Sample Preparation: 2010-09-14	Prepared By: KV	

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Parameter	Flag	RL Result	Units	Dilution	RL
Total Zinc		<0.00500	mg/L	1	0.00500

Method Blank (1) QC Batch: 73407

QC Batch: 73407 Date Analyzed: 2010-09-10 Analyzed By: AG
Prep Batch: 62959 QC Preparation: 2010-09-10 Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000600	mg/L	0.001
Toluene		<0.000600	mg/L	0.001
Ethylbenzene		<0.000800	mg/L	0.001
Xylene		<0.000767	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0971	mg/L	1	0.100	97	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.0541	mg/L	1	0.100	54	47.3 - 116

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Aluminum		<0.00982	mg/L	0.05

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Boron		<0.00215	mg/L	0.01

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Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Cobalt		<0.00258	mg/L	0.005

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Copper		<0.00313	mg/L	0.005

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Iron		<0.00273	mg/L	0.01

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Manganese		<0.00423	mg/L	0.005

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

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Parameter	Flag	MDL Result	Units	RL
Total Molybdenum		<0.00164	mg/L	0.05

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Nickel		<0.00593	mg/L	0.01

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Zinc		<0.00178	mg/L	0.005

Method Blank (1) QC Batch: 73465

QC Batch: 73465 Date Analyzed: 2010-09-14 Analyzed By: RR
Prep Batch: 63010 QC Preparation: 2010-09-14 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Silver		<0.000469	mg/L	0.005
Total Arsenic		<0.00465	mg/L	0.01
Total Barium		<0.00418	mg/L	0.01
Total Cadmium		<0.00232	mg/L	0.005
Total Chromium		<0.00291	mg/L	0.01
Total Lead		<0.00303	mg/L	0.005
Total Selenium		<0.00570	mg/L	0.02

Method Blank (1) QC Batch: 73659

QC Batch: 73659 Date Analyzed: 2010-09-20 Analyzed By: TP
Prep Batch: 63181 QC Preparation: 2010-09-20 Prepared By: TP

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Parameter	Flag	MDL Result	Units	RL
Total Mercury		<0.0000388	mg/L	0.0002

Method Blank (1) QC Batch: 73832

QC Batch: 73832
Prep Batch: 63356

Date Analyzed: 2010-09-26
QC Preparation: 2010-09-17

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0285	mg/L	1	0.0800	36	10 - 111
2-Fluorobiphenyl		0.0281	mg/L	1	0.0800	35	10 - 92.7
Terphenyl-d14		0.0394	mg/L	1	0.0800	49	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 73407
Prep Batch: 62959

Date Analyzed: 2010-09-10
QC Preparation: 2010-09-10

Analyzed By: AG
Prepared By: AG

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0996	mg/L	1	0.100	<0.000600	100	82.9 - 118
Toluene	0.0982	mg/L	1	0.100	<0.000600	98	82.7 - 117
Ethylbenzene	0.0969	mg/L	1	0.100	<0.000800	97	78.8 - 116
Xylene	0.284	mg/L	1	0.300	<0.000767	95	79.3 - 116

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.105	mg/L	1	0.100	<0.000600	105	82.9 - 118	5	20
Toluene	0.102	mg/L	1	0.100	<0.000600	102	82.7 - 117	4	20
Ethylbenzene	0.101	mg/L	1	0.100	<0.000800	101	78.8 - 116	4	20
Xylene	0.295	mg/L	1	0.300	<0.000767	98	79.3 - 116	4	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0996	0.104	mg/L	1	0.100	100	104	67.3 - 113
4-Bromofluorobenzene (4-BFB)	0.0865	0.0898	mg/L	1	0.100	86	90	68.2 - 134

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	1.03	mg/L	1	1.00	<0.00982	103	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	1.02	mg/L	1	1.00	<0.00982	102	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.0490	mg/L	1	0.0500	<0.00215	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.0510	mg/L	1	0.0500	<0.00215	102	85 - 115	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.268	mg/L	1	0.250	<0.00258	107	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.263	mg/L	1	0.250	<0.00258	105	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.127	mg/L	1	0.125	<0.00313	102	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.128	mg/L	1	0.125	<0.00313	102	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	0.502	mg/L	1	0.500	<0.00273	100	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	0.501	mg/L	1	0.500	<0.00273	100	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.257	mg/L	1	0.250	<0.00423	103	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.256	mg/L	1	0.250	<0.00423	102	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.520	mg/L	1	0.500	<0.00164	104	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.519	mg/L	1	0.500	<0.00164	104	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.268	mg/L	1	0.250	<0.00593	107	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.264	mg/L	1	0.250	<0.00593	106	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.259	mg/L	1	0.250	<0.00178	104	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.253	mg/L	1	0.250	<0.00178	101	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.135	mg/L	1	0.125	<0.000469	108	85 - 115
Total Arsenic	0.534	mg/L	1	0.500	<0.00465	107	85 - 115
Total Barium	1.05	mg/L	1	1.00	<0.00418	105	85 - 115
Total Cadmium	0.271	mg/L	1	0.250	<0.00232	108	85 - 115
Total Chromium	0.0910	mg/L	1	0.100	<0.00291	91	85 - 115
Total Lead	0.543	mg/L	1	0.500	<0.00303	109	85 - 115
Total Selenium	0.506	mg/L	1	0.500	<0.00570	101	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.135	mg/L	1	0.125	<0.000469	108	85 - 115	0	20

continued ...

control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Rec.	Rec. Limit	RPD	RPD Limit
Total Arsenic	0.524	mg/L	1	0.500	<0.00465	105	85 - 115	2	20
Total Barium	1.01	mg/L	1	1.00	<0.00418	101	85 - 115	4	20
Total Cadmium	0.270	mg/L	1	0.250	<0.00232	108	85 - 115	0	20
Total Chromium	0.0880	mg/L	1	0.100	<0.00291	88	85 - 115	3	20
Total Lead	0.536	mg/L	1	0.500	<0.00303	107	85 - 115	1	20
Total Selenium	0.497	mg/L	1	0.500	<0.00570	99	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73659
Prep Batch: 63181

Date Analyzed: 2010-09-20
QC Preparation: 2010-09-20

Analyzed By: TP
Prepared By: TP

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00404	mg/L	1	0.00400	<0.0000388	101	91.4 - 111

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00405	mg/L	1	0.00400	<0.0000388	101	91.4 - 111	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73832
Prep Batch: 63356

Date Analyzed: 2010-09-26
QC Preparation: 2010-09-17

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0624	mg/L	1	0.0800	<0.0000784	78	32.2 - 80.3
2-Methylnaphthalene	0.0647	mg/L	1	0.0800	<0.0000747	81	34.8 - 87
1-Methylnaphthalene	0.0686	mg/L	1	0.0800	<0.0000575	86	36.9 - 89.6
Acenaphthylene	0.0721	mg/L	1	0.0800	<0.0000963	90	35 - 93.2
Acenaphthene	0.0725	mg/L	1	0.0800	<0.0000617	91	35.8 - 92.9
Dibenzofuran	0.0525	mg/L	1	0.0800	<0.0000952	66	35.3 - 85.1
Fluorene	0.0722	mg/L	1	0.0800	<0.000134	90	43.4 - 101
Anthracene	0.0615	mg/L	1	0.0800	<0.000441	77	44.8 - 92.4
Phenanthrene	0.0657	mg/L	1	0.0800	<0.000435	82	44 - 93.7
Fluoranthene	0.0739	mg/L	1	0.0800	<0.000476	92	52.7 - 104
Pyrene	0.0698	mg/L	1	0.0800	<0.000590	87	42.2 - 93.8

continued ...

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzo(a)anthracene	0.0565	mg/L	1	0.0800	<0.000118	71	40.4 - 91.9
Chrysene	0.0954	mg/L	1	0.0800	<0.0000766	119	44.4 - 107
Benzo(b)fluoranthene	0.0423	mg/L	1	0.0800	<0.000146	53	34.8 - 105
Benzo(k)fluoranthene	0.0654	mg/L	1	0.0800	<0.000141	82	50.2 - 158
Benzo(a)pyrene	0.0621	mg/L	1	0.0800	<0.000132	78	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0494	mg/L	1	0.0800	<0.0000702	62	43.2 - 115
Dibenzo(a,h)anthracene	0.0696	mg/L	1	0.0800	<0.0000534	87	43.9 - 115
Benzo(g,h,i)perylene	0.0504	mg/L	1	0.0800	<0.0000473	63	45.1 - 115

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

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0689	mg/L	1	0.0800	<0.0000784	86	32.2 - 80.3	10	20
2-Methylnaphthalene	0.0693	mg/L	1	0.0800	<0.0000747	87	34.8 - 87	7	20
1-Methylnaphthalene	0.0743	mg/L	1	0.0800	<0.0000575	93	36.9 - 89.6	8	20
Acenaphthylene	0.0792	mg/L	1	0.0800	<0.0000963	99	35 - 93.2	9	20
Acenaphthene	0.0805	mg/L	1	0.0800	<0.0000617	101	35.8 - 92.9	10	20
Dibenzofuran	0.0573	mg/L	1	0.0800	<0.0000952	72	35.3 - 85.1	9	20
Fluorene	0.0770	mg/L	1	0.0800	<0.000134	96	43.4 - 101	6	20
Anthracene	0.0681	mg/L	1	0.0800	<0.000441	85	44.8 - 92.4	10	20
Phenanthrene	0.0735	mg/L	1	0.0800	<0.000435	92	44 - 93.7	11	20
Fluoranthene	0.0732	mg/L	1	0.0800	<0.000476	92	52.7 - 104	1	20
Pyrene	0.0673	mg/L	1	0.0800	<0.000590	84	42.2 - 93.8	4	20
Benzo(a)anthracene	0.0579	mg/L	1	0.0800	<0.000118	72	40.4 - 91.9	2	20
Chrysene	0.0964	mg/L	1	0.0800	<0.0000766	120	44.4 - 107	1	20
Benzo(b)fluoranthene	0.0462	mg/L	1	0.0800	<0.000146	58	34.8 - 105	9	20
Benzo(k)fluoranthene	0.0674	mg/L	1	0.0800	<0.000141	84	50.2 - 158	3	20
Benzo(a)pyrene	0.0565	mg/L	1	0.0800	<0.000132	71	51.3 - 151	9	20
Indeno(1,2,3-cd)pyrene	0.0497	mg/L	1	0.0800	<0.0000702	62	43.2 - 115	1	20
Dibenzo(a,h)anthracene	0.0690	mg/L	1	0.0800	<0.0000534	86	43.9 - 115	1	20
Benzo(g,h,i)perylene	0.0536	mg/L	1	0.0800	<0.0000473	67	45.1 - 115	6	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Nitrobenzene-d5	0.0511	0.0525	mg/L	1	0.0800	64	66	10 - 111
2-Fluorobiphenyl	0.0607	0.0673	mg/L	1	0.0800	76	84	10 - 92.7
Terphenyl-d14	0.0626	0.0605	mg/L	1	0.0800	78	76	35.9 - 107

¹ Spike analyte out of control limits. Results biased high. •

² Spike analyte out of control limits. Results biased high. •

³ Spike analyte out of control limits. Results biased high. •

⁴ Spike analyte out of control limits. Results biased high. •

⁵ Spike analyte out of control limits. Results biased high. •

⁶ Spike analyte out of control limits. Results biased high. •

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Matrix Spike (MS-1) Spiked Sample: 243988

QC Batch: 73407
Prep Batch: 62959

Date Analyzed: 2010-09-10
QC Preparation: 2010-09-10

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0949	mg/L	1	0.100	<0.000600	95	77.9 - 114
Toluene	0.0913	mg/L	1	0.100	<0.000600	91	78.3 - 111
Ethylbenzene	0.0894	mg/L	1	0.100	<0.000800	89	75.3 - 110
Xylene	0.266	mg/L	1	0.300	<0.000767	89	75.7 - 109

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0966	mg/L	1	0.100	<0.000600	97	77.9 - 114	2	20
Toluene	0.0927	mg/L	1	0.100	<0.000600	93	78.3 - 111	2	20
Ethylbenzene	0.0901	mg/L	1	0.100	<0.000800	90	75.3 - 110	1	20
Xylene	0.267	mg/L	1	0.300	<0.000767	89	75.7 - 109	0	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0984	0.101	mg/L	1	0.1	98	101	68.3 - 107
4-Bromofluorobenzene (4-BFB)	0.0854	0.0813	mg/L	1	0.1	85	81	60.1 - 135

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	1.02	mg/L	1	1.00	<0.00982	102	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	1.05	mg/L	1	1.00	<0.00982	105	75 - 125	3	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.0470	mg/L	1	0.0500	<0.00215	94	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.0480	mg/L	1	0.0500	<0.00215	96	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.250	mg/L	1	0.250	<0.00258	100	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.255	mg/L	1	0.250	<0.00258	102	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.125	mg/L	1	0.125	<0.00313	100	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.124	mg/L	1	0.125	<0.00313	99	75 - 125	1	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	1.47	mg/L	1	0.500	1.03	88	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	1.47	mg/L	1	0.500	1.03	88	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.254	mg/L	1	0.250	<0.00423	102	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.262	mg/L	1	0.250	<0.00423	105	75 - 125	3	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.518	mg/L	1	0.500	<0.00164	104	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.526	mg/L	1	0.500	<0.00164	105	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
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Analyzed By: RR
Prepared By: KV

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.251	mg/L	1	0.250	<0.00593	100	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.246	mg/L	1	0.250	<0.00593	98	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.252	mg/L	1	0.250	<0.00178	101	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.257	mg/L	1	0.250	<0.00178	103	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 243997

QC Batch: 73465
Prep Batch: 63010

Date Analyzed: 2010-09-14
QC Preparation: 2010-09-14

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.134	mg/L	1	0.125	<0.000469	107	75 - 125
Total Arsenic	0.542	mg/L	1	0.500	<0.00465	108	75 - 125
Total Barium	1.02	mg/L	1	1.00	<0.00418	102	75 - 125
Total Cadmium	0.256	mg/L	1	0.250	<0.00232	102	75 - 125
Total Chromium	0.100	mg/L	1	0.100	<0.00291	100	75 - 125
Total Lead	0.524	mg/L	1	0.500	<0.00303	105	75 - 125
Total Selenium	0.503	mg/L	1	0.500	<0.00570	101	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.138	mg/L	1	0.125	<0.000469	110	75 - 125	3	20

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Arsenic	0.534	mg/L	1	0.500	<0.00465	107	75 - 125	2	20
Total Barium	1.06	mg/L	1	1.00	<0.00418	106	75 - 125	4	20
Total Cadmium	0.264	mg/L	1	0.250	<0.00232	106	75 - 125	3	20
Total Chromium	0.101	mg/L	1	0.100	<0.00291	101	75 - 125	1	20
Total Lead	0.532	mg/L	1	0.500	<0.00303	106	75 - 125	2	20
Total Selenium	0.506	mg/L	1	0.500	<0.00570	101	75 - 125	1	20

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

Matrix Spike (MS-1) Spiked Sample: 243988

QC Batch: 73659
Prep Batch: 63181

Date Analyzed: 2010-09-20
QC Preparation: 2010-09-20

Analyzed By: TP
Prepared By: TP

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00381	mg/L	1	0.00400	<0.0000388	95	75 - 122

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00378	mg/L	1	0.00400	<0.0000388	94	75 - 122	1	20

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

Standard (CCV-1)

QC Batch: 73407

Date Analyzed: 2010-09-10

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0951	95	80 - 120	2010-09-10
Toluene		mg/L	0.100	0.0931	93	80 - 120	2010-09-10
Ethylbenzene		mg/L	0.100	0.0892	89	80 - 120	2010-09-10
Xylene		mg/L	0.300	0.263	88	80 - 120	2010-09-10

Standard (CCV-2)

QC Batch: 73407

Date Analyzed: 2010-09-10

Analyzed By: AG

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.102	102	80 - 120	2010-09-10
Toluene		mg/L	0.100	0.0986	99	80 - 120	2010-09-10
Ethylbenzene		mg/L	0.100	0.0963	96	80 - 120	2010-09-10
Xylene		mg/L	0.300	0.281	94	80 - 120	2010-09-10

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	1.02	102	90 - 110	2010-09-14

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	1.03	103	90 - 110	2010-09-14

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	1.00	100	90 - 110	2010-09-14

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	1.02	102	90 - 110	2010-09-14

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Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	1.02	102	90 - 110	2010-09-14

Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	1.02	102	90 - 110	2010-09-14

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Standard (ICV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.127	102	90 - 110	2010-09-14
Total Arsenic		mg/L	1.00	0.998	100	90 - 110	2010-09-14
Total Barium		mg/L	1.00	0.984	98	90 - 110	2010-09-14
Total Cadmium		mg/L	1.00	1.02	102	90 - 110	2010-09-14
Total Chromium		mg/L	1.00	1.00	100	90 - 110	2010-09-14
Total Lead		mg/L	1.00	1.02	102	90 - 110	2010-09-14
Total Selenium		mg/L	1.00	1.00	100	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	0.983	98	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	1.00	100	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	1.01	101	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73465

Date Analyzed: 2010-09-14

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.126	101	90 - 110	2010-09-14
Total Arsenic		mg/L	1.00	0.992	99	90 - 110	2010-09-14
Total Barium		mg/L	1.00	0.994	99	90 - 110	2010-09-14
Total Cadmium		mg/L	1.00	1.01	101	90 - 110	2010-09-14
Total Chromium		mg/L	1.00	0.992	99	90 - 110	2010-09-14
Total Lead		mg/L	1.00	1.02	102	90 - 110	2010-09-14
Total Selenium		mg/L	1.00	0.998	100	90 - 110	2010-09-14

Standard (CCV-1)

QC Batch: 73659

Date Analyzed: 2010-09-20

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00511	102	90 - 110	2010-09-20

Standard (CCV-2)

QC Batch: 73659

Date Analyzed: 2010-09-20

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00504	101	90 - 110	2010-09-20

Standard (CCV-1)

QC Batch: 73832

Date Analyzed: 2010-09-26

Analyzed By: MN

Report Date: September 28, 2010
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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	60.2	100	80 - 120	2010-09-26
2-Methylnaphthalene		mg/L	60.0	60.9	102	80 - 120	2010-09-26
1-Methylnaphthalene		mg/L	60.0	60.5	101	80 - 120	2010-09-26
Acenaphthylene		mg/L	60.0	59.9	100	80 - 120	2010-09-26
Acenaphthene		mg/L	60.0	62.3	104	80 - 120	2010-09-26
Dibenzofuran		mg/L	60.0	59.3	99	80 - 120	2010-09-26
Fluorene		mg/L	60.0	61.3	102	80 - 120	2010-09-26
Anthracene		mg/L	60.0	55.2	92	80 - 120	2010-09-26
Phenanthrene		mg/L	60.0	56.6	94	80 - 120	2010-09-26
Fluoranthene		mg/L	60.0	53.8	90	80 - 120	2010-09-26
Pyrene		mg/L	60.0	60.9	102	80 - 120	2010-09-26
Benzo(a)anthracene		mg/L	60.0	48.2	80	80 - 120	2010-09-26
Chrysene		mg/L	60.0	65.1	108	80 - 120	2010-09-26
Benzo(b)fluoranthene		mg/L	60.0	50.2	84	80 - 120	2010-09-26
Benzo(k)fluoranthene		mg/L	60.0	68.5	114	80 - 120	2010-09-26
Benzo(a)pyrene		mg/L	60.0	67.1	112	80 - 120	2010-09-26
Indeno(1,2,3-cd)pyrene		mg/L	60.0	55.2	92	80 - 120	2010-09-26
Dibenzo(a,h)anthracene		mg/L	60.0	54.2	90	80 - 120	2010-09-26
Benzo(g,h,i)perylene		mg/L	60.0	58.0	97	80 - 120	2010-09-26

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		68.4	mg/L	1	60.0	114	80 - 120
2-Fluorobiphenyl		60.4	mg/L	1	60.0	101	80 - 120
Terphenyl-d14		54.5	mg/L	1	60.0	91	80 - 120



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: September 28, 2010

Work Order: 10091705



Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
244990	Post-Carbon	water	2010-09-16	12:30	2010-09-17

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 28 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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2010-09-17 and assigned to work order 10091705. Samples for work order 10091705 were received intact without headspace and at a temperature of 3.7 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Al, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
As, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Ba, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
BTEX	S 8021B	63178	2010-09-17 at 16:00	73660	2010-09-18 at 09:57
B, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Cd, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Co, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Cr, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Cu, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Fe, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Hg, Total	S 7470A	63300	2010-09-24 at 08:43	73807	2010-09-24 at 13:22
Mn, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Mo, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Ni, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
PAH	S 8270D	63356	2010-09-17 at 15:00	73832	2010-09-26 at 13:25
Pb, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Se, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18
Zn, Total	S 6010C	63277	2010-09-23 at 08:18	73754	2010-09-23 at 10:18

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 10091705 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.

