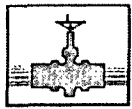


1R - 395

Annual GW Mon. REPORTS

DATE:

2010



PLAINS
ALL AMERICAN

March 9, 2011

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

Re: Plains All American – 2010 Annual Monitoring Reports
2 Sites in Lea County, New Mexico

RECEIVED OGD
2011 MAR 23 A 11:38

Dear Mr. Hansen:

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

<u>Livingston Line-Bob McCasland</u>	<u>1R-0395</u>	<u>Section 3, T21S, R37E, Lea County</u>
<u>Livingston Ridge to Hugh-P. Sims</u>	<u>1R-0398</u>	<u>Section 3, T21S, R37E, Lea County</u>

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

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

Sincerely,

Jason Henry
Remediation Coordinator
Plains All American

CC: Geoff Leking, NMOCD, Hobbs, NM

Enclosures

2010 ANNUAL GROUNDWATER MONITORING REPORT

**Livingston Line – Bob McCasland
NE ¼ of the SW ¼, Section 3, Township 21 South, Range 37 East
Plains Pipeline SRS Number 2001-11226
Lea County, New Mexico
NMOCD File Number IR -- 0395**

Terracon Project Number A4077007

February 8, 2011

Prepared for:

**Plains Pipeline, L.P.
2530 State Highway 214
Denver City, Texas 79323**

Prepared by:

Terracon

Midland, Texas

February 8, 2011

Plains Pipeline, L.P.
2530 State Highway 214
Denver City, Texas 79323
Attn: Mr. Jason Henry

Telephone: (806) 592-8305
Fax: (806) 592-7479

Re: 2010 Annual Groundwater Monitoring Report
Livingston Line - Bob McCasland
NE ¼ of the SW ¼, Section 3, T21S, R37E
Lea County, New Mexico
NMOCD File Number IR - 0395
Plains Pipeline, L.P. SRS Number 2001-11226
Terracon Project Number A4077007

Dear Mr. Henry:

Terracon is pleased to submit four copies of the 2010 Annual Groundwater Monitoring Report for the above referenced site.

We appreciate the opportunity to perform these services for Plains Pipeline, L.P. Please contact either of the undersigned at (432) 684-9600 if you have questions regarding the information provided in the report.

Sincerely,
Terracon

Prepared