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Analytical Report

Sample: 244990 - Post-Carbon

Laboratory: Lubbock
Analysis: Al, Total
QC Batch: 73754
Prep Batch: 63277

Analytical Method: S 6010C
Date Analyzed: 2010-09-23
Sample Preparation: 2010-09-23

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Aluminum		0.0570	mg/L	1	0.0500

Sample: 244990 - Post-Carbon

Laboratory: Lubbock
Analysis: B, Total
QC Batch: 73754
Prep Batch: 63277

Analytical Method: S 6010C
Date Analyzed: 2010-09-23
Sample Preparation: 2010-09-23

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Boron		0.216	mg/L	1	0.0100

Sample: 244990 - Post-Carbon

Laboratory: Midland
Analysis: BTEX
QC Batch: 73660
Prep Batch: 63178

Analytical Method: S 8021B
Date Analyzed: 2010-09-18
Sample Preparation: 2010-09-17

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0914	mg/L	1	0.100	91	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0593	mg/L	1	0.100	59	51.1 - 128

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Sample: 244990 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Co, Total	Analytical Method:	S 6010C
QC Batch:	73754	Date Analyzed:	2010-09-23
Prep Batch:	63277	Sample Preparation:	2010-09-23
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Cobalt		<0.00500	mg/L	1	0.00500

Sample: 244990 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Cu, Total	Analytical Method:	S 6010C
QC Batch:	73754	Date Analyzed:	2010-09-23
Prep Batch:	63277	Sample Preparation:	2010-09-23
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Copper		0.00500	mg/L	1	0.00500

Sample: 244990 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Fe, Total	Analytical Method:	S 6010C
QC Batch:	73754	Date Analyzed:	2010-09-23
Prep Batch:	63277	Sample Preparation:	2010-09-23
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Iron		0.0440	mg/L	1	0.0100

Sample: 244990 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Mn, Total	Analytical Method:	S 6010C
QC Batch:	73754	Date Analyzed:	2010-09-23
Prep Batch:	63277	Sample Preparation:	2010-09-23
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Manganese		0.101	mg/L	1	0.00500

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Sample: 244990 - Post-Carbon

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3010A
Analysis:	Mo, Total	Date Analyzed:	2010-09-23	Analyzed By:	RR
QC Batch:	73754	Sample Preparation:	2010-09-23	Prepared By:	KV
Prep Batch:	63277				

Parameter	Flag	RL Result	Units	Dilution	RL
Total Molybdenum		<0.0500	mg/L	1	0.0500

Sample: 244990 - Post-Carbon

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	S 3010A
Analysis:	Ni, Total	Date Analyzed:	2010-09-23	Analyzed By:	RR
QC Batch:	73754	Sample Preparation:	2010-09-23	Prepared By:	KV
Prep Batch:	63277				

Parameter	Flag	RL Result	Units	Dilution	RL
Total Nickel		<0.0100	mg/L	1	0.0100

Sample: 244990 - Post-Carbon

Laboratory:	Lubbock	Analytical Method:	S 8270D	Prep Method:	S 3510C
Analysis:	PAH	Date Analyzed:	2010-09-26	Analyzed By:	MN
QC Batch:	73832	Sample Preparation:	2010-09-17	Prepared By:	MN
Prep Batch:	63356				

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000200	mg/L	1	0.000200
2-Methylnaphthalene		<0.000200	mg/L	1	0.000200
1-Methylnaphthalene		<0.000200	mg/L	1	0.000200
Acenaphthylene		<0.000200	mg/L	1	0.000200
Acenaphthene		<0.000200	mg/L	1	0.000200
Dibenzofuran		<0.000200	mg/L	1	0.000200
Fluorene		<0.000200	mg/L	1	0.000200
Anthracene		<0.000200	mg/L	1	0.000200
Phenanthrene		<0.000200	mg/L	1	0.000200
Fluoranthene		<0.000200	mg/L	1	0.000200
Pyrene		<0.000200	mg/L	1	0.000200
Benzo(a)anthracene		<0.000200	mg/L	1	0.000200
Chrysene		<0.000200	mg/L	1	0.000200
Benzo(b)fluoranthene		<0.000200	mg/L	1	0.000200

continued ...

sample 244990 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Benzo(k)fluoranthene		<0.000200	mg/L	1	0.000200
Benzo(a)pyrene		<0.000200	mg/L	1	0.000200
Indeno(1,2,3-cd)pyrene		<0.000200	mg/L	1	0.000200
Dibenzo(a,h)anthracene		<0.000200	mg/L	1	0.000200
Benzo(g,h,i)perylene		<0.000200	mg/L	1	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0288	mg/L	1	0.0800	36	10 - 111
2-Fluorobiphenyl		0.0340	mg/L	1	0.0800	42	10 - 92.7
Terphenyl-d14		0.0413	mg/L	1	0.0800	52	35.9 - 107

Sample: 244990 - Post-Carbon

Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 6010C	Prep Method: S 3010A	
QC Batch: 73754	Date Analyzed: 2010-09-23	Analyzed By: RR	
Prep Batch: 63277	Sample Preparation: 2010-09-23	Prepared By: KV	
Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 7470A	Prep Method: N/A	
QC Batch: 73807	Date Analyzed: 2010-09-24	Analyzed By: TP	
Prep Batch: 63300	Sample Preparation: 2010-09-24	Prepared By: TP	

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver		<0.00500	mg/L	1	0.00500
Total Arsenic		<0.0100	mg/L	1	0.0100
Total Barium		0.280	mg/L	1	0.0100
Total Cadmium		<0.00500	mg/L	1	0.00500
Total Chromium		<0.0100	mg/L	1	0.0100
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0200	mg/L	1	0.0200

Sample: 244990 - Post-Carbon

Laboratory: Lubbock			
Analysis: Zn, Total	Analytical Method: S 6010C	Prep Method: S 3010A	
QC Batch: 73754	Date Analyzed: 2010-09-23	Analyzed By: RR	
Prep Batch: 63277	Sample Preparation: 2010-09-23	Prepared By: KV	

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Parameter	Flag	RL Result	Units	Dilution	RL
Total Zinc		0.0100	mg/L	1	0.00500

Method Blank (1) QC Batch: 73660

QC Batch: 73660 Date Analyzed: 2010-09-18 Analyzed By: AG
Prep Batch: 63178 QC Preparation: 2010-09-17 Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000600	mg/L	0.001
Toluene		<0.000600	mg/L	0.001
Ethylbenzene		<0.000800	mg/L	0.001
Xylene		<0.000767	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0887	mg/L	1	0.100	89	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.0516	mg/L	1	0.100	52	47.3 - 116

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Aluminum		<0.00982	mg/L	0.05

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Boron		<0.00215	mg/L	0.01

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Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Cobalt		<0.00258	mg/L	0.005

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Copper		<0.00313	mg/L	0.005

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Iron		<0.00273	mg/L	0.01

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Manganese		<0.00423	mg/L	0.005

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

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Parameter	Flag	MDL Result	Units	RL
Total Molybdenum		<0.00164	mg/L	0.05

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Nickel		<0.00593	mg/L	0.01

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Zinc		<0.00178	mg/L	0.005

Method Blank (1) QC Batch: 73754

QC Batch: 73754 Date Analyzed: 2010-09-23 Analyzed By: RR
Prep Batch: 63277 QC Preparation: 2010-09-23 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Silver		<0.000469	mg/L	0.005
Total Arsenic		<0.00465	mg/L	0.01
Total Barium		<0.00418	mg/L	0.01
Total Cadmium		<0.00232	mg/L	0.005
Total Chromium		<0.00291	mg/L	0.01
Total Lead		<0.00303	mg/L	0.005
Total Selenium		<0.00570	mg/L	0.02

Method Blank (1) QC Batch: 73807

QC Batch: 73807 Date Analyzed: 2010-09-24 Analyzed By: TP
Prep Batch: 63300 QC Preparation: 2010-09-24 Prepared By: TP

Report Date: September 28, 2010
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Parameter	Flag	MDL Result	Units	RL
Total Mercury		<0.0000388	mg/L	0.0002

Method Blank (1) QC Batch: 73832

QC Batch: 73832
Prep Batch: 63356

Date Analyzed: 2010-09-26
QC Preparation: 2010-09-17

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0285	mg/L	1	0.0800	36	10 - 111
2-Fluorobiphenyl		0.0281	mg/L	1	0.0800	35	10 - 92.7
Terphenyl-d14		0.0394	mg/L	1	0.0800	49	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 73660
Prep Batch: 63178

Date Analyzed: 2010-09-18
QC Preparation: 2010-09-17

Analyzed By: AG
Prepared By: AG

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0992	mg/L	1	0.100	<0.000600	99	82.9 - 118
Toluene	0.0934	mg/L	1	0.100	<0.000600	93	82.7 - 117
Ethylbenzene	0.0847	mg/L	1	0.100	<0.000800	85	78.8 - 116
Xylene	0.239	mg/L	1	0.300	<0.000767	80	79.3 - 116

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0997	mg/L	1	0.100	<0.000600	100	82.9 - 118	0	20
Toluene	0.0942	mg/L	1	0.100	<0.000600	94	82.7 - 117	1	20
Ethylbenzene	0.0866	mg/L	1	0.100	<0.000800	87	78.8 - 116	2	20
Xylene	0.245	mg/L	1	0.300	<0.000767	82	79.3 - 116	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0982	0.0988	mg/L	1	0.100	98	99	67.3 - 113
4-Bromofluorobenzene (4-BFB)	0.108	0.113	mg/L	1	0.100	108	113	68.2 - 134

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	1.02	mg/L	1	1.00	<0.00982	102	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	1.02	mg/L	1	1.00	<0.00982	102	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.0500	mg/L	1	0.0500	<0.00215	100	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.0490	mg/L	1	0.0500	<0.00215	98	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.270	mg/L	1	0.250	<0.00258	108	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.267	mg/L	1	0.250	<0.00258	107	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.130	mg/L	1	0.125	<0.00313	104	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.134	mg/L	1	0.125	<0.00313	107	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	0.537	mg/L	1	0.500	<0.00273	107	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	0.535	mg/L	1	0.500	<0.00273	107	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.262	mg/L	1	0.250	<0.00423	105	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.259	mg/L	1	0.250	<0.00423	104	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.530	mg/L	1	0.500	<0.00164	106	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.530	mg/L	1	0.500	<0.00164	106	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.269	mg/L	1	0.250	<0.00593	108	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.267	mg/L	1	0.250	<0.00593	107	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.257	mg/L	1	0.250	<0.00178	103	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.258	mg/L	1	0.250	<0.00178	103	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.135	mg/L	1	0.125	<0.000469	108	85 - 115
Total Arsenic	0.540	mg/L	1	0.500	<0.00465	108	85 - 115
Total Barium	1.04	mg/L	1	1.00	<0.00418	104	85 - 115
Total Cadmium	0.272	mg/L	1	0.250	<0.00232	109	85 - 115
Total Chromium	0.102	mg/L	1	0.100	<0.00291	102	85 - 115
Total Lead	0.542	mg/L	1	0.500	<0.00303	108	85 - 115
Total Selenium	0.492	mg/L	1	0.500	<0.00570	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.133	mg/L	1	0.125	<0.000469	106	85 - 115	2	20

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Rec.	Rec. Limit	RPD	RPD Limit
Total Arsenic	0.536	mg/L	1	0.500	<0.00465	107	85 - 115	1	20
Total Barium	1.05	mg/L	1	1.00	<0.00418	105	85 - 115	1	20
Total Cadmium	0.269	mg/L	1	0.250	<0.00232	108	85 - 115	1	20
Total Chromium	0.102	mg/L	1	0.100	<0.00291	102	85 - 115	0	20
Total Lead	0.539	mg/L	1	0.500	<0.00303	108	85 - 115	1	20
Total Selenium	0.491	mg/L	1	0.500	<0.00570	98	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73807
Prep Batch: 63300

Date Analyzed: 2010-09-24
QC Preparation: 2010-09-24

Analyzed By: TP
Prepared By: TP

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00415	mg/L	1	0.00400	<0.0000388	104	91.4 - 111

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00413	mg/L	1	0.00400	<0.0000388	103	91.4 - 111	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73832
Prep Batch: 63356

Date Analyzed: 2010-09-26
QC Preparation: 2010-09-17

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0624	mg/L	1	0.0800	<0.0000784	78	32.2 - 80.3
2-Methylnaphthalene	0.0647	mg/L	1	0.0800	<0.0000747	81	34.8 - 87
1-Methylnaphthalene	0.0686	mg/L	1	0.0800	<0.0000575	86	36.9 - 89.6
Acenaphthylene	0.0721	mg/L	1	0.0800	<0.0000963	90	35 - 93.2
Acenaphthene	0.0725	mg/L	1	0.0800	<0.0000617	91	35.8 - 92.9
Dibenzofuran	0.0525	mg/L	1	0.0800	<0.0000952	66	35.3 - 85.1
Fluorene	0.0722	mg/L	1	0.0800	<0.000134	90	43.4 - 101
Anthracene	0.0615	mg/L	1	0.0800	<0.000441	77	44.8 - 92.4
Phenanthrene	0.0657	mg/L	1	0.0800	<0.000435	82	44 - 93.7
Fluoranthene	0.0739	mg/L	1	0.0800	<0.000476	92	52.7 - 104
Pyrene	0.0698	mg/L	1	0.0800	<0.000590	87	42.2 - 93.8

continued ...

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzo(a)anthracene	0.0565	mg/L	1	0.0800	<0.000118	71	40.4 - 91.9
Chrysene	0.0954	mg/L	1	0.0800	<0.0000766	119	44.4 - 107
Benzo(b)fluoranthene	0.0423	mg/L	1	0.0800	<0.000146	53	34.8 - 105
Benzo(k)fluoranthene	0.0654	mg/L	1	0.0800	<0.000141	82	50.2 - 158
Benzo(a)pyrene	0.0621	mg/L	1	0.0800	<0.000132	78	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0494	mg/L	1	0.0800	<0.0000702	62	43.2 - 115
Dibenzo(a,h)anthracene	0.0696	mg/L	1	0.0800	<0.0000534	87	43.9 - 115
Benzo(g,h,i)perylene	0.0504	mg/L	1	0.0800	<0.0000473	63	45.1 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0689	mg/L	1	0.0800	<0.0000784	86	32.2 - 80.3	10	20
2-Methylnaphthalene	0.0693	mg/L	1	0.0800	<0.0000747	87	34.8 - 87	7	20
1-Methylnaphthalene	0.0743	mg/L	1	0.0800	<0.0000575	93	36.9 - 89.6	8	20
Acenaphthylene	0.0792	mg/L	1	0.0800	<0.0000963	99	35 - 93.2	9	20
Acenaphthene	0.0805	mg/L	1	0.0800	<0.0000617	101	35.8 - 92.9	10	20
Dibenzofuran	0.0573	mg/L	1	0.0800	<0.0000952	72	35.3 - 85.1	9	20
Fluorene	0.0770	mg/L	1	0.0800	<0.000134	96	43.4 - 101	6	20
Anthracene	0.0681	mg/L	1	0.0800	<0.000441	85	44.8 - 92.4	10	20
Phenanthrene	0.0735	mg/L	1	0.0800	<0.000435	92	44 - 93.7	11	20
Fluoranthene	0.0732	mg/L	1	0.0800	<0.000476	92	52.7 - 104	1	20
Pyrene	0.0673	mg/L	1	0.0800	<0.000590	84	42.2 - 93.8	4	20
Benzo(a)anthracene	0.0579	mg/L	1	0.0800	<0.000118	72	40.4 - 91.9	2	20
Chrysene	0.0964	mg/L	1	0.0800	<0.0000766	120	44.4 - 107	1	20
Benzo(b)fluoranthene	0.0462	mg/L	1	0.0800	<0.000146	58	34.8 - 105	9	20
Benzo(k)fluoranthene	0.0674	mg/L	1	0.0800	<0.000141	84	50.2 - 158	3	20
Benzo(a)pyrene	0.0565	mg/L	1	0.0800	<0.000132	71	51.3 - 151	9	20
Indeno(1,2,3-cd)pyrene	0.0497	mg/L	1	0.0800	<0.0000702	62	43.2 - 115	1	20
Dibenzo(a,h)anthracene	0.0690	mg/L	1	0.0800	<0.0000534	86	43.9 - 115	1	20
Benzo(g,h,i)perylene	0.0536	mg/L	1	0.0800	<0.0000473	67	45.1 - 115	6	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0511	0.0525	mg/L	1	0.0800	64	66	10 - 111
2-Fluorobiphenyl	0.0607	0.0673	mg/L	1	0.0800	76	84	10 - 92.7
Terphenyl-d14	0.0626	0.0605	mg/L	1	0.0800	78	76	35.9 - 107

¹Spike analyte out of control limits. Results biased high. •

²Spike analyte out of control limits. Results biased high. •

³Spike analyte out of control limits. Results biased high. •

⁴Spike analyte out of control limits. Results biased high. •

⁵Spike analyte out of control limits. Results biased high. •

⁶Spike analyte out of control limits. Results biased high. •

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Matrix Spike (MS-1) Spiked Sample: 244806

QC Batch: 73660
Prep Batch: 63178

Date Analyzed: 2010-09-18
QC Preparation: 2010-09-17

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.517	mg/L	5	0.500	0.045	94	77.9 - 114
Toluene	0.440	mg/L	5	0.500	<0.00300	88	78.3 - 111
Ethylbenzene	0.398	mg/L	5	0.500	<0.00400	80	75.3 - 110
Xylene	⁷ 1.11	mg/L	5	1.50	0.0306	72	75.7 - 109

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.542	mg/L	5	0.500	0.045	99	77.9 - 114	5	20
Toluene	0.466	mg/L	5	0.500	<0.00300	93	78.3 - 111	6	20
Ethylbenzene	0.428	mg/L	5	0.500	<0.00400	86	75.3 - 110	7	20
Xylene	1.20	mg/L	5	1.50	0.0306	78	75.7 - 109	8	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.469	0.488	mg/L	5	0.5	94	98	68.3 - 107
4-Bromofluorobenzene (4-BFB)	0.503	0.540	mg/L	5	0.5	101	108	60.1 - 135

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	1.03	mg/L	1	1.00	<0.00982	103	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	1.03	mg/L	1	1.00	<0.00982	103	75 - 125	0	20

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

⁷Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

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Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.0520	mg/L	1	0.0500	<0.00215	104	75 - 125

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

Param.	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.0480	mg/L	1	0.0500	<0.00215	96	75 - 125	8	20

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

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.255	mg/L	1	0.250	<0.00258	102	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.254	mg/L	1	0.250	<0.00258	102	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.130	mg/L	1	0.125	<0.00313	104	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.130	mg/L	1	0.125	<0.00313	104	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	0.468	mg/L	1	0.500	<0.00273	94	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	0.485	mg/L	1	0.500	<0.00273	97	75 - 125	4	20

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

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.246	mg/L	1	0.250	<0.00423	98	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.246	mg/L	1	0.250	<0.00423	98	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.502	mg/L	1	0.500	<0.00164	100	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.507	mg/L	1	0.500	<0.00164	101	75 - 125	1	20

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

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Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.249	mg/L	1	0.250	<0.00593	100	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.268	mg/L	1	0.250	<0.00593	107	75 - 125	7	20

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

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.260	mg/L	1	0.250	<0.00178	104	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.256	mg/L	1	0.250	<0.00178	102	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 245384

QC Batch: 73754
Prep Batch: 63277

Date Analyzed: 2010-09-23
QC Preparation: 2010-09-23

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.128	mg/L	1	0.125	<0.000469	102	75 - 125
Total Arsenic	0.501	mg/L	1	0.500	<0.00465	100	75 - 125
Total Barium	1.01	mg/L	1	1.00	<0.00418	101	75 - 125
Total Cadmium	0.253	mg/L	1	0.250	<0.00232	101	75 - 125
Total Chromium	0.0970	mg/L	1	0.100	<0.00291	97	75 - 125
Total Lead	0.504	mg/L	1	0.500	<0.00303	101	75 - 125

continued ...

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matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	0.466	mg/L	1	0.500	<0.00570	93	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.133	mg/L	1	0.125	<0.000469	106	75 - 125	4	20
Total Arsenic	0.526	mg/L	1	0.500	<0.00465	105	75 - 125	5	20
Total Barium	1.03	mg/L	1	1.00	<0.00418	103	75 - 125	2	20
Total Cadmium	0.265	mg/L	1	0.250	<0.00232	106	75 - 125	5	20
Total Chromium	0.100	mg/L	1	0.100	<0.00291	100	75 - 125	3	20
Total Lead	0.517	mg/L	1	0.500	<0.00303	103	75 - 125	2	20
Total Selenium	0.484	mg/L	1	0.500	<0.00570	97	75 - 125	4	20

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

Matrix Spike (MS-1) Spiked Sample: 244990

QC Batch: 73807
Prep Batch: 63300

Date Analyzed: 2010-09-24
QC Preparation: 2010-09-24

Analyzed By: TP
Prepared By: TP

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00387	mg/L	1	0.00400	<0.0000388	97	75 - 122

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00393	mg/L	1	0.00400	<0.0000388	98	75 - 122	2	20

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

Standard (CCV-2)

QC Batch: 73660

Date Analyzed: 2010-09-18

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0969	97	80 - 120	2010-09-18
Toluene		mg/L	0.100	0.0905	90	80 - 120	2010-09-18
Ethylbenzene		mg/L	0.100	0.0817	82	80 - 120	2010-09-18
Xylene		mg/L	0.300	0.240	80	80 - 120	2010-09-18

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Standard (CCV-3)

QC Batch: 73660

Date Analyzed: 2010-09-18

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0967	97	80 - 120	2010-09-18
Toluene		mg/L	0.100	0.0898	90	80 - 120	2010-09-18
Ethylbenzene		mg/L	0.100	0.0809	81	80 - 120	2010-09-18
Xylene		mg/L	0.300	0.241	80	80 - 120	2010-09-18

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	0.963	96	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	1.02	102	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	0.989	99	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Report Date: September 28, 2010
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Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	0.970	97	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	0.971	97	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	0.978	98	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	0.990	99	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	0.981	98	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

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TNM 97-04

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Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	0.980	98	90 - 110	2010-09-23

Standard (ICV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.121	97	90 - 110	2010-09-23
Total Arsenic		mg/L	1.00	0.988	99	90 - 110	2010-09-23
Total Barium		mg/L	1.00	0.976	98	90 - 110	2010-09-23
Total Cadmium		mg/L	1.00	0.983	98	90 - 110	2010-09-23
Total Chromium		mg/L	1.00	0.975	98	90 - 110	2010-09-23
Total Lead		mg/L	1.00	0.990	99	90 - 110	2010-09-23
Total Selenium		mg/L	1.00	0.996	100	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	0.999	100	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	0.963	96	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Report Date: September 28, 2010
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TNM 97-04 Townsend

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	0.988	99	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	0.978	98	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	0.959	96	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	0.988	99	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	0.988	99	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Report Date: September 28, 2010
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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	0.990	99	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	0.989	99	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73754

Date Analyzed: 2010-09-23

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.123	98	90 - 110	2010-09-23
Total Arsenic		mg/L	1.00	0.979	98	90 - 110	2010-09-23
Total Barium		mg/L	1.00	0.997	100	90 - 110	2010-09-23
Total Cadmium		mg/L	1.00	0.988	99	90 - 110	2010-09-23
Total Chromium		mg/L	1.00	0.986	99	90 - 110	2010-09-23
Total Lead		mg/L	1.00	0.991	99	90 - 110	2010-09-23
Total Selenium		mg/L	1.00	0.991	99	90 - 110	2010-09-23

Standard (CCV-1)

QC Batch: 73807

Date Analyzed: 2010-09-24

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00500	100	90 - 110	2010-09-24

Standard (CCV-2)

QC Batch: 73807

Date Analyzed: 2010-09-24

Analyzed By: TP

Report Date: September 28, 2010
TNM 97-04

Work Order: 10091705
TNM 97-04 Townsend

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00509	102	90 - 110	2010-09-24

Standard (CCV-1)

QC Batch: 73832

Date Analyzed: 2010-09-26

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	60.2	100	80 - 120	2010-09-26
2-Methylnaphthalene		mg/L	60.0	60.9	102	80 - 120	2010-09-26
1-Methylnaphthalene		mg/L	60.0	60.5	101	80 - 120	2010-09-26
Acenaphthylene		mg/L	60.0	59.9	100	80 - 120	2010-09-26
Acenaphthene		mg/L	60.0	62.3	104	80 - 120	2010-09-26
Dibenzofuran		mg/L	60.0	59.3	99	80 - 120	2010-09-26
Fluorene		mg/L	60.0	61.3	102	80 - 120	2010-09-26
Anthracene		mg/L	60.0	55.2	92	80 - 120	2010-09-26
Phenanthrene		mg/L	60.0	56.6	94	80 - 120	2010-09-26
Fluoranthene		mg/L	60.0	53.8	90	80 - 120	2010-09-26
Pyrene		mg/L	60.0	60.9	102	80 - 120	2010-09-26
Benzo(a)anthracene		mg/L	60.0	48.2	80	80 - 120	2010-09-26
Chrysene		mg/L	60.0	65.1	108	80 - 120	2010-09-26
Benzo(b)fluoranthene		mg/L	60.0	50.2	84	80 - 120	2010-09-26
Benzo(k)fluoranthene		mg/L	60.0	68.5	114	80 - 120	2010-09-26
Benzo(a)pyrene		mg/L	60.0	67.1	112	80 - 120	2010-09-26
Indeno(1,2,3-cd)pyrene		mg/L	60.0	55.2	92	80 - 120	2010-09-26
Dibenzo(a,h)anthracene		mg/L	60.0	54.2	90	80 - 120	2010-09-26
Benzo(g,h,i)perylene		mg/L	60.0	58.0	97	80 - 120	2010-09-26

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		68.4	mg/L	1	60.0	114	80 - 120
2-Fluorobiphenyl		60.4	mg/L	1	60.0	101	80 - 120
Terphenyl-d14		54.5	mg/L	1	60.0	91	80 - 120



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX

El Paso: T104704221-08-TX

Midland: T104704392-08-TX

LELAP-02003

LELAP-02002

Kansas E-10317

Analytical and Quality Control Report

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

Report Date: September 29, 2010

Work Order: 10092419



Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
245804	Post-Carbon	water	2010-09-23	09:45	2010-09-23

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 28 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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2010-09-23 and assigned to work order 10092419. Samples for work order 10092419 were received intact without headspace and at a temperature of 3.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Ag, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Al, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
As, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Ba, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
BTEX	S 8021B	63437	2010-09-28 at 14:27	73924	2010-09-28 at 14:27
B, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Cd, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Co, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Cr, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Cu, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Fe, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Hg, Total	S 7470A	63447	2010-09-29 at 08:45	73961	2010-09-29 at 14:18
Mn, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Mo, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Ni, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
PAH	S 8270D	63353	2010-09-24 at 15:00	73828	2010-09-26 at 13:19
Pb, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Se, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57
Zn, Total	S 6010C	63446	2010-09-29 at 05:46	73942	2010-09-29 at 08:57

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 10092419 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: September 29, 2010
TNM 97-04

Work Order: 10092419
TNM 97-04 Townsend

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Lovington, NM

Analytical Report

Sample: 245804 - Post-Carbon

Laboratory: Lubbock
Analysis: Al, Total
QC Batch: 73942
Prep Batch: 63446

Analytical Method: S 6010C
Date Analyzed: 2010-09-29
Sample Preparation: 2010-09-29

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Aluminum		0.0530	mg/L	1	0.0500

Sample: 245804 - Post-Carbon

Laboratory: Lubbock
Analysis: B, Total
QC Batch: 73942
Prep Batch: 63446

Analytical Method: S 6010C
Date Analyzed: 2010-09-29
Sample Preparation: 2010-09-29

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Boron		0.112	mg/L	1	0.0100

Sample: 245804 - Post-Carbon

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 73924
Prep Batch: 63437

Analytical Method: S 8021B
Date Analyzed: 2010-09-28
Sample Preparation:

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0893	mg/L	1	0.100	89	78.4 - 113
4-Bromofluorobenzene (4-BFB)		0.0964	mg/L	1	0.100	96	81.5 - 121

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Sample: 245804 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Co, Total	Analytical Method:	S 6010C
QC Batch:	73942	Date Analyzed:	2010-09-29
Prep Batch:	63446	Sample Preparation:	2010-09-29
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Cobalt		<0.00500	mg/L	1	0.00500

Sample: 245804 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Cu, Total	Analytical Method:	S 6010C
QC Batch:	73942	Date Analyzed:	2010-09-29
Prep Batch:	63446	Sample Preparation:	2010-09-29
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Copper		<0.00500	mg/L	1	0.00500

Sample: 245804 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Fe, Total	Analytical Method:	S 6010C
QC Batch:	73942	Date Analyzed:	2010-09-29
Prep Batch:	63446	Sample Preparation:	2010-09-29
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Iron		0.311	mg/L	1	0.0100

Sample: 245804 - Post-Carbon

Laboratory:	Lubbock		
Analysis:	Mn, Total	Analytical Method:	S 6010C
QC Batch:	73942	Date Analyzed:	2010-09-29
Prep Batch:	63446	Sample Preparation:	2010-09-29
		Prep Method:	S 3010A
		Analyzed By:	RR
		Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Manganese		0.0340	mg/L	1	0.00500

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Sample: 245804 - Post-Carbon

Laboratory: Lubbock
Analysis: Mo, Total
QC Batch: 73942
Prep Batch: 63446

Analytical Method: S 6010C
Date Analyzed: 2010-09-29
Sample Preparation: 2010-09-29

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Molybdenum		<0.0500	mg/L	1	0.0500

Sample: 245804 - Post-Carbon

Laboratory: Lubbock
Analysis: Ni, Total
QC Batch: 73942
Prep Batch: 63446

Analytical Method: S 6010C
Date Analyzed: 2010-09-29
Sample Preparation: 2010-09-29

Prep Method: S 3010A
Analyzed By: RR
Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Total Nickel		<0.0100	mg/L	1	0.0100

Sample: 245804 - Post-Carbon

Laboratory: Lubbock
Analysis: PAH
QC Batch: 73828
Prep Batch: 63353

Analytical Method: S 8270D
Date Analyzed: 2010-09-26
Sample Preparation: 2010-09-24

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

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		0.00856	mg/L	0.952	0.000200
2-Methylnaphthalene		0.00272	mg/L	0.952	0.000200
1-Methylnaphthalene		0.00106	mg/L	0.952	0.000200
Acenaphthylene		<0.000190	mg/L	0.952	0.000200
Acenaphthene		<0.000190	mg/L	0.952	0.000200
Dibenzofuran		<0.000190	mg/L	0.952	0.000200
Fluorene		<0.000190	mg/L	0.952	0.000200
Anthracene		<0.000190	mg/L	0.952	0.000200
Phenanthrene		<0.000190	mg/L	0.952	0.000200
Fluoranthene		<0.000190	mg/L	0.952	0.000200
Pyrene		<0.000190	mg/L	0.952	0.000200
Benzo(a)anthracene		<0.000190	mg/L	0.952	0.000200
Chrysene		<0.000190	mg/L	0.952	0.000200
Benzo(b)fluoranthene		<0.000190	mg/L	0.952	0.000200

continued ...

sample 245804 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Benzo(k)fluoranthene		<0.000190	mg/L	0.952	0.000200
Benzo(a)pyrene		<0.000190	mg/L	0.952	0.000200
Indeno(1,2,3-cd)pyrene		<0.000190	mg/L	0.952	0.000200
Dibenzo(a,h)anthracene		<0.000190	mg/L	0.952	0.000200
Benzo(g,h,i)perylene		<0.000190	mg/L	0.952	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0453	mg/L	0.952	0.0800	57	10 - 111
2-Fluorobiphenyl		0.0595	mg/L	0.952	0.0800	74	10 - 92.7
Terphenyl-d14		0.0592	mg/L	0.952	0.0800	74	35.9 - 107

Sample: 245804 - Post-Carbon

Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 6010C	Prep Method: S 3010A	
QC Batch: 73942	Date Analyzed: 2010-09-29	Analyzed By: RR	
Prep Batch: 63446	Sample Preparation: 2010-09-29	Prepared By: KV	
Laboratory: Lubbock			
Analysis: Total 8 Metals	Analytical Method: S 7470A	Prep Method: N/A	
QC Batch: 73961	Date Analyzed: 2010-09-29	Analyzed By: TP	
Prep Batch: 63447	Sample Preparation: 2010-09-29	Prepared By: TP	

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver		<0.00500	mg/L	1	0.00500
Total Arsenic		<0.0100	mg/L	1	0.0100
Total Barium		0.194	mg/L	1	0.0100
Total Cadmium		<0.00500	mg/L	1	0.00500
Total Chromium		<0.0100	mg/L	1	0.0100
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0200	mg/L	1	0.0200

Sample: 245804 - Post-Carbon

Laboratory: Lubbock			
Analysis: Zn, Total	Analytical Method: S 6010C	Prep Method: S 3010A	
QC Batch: 73942	Date Analyzed: 2010-09-29	Analyzed By: RR	
Prep Batch: 63446	Sample Preparation: 2010-09-29	Prepared By: KV	

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Parameter	Flag	RL Result	Units	Dilution	RL
Total Zinc		0.0150	mg/L	1	0.00500

Method Blank (1) QC Batch: 73828

QC Batch: 73828
Prep Batch: 63353

Date Analyzed: 2010-09-26
QC Preparation: 2010-09-24

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0333	mg/L	1	0.0800	42	10 - 111
2-Fluorobiphenyl		0.0280	mg/L	1	0.0800	35	10 - 92.7
Terphenyl-d14		0.0397	mg/L	1	0.0800	50	35.9 - 107

Method Blank (1) QC Batch: 73924

QC Batch: 73924
Prep Batch: 63437

Date Analyzed: 2010-09-28
QC Preparation: 2010-09-28

Analyzed By: ER
Prepared By: ER

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Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000371	mg/L	0.001
Toluene		<0.000400	mg/L	0.001
Ethylbenzene		<0.000430	mg/L	0.001
Xylene		<0.000379	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.102	mg/L	1	0.100	102	78.4 - 113
4-Bromofluorobenzene (4-BFB)		0.107	mg/L	1	0.100	107	81.5 - 121

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Aluminum		<0.00982	mg/L	0.05

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Boron		<0.00215	mg/L	0.01

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Cobalt		<0.00258	mg/L	0.005

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Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Copper		<0.00313	mg/L	0.005

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Iron		<0.00273	mg/L	0.01

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Manganese		<0.00423	mg/L	0.005

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Molybdenum		<0.00164	mg/L	0.05

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

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Parameter	Flag	MDL Result	Units	RL
Total Nickel		<0.00593	mg/L	0.01

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Zinc		<0.00178	mg/L	0.005

Method Blank (1) QC Batch: 73942

QC Batch: 73942 Date Analyzed: 2010-09-29 Analyzed By: RR
Prep Batch: 63446 QC Preparation: 2010-09-29 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Silver		<0.000469	mg/L	0.005
Total Arsenic		<0.00465	mg/L	0.01
Total Barium		<0.00418	mg/L	0.01
Total Cadmium		<0.00232	mg/L	0.005
Total Chromium		<0.00291	mg/L	0.01
Total Lead		<0.00303	mg/L	0.005
Total Selenium		<0.00570	mg/L	0.02

Method Blank (1) QC Batch: 73961

QC Batch: 73961 Date Analyzed: 2010-09-29 Analyzed By: TP
Prep Batch: 63447 QC Preparation: 2010-09-29 Prepared By: TP

Parameter	Flag	MDL Result	Units	RL
Total Mercury		<0.0000388	mg/L	0.0002

Laboratory Control Spike (LCS-1)

QC Batch: 73828 Date Analyzed: 2010-09-26 Analyzed By: MN
Prep Batch: 63353 QC Preparation: 2010-09-24 Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0615	mg/L	1	0.0800	<0.0000784	77	32.2 - 80.3
2-Methylnaphthalene	0.0618	mg/L	1	0.0800	<0.0000747	77	34.8 - 87
1-Methylnaphthalene	0.0661	mg/L	1	0.0800	<0.0000575	83	36.9 - 89.6
Acenaphthylene	0.0678	mg/L	1	0.0800	<0.0000963	85	35 - 93.2
Acenaphthene	0.0696	mg/L	1	0.0800	<0.0000617	87	35.8 - 92.9
Dibenzofuran	0.0490	mg/L	1	0.0800	<0.0000952	61	35.3 - 85.1
Fluorene	0.0689	mg/L	1	0.0800	<0.000134	86	43.4 - 101
Anthracene	0.0629	mg/L	1	0.0800	<0.000441	79	44.8 - 92.4
Phenanthrene	0.0648	mg/L	1	0.0800	<0.000435	81	44 - 93.7
Fluoranthene	0.0691	mg/L	1	0.0800	<0.000476	86	52.7 - 104
Pyrene	0.0695	mg/L	1	0.0800	<0.000590	87	42.2 - 93.8
Benzo(a)anthracene	0.0586	mg/L	1	0.0800	<0.000118	73	40.4 - 91.9
Chrysene	0.0929	mg/L	1	0.0800	<0.0000766	116	44.4 - 107
Benzo(b)fluoranthene	0.0387	mg/L	1	0.0800	<0.000146	48	34.8 - 105
Benzo(k)fluoranthene	0.0592	mg/L	1	0.0800	<0.000141	74	50.2 - 158
Benzo(a)pyrene	0.0488	mg/L	1	0.0800	<0.000132	61	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0423	mg/L	1	0.0800	<0.0000702	53	43.2 - 115
Dibenzo(a,h)anthracene	0.0567	mg/L	1	0.0800	<0.0000534	71	43.9 - 115
Benzo(g,h,i)perylene	0.0438	mg/L	1	0.0800	<0.0000473	55	45.1 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0687	mg/L	1	0.0800	<0.0000784	86	32.2 - 80.3	11	20
2-Methylnaphthalene	0.0689	mg/L	1	0.0800	<0.0000747	86	34.8 - 87	11	20
1-Methylnaphthalene	0.0753	mg/L	1	0.0800	<0.0000575	94	36.9 - 89.6	13	20
Acenaphthylene	0.0769	mg/L	1	0.0800	<0.0000963	96	35 - 93.2	13	20
Acenaphthene	0.0753	mg/L	1	0.0800	<0.0000617	94	35.8 - 92.9	8	20
Dibenzofuran	0.0556	mg/L	1	0.0800	<0.0000952	70	35.3 - 85.1	13	20
Fluorene	0.0743	mg/L	1	0.0800	<0.000134	93	43.4 - 101	8	20
Anthracene	0.0640	mg/L	1	0.0800	<0.000441	80	44.8 - 92.4	2	20
Phenanthrene	0.0679	mg/L	1	0.0800	<0.000435	85	44 - 93.7	5	20
Fluoranthene	0.0754	mg/L	1	0.0800	<0.000476	94	52.7 - 104	9	20
Pyrene	0.0667	mg/L	1	0.0800	<0.000590	83	42.2 - 93.8	4	20
Benzo(a)anthracene	0.0572	mg/L	1	0.0800	<0.000118	72	40.4 - 91.9	2	20
Chrysene	0.0966	mg/L	1	0.0800	<0.0000766	121	44.4 - 107	4	20
Benzo(b)fluoranthene	0.0377	mg/L	1	0.0800	<0.000146	47	34.8 - 105	3	20
Benzo(k)fluoranthene	0.0664	mg/L	1	0.0800	<0.000141	83	50.2 - 158	12	20
Benzo(a)pyrene	0.0562	mg/L	1	0.0800	<0.000132	70	51.3 - 151	14	20

continued ...

¹ Spike analyte out of control limits. Results biased high. •

² LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

³ LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁴ LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁵ LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁶ Spike analyte out of control limits. Results biased high.

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Indeno(1,2,3-cd)pyrene	0.0426	mg/L	1	0.0800	<0.0000702	53	43.2 - 115	1	20
Dibenzo(a,h)anthracene	0.0592	mg/L	1	0.0800	<0.0000534	74	43.9 - 115	4	20
Benzo(g,h,i)perylene	0.0461	mg/L	1	0.0800	<0.0000473	58	45.1 - 115	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0675	0.0783	mg/L	1	0.0800	84	98	10 - 111
2-Fluorobiphenyl	0.0580	0.0643	mg/L	1	0.0800	72	80	10 - 92.7
Terphenyl-d14	0.0615	0.0595	mg/L	1	0.0800	77	74	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 73924
Prep Batch: 63437

Date Analyzed: 2010-09-28
QC Preparation: 2010-09-28

Analyzed By: ER
Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.101	mg/L	1	0.100	<0.000371	101	79.8 - 112
Toluene	0.101	mg/L	1	0.100	<0.000400	101	76.9 - 116
Ethylbenzene	0.103	mg/L	1	0.100	<0.000430	103	78.1 - 116
Xylene	0.308	mg/L	1	0.300	<0.000379	102	80.1 - 113

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.102	mg/L	1	0.100	<0.000371	102	79.8 - 112	0	20
Toluene	0.102	mg/L	1	0.100	<0.000400	102	76.9 - 116	1	20
Ethylbenzene	0.104	mg/L	1	0.100	<0.000430	104	78.1 - 116	1	20
Xylene	0.310	mg/L	1	0.300	<0.000379	103	80.1 - 113	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0992	0.0900	mg/L	1	0.100	99	90	75.8 - 111
4-Bromofluorobenzene (4-BFB)	0.0988	0.0901	mg/L	1	0.100	99	90	71.9 - 111

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	0.936	mg/L	1	1.00	<0.00982	94	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	0.913	mg/L	1	1.00	<0.00982	91	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.0520	mg/L	1	0.0500	<0.00215	104	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.0520	mg/L	1	0.0500	<0.00215	104	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.259	mg/L	1	0.250	<0.00258	104	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.262	mg/L	1	0.250	<0.00258	105	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.127	mg/L	1	0.125	<0.00313	102	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.126	mg/L	1	0.125	<0.00313	101	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	0.464	mg/L	1	0.500	<0.00273	93	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	0.469	mg/L	1	0.500	<0.00273	94	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.259	mg/L	1	0.250	<0.00423	104	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.253	mg/L	1	0.250	<0.00423	101	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Report Date: September 29, 2010
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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.457	mg/L	1	0.500	<0.00164	91	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.539	mg/L	1	0.500	<0.00164	108	85 - 115	16	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.266	mg/L	1	0.250	<0.00593	106	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.260	mg/L	1	0.250	<0.00593	104	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.262	mg/L	1	0.250	<0.00178	105	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.253	mg/L	1	0.250	<0.00178	101	85 - 115	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.125	mg/L	1	0.125	<0.000469	100	85 - 115
Total Arsenic	0.498	mg/L	1	0.500	<0.00465	100	85 - 115
Total Barium	1.05	mg/L	1	1.00	<0.00418	105	85 - 115
Total Cadmium	0.265	mg/L	1	0.250	<0.00232	106	85 - 115
Total Chromium	0.104	mg/L	1	0.100	<0.00291	104	85 - 115
Total Lead	0.517	mg/L	1	0.500	<0.00303	103	85 - 115
Total Selenium	0.449	mg/L	1	0.500	<0.00570	90	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.123	mg/L	1	0.125	<0.000469	98	85 - 115	2	20
Total Arsenic	0.491	mg/L	1	0.500	<0.00465	98	85 - 115	1	20
Total Barium	1.04	mg/L	1	1.00	<0.00418	104	85 - 115	1	20
Total Cadmium	0.260	mg/L	1	0.250	<0.00232	104	85 - 115	2	20
Total Chromium	0.0990	mg/L	1	0.100	<0.00291	99	85 - 115	5	20
Total Lead	0.517	mg/L	1	0.500	<0.00303	103	85 - 115	0	20
Total Selenium	0.450	mg/L	1	0.500	<0.00570	90	85 - 115	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 73961
Prep Batch: 63447

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: TP
Prepared By: TP

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00390	mg/L	1	0.00400	<0.0000388	98	91.4 - 111

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00389	mg/L	1	0.00400	<0.0000388	97	91.4 - 111	0	20

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

Matrix Spike (MS-1) Spiked Sample: 246001

QC Batch: 73924
Prep Batch: 63437

Date Analyzed: 2010-09-28
QC Preparation: 2010-09-28

Analyzed By: ER
Prepared By: ER

continued ...

matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.118	mg/L	1	0.100	0.0186	99	29.6 - 139
Toluene	0.134	mg/L	1	0.100	0.0313	103	44.3 - 131
Ethylbenzene	0.109	mg/L	1	0.100	0.0054	104	43.8 - 131
Xylene	0.342	mg/L	1	0.300	0.0362	102	48.8 - 126

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.114	mg/L	1	0.100	0.0186	95	29.6 - 139	3	20
Toluene	0.131	mg/L	1	0.100	0.0313	100	44.3 - 131	2	20
Ethylbenzene	0.106	mg/L	1	0.100	0.0054	101	43.8 - 131	3	20
Xylene	0.333	mg/L	1	0.300	0.0362	99	48.8 - 126	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0886	0.0870	mg/L	1	0.1	89	87	73.9 - 118
4-Bromofluorobenzene (4-BFB)	0.0902	0.0885	mg/L	1	0.1	90	88	73.8 - 116

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Aluminum	0.914	mg/L	1	1.00	0.053	86	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Aluminum	0.967	mg/L	1	1.00	0.053	91	75 - 125	6	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Boron	0.163	mg/L	1	0.0500	0.112	102	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Boron	0.159	mg/L	1	0.0500	0.112	94	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Cobalt	0.239	mg/L	1	0.250	<0.00258	96	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Cobalt	0.239	mg/L	1	0.250	<0.00258	96	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Copper	0.124	mg/L	1	0.125	<0.00313	99	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Copper	0.118	mg/L	1	0.125	<0.00313	94	75 - 125	5	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Iron	0.765	mg/L	1	0.500	0.311	91	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Iron	0.746	mg/L	1	0.500	0.311	87	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Manganese	0.276	mg/L	1	0.250	0.034	97	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Manganese	0.265	mg/L	1	0.250	0.034	92	75 - 125	4	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Molybdenum	0.494	mg/L	1	0.500	0.003	98	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Molybdenum	0.483	mg/L	1	0.500	0.003	96	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Nickel	0.237	mg/L	1	0.250	<0.00593	95	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Nickel	0.239	mg/L	1	0.250	<0.00593	96	75 - 125	1	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Zinc	0.244	mg/L	1	0.250	0.015	92	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Zinc	0.248	mg/L	1	0.250	0.015	93	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 245804

QC Batch: 73942
Prep Batch: 63446

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Silver	0.114	mg/L	1	0.125	<0.000469	91	75 - 125
Total Arsenic	0.451	mg/L	1	0.500	<0.00465	90	75 - 125
Total Barium	1.07	mg/L	1	1.00	0.194	88	75 - 125
Total Cadmium	0.240	mg/L	1	0.250	<0.00232	96	75 - 125
Total Chromium	0.0920	mg/L	1	0.100	<0.00291	92	75 - 125
Total Lead	0.480	mg/L	1	0.500	<0.00303	96	75 - 125
Total Selenium	0.436	mg/L	1	0.500	<0.00570	87	75 - 125

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Silver	0.116	mg/L	1	0.125	<0.000469	93	75 - 125	2	20

continued ...

matrix spikes continued ...

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Arsenic	0.456	mg/L	1	0.500	<0.00465	91	75 - 125	1	20
Total Barium	1.06	mg/L	1	1.00	0.194	87	75 - 125	1	20
Total Cadmium	0.244	mg/L	1	0.250	<0.00232	98	75 - 125	2	20
Total Chromium	0.0900	mg/L	1	0.100	<0.00291	90	75 - 125	2	20
Total Lead	0.467	mg/L	1	0.500	<0.00303	93	75 - 125	3	20
Total Selenium	0.448	mg/L	1	0.500	<0.00570	90	75 - 125	3	20

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

Matrix Spike (MS-1) Spiked Sample: 245634

QC Batch: 73961
Prep Batch: 63447

Date Analyzed: 2010-09-29
QC Preparation: 2010-09-29

Analyzed By: TP
Prepared By: TP

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Mercury	0.00349	mg/L	1	0.00400	<0.0000388	87	75 - 122

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Mercury	0.00356	mg/L	1	0.00400	<0.0000388	89	75 - 122	2	20

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

Standard (CCV-1)

QC Batch: 73828

Date Analyzed: 2010-09-26

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	60.2	100	80 - 120	2010-09-26
2-Methylnaphthalene		mg/L	60.0	60.9	102	80 - 120	2010-09-26
1-Methylnaphthalene		mg/L	60.0	61.4	102	80 - 120	2010-09-26
Acenaphthylene		mg/L	60.0	59.4	99	80 - 120	2010-09-26
Acenaphthene		mg/L	60.0	61.8	103	80 - 120	2010-09-26
Dibenzofuran		mg/L	60.0	58.7	98	80 - 120	2010-09-26
Fluorene		mg/L	60.0	61.6	103	80 - 120	2010-09-26
Anthracene		mg/L	60.0	56.6	94	80 - 120	2010-09-26
Phenanthrene		mg/L	60.0	56.3	94	80 - 120	2010-09-26
Fluoranthene		mg/L	60.0	60.6	101	80 - 120	2010-09-26
Pyrene		mg/L	60.0	61.5	102	80 - 120	2010-09-26
Benzo(a)anthracene		mg/L	60.0	48.0	80	80 - 120	2010-09-26

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standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chrysene		mg/L	60.0	68.8	115	80 - 120	2010-09-26
Benzo(b)fluoranthene		mg/L	60.0	54.9	92	80 - 120	2010-09-26
Benzo(k)fluoranthene		mg/L	60.0	71.3	119	80 - 120	2010-09-26
Benzo(a)pyrene		mg/L	60.0	62.2	104	80 - 120	2010-09-26
Indeno(1,2,3-cd)pyrene		mg/L	60.0	53.7	90	80 - 120	2010-09-26
Dibenzo(a,h)anthracene		mg/L	60.0	49.0	82	80 - 120	2010-09-26
Benzo(g,h,i)perylene		mg/L	60.0	52.7	88	80 - 120	2010-09-26

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		69.1	mg/L	1	60.0	115	80 - 120
2-Fluorobiphenyl		59.3	mg/L	1	60.0	99	80 - 120
Terphenyl-d14		53.5	mg/L	1	60.0	89	80 - 120

Standard (CCV-1)

QC Batch: 73924

Date Analyzed: 2010-09-28

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.100	100	80 - 120	2010-09-28
Toluene		mg/L	0.100	0.100	100	80 - 120	2010-09-28
Ethylbenzene		mg/L	0.100	0.101	101	80 - 120	2010-09-28
Xylene		mg/L	0.300	0.302	101	80 - 120	2010-09-28

Standard (CCV-2)

QC Batch: 73924

Date Analyzed: 2010-09-28

Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.100	100	80 - 120	2010-09-28
Toluene		mg/L	0.100	0.100	100	80 - 120	2010-09-28
Ethylbenzene		mg/L	0.100	0.102	102	80 - 120	2010-09-28
Xylene		mg/L	0.300	0.303	101	80 - 120	2010-09-28

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

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Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	0.985	98	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	1.03	103	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	1.01	101	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	1.00	100	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	1.01	101	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Report Date: September 29, 2010
TNM 97-04

Work Order: 10092419
TNM 97-04 Townsend

Page Number: 25 of 28
Lovington, NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	1.01	101	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	1.02	102	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	1.01	101	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	1.01	101	90 - 110	2010-09-29

Standard (ICV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.125	100	90 - 110	2010-09-29
Total Arsenic		mg/L	1.00	1.02	102	90 - 110	2010-09-29
Total Barium		mg/L	1.00	1.00	100	90 - 110	2010-09-29
Total Cadmium		mg/L	1.00	1.02	102	90 - 110	2010-09-29
Total Chromium		mg/L	1.00	1.02	102	90 - 110	2010-09-29
Total Lead		mg/L	1.00	1.01	101	90 - 110	2010-09-29

continued ...

Report Date: September 29, 2010
TNM 97-04

Work Order: 10092419
TNM 97-04 Townsend

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Lovington, NM

standard continued ...

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.02	102	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	1.00	1.01	101	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Boron		mg/L	1.00	1.01	101	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Cobalt		mg/L	1.00	1.03	103	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Copper		mg/L	1.00	1.02	102	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Report Date: September 29, 2010
TNM 97-04

Work Order: 10092419
TNM 97-04 Townsend

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Lovington, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Iron		mg/L	1.00	1.03	103	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Manganese		mg/L	1.00	1.04	104	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Molybdenum		mg/L	1.00	1.04	104	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Nickel		mg/L	1.00	1.03	103	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	1.03	103	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73942

Date Analyzed: 2010-09-29

Analyzed By: RR

Report Date: September 29, 2010
TNM 97-04

Work Order: 10092419
TNM 97-04 Townsend

Page Number: 28 of 28
Lovington, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.127	102	90 - 110	2010-09-29
Total Arsenic		mg/L	1.00	1.04	104	90 - 110	2010-09-29
Total Barium		mg/L	1.00	1.02	102	90 - 110	2010-09-29
Total Cadmium		mg/L	1.00	1.05	105	90 - 110	2010-09-29
Total Chromium		mg/L	1.00	1.05	105	90 - 110	2010-09-29
Total Lead		mg/L	1.00	1.03	103	90 - 110	2010-09-29
Total Selenium		mg/L	1.00	1.04	104	90 - 110	2010-09-29

Standard (CCV-1)

QC Batch: 73961

Date Analyzed: 2010-09-29

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00519	104	90 - 110	2010-09-29

Standard (CCV-2)

QC Batch: 73961

Date Analyzed: 2010-09-29

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00500	0.00525	105	90 - 110	2010-09-29

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 Name: UNVA (Street, City, Zip)
Address: 2057 Commerce Midland, TX.
Contact Person: Ron V.
Phone #: 432-530-7720
Fax #: 432-530-7701
E-mail:
Invoice to:
Project #: TMM-97-04
Project Location (including state): New Mexico
Project Name: Transpond
Sampler Signature: [Signature]

[illegible][illegible]

	MTBE	8021 / 602 / 8260 / 624	X
	BTEX	8021 / 602 / 8260 / 624	X
	TPH	418.1 / TX1005 / TX1005 Exl(C35)	
	TPH	8015 GRO / DRO / TVHC	
	PAH	8270 / 625	X
	Total Metals	Ag As Ba Cd Cr Pb Se Hg 6010/200.7	X
	TCLP Volatiles		
	TCLP Semi Volatiles		
	TCLP Pesticides		
	RCI		
	GC/MS Vol.	8260 / 624	
	GC/MS Semi. Vol.	8270 / 625	
	PCBs	8082 / 608	
	Pesticides	8081 / 608	
	BOD, TSS, pH		
	Moisture Content		
	Cl, FI, SO ₄ , NO ₃ , NO ₂ , Alkalinity		
	Na, Ca, Mg, K, TDS, EC		
	WACC Metals		X
	Turn Around Time if different from standard		
	Hold		

LAB USE ONLY	REMARKS:	Dry Weight Basis Required TRRP Report Required Check If Special Reporting Limits Are Needed
	X All tests-subacute Intact ☒ N Headspace Y / N / NA Log-in-Review <i>OK</i>	

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier #

NMOCD - Analytical Parameters for Initial Groundwater Sampling (3-12-08)

Field Parameters

specific conductance
pH
temperature
depth to water

PAT - 1 Liter
Amber
N/P

General Chemistry

Calcium
Magnesium
Potassium
Sodium
Chloride
Sulfate
Bicarbonate Alkalinity
Carbonate Alkalinity
Nitrate
Phosphate
Fluoride

1 Liter - plastic
N/P
Cations / Anions / Alkalinity

RCRA Metals

Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver

500 mL plastic
- nitric

Additional WQCC Metals

Copper
Iron
Manganese
Zinc
Aluminum
Boron
Cobalt
Molybdenum
Nickel

All compounds listed in U.S. EPA SW-846 Methods: 8260 (VOCs) & 8270 (SVOCs)



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 689•588•3443 915•585•3443 FAX 915•585•4944
5802 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: November 16, 2010

Work Order: 10102928



Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
249154	Post-Carbon	water	2010-10-25	13:00	2010-10-29

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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2010-10-29 and assigned to work order 10102928. Samples for work order 10102928 were received intact without headspace and at a temperature of 2.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	64291	2010-11-01 at 09:00	74939	2010-11-01 at 09:48
PAH	S 8270D	64659	2010-11-01 at 15:00	75374	2010-11-16 at 10:59

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 10102928 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.

Analytical Report

Sample: 249154 - Post-Carbon

Laboratory: Midland
Analysis: BTEX
QC Batch: 74939
Prep Batch: 64291

Analytical Method: S 8021B
Date Analyzed: 2010-11-01
Sample Preparation: 2010-11-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.115	mg/L	1	0.100	115	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.112	mg/L	1	0.100	112	51.1 - 128

Sample: 249154 - Post-Carbon

Laboratory: Lubbock
Analysis: PAH
QC Batch: 75374
Prep Batch: 64659

Analytical Method: S 8270D
Date Analyzed: 2010-11-16
Sample Preparation: 2010-11-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000186	mg/L	0.93	0.000200
2-Methylnaphthalene		<0.000186	mg/L	0.93	0.000200
1-Methylnaphthalene		<0.000186	mg/L	0.93	0.000200
Acenaphthylene		<0.000186	mg/L	0.93	0.000200
Acenaphthene		<0.000186	mg/L	0.93	0.000200
Dibenzofuran		<0.000186	mg/L	0.93	0.000200
Fluorene		<0.000186	mg/L	0.93	0.000200
Anthracene		<0.000186	mg/L	0.93	0.000200
Phenanthrene		<0.000186	mg/L	0.93	0.000200
Fluoranthene		<0.000186	mg/L	0.93	0.000200
Pyrene		<0.000186	mg/L	0.93	0.000200
Benzo(a)anthracene		<0.000186	mg/L	0.93	0.000200
Chrysene		<0.000186	mg/L	0.93	0.000200
Benzo(b)fluoranthene		<0.000186	mg/L	0.93	0.000200
Benzo(k)fluoranthene		<0.000186	mg/L	0.93	0.000200
Benzo(a)pyrene		<0.000186	mg/L	0.93	0.000200

continued ...

Report Date: November 16, 2010
TNM 97-04

Work Order: 10102928
TNM 97-04 Townsend

Page Number: 5 of 10
Lovington, NM

sample 249154 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Indeno(1,2,3-cd)pyrene		<0.000186	mg/L	0.93	0.000200
Dibenzo(a,h)anthracene		<0.000186	mg/L	0.93	0.000200
Benzo(g,h,i)perylene		<0.000186	mg/L	0.93	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0562	mg/L	0.93	0.0800	70	10 - 111
2-Fluorobiphenyl		0.0412	mg/L	0.93	0.0800	52	10 - 92.7
Terphenyl-d14		0.0579	mg/L	0.93	0.0800	72	35.9 - 107

Method Blank (1) QC Batch: 74939

QC Batch: 74939
Prep Batch: 64291

Date Analyzed: 2010-11-01
QC Preparation: 2010-11-01

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000600	mg/L	0.001
Toluene		<0.000600	mg/L	0.001
Ethylbenzene		<0.000800	mg/L	0.001
Xylene		<0.000767	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.112	mg/L	1	0.100	112	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.108	mg/L	1	0.100	108	47.3 - 116

Method Blank (1) QC Batch: 75374

QC Batch: 75374
Prep Batch: 64659

Date Analyzed: 2010-11-16
QC Preparation: 2010-11-01

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002

continued ...

method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0500	mg/L	1	0.0800	62	10 - 111
2-Fluorobiphenyl		0.0303	mg/L	1	0.0800	38	10 - 92.7
Terphenyl-d14		0.0483	mg/L	1	0.0800	60	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 74939
Prep Batch: 64291

Date Analyzed: 2010-11-01
QC Preparation: 2010-11-01

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0987	mg/L	1	0.100	<0.000600	99	82.9 - 118
Toluene	0.0993	mg/L	1	0.100	<0.000600	99	82.7 - 117
Ethylbenzene	0.0997	mg/L	1	0.100	<0.000800	100	78.8 - 116
Xylene	0.300	mg/L	1	0.300	<0.000767	100	79.3 - 116

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.101	mg/L	1	0.100	<0.000600	101	82.9 - 118	2	20
Toluene	0.0998	mg/L	1	0.100	<0.000600	100	82.7 - 117	0	20
Ethylbenzene	0.101	mg/L	1	0.100	<0.000800	101	78.8 - 116	1	20
Xylene	0.303	mg/L	1	0.300	<0.000767	101	79.3 - 116	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0966	0.105	mg/L	1	0.100	97	105	67.3 - 113
4-Bromofluorobenzene (4-BFB)	0.0976	0.106	mg/L	1	0.100	98	106	68.2 - 134

Laboratory Control Spike (LCS-1)

QC Batch: 75374
Prep Batch: 64659

Date Analyzed: 2010-11-16
QC Preparation: 2010-11-01

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0452	mg/L	1	0.0800	<0.0000784	56	32.2 - 80.3
2-Methylnaphthalene	0.0433	mg/L	1	0.0800	<0.0000747	54	34.8 - 87
1-Methylnaphthalene	0.0482	mg/L	1	0.0800	<0.0000575	60	36.9 - 89.6
Acenaphthylene	0.0532	mg/L	1	0.0800	<0.0000963	66	35 - 93.2
Acenaphthene	0.0530	mg/L	1	0.0800	<0.0000617	66	35.8 - 92.9
Dibenzofuran	0.0395	mg/L	1	0.0800	<0.0000952	49	35.3 - 85.1
Fluorene	0.0519	mg/L	1	0.0800	<0.000134	65	43.4 - 101
Anthracene	0.0660	mg/L	1	0.0800	<0.000441	82	44.8 - 92.4
Phenanthrene	0.0513	mg/L	1	0.0800	<0.000435	64	44 - 93.7
Fluoranthene	0.0572	mg/L	1	0.0800	<0.000476	72	52.7 - 104
Pyrene	0.0602	mg/L	1	0.0800	<0.000590	75	42.2 - 93.8
Benzo(a)anthracene	0.0438	mg/L	1	0.0800	<0.000118	55	40.4 - 91.9
Chrysene	0.0825	mg/L	1	0.0800	<0.0000766	103	44.4 - 107
Benzo(b)fluoranthene	0.0318	mg/L	1	0.0800	<0.000146	40	34.8 - 105
Benzo(k)fluoranthene	0.0582	mg/L	1	0.0800	<0.000141	73	50.2 - 158
Benzo(a)pyrene	0.0441	mg/L	1	0.0800	<0.000132	55	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0431	mg/L	1	0.0800	<0.0000702	54	43.2 - 115
Dibenzo(a,h)anthracene	0.0532	mg/L	1	0.0800	<0.0000534	66	43.9 - 115
Benzo(g,h,i)perylene	0.0513	mg/L	1	0.0800	<0.0000473	64	45.1 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0448	mg/L	1	0.0800	<0.0000784	56	32.2 - 80.3	1	20
2-Methylnaphthalene	0.0433	mg/L	1	0.0800	<0.0000747	54	34.8 - 87	0	20
1-Methylnaphthalene	0.0490	mg/L	1	0.0800	<0.0000575	61	36.9 - 89.6	2	20
Acenaphthylene	0.0528	mg/L	1	0.0800	<0.0000963	66	35 - 93.2	1	20
Acenaphthene	0.0534	mg/L	1	0.0800	<0.0000617	67	35.8 - 92.9	1	20
Dibenzofuran	0.0396	mg/L	1	0.0800	<0.0000952	50	35.3 - 85.1	0	20
Fluorene	0.0524	mg/L	1	0.0800	<0.000134	66	43.4 - 101	1	20
Anthracene	0.0624	mg/L	1	0.0800	<0.000441	78	44.8 - 92.4	6	20
Phenanthrene	0.0506	mg/L	1	0.0800	<0.000435	63	44 - 93.7	1	20
Fluoranthene	0.0567	mg/L	1	0.0800	<0.000476	71	52.7 - 104	1	20
Pyrene	0.0531	mg/L	1	0.0800	<0.000590	66	42.2 - 93.8	12	20

continued ...

control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzo(a)anthracene	0.0503	mg/L	1	0.0800	<0.000118	63	40.4 - 91.9	14	20
Chrysene	0.0837	mg/L	1	0.0800	<0.0000766	105	44.4 - 107	1	20
Benzo(b)fluoranthene	0.0341	mg/L	1	0.0800	<0.000146	43	34.8 - 105	7	20
Benzo(k)fluoranthene	0.0502	mg/L	1	0.0800	<0.000141	63	50.2 - 158	15	20
Benzo(a)pyrene	¹ 0.0550	mg/L	1	0.0800	<0.000132	69	51.3 - 151	22	20
Indeno(1,2,3-cd)pyrene	0.0440	mg/L	1	0.0800	<0.0000702	55	43.2 - 115	2	20
Dibenzo(a,h)anthracene	0.0507	mg/L	1	0.0800	<0.0000534	63	43.9 - 115	5	20
Benzo(g,h,i)perylene	0.0500	mg/L	1	0.0800	<0.0000473	62	45.1 - 115	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0475	0.0463	mg/L	1	0.0800	59	58	10 - 111
2-Fluorobiphenyl	0.0461	0.0450	mg/L	1	0.0800	58	56	10 - 92.7
Terphenyl-d14	0.0538	0.0534	mg/L	1	0.0800	67	67	35.9 - 107

Matrix Spike (MS-1) Spiked Sample: 249154

QC Batch: 74939
Prep Batch: 64291

Date Analyzed: 2010-11-01
QC Preparation: 2010-11-01

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0993	mg/L	1	0.100	<0.000600	99	77.9 - 114
Toluene	0.0989	mg/L	1	0.100	<0.000600	99	78.3 - 111
Ethylbenzene	0.0994	mg/L	1	0.100	<0.000800	99	75.3 - 110
Xylene	0.299	mg/L	1	0.300	<0.000767	100	75.7 - 109

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.104	mg/L	1	0.100	<0.000600	104	77.9 - 114	5	20
Toluene	0.104	mg/L	1	0.100	<0.000600	104	78.3 - 111	5	20
Ethylbenzene	0.104	mg/L	1	0.100	<0.000800	104	75.3 - 110	4	20
Xylene	0.314	mg/L	1	0.300	<0.000767	105	75.7 - 109	5	20

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

continued ...

¹RPD out of RPD Limits. Analyte not detected in sample. •

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	² 0.127	0.109	mg/L	1	0.1	127	109	68.3 - 107
4-Bromofluorobenzene (4-BFB)	0.128	0.112	mg/L	1	0.1	128	112	60.1 - 135

Standard (CCV-1)

QC Batch: 74939

Date Analyzed: 2010-11-01

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0993	99	80 - 120	2010-11-01
Toluene		mg/L	0.100	0.0999	100	80 - 120	2010-11-01
Ethylbenzene		mg/L	0.100	0.105	105	80 - 120	2010-11-01
Xylene		mg/L	0.300	0.316	105	80 - 120	2010-11-01

Standard (CCV-2)

QC Batch: 74939

Date Analyzed: 2010-11-01

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.103	103	80 - 120	2010-11-01
Toluene		mg/L	0.100	0.103	103	80 - 120	2010-11-01
Ethylbenzene		mg/L	0.100	0.103	103	80 - 120	2010-11-01
Xylene		mg/L	0.300	0.311	104	80 - 120	2010-11-01

Standard (CCV-1)

QC Batch: 75374

Date Analyzed: 2010-11-16

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	60.4	101	80 - 120	2010-11-16
2-Methylnaphthalene		mg/L	60.0	63.1	105	80 - 120	2010-11-16
1-Methylnaphthalene		mg/L	60.0	62.5	104	80 - 120	2010-11-16

continued ...

²High surrogate recovery due to peak interference.

³High surrogate recovery due to peak interference.

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Acenaphthylene		mg/L	60.0	59.5	99	80 - 120	2010-11-16
Acenaphthene		mg/L	60.0	60.9	102	80 - 120	2010-11-16
Dibenzofuran		mg/L	60.0	62.4	104	80 - 120	2010-11-16
Fluorene		mg/L	60.0	64.6	108	80 - 120	2010-11-16
Anthracene		mg/L	60.0	61.8	103	80 - 120	2010-11-16
Phenanthrene		mg/L	60.0	53.4	89	80 - 120	2010-11-16
Fluoranthene		mg/L	60.0	49.5	82	80 - 120	2010-11-16
Pyrene		mg/L	60.0	61.0	102	80 - 120	2010-11-16
Benzo(a)anthracene		mg/L	60.0	49.6	83	80 - 120	2010-11-16
Chrysene		mg/L	60.0	66.9	112	80 - 120	2010-11-16
Benzo(b)fluoranthene		mg/L	60.0	50.0	83	80 - 120	2010-11-16
Benzo(k)fluoranthene		mg/L	60.0	64.8	108	80 - 120	2010-11-16
Benzo(a)pyrene		mg/L	60.0	67.5	112	80 - 120	2010-11-16
Indeno(1,2,3-cd)pyrene		mg/L	60.0	53.7	90	80 - 120	2010-11-16
Dibenzo(a,h)anthracene		mg/L	60.0	55.2	92	80 - 120	2010-11-16
Benzo(g,h,i)perylene		mg/L	60.0	61.2	102	80 - 120	2010-11-16

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		70.3	mg/L	1	60.0	117	80 - 120
2-Fluorobiphenyl		61.0	mg/L	1	60.0	102	80 - 120
Terphenyl-d14		58.9	mg/L	1	60.0	98	80 - 120

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 Name: *Urra* Phone #: *520-7720*
Address: *2057 Commerce Midland TX 79703* Fax #: *520-7701*
Contact Person: *Ron P.* E-mail:
Invoice to:
Project #: *TAHM-97-061* Project Name: *Managed*
Project Location (including state): *New Mexico* Sampler Signature: *[Signature]*

[illegible]ANALYSIS REQUEST
(Circle or Specify Method No.)

	MTBE	8021 / 602 / 8260 / 624
	BTEX	8021 / 602 / 8260 / 624
	TPH	418.1 / TX1005 / TX1005 Exl(C35)
	TPH	8015 GRO / DRO / TVHC
	PAH	8270 / 625
	Total Metals	Ag As Ba Cd Cr Pb Se Hg 6010/200.7
	TCLP Metals	Ag As Ba Cd Cr Pb Se Hg
	TCLP Volatiles	
	TCLP Semi Volatiles	
	TCLP Pesticides	
	RCI	
	GC/MS Vol.	8260 / 624
	GC/MS Semi. Vol.	8270 / 625
	PCB's	8082 / 608
	Pesticides	8081 / 608
	BOD, TSS, pH	
	Moisture Content	
	Cl, F, S ₀₄ , NO ₃ , NO ₂ , Alkalinity	
	Na, Ca, Mg, K, TDS, EC	
	Turn Around Time if different from standard	Hold

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST
<i>[Signature]</i>	10114	10-29-10	8:50	<i>[Signature]</i>		10/29/10	0830	OBS COR
<i>[Signature]</i>		10-29-10	1322	<i>[Signature]</i>	Trace	10/29/10	13:22	OBS COR
<i>[Signature]</i>	Trace	10/29/10	16:00	<i>[Signature]</i>	TA	10/30/10	11:25	OBS COR

[illegible]

LAB USE ONLY	Intact ☒ N	Headspace ☒ N ☒ A	REMARKS: x mid x full
		☐ Dry Weight Balance ☐ TRRP Report ☐ Check if Spec Limits Are Needed	
		Log-in-Review <i>12</i>	

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier #

3300



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX

El Paso: T104704221-08-TX

Midland: T104704392-08-TX

LELAP-02003

LELAP-02002

Kansas E-10317

Analytical and Quality Control Report

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

Report Date: December 8, 2010

Work Order: 10112414



Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
251405	Townsend Post-Carbon	water	2010-11-23	13:00	2010-11-24

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.

Michael Abel

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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2010-11-24 and assigned to work order 10112414. Samples for work order 10112414 were received intact without headspace and at a temperature of 3.5 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	64941	2010-11-29 at 09:00	75706	2010-11-29 at 15:41
PAH	S 8270D	65157	2010-11-24 at 14:00	75971	2010-12-07 at 16:00

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 10112414 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.

Analytical Report

Sample: 251405 - Townsend Post-Carbon

Laboratory: Midland

Analysis: BTEX

QC Batch: 75706

Prep Batch: 64941

Analytical Method: S 8021B

Date Analyzed: 2010-11-29

Sample Preparation: 2010-11-29

Prep Method: S 5030B

Analyzed By: AG

Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.00470	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.101	mg/L	1	0.100	101	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.102	mg/L	1	0.100	102	51.1 - 128

Sample: 251405 - Townsend Post-Carbon

Laboratory: Lubbock

Analysis: PAH

QC Batch: 75971

Prep Batch: 65157

Analytical Method: S 8270D

Date Analyzed: 2010-12-07

Sample Preparation: 2010-11-24

Prep Method: S 3510C

Analyzed By: MN

Prepared By: MN

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000184	mg/L	0.922	0.000200
2-Methylnaphthalene		<0.000184	mg/L	0.922	0.000200
1-Methylnaphthalene		<0.000184	mg/L	0.922	0.000200
Acenaphthylene		<0.000184	mg/L	0.922	0.000200
Acenaphthene		<0.000184	mg/L	0.922	0.000200
Dibenzofuran		<0.000184	mg/L	0.922	0.000200
Fluorene		<0.000184	mg/L	0.922	0.000200
Anthracene		<0.000184	mg/L	0.922	0.000200
Phenanthrene		<0.000184	mg/L	0.922	0.000200
Fluoranthene		<0.000184	mg/L	0.922	0.000200
Pyrene		<0.000184	mg/L	0.922	0.000200
Benzo(a)anthracene		<0.000184	mg/L	0.922	0.000200
Chrysene		<0.000184	mg/L	0.922	0.000200
Benzo(b)fluoranthene		<0.000184	mg/L	0.922	0.000200
Benzo(k)fluoranthene	¹	<0.000184	mg/L	0.922	0.000200

continued ...

¹ Concentration biased low.

sample 251405 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Benzo(a)pyrene	2	<0.000184	mg/L	0.922	0.000200
Indeno(1,2,3-cd)pyrene		<0.000184	mg/L	0.922	0.000200
Dibenzo(a,h)anthracene		<0.000184	mg/L	0.922	0.000200
Benzo(g,h,i)perylene		<0.000184	mg/L	0.922	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0168	mg/L	0.922	0.0800	21	10 - 111
2-Fluorobiphenyl		0.0247	mg/L	0.922	0.0800	31	10 - 92.7
Terphenyl-d14		0.0445	mg/L	0.922	0.0800	56	35.9 - 107

Method Blank (1) QC Batch: 75706

QC Batch: 75706
Prep Batch: 64941

Date Analyzed: 2010-11-29
QC Preparation: 2010-11-29

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000600	mg/L	0.001
Toluene		<0.000600	mg/L	0.001
Ethylbenzene		<0.000800	mg/L	0.001
Xylene		<0.000767	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0953	mg/L	1	0.100	95	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.0981	mg/L	1	0.100	98	47.3 - 116

Method Blank (1) QC Batch: 75971

QC Batch: 75971
Prep Batch: 65157

Date Analyzed: 2010-12-07
QC Preparation: 2010-11-24

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002

continued ...

²Concentration biased low.

method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0446	mg/L	1	0.0800	56	10 - 111
2-Fluorobiphenyl		0.0451	mg/L	1	0.0800	56	10 - 92.7
Terphenyl-d14		0.0400	mg/L	1	0.0800	50	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 75706
Prep Batch: 64941

Date Analyzed: 2010-11-29
QC Preparation: 2010-11-29

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0938	mg/L	1	0.100	<0.000600	94	82.9 - 118
Toluene	0.0936	mg/L	1	0.100	<0.000600	94	82.7 - 117
Ethylbenzene	0.0960	mg/L	1	0.100	<0.000800	96	78.8 - 116
Xylene	0.291	mg/L	1	0.300	<0.000767	97	79.3 - 116

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.103	mg/L	1	0.100	<0.000600	103	82.9 - 118	9	20
Toluene	0.102	mg/L	1	0.100	<0.000600	102	82.7 - 117	9	20
Ethylbenzene	0.101	mg/L	1	0.100	<0.000800	101	78.8 - 116	5	20
Xylene	0.306	mg/L	1	0.300	<0.000767	102	79.3 - 116	5	20

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

Report Date: December 8, 2010
TNM 97-04

Work Order: 10112414
TNM 97-04 Townsend

Page Number: 7 of 10
Lovington, NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.102	0.0950	mg/L	1	0.100	102	95	67.3 - 113
4-Bromofluorobenzene (4-BFB)	0.102	0.0998	mg/L	1	0.100	102	100	68.2 - 134

Laboratory Control Spike (LCS-1)

QC Batch: 75971
Prep Batch: 65157

Date Analyzed: 2010-12-07
QC Preparation: 2010-11-24

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0342	mg/L	1	0.0800	<0.0000784	43	32.2 - 80.3
2-Methylnaphthalene	0.0335	mg/L	1	0.0800	<0.0000747	42	34.8 - 87
1-Methylnaphthalene	0.0344	mg/L	1	0.0800	<0.0000575	43	36.9 - 89.6
Acenaphthylene	0.0460	mg/L	1	0.0800	<0.0000963	58	35 - 93.2
Acenaphthene	0.0454	mg/L	1	0.0800	<0.0000617	57	35.8 - 92.9
Dibenzofuran	0.0429	mg/L	1	0.0800	<0.0000952	54	35.3 - 85.1
Fluorene	0.0559	mg/L	1	0.0800	<0.000134	70	43.4 - 101
Anthracene	0.0492	mg/L	1	0.0800	<0.000441	62	44.8 - 92.4
Phenanthrene	0.0547	mg/L	1	0.0800	<0.000435	68	44 - 93.7
Fluoranthene	0.0575	mg/L	1	0.0800	<0.000476	72	52.7 - 104
Pyrene	0.0411	mg/L	1	0.0800	<0.000590	51	42.2 - 93.8
Benzo(a)anthracene	0.0512	mg/L	1	0.0800	<0.000118	64	40.4 - 91.9
Chrysene	0.0782	mg/L	1	0.0800	<0.0000766	98	44.4 - 107
Benzo(b)fluoranthene	0.0351	mg/L	1	0.0800	<0.000146	44	34.8 - 105
Benzo(k)fluoranthene	³ 0.0327	mg/L	1	0.0800	<0.000141	41	50.2 - 158
Benzo(a)pyrene	⁴ 0.0386	mg/L	1	0.0800	<0.000132	48	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0412	mg/L	1	0.0800	<0.0000702	52	43.2 - 115
Dibenzo(a,h)anthracene	0.0560	mg/L	1	0.0800	<0.0000534	70	43.9 - 115
Benzo(g,h,i)perylene	0.0391	mg/L	1	0.0800	<0.0000473	49	45.1 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0350	mg/L	1	0.0800	<0.0000784	44	32.2 - 80.3	2	20
2-Methylnaphthalene	0.0332	mg/L	1	0.0800	<0.0000747	42	34.8 - 87	1	20
1-Methylnaphthalene	0.0339	mg/L	1	0.0800	<0.0000575	42	36.9 - 89.6	2	20
Acenaphthylene	0.0480	mg/L	1	0.0800	<0.0000963	60	35 - 93.2	4	20
Acenaphthene	0.0468	mg/L	1	0.0800	<0.0000617	58	35.8 - 92.9	3	20
Dibenzofuran	0.0444	mg/L	1	0.0800	<0.0000952	56	35.3 - 85.1	3	20
Fluorene	0.0580	mg/L	1	0.0800	<0.000134	72	43.4 - 101	4	20
Anthracene	0.0511	mg/L	1	0.0800	<0.000441	64	44.8 - 92.4	4	20

continued ...

³Spike recovery outside control limits. Concentration biased low. •

⁴Spike recovery outside control limits. Concentration biased low. •

control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Phenanthrene	0.0570	mg/L	1	0.0800	<0.000435	71	44 - 93.7	4	20
Fluoranthene	0.0573	mg/L	1	0.0800	<0.000476	72	52.7 - 104	0	20
Pyrene	0.0426	mg/L	1	0.0800	<0.000590	53	42.2 - 93.8	4	20
Benzo(a)anthracene	0.0529	mg/L	1	0.0800	<0.000118	66	40.4 - 91.9	3	20
Chrysene	0.0842	mg/L	1	0.0800	<0.0000766	105	44.4 - 107	7	20
Benzo(b)fluoranthene	0.0364	mg/L	1	0.0800	<0.000146	46	34.8 - 105	4	20
Benzo(k)fluoranthene	⁵ 0.0326	mg/L	1	0.0800	<0.000141	41	50.2 - 158	0	20
Benzo(a)pyrene	⁶ 0.0402	mg/L	1	0.0800	<0.000132	50	51.3 - 151	4	20
Indeno(1,2,3-cd)pyrene	0.0420	mg/L	1	0.0800	<0.0000702	52	43.2 - 115	2	20
Dibenzo(a,h)anthracene	0.0577	mg/L	1	0.0800	<0.0000534	72	43.9 - 115	3	20
Benzo(g,h,i)perylene	0.0404	mg/L	1	0.0800	<0.0000473	50	45.1 - 115	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0412	0.0450	mg/L	1	0.0800	52	56	10 - 111
2-Fluorobiphenyl	0.0440	0.0465	mg/L	1	0.0800	55	58	10 - 92.7
Terphenyl-d14	0.0519	0.0544	mg/L	1	0.0800	65	68	35.9 - 107

Matrix Spike (MS-1) Spiked Sample: 251472

QC Batch: 75706
Prep Batch: 64941

Date Analyzed: 2010-11-29
QC Preparation: 2010-11-29

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	20.7	mg/L	200	20.0	2.0561	93	77.9 - 114
Toluene	20.8	mg/L	200	20.0	2.6625	91	78.3 - 111
Ethylbenzene	20.5	mg/L	200	20.0	3.0643	87	75.3 - 110
Xylene	62.0	mg/L	200	60.0	9.495	88	75.7 - 109

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	19.4	mg/L	200	20.0	2.0561	87	77.9 - 114	6	20
Toluene	19.4	mg/L	200	20.0	2.6625	84	78.3 - 111	7	20
Ethylbenzene	19.1	mg/L	200	20.0	3.0643	80	75.3 - 110	7	20
Xylene	57.7	mg/L	200	60.0	9.495	80	75.7 - 109	7	20

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

⁵Spike recovery outside control limits. Concentration biased low. •

⁶Spike recovery outside control limits. Concentration biased low. •

Report Date: December 8, 2010
TNM 97-04

Work Order: 10112414
TNM 97-04 Townsend

Page Number: 9 of 10
Lovington, NM

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	19.9	19.7	mg/L	200	20	100	98	68.3 - 107
4-Bromofluorobenzene (4-BFB)	21.0	21.4	mg/L	200	20	105	107	60.1 - 135

Standard (CCV-1)

QC Batch: 75706

Date Analyzed: 2010-11-29

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0899	90	80 - 120	2010-11-29
Toluene		mg/L	0.100	0.0893	89	80 - 120	2010-11-29
Ethylbenzene		mg/L	0.100	0.0888	89	80 - 120	2010-11-29
Xylene		mg/L	0.300	0.270	90	80 - 120	2010-11-29

Standard (CCV-2)

QC Batch: 75706

Date Analyzed: 2010-11-29

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0880	88	80 - 120	2010-11-29
Toluene		mg/L	0.100	0.0874	87	80 - 120	2010-11-29
Ethylbenzene		mg/L	0.100	0.0871	87	80 - 120	2010-11-29
Xylene		mg/L	0.300	0.264	88	80 - 120	2010-11-29

Standard (CCV-1)

QC Batch: 75971

Date Analyzed: 2010-12-07

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	50.9	85	80 - 120	2010-12-07
2-Methylnaphthalene		mg/L	60.0	51.6	86	80 - 120	2010-12-07
1-Methylnaphthalene		mg/L	60.0	49.0	82	80 - 120	2010-12-07
Acenaphthylene		mg/L	60.0	51.7	86	80 - 120	2010-12-07
Acenaphthene		mg/L	60.0	50.9	85	80 - 120	2010-12-07
Dibenzofuran		mg/L	60.0	54.8	91	80 - 120	2010-12-07
Fluorene		mg/L	60.0	55.6	93	80 - 120	2010-12-07
Anthracene		mg/L	60.0	47.9	80	80 - 120	2010-12-07
Phenanthrene		mg/L	60.0	51.8	86	80 - 120	2010-12-07

continued ...

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoranthene		mg/L	60.0	52.5	88	80 - 120	2010-12-07
Pyrene		mg/L	60.0	59.1	98	80 - 120	2010-12-07
Benzo(a)anthracene		mg/L	60.0	53.0	88	80 - 120	2010-12-07
Chrysene		mg/L	60.0	48.2	80	80 - 120	2010-12-07
Benzo(b)fluoranthene		mg/L	60.0	52.1	87	80 - 120	2010-12-07
Benzo(k)fluoranthene	7	mg/L	60.0	42.1	70	80 - 120	2010-12-07
Benzo(a)pyrene		mg/L	60.0	48.6	81	80 - 120	2010-12-07
Indeno(1,2,3-cd)pyrene		mg/L	60.0	51.7	86	80 - 120	2010-12-07
Dibenzo(a,h)anthracene		mg/L	60.0	52.0	87	80 - 120	2010-12-07
Benzo(g,h,i)perylene		mg/L	60.0	52.9	88	80 - 120	2010-12-07

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		64.4	mg/L	1	60.0	107	80 - 120
2-Fluorobiphenyl		53.8	mg/L	1	60.0	90	80 - 120
Terphenyl-d14		61.6	mg/L	1	60.0	103	80 - 120

⁷Analyte recovery outside CCV control limits. Concentration biased low. •

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 Name: Nova
Address: 2057 Commerce
(Street, City, Zip)
Contact Person: Ron Rounsaville
Phone #: 432-520-7720
Fax #: 432-520-7701
E-mail:
Invoice to: P/Ann
(If different from above)
Project #: TUM 9704
Project Location (including state): Livingston NM
Project Name: Townsend
Sampler Signature: [Signature]

[illegible]

ANALYSIS REQUEST (Circle or Specify Method No.)	
MTBE	8021 / 602 / 8260 / 624
BTEX	8021 / 602 / 8260 / 624
TPH	418.1 / TX1005 / TX1005 Exl(C35)
TPH	8015 GRO / DRO / TVHC
	PAH 8270 / 625
	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7
	TCLP Metals Ag As Ba Cd Cr Pb Se Hg
	TCLP Volatiles
	TCLP Semi Volatiles
	TCLP Pesticides
	RCI
	GC/MS Vol. 8260 / 624
	GC/MS Semi. Vol. 8270 / 625
	PCBs 8082 / 608
	Pesticides 8081 / 608
	BOD, TSS, pH
	Moisture Content
	Cl, F1, SO4, NO3, NO2, Alkalinity
	Na, Ca, Mg, K, TDS, EC
	Turn Around Time if different from standard
	Hold

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST	LAB USE	REMARKS:
<i>[Signature]</i>	Walt	11-24-10	9:30	<i>[Signature]</i>	TA	11/24/10	10:00	OBS 3.5° COR 3.5°	ONLY	*Midland-BTEX
<i>[Signature]</i>	TA	11-24-10	14:00	<i>[Signature]</i>	Trace LBC	11-30-10	9:20 AM	INST 3.8° OBS 3.4° COR 2.3°	Intact ☒ L/N Headspace ☒ N/A	*Dubbock-PAH
<i>[Signature]</i>	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST OBS COR	☐ Dry Weight Basis Required ☐ TRRP Report Required ☐ Check if Special Reporting Limits Are Needed	

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier # None in (LS ZK 736200)

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6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
200 East Sunset Road, Suite E El Paso, Texas 79922 885•588•3443 915•585•3443 FAX 915•585•4944
5802 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX

El Paso: T104704221-08-TX

Midland: T104704392-08-TX

LELAP-02003

LELAP-02002

Kansas E-10317

Analytical and Quality Control Report

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

Report Date: February 10, 2011

Work Order: 11012828



Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
256496	Post-Carbon	water	2011-01-28	11:30	2011-01-28

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 9 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

Standard Flags

B - *The sample contains less than ten times the concentration found in the method blank.*

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2011-01-28 and assigned to work order 11012828. Samples for work order 11012828 were received intact without headspace and at a temperature of 3.3 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	66260	2011-01-28 at 16:30	77248	2011-01-29 at 06:01
PAH	S 8270D	66487	2011-02-02 at 15:00	77510	2011-02-10 at 08:25

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 11012828 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.

Analytical Report

Sample: 256496 - Post-Carbon

Laboratory: Midland
Analysis: BTEX
QC Batch: 77248
Prep Batch: 66260

Analytical Method: S 8021B
Date Analyzed: 2011-01-29
Sample Preparation: 2011-01-28

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.109	mg/L	1	0.100	109	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0998	mg/L	1	0.100	100	78.6 - 122.8

Sample: 256496 - Post-Carbon

Laboratory: Lubbock
Analysis: PAH
QC Batch: 77510
Prep Batch: 66487

Analytical Method: S 8270D
Date Analyzed: 2011-02-10
Sample Preparation: 2011-02-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000188	mg/L	0.939	0.000200
2-Methylnaphthalene		<0.000188	mg/L	0.939	0.000200
1-Methylnaphthalene		<0.000188	mg/L	0.939	0.000200
Acenaphthylene		<0.000188	mg/L	0.939	0.000200
Acenaphthene		<0.000188	mg/L	0.939	0.000200
Dibenzofuran	¹	<0.000188	mg/L	0.939	0.000200
Fluorene		<0.000188	mg/L	0.939	0.000200
Anthracene		<0.000188	mg/L	0.939	0.000200
Phenanthrene		<0.000188	mg/L	0.939	0.000200
Fluoranthene		<0.000188	mg/L	0.939	0.000200
Pyrene		<0.000188	mg/L	0.939	0.000200
Benzo(a)anthracene		<0.000188	mg/L	0.939	0.000200
Chrysene		<0.000188	mg/L	0.939	0.000200
Benzo(b)fluoranthene		<0.000188	mg/L	0.939	0.000200
Benzo(k)fluoranthene		<0.000188	mg/L	0.939	0.000200

continued ...

¹Concentration biased low.

Report Date: February 10, 2011
TNM 97-04

Work Order: 11012828
TNM 97-04 Townsend

Page Number: 5 of 9
Lovington, NM

sample 256496 continued ...

Parameter	Flag	RL	Units	Dilution	RL
		Result			
Benzo(a)pyrene		<0.000188	mg/L	0.939	0.000200
Indeno(1,2,3-cd)pyrene		<0.000188	mg/L	0.939	0.000200
Dibenzo(a,h)anthracene		<0.000188	mg/L	0.939	0.000200
Benzo(g,h,i)perylene		<0.000188	mg/L	0.939	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0350	mg/L	0.939	0.0800	44	10 - 111
2-Fluorobiphenyl		0.0390	mg/L	0.939	0.0800	49	10 - 92.7
Terphenyl-d14		0.0523	mg/L	0.939	0.0800	65	35.9 - 107

Method Blank (1) QC Batch: 77248

QC Batch: 77248
Prep Batch: 66260

Date Analyzed: 2011-01-29
QC Preparation: 2011-01-28

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL	Units	RL
		Result		
Benzene		<0.000400	mg/L	0.001
Toluene		<0.000300	mg/L	0.001
Ethylbenzene		<0.000300	mg/L	0.001
Xylene		<0.000333	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.103	mg/L	1	0.100	103	70.8 - 117.4
4-Bromofluorobenzene (4-BFB)		0.0963	mg/L	1	0.100	96	79 - 113.4

Method Blank (1) QC Batch: 77510

QC Batch: 77510
Prep Batch: 66487

Date Analyzed: 2011-02-10
QC Preparation: 2011-02-02

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL	Units	RL
		Result		
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002

continued ...

method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Dibenzofuran		0.00427	mg/L	0.0002
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0402	mg/L	1	0.0800	50	10 - 111
2-Fluorobiphenyl		0.0426	mg/L	1	0.0800	53	10 - 92.7
Terphenyl-d14		0.0406	mg/L	1	0.0800	51	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 77248
Prep Batch: 66260

Date Analyzed: 2011-01-29
QC Preparation: 2011-01-28

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0918	mg/L	1	0.100	<0.000400	92	76.8 - 110.3
Toluene	0.0919	mg/L	1	0.100	<0.000300	92	81 - 108.2
Ethylbenzene	0.101	mg/L	1	0.100	<0.000300	101	78.8 - 111
Xylene	0.303	mg/L	1	0.300	<0.000333	101	80.3 - 111.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0925	mg/L	1	0.100	<0.000400	92	76.8 - 110.3	1	20
Toluene	0.0933	mg/L	1	0.100	<0.000300	93	81 - 108.2	2	20
Ethylbenzene	0.104	mg/L	1	0.100	<0.000300	104	78.8 - 111	3	20
Xylene	0.314	mg/L	1	0.300	<0.000333	105	80.3 - 111.4	4	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.102	0.102	mg/L	1	0.100	102	102	66.6 - 114.5
4-Bromofluorobenzene (4-BFB)	0.0980	0.0993	mg/L	1	0.100	98	99	77.1 - 114.4

Laboratory Control Spike (LCS-1)

QC Batch: 77510
Prep Batch: 66487

Date Analyzed: 2011-02-10
QC Preparation: 2011-02-02

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0527	mg/L	1	0.0800	<0.0000784	66	32.2 - 80.3
2-Methylnaphthalene	0.0539	mg/L	1	0.0800	<0.0000747	67	34.8 - 87
1-Methylnaphthalene	0.0508	mg/L	1	0.0800	<0.0000575	64	36.9 - 89.6
Acenaphthylene	0.0601	mg/L	1	0.0800	<0.0000963	75	35 - 93.2
Acenaphthene	0.0551	mg/L	1	0.0800	<0.0000617	69	35.8 - 92.9
Dibenzofuran	0.0258	mg/L	1	0.0800	0.00427	27	35.3 - 85.1
Fluorene	0.0660	mg/L	1	0.0800	<0.000134	82	43.4 - 101
Anthracene	0.0486	mg/L	1	0.0800	<0.000441	61	44.8 - 92.4
Phenanthrene	0.0598	mg/L	1	0.0800	<0.000435	75	44 - 93.7
Fluoranthene	0.0683	mg/L	1	0.0800	<0.000476	85	52.7 - 104
Pyrene	0.0581	mg/L	1	0.0800	<0.000590	73	42.2 - 93.8
Benzo(a)anthracene	0.0668	mg/L	1	0.0800	<0.000118	84	40.4 - 91.9
Chrysene	0.0809	mg/L	1	0.0800	<0.0000766	101	44.4 - 107
Benzo(b)fluoranthene	0.0433	mg/L	1	0.0800	<0.000146	54	34.8 - 105
Benzo(k)fluoranthene	0.0493	mg/L	1	0.0800	<0.000141	62	50.2 - 158
Benzo(a)pyrene	0.0460	mg/L	1	0.0800	<0.000132	58	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0526	mg/L	1	0.0800	<0.0000702	66	43.2 - 115
Dibenzo(a,h)anthracene	0.0621	mg/L	1	0.0800	<0.0000534	78	43.9 - 115
Benzo(g,h,i)perylene	0.0455	mg/L	1	0.0800	<0.0000473	57	45.1 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0605	mg/L	1	0.0800	<0.0000784	76	32.2 - 80.3	14	20
2-Methylnaphthalene	0.0611	mg/L	1	0.0800	<0.0000747	76	34.8 - 87	12	20
1-Methylnaphthalene	0.0565	mg/L	1	0.0800	<0.0000575	71	36.9 - 89.6	11	20
Acenaphthylene	0.0692	mg/L	1	0.0800	<0.0000963	86	35 - 93.2	14	20
Acenaphthene	0.0636	mg/L	1	0.0800	<0.0000617	80	35.8 - 92.9	14	20
Dibenzofuran	0.0295	mg/L	1	0.0800	0.00427	32	35.3 - 85.1	13	20
Fluorene	0.0766	mg/L	1	0.0800	<0.000134	96	43.4 - 101	15	20
Anthracene	0.0553	mg/L	1	0.0800	<0.000441	69	44.8 - 92.4	13	20

continued ...

²Spike analyte out of control limits. Results biased low. •

³Spike analyte out of control limits. Results biased low. •

control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Rec.	Rec. Limit	RPD	RPD Limit
Phenanthrene	0.0675	mg/L	1	0.0800	<0.000435	84	44 - 93.7	12	20
Fluoranthene	0.0776	mg/L	1	0.0800	<0.000476	97	52.7 - 104	13	20
Pyrene	0.0673	mg/L	1	0.0800	<0.000590	84	42.2 - 93.8	15	20
Benzo(a)anthracene	⁴ 0.0766	mg/L	1	0.0800	<0.000118	96	40.4 - 91.9	14	20
Chrysene	⁵ 0.0932	mg/L	1	0.0800	<0.0000766	116	44.4 - 107	14	20
Benzo(b)fluoranthene	⁶ 0.0533	mg/L	1	0.0800	<0.000146	67	34.8 - 105	21	20
Benzo(k)fluoranthene	0.0543	mg/L	1	0.0800	<0.000141	68	50.2 - 158	10	20
Benzo(a)pyrene	0.0529	mg/L	1	0.0800	<0.000132	66	51.3 - 151	14	20
Indeno(1,2,3-cd)pyrene	0.0612	mg/L	1	0.0800	<0.0000702	76	43.2 - 115	15	20
Dibenzo(a,h)anthracene	0.0716	mg/L	1	0.0800	<0.0000534	90	43.9 - 115	14	20
Benzo(g,h,i)perylene	0.0548	mg/L	1	0.0800	<0.0000473	68	45.1 - 115	18	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0405	0.0473	mg/L	1	0.0800	51	59	10 - 111
2-Fluorobiphenyl	0.0430	0.0500	mg/L	1	0.0800	54	62	10 - 92.7
Terphenyl-d14	0.0424	0.0491	mg/L	1	0.0800	53	61	35.9 - 107

Standard (CCV-1)

QC Batch: 77248

Date Analyzed: 2011-01-29

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0978	98	80 - 120	2011-01-29
Toluene		mg/L	0.100	0.0971	97	80 - 120	2011-01-29
Ethylbenzene		mg/L	0.100	0.104	104	80 - 120	2011-01-29
Xylene		mg/L	0.300	0.316	105	80 - 120	2011-01-29

Standard (CCV-2)

QC Batch: 77248

Date Analyzed: 2011-01-29

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0927	93	80 - 120	2011-01-29
Toluene		mg/L	0.100	0.0938	94	80 - 120	2011-01-29

continued ...

⁴LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁵LCSD analyte out of range. LCS/LCSD has a RPD within limits. Therefore, LCS shows extraction occurred properly.

⁶RPD out of RPD Limits. Analyte not detected in samples.

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		mg/L	0.100	0.103	103	80 - 120	2011-01-29
Xylene		mg/L	0.300	0.313	104	80 - 120	2011-01-29

Standard (CCV-1)

QC Batch: 77510

Date Analyzed: 2011-02-10

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	53.8	90	80 - 120	2011-02-10
2-Methylnaphthalene		mg/L	60.0	62.3	104	80 - 120	2011-02-10
1-Methylnaphthalene		mg/L	60.0	56.8	95	80 - 120	2011-02-10
Acenaphthylene		mg/L	60.0	57.5	96	80 - 120	2011-02-10
Acenaphthene		mg/L	60.0	55.4	92	80 - 120	2011-02-10
Dibenzofuran		mg/L	60.0	64.5	108	80 - 120	2011-02-10
Fluorene		mg/L	60.0	64.9	108	80 - 120	2011-02-10
Anthracene		mg/L	60.0	54.9	92	80 - 120	2011-02-10
Phenanthrene		mg/L	60.0	60.5	101	80 - 120	2011-02-10
Fluoranthene		mg/L	60.0	66.7	111	80 - 120	2011-02-10
Pyrene		mg/L	60.0	69.6	116	80 - 120	2011-02-10
Benzo(a)anthracene		mg/L	60.0	60.5	101	80 - 120	2011-02-10
Chrysene		mg/L	60.0	57.0	95	80 - 120	2011-02-10
Benzo(b)fluoranthene		mg/L	60.0	58.2	97	80 - 120	2011-02-10
Benzo(k)fluoranthene		mg/L	60.0	59.0	98	80 - 120	2011-02-10
Benzo(a)pyrene		mg/L	60.0	54.5	91	80 - 120	2011-02-10
Indeno(1,2,3-cd)pyrene		mg/L	60.0	64.7	108	80 - 120	2011-02-10
Dibenzo(a,h)anthracene		mg/L	60.0	64.1	107	80 - 120	2011-02-10
Benzo(g,h,i)perylene		mg/L	60.0	62.0	103	80 - 120	2011-02-10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		54.5	mg/L	1	60.0	91	80 - 120
2-Fluorobiphenyl		53.5	mg/L	1	60.0	89	80 - 120
Terphenyl-d14		67.6	mg/L	1	60.0	113	80 - 120



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 806•378•1296 806•794•1296 FAX 806•794•1296
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

E-mail Reports
Nova Safety & Environmental
2057 Commerce St.
Midland, TX, 79703

Report Date: March 15, 2011

Work Order: 11030109

Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
259117	Post-Carbon	water	2011-02-28	15:00	2011-03-01

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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2011-03-01 and assigned to work order 11030109. Samples for work order 11030109 were received intact without headspace and at a temperature of 3.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	67068	2011-03-04 at 08:44	79032	2011-03-04 at 08:44
PAH	S 8270D	67198	2011-03-09 at 15:00	79210	2011-03-12 at 10:52

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 11030109 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: March 15, 2011
TNM 97-04

Work Order: 11030109
TNM 97-04 Townsend

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Lovington, NM

Analytical Report

Sample: 259117 - Post-Carbon

Laboratory: Midland
Analysis: BTEX
QC Batch: 79032
Prep Batch: 67068

Analytical Method: S 8021B
Date Analyzed: 2011-03-04
Sample Preparation: 2011-03-04

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.0319	mg/L	5	0.00100
Toluene		0.0370	mg/L	5	0.00100
Ethylbenzene		0.0338	mg/L	5	0.00100
Xylene		0.0992	mg/L	5	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.498	mg/L	5	0.500	100	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.478	mg/L	5	0.500	96	51.1 - 128

Sample: 259117 - Post-Carbon

Laboratory: Lubbock
Analysis: PAH
QC Batch: 79210
Prep Batch: 67198

Analytical Method: S 8270D
Date Analyzed: 2011-03-12
Sample Preparation: 2011-03-09

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

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000190	mg/L	0.952	0.000200
2-Methylnaphthalene		<0.000190	mg/L	0.952	0.000200
1-Methylnaphthalene		<0.000190	mg/L	0.952	0.000200
Acenaphthylene		<0.000190	mg/L	0.952	0.000200
Acenaphthene		<0.000190	mg/L	0.952	0.000200
Dibenzofuran		<0.000190	mg/L	0.952	0.000200
Fluorene		<0.000190	mg/L	0.952	0.000200
Anthracene		<0.000190	mg/L	0.952	0.000200
Phenanthrene		<0.000190	mg/L	0.952	0.000200
Fluoranthene		<0.000190	mg/L	0.952	0.000200
Pyrene		<0.000190	mg/L	0.952	0.000200
Benzo(a)anthracene		<0.000190	mg/L	0.952	0.000200
Chrysene		<0.000190	mg/L	0.952	0.000200
Benzo(b)fluoranthene		<0.000190	mg/L	0.952	0.000200
Benzo(k)fluoranthene		<0.000190	mg/L	0.952	0.000200
Benzo(a)pyrene		<0.000190	mg/L	0.952	0.000200

continued ...

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TNM 97-04 Townsend

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Lovington, NM

sample 259117 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Indeno(1,2,3-cd)pyrene		<0.000190	mg/L	0.952	0.000200
Dibenzo(a,h)anthracene		<0.000190	mg/L	0.952	0.000200
Benzo(g,h,i)perylene		<0.000190	mg/L	0.952	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0369	mg/L	0.952	0.0800	46	10 - 111
2-Fluorobiphenyl		0.0403	mg/L	0.952	0.0800	50	10 - 92.7
Terphenyl-d14		0.0510	mg/L	0.952	0.0800	64	35.9 - 107

Method Blank (1) QC Batch: 79032

QC Batch: 79032
Prep Batch: 67068

Date Analyzed: 2011-03-04
QC Preparation: 2011-03-04

Analyzed By: ME
Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000400	mg/L	0.001
Toluene		<0.000300	mg/L	0.001
Ethylbenzene		<0.000300	mg/L	0.001
Xylene		<0.000333	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0880	mg/L	1	0.100	88	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.0857	mg/L	1	0.100	86	47.3 - 116

Method Blank (1) QC Batch: 79210

QC Batch: 79210
Prep Batch: 67198

Date Analyzed: 2011-03-12
QC Preparation: 2011-03-09

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002

continued ...

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method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0425	mg/L	1	0.0800	53	10 - 111
2-Fluorobiphenyl		0.0451	mg/L	1	0.0800	56	10 - 92.7
Terphenyl-d14		0.0573	mg/L	1	0.0800	72	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 79032
Prep Batch: 67068

Date Analyzed: 2011-03-04
QC Preparation: 2011-03-04

Analyzed By: ME
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0946	mg/L	1	0.100	<0.000400	95	82.9 - 108
Toluene	0.0938	mg/L	1	0.100	<0.000300	94	82.7 - 107
Ethylbenzene	0.0916	mg/L	1	0.100	<0.000300	92	78.8 - 106
Xylene	0.277	mg/L	1	0.300	<0.000333	92	79.3 - 106

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0935	mg/L	1	0.100	<0.000400	94	82.9 - 108	1	20
Toluene	0.0922	mg/L	1	0.100	<0.000300	92	82.7 - 107	2	20
Ethylbenzene	0.0904	mg/L	1	0.100	<0.000300	90	78.8 - 106	1	20
Xylene	0.276	mg/L	1	0.300	<0.000333	92	79.3 - 106	0	20

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

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0931	0.0912	mg/L	1	0.100	93	91	67.3 - 113
4-Bromofluorobenzene (4-BFB)	0.0938	0.0956	mg/L	1	0.100	94	96	68.2 - 124

Laboratory Control Spike (LCS-1)

QC Batch: 79210
Prep Batch: 67198

Date Analyzed: 2011-03-12
QC Preparation: 2011-03-09

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0341	mg/L	1	0.0800	<0.0000784	43	32.2 - 80.3
2-Methylnaphthalene	0.0398	mg/L	1	0.0800	<0.0000747	50	34.8 - 87
1-Methylnaphthalene	0.0374	mg/L	1	0.0800	<0.0000575	47	36.9 - 89.6
Acenaphthylene	0.0449	mg/L	1	0.0800	<0.0000963	56	35 - 93.2
Acenaphthene	0.0417	mg/L	1	0.0800	<0.0000617	52	35.8 - 92.9
Dibenzofuran	0.0405	mg/L	1	0.0800	<0.0000952	51	35.3 - 85.1
Fluorene	0.0542	mg/L	1	0.0800	<0.000134	68	43.4 - 101
Anthracene	0.0523	mg/L	1	0.0800	<0.000441	65	44.8 - 92.4
Phenanthrene	0.0569	mg/L	1	0.0800	<0.000435	71	44 - 93.7
Fluoranthene	0.0705	mg/L	1	0.0800	<0.000476	88	52.7 - 104
Pyrene	0.0633	mg/L	1	0.0800	<0.000590	79	42.2 - 93.8
Benzo(a)anthracene	0.0681	mg/L	1	0.0800	<0.000118	85	40.4 - 91.9
Chrysene	0.0827	mg/L	1	0.0800	<0.0000766	103	44.4 - 107
Benzo(b)fluoranthene	0.0464	mg/L	1	0.0800	<0.000146	58	34.8 - 105
Benzo(k)fluoranthene	0.0532	mg/L	1	0.0800	<0.000141	66	50.2 - 158
Benzo(a)pyrene	0.0482	mg/L	1	0.0800	<0.000132	60	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0525	mg/L	1	0.0800	<0.0000702	66	43.2 - 115
Dibenzo(a,h)anthracene	0.0609	mg/L	1	0.0800	<0.0000534	76	43.9 - 115
Benzo(g,h,i)perylene	0.0482	mg/L	1	0.0800	<0.0000473	60	45.1 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0352	mg/L	1	0.0800	<0.0000784	44	32.2 - 80.3	3	20
2-Methylnaphthalene	0.0424	mg/L	1	0.0800	<0.0000747	53	34.8 - 87	6	20
1-Methylnaphthalene	0.0390	mg/L	1	0.0800	<0.0000575	49	36.9 - 89.6	4	20
Acenaphthylene	0.0460	mg/L	1	0.0800	<0.0000963	58	35 - 93.2	2	20
Acenaphthene	0.0427	mg/L	1	0.0800	<0.0000617	53	35.8 - 92.9	2	20
Dibenzofuran	0.0422	mg/L	1	0.0800	<0.0000952	53	35.3 - 85.1	4	20
Fluorene	0.0556	mg/L	1	0.0800	<0.000134	70	43.4 - 101	3	20
Anthracene	0.0532	mg/L	1	0.0800	<0.000441	66	44.8 - 92.4	2	20
Phenanthrene	0.0581	mg/L	1	0.0800	<0.000435	73	44 - 93.7	2	20
Fluoranthene	0.0725	mg/L	1	0.0800	<0.000476	91	52.7 - 104	3	20
Pyrene	0.0651	mg/L	1	0.0800	<0.000590	81	42.2 - 93.8	3	20

continued ...

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Lovington, NM

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzo(a)anthracene	0.0695	mg/L	1	0.0800	<0.000118	87	40.4 - 91.9	2	20
Chrysene	0.0843	mg/L	1	0.0800	<0.0000766	105	44.4 - 107	2	20
Benzo(b)fluoranthene	0.0515	mg/L	1	0.0800	<0.000146	64	34.8 - 105	10	20
Benzo(k)fluoranthene	0.0563	mg/L	1	0.0800	<0.000141	70	50.2 - 158	6	20
Benzo(a)pyrene	0.0541	mg/L	1	0.0800	<0.000132	68	51.3 - 151	12	20
Indeno(1,2,3-cd)pyrene	0.0536	mg/L	1	0.0800	<0.0000702	67	43.2 - 115	2	20
Dibenzo(a,h)anthracene	0.0626	mg/L	1	0.0800	<0.0000534	78	43.9 - 115	3	20
Benzo(g,h,i)perylene	0.0498	mg/L	1	0.0800	<0.0000473	62	45.1 - 115	3	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Nitrobenzene-d5	0.0311	0.0306	mg/L	1	0.0800	39	38	10 - 111
2-Fluorobiphenyl	0.0362	0.0376	mg/L	1	0.0800	45	47	10 - 92.7
Terphenyl-d14	0.0574	0.0584	mg/L	1	0.0800	72	73	35.9 - 107

Matrix Spike (MS-1) Spiked Sample: 259115

QC Batch: 79032
Prep Batch: 67068

Date Analyzed: 2011-03-04
QC Preparation: 2011-03-04

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.61	mg/L	5	0.500	2.1558	91	77.9 - 114
Toluene	0.447	mg/L	5	0.500	<0.00150	89	78.3 - 111
Ethylbenzene	0.444	mg/L	5	0.500	0.0426	80	75.3 - 110
Xylene	1.30	mg/L	5	1.50	<0.00166	87	75.7 - 109

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.67	mg/L	5	0.500	2.1558	103	77.9 - 114	2	20
Toluene	0.462	mg/L	5	0.500	<0.00150	92	78.3 - 111	3	20
Ethylbenzene	0.462	mg/L	5	0.500	0.0426	84	75.3 - 110	4	20
Xylene	1.36	mg/L	5	1.50	<0.00166	91	75.7 - 109	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.466	0.487	mg/L	5	0.5	93	97	68.3 - 107
4-Bromofluorobenzene (4-BFB)	0.500	0.520	mg/L	5	0.5	100	104	60.1 - 135

Standard (CCV-2)

QC Batch: 79032

Date Analyzed: 2011-03-04

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0928	93	80 - 120	2011-03-04
Toluene		mg/L	0.100	0.0909	91	80 - 120	2011-03-04
Ethylbenzene		mg/L	0.100	0.0875	88	80 - 120	2011-03-04
Xylene		mg/L	0.300	0.266	89	80 - 120	2011-03-04

Standard (CCV-3)

QC Batch: 79032

Date Analyzed: 2011-03-04

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0948	95	80 - 120	2011-03-04
Toluene		mg/L	0.100	0.0933	93	80 - 120	2011-03-04
Ethylbenzene		mg/L	0.100	0.0902	90	80 - 120	2011-03-04
Xylene		mg/L	0.300	0.272	91	80 - 120	2011-03-04

Standard (CCV-1)

QC Batch: 79210

Date Analyzed: 2011-03-12

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	53.2	89	80 - 120	2011-03-12
2-Methylnaphthalene		mg/L	60.0	64.7	108	80 - 120	2011-03-12
1-Methylnaphthalene		mg/L	60.0	57.7	96	80 - 120	2011-03-12
Acenaphthylene		mg/L	60.0	56.3	94	80 - 120	2011-03-12
Acenaphthene		mg/L	60.0	53.8	90	80 - 120	2011-03-12
Dibenzofuran		mg/L	60.0	62.1	104	80 - 120	2011-03-12
Fluorene		mg/L	60.0	60.8	101	80 - 120	2011-03-12
Anthracene		mg/L	60.0	54.6	91	80 - 120	2011-03-12
Phenanthrene		mg/L	60.0	60.2	100	80 - 120	2011-03-12
Fluoranthene		mg/L	60.0	69.3	116	80 - 120	2011-03-12
Pyrene		mg/L	60.0	63.8	106	80 - 120	2011-03-12
Benzo(a)anthracene		mg/L	60.0	60.4	101	80 - 120	2011-03-12
Chrysene		mg/L	60.0	56.7	94	80 - 120	2011-03-12
Benzo(b)fluoranthene		mg/L	60.0	57.9	96	80 - 120	2011-03-12
Benzo(k)fluoranthene		mg/L	60.0	61.6	103	80 - 120	2011-03-12

continued ...

Report Date: March 15, 2011
TNM 97-04

Work Order: 11030109
TNM 97-04 Townsend

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Lovington, NM

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzo(a)pyrene		mg/L	60.0	57.3	96	80 - 120	2011-03-12
Indeno(1,2,3-cd)pyrene		mg/L	60.0	56.9	95	80 - 120	2011-03-12
Dibenzo(a,h)anthracene		mg/L	60.0	56.6	94	80 - 120	2011-03-12
Benzo(g,h,i)perylene		mg/L	60.0	54.8	91	80 - 120	2011-03-12

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		56.0	mg/L	1	60.0	93	80 - 120
2-Fluorobiphenyl		56.0	mg/L	1	60.0	93	80 - 120
Terphenyl-d14		62.0	mg/L	1	60.0	103	80 - 120

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

65002 Basin Street, Suite A1
Midland, Texas 79703
Tel (432) 689-6301
Fax (432) 689-6313

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

Company Name: <u>MDA</u> Address: <u>(Street, City, Zip)</u> 205 Commerce Midland TX 79703 Contact Person: <u>Don E.</u> 		Phone #: <u>432-520-5720</u> Fax #: <u>432-520-7701</u> E-mail:		Project #: <u>100497-04</u> Project Name: <u>Tamworth</u> Project Location (including state): <u>New Mexico</u>		Analyses Requested (Circle or Specify Method No.): (List of analyses and methods)		Remarks: x Midland-BTEX x Lubbock-PAH																										
LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX			PRESERVATIVE METHOD			DATE	TIME																							
				WATER	SOIL	AIR	SLUDGE	HCl	HNO ₃			H ₂ SO ₄	NaOH	ICE	NONE																			
269	Post Carbon	4	var	X			X				2-28	15:00																						
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">MTBE</td> <td style="width:10%;">8021 / 602 / 8260 / 624</td> <td style="width:10%;">X</td> <td style="width:10%;">TPH 418.1 / TX1005 / TX1005 Ext(C35)</td> <td style="width:10%;">TPH 8015 GRO / DRO / TVHC</td> <td style="width:10%;">PAH 8270 / 625</td> <td style="width:10%;">Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7</td> <td style="width:10%;">TCLP Metals Ag As Ba Cd Cr Pb Se Hg</td> <td style="width:10%;">TCLP Volatiles</td> <td style="width:10%;">TCLP Semi Volatiles</td> <td style="width:10%;">TCLP Pesticides</td> <td style="width:10%;">RCI</td> <td style="width:10%;">GC/MS Vol. 8260 / 624</td> <td style="width:10%;">GC/MS Semi. Vol. 8270 / 625</td> <td style="width:10%;">PCB's 8082 / 608</td> <td style="width:10%;">Pesticides 8081 / 608</td> <td style="width:10%;">BOD, TSS, pH</td> <td style="width:10%;">Moisture Content</td> <td style="width:10%;">Cl, F1, S04, NO3, NO2, Alkalinity</td> <td style="width:10%;">Na, Ca, Mg, K, TDS, EC</td> <td style="width:10%;">Turn Around Time if different from standard</td> <td style="width:10%;">Hold</td> </tr> </table>													MTBE	8021 / 602 / 8260 / 624	X	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F1, S04, NO3, NO2, Alkalinity	Na, Ca, Mg, K, TDS, EC	Turn Around Time if different from standard	Hold
MTBE	8021 / 602 / 8260 / 624	X	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F1, S04, NO3, NO2, Alkalinity	Na, Ca, Mg, K, TDS, EC	Turn Around Time if different from standard	Hold													

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

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6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

E-mail Reports
Nova Safety & Environmental
2057 Commerce St.
Midland, TX, 79703

Report Date: March 24, 2011

Work Order: 11032107

Project Location: Lovington, NM
Project Name: TNM 97-04 Townsend
Project Number: TNM 97-04

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
261152	TPC	water	2011-03-18	12:00	2011-03-21

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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project TNM 97-04 Townsend were received by TraceAnalysis, Inc. on 2011-03-21 and assigned to work order 11032107. Samples for work order 11032107 were received intact without headspace and at a temperature of 21.3 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	67576	2011-03-21 at 14:22	79654	2011-03-21 at 14:22
PAH	S 8270D	67618	2011-03-22 at 15:00	79704	2011-03-23 at 10:05

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 11032107 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: March 24, 2011
TNM 97-04

Work Order: 11032107
TNM 97-04 Townsend

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Lovington, NM

Analytical Report

Sample: 261152 - TPC

Laboratory: Midland
Analysis: BTEX
QC Batch: 79654
Prep Batch: 67576

Analytical Method: S 8021B
Date Analyzed: 2011-03-21
Sample Preparation: 2011-03-21

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
Ethylbenzene		<0.00100	mg/L	1	0.00100
Xylene		<0.00100	mg/L	1	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.113	mg/L	1	0.100	113	67.8 - 129
4-Bromofluorobenzene (4-BFB)	¹	0.129	mg/L	1	0.100	129	51.1 - 128

Sample: 261152 - TPC

Laboratory: Lubbock
Analysis: PAH
QC Batch: 79704
Prep Batch: 67618

Analytical Method: S 8270D
Date Analyzed: 2011-03-23
Sample Preparation: 2011-03-22

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

Parameter	Flag	RL Result	Units	Dilution	RL
Naphthalene		<0.000183	mg/L	0.913	0.000200
2-Methylnaphthalene		<0.000183	mg/L	0.913	0.000200
1-Methylnaphthalene		<0.000183	mg/L	0.913	0.000200
Acenaphthylene		<0.000183	mg/L	0.913	0.000200
Acenaphthene		<0.000183	mg/L	0.913	0.000200
Dibenzofuran		<0.000183	mg/L	0.913	0.000200
Fluorene		<0.000183	mg/L	0.913	0.000200
Anthracene		<0.000183	mg/L	0.913	0.000200
Phenanthrene		<0.000183	mg/L	0.913	0.000200
Fluoranthene		<0.000183	mg/L	0.913	0.000200
Pyrene		<0.000183	mg/L	0.913	0.000200
Benzo(a)anthracene		<0.000183	mg/L	0.913	0.000200
Chrysene		<0.000183	mg/L	0.913	0.000200
Benzo(b)fluoranthene		<0.000183	mg/L	0.913	0.000200
Benzo(k)fluoranthene		<0.000183	mg/L	0.913	0.000200
Benzo(a)pyrene		<0.000183	mg/L	0.913	0.000200

continued ...

¹High surrogate recovery. Sample non-detect, result bias high.

Report Date: March 24, 2011
TNM 97-04

Work Order: 11032107
TNM 97-04 Townsend

Page Number: 5 of 10
Lovington, NM

sample 261152 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Indeno(1,2,3-cd)pyrene		<0.000183	mg/L	0.913	0.000200
Dibenzo(a,h)anthracene		<0.000183	mg/L	0.913	0.000200
Benzo(g,h,i)perylene		<0.000183	mg/L	0.913	0.000200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0319	mg/L	0.913	0.0800	40	10 - 111
2-Fluorobiphenyl		0.0354	mg/L	0.913	0.0800	44	10 - 92.7
Terphenyl-d14		0.0464	mg/L	0.913	0.0800	58	35.9 - 107

Method Blank (1) QC Batch: 79654

QC Batch: 79654
Prep Batch: 67576

Date Analyzed: 2011-03-21
QC Preparation: 2011-03-21

Analyzed By: ME
Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000400	mg/L	0.001
Toluene		<0.000300	mg/L	0.001
Ethylbenzene		<0.000300	mg/L	0.001
Xylene		<0.000333	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0916	mg/L	1	0.100	92	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.109	mg/L	1	0.100	109	47.3 - 116

Method Blank (1) QC Batch: 79704

QC Batch: 79704
Prep Batch: 67618

Date Analyzed: 2011-03-23
QC Preparation: 2011-03-22

Analyzed By: MN
Prepared By: MN

Parameter	Flag	MDL Result	Units	RL
Naphthalene		<0.0000784	mg/L	0.0002
2-Methylnaphthalene		<0.0000747	mg/L	0.0002
1-Methylnaphthalene		<0.0000575	mg/L	0.0002
Acenaphthylene		<0.0000963	mg/L	0.0002
Acenaphthene		<0.0000617	mg/L	0.0002
Dibenzofuran		<0.0000952	mg/L	0.0002

continued ...

method blank continued . . .

Parameter	Flag	MDL Result	Units	RL
Fluorene		<0.000134	mg/L	0.0002
Anthracene		<0.000441	mg/L	0.0002
Phenanthrene		<0.000435	mg/L	0.0002
Fluoranthene		<0.000476	mg/L	0.0002
Pyrene		<0.000590	mg/L	0.0002
Benzo(a)anthracene		<0.000118	mg/L	0.0002
Chrysene		<0.0000766	mg/L	0.0002
Benzo(b)fluoranthene		<0.000146	mg/L	0.0002
Benzo(k)fluoranthene		<0.000141	mg/L	0.0002
Benzo(a)pyrene		<0.000132	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		<0.0000702	mg/L	0.0002
Dibenzo(a,h)anthracene		<0.0000534	mg/L	0.0002
Benzo(g,h,i)perylene		<0.0000473	mg/L	0.0002

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		0.0199	mg/L	1	0.0800	25	10 - 111
2-Fluorobiphenyl		0.0207	mg/L	1	0.0800	26	10 - 92.7
Terphenyl-d14		0.0378	mg/L	1	0.0800	47	35.9 - 107

Laboratory Control Spike (LCS-1)

QC Batch: 79654
Prep Batch: 67576

Date Analyzed: 2011-03-21
QC Preparation: 2011-03-21

Analyzed By: ME
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0925	mg/L	1	0.100	<0.000400	92	76.8 - 110
Toluene	0.0997	mg/L	1	0.100	<0.000300	100	81 - 108
Ethylbenzene	0.112	mg/L	1	0.100	<0.000300	112	78.8 - 118
Xylene	0.340	mg/L	1	0.300	<0.000333	113	80.3 - 119

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0979	mg/L	1	0.100	<0.000400	98	76.8 - 110	6	20
Toluene	0.106	mg/L	1	0.100	<0.000300	106	81 - 108	6	20
Ethylbenzene	0.116	mg/L	1	0.100	<0.000300	116	78.8 - 118	4	20
Xylene	0.358	mg/L	1	0.300	<0.000333	119	80.3 - 119	5	20

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

Report Date: March 24, 2011
TNM 97-04

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Lovington, NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0974	0.0863	mg/L	1	0.100	97	86	66.6 - 114
4-Bromofluorobenzene (4-BFB)	0.122	0.109	mg/L	1	0.100	122	109	68.2 - 124

Laboratory Control Spike (LCS-1)

QC Batch: 79704
Prep Batch: 67618

Date Analyzed: 2011-03-23
QC Preparation: 2011-03-22

Analyzed By: MN
Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene	0.0317	mg/L	1	0.0800	<0.0000784	40	32.2 - 80.3
2-Methylnaphthalene	0.0353	mg/L	1	0.0800	<0.0000747	44	34.8 - 87
1-Methylnaphthalene	0.0333	mg/L	1	0.0800	<0.0000575	42	36.9 - 89.6
Acenaphthylene	0.0411	mg/L	1	0.0800	<0.0000963	51	35 - 93.2
Acenaphthene	0.0395	mg/L	1	0.0800	<0.0000617	49	35.8 - 92.9
Dibenzofuran	0.0361	mg/L	1	0.0800	<0.0000952	45	35.3 - 85.1
Fluorene	0.0521	mg/L	1	0.0800	<0.000134	65	43.4 - 101
Anthracene	0.0436	mg/L	1	0.0800	<0.000441	54	44.8 - 92.4
Phenanthrene	0.0512	mg/L	1	0.0800	<0.000435	64	44 - 93.7
Fluoranthene	0.0633	mg/L	1	0.0800	<0.000476	79	52.7 - 104
Pyrene	0.0696	mg/L	1	0.0800	<0.000590	87	42.2 - 93.8
Benzo(a)anthracene	0.0626	mg/L	1	0.0800	<0.000118	78	40.4 - 91.9
Chrysene	² 0.0905	mg/L	1	0.0800	<0.0000766	113	44.4 - 107
Benzo(b)fluoranthene	0.0350	mg/L	1	0.0800	<0.000146	44	34.8 - 105
Benzo(k)fluoranthene	0.0533	mg/L	1	0.0800	<0.000141	67	50.2 - 158
Benzo(a)pyrene	0.0453	mg/L	1	0.0800	<0.000132	57	51.3 - 151
Indeno(1,2,3-cd)pyrene	0.0430	mg/L	1	0.0800	<0.0000702	54	43.2 - 115
Dibenzo(a,h)anthracene	0.0476	mg/L	1	0.0800	<0.0000534	60	43.9 - 115
Benzo(g,h,i)perylene	0.0369	mg/L	1	0.0800	<0.0000473	46	45.1 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene	0.0361	mg/L	1	0.0800	<0.0000784	45	32.2 - 80.3	13	20
2-Methylnaphthalene	0.0398	mg/L	1	0.0800	<0.0000747	50	34.8 - 87	12	20
1-Methylnaphthalene	0.0380	mg/L	1	0.0800	<0.0000575	48	36.9 - 89.6	13	20
Acenaphthylene	0.0459	mg/L	1	0.0800	<0.0000963	57	35 - 93.2	11	20
Acenaphthene	0.0447	mg/L	1	0.0800	<0.0000617	56	35.8 - 92.9	12	20
Dibenzofuran	0.0405	mg/L	1	0.0800	<0.0000952	51	35.3 - 85.1	12	20
Fluorene	0.0582	mg/L	1	0.0800	<0.000134	73	43.4 - 101	11	20
Anthracene	0.0505	mg/L	1	0.0800	<0.000441	63	44.8 - 92.4	15	20
Phenanthrene	0.0599	mg/L	1	0.0800	<0.000435	75	44 - 93.7	16	20

continued ...

²Spike analyte out of control limits. Results biased high. •

control spikes continued ...

Param		LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Fluoranthene		0.0744	mg/L	1	0.0800	<0.000476	93	52.7 - 104	16	20
Pyrene	³	0.0774	mg/L	1	0.0800	<0.000590	97	42.2 - 93.8	11	20
Benzo(a)anthracene		0.0710	mg/L	1	0.0800	<0.000118	89	40.4 - 91.9	13	20
Chrysene	⁴	0.0916	mg/L	1	0.0800	<0.0000766	114	44.4 - 107	1	20
Benzo(b)fluoranthene		0.0363	mg/L	1	0.0800	<0.000146	45	34.8 - 105	4	20
Benzo(k)fluoranthene		0.0585	mg/L	1	0.0800	<0.000141	73	50.2 - 158	9	20
Benzo(a)pyrene		0.0447	mg/L	1	0.0800	<0.000132	56	51.3 - 151	1	20
Indeno(1,2,3-cd)pyrene		0.0488	mg/L	1	0.0800	<0.0000702	61	43.2 - 115	13	20
Dibenzo(a,h)anthracene		0.0555	mg/L	1	0.0800	<0.0000534	69	43.9 - 115	15	20
Benzo(g,h,i)perylene		0.0430	mg/L	1	0.0800	<0.0000473	54	45.1 - 115	15	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0300	0.0330	mg/L	1	0.0800	38	41	10 - 111
2-Fluorobiphenyl	0.0369	0.0413	mg/L	1	0.0800	46	52	10 - 92.7
Terphenyl-d14	0.0720	0.0806	mg/L	1	0.0800	90	101	35.9 - 107

Matrix Spike (MS-1) Spiked Sample: 260125

QC Batch: 79654
Prep Batch: 67576

Date Analyzed: 2011-03-21
QC Preparation: 2011-03-21

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	11.0	mg/L	50	5.00	5.7675	105	77.9 - 114
Toluene	5.15	mg/L	50	5.00	<0.0150	103	78.3 - 111
Ethylbenzene	6.20	mg/L	50	5.00	0.7803	108	75.3 - 110
Xylene	17.1	mg/L	50	15.0	0.9691	108	75.7 - 109

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	11.2	mg/L	50	5.00	5.7675	109	77.9 - 114	2	20
Toluene	5.27	mg/L	50	5.00	<0.0150	105	78.3 - 111	2	20
Ethylbenzene	6.28	mg/L	50	5.00	0.7803	110	75.3 - 110	1	20
Xylene	⁵ 17.4	mg/L	50	15.0	0.9691	110	75.7 - 109	2	20

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

³Spike analyte out of control limits. Results biased high. •

⁴Spike analyte out of control limits. Results biased high. •

⁵MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

Report Date: March 24, 2011
TNM 97-04

Work Order: 11032107
TNM 97-04 Townsend

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Lovington, NM

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	4.96	5.00	mg/L	50	5	99	100	68.3 - 107
4-Bromofluorobenzene (4-BFB)	5.91	5.91	mg/L	50	5	118	118	60.1 - 135

Standard (CCV-1)

QC Batch: 79654

Date Analyzed: 2011-03-21

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0989	99	80 - 120	2011-03-21
Toluene		mg/L	0.100	0.105	105	80 - 120	2011-03-21
Ethylbenzene		mg/L	0.100	0.118	118	80 - 120	2011-03-21
Xylene		mg/L	0.300	0.359	120	80 - 120	2011-03-21

Standard (CCV-2)

QC Batch: 79654

Date Analyzed: 2011-03-21

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0898	90	80 - 120	2011-03-21
Toluene		mg/L	0.100	0.0960	96	80 - 120	2011-03-21
Ethylbenzene		mg/L	0.100	0.106	106	80 - 120	2011-03-21
Xylene		mg/L	0.300	0.322	107	80 - 120	2011-03-21

Standard (CCV-1)

QC Batch: 79704

Date Analyzed: 2011-03-23

Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/L	60.0	52.4	87	80 - 120	2011-03-23
2-Methylnaphthalene		mg/L	60.0	61.4	102	80 - 120	2011-03-23
1-Methylnaphthalene		mg/L	60.0	55.2	92	80 - 120	2011-03-23
Acenaphthylene		mg/L	60.0	55.3	92	80 - 120	2011-03-23
Acenaphthene		mg/L	60.0	53.8	90	80 - 120	2011-03-23
Dibenzofuran		mg/L	60.0	65.0	108	80 - 120	2011-03-23
Fluorene		mg/L	60.0	63.2	105	80 - 120	2011-03-23
Anthracene		mg/L	60.0	54.0	90	80 - 120	2011-03-23
Phenanthrene		mg/L	60.0	59.1	98	80 - 120	2011-03-23

continued ...

Report Date: March 24, 2011
TNM 97-04

Work Order: 11032107
TNM 97-04 Townsend

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Lovington, NM

standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Fluoranthene		mg/L	60.0	69.4	116	80 - 120	2011-03-23
Pyrene		mg/L	60.0	69.0	115	80 - 120	2011-03-23
Benzo(a)anthracene		mg/L	60.0	58.2	97	80 - 120	2011-03-23
Chrysene		mg/L	60.0	56.4	94	80 - 120	2011-03-23
Benzo(b)fluoranthene		mg/L	60.0	52.4	87	80 - 120	2011-03-23
Benzo(k)fluoranthene		mg/L	60.0	68.2	114	80 - 120	2011-03-23
Benzo(a)pyrene		mg/L	60.0	61.3	102	80 - 120	2011-03-23
Indeno(1,2,3-cd)pyrene		mg/L	60.0	53.1	88	80 - 120	2011-03-23
Dibenzo(a,h)anthracene		mg/L	60.0	53.9	90	80 - 120	2011-03-23
Benzo(g,h,i)perylene		mg/L	60.0	49.4	82	80 - 120	2011-03-23

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5		53.1	mg/L	1	60.0	88	80 - 120
2-Fluorobiphenyl		54.3	mg/L	1	60.0	90	80 - 120
Terphenyl-d14		68.8	mg/L	1	60.0	115	80 - 120

11032107

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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 Name: NOVA (Street, City, Zip)
Address: 2057 Commerce Midland TX 79703
Contact Person: Ron Roubaille
Invoice to:
(If different from above)
Project #: TNM 9704
Project Name: TOWNSEND
Project Location (including state): TOWNSEND
Phone #: (432) 520-7720
Fax #:
E-mail:
Sampler Signature: [Signature]

[illegible]

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST	OBS
<i>[Signature]</i>	NOVA			<i>[Signature]</i>	TA	3/18/11	15:30	COR	OBS
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST	OBS
								COR	
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST	OBS
				<i>[Signature]</i>	Trace	3/18/11	9:30	COR	OBS
				<i>[Signature]</i>	LYNAC	3/22/11	9:30	COR	OBS

ANALYSIS REQUEST (Circle or Specify Method No.)		Hold
MTBE 8021 / 602 / 8260 / 624	X	
BTEX 8021 / 602 / 8260 / 624		
TPH 418.1 / TX1005 Ex(C35)		
TPH 8015 GRO / DRO / TVHC		
PAH 8270 / 625	X	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7		
TCLP Metals Ag As Ba Cd Cr Pb Se Hg		
TCLP Volatiles		
TCLP Semi Volatiles		
TCLP Pesticides		
RCI		
GC/MS Vol. 8260 / 624		
GC/MS Semi. Vol. 8270 / 625		
PCB's 8082 / 608		
Pesticides 8081 / 608		
BOD, TSS, pH		
Moisture Content		
Cl, FI, SO4, NO3, NO2, Alkalinity		
Na, Ca, Mg, K, TDS, EC		
Turn Around Time if different from standard	X	

21.3 21.3 IK 4.0 3.9	LAB USE ONLY Intact ☒ N Headspace ☒ NA	REMARKS: Straight from field 24 hr 405A * call w BTEX results
	☐ Dry Weight Basis Required ☐ TRRP Report Required ☐ Check If Special Reporting Limits are Needed	

~~Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.~~

Carrier #

cong is 2S 2L 170/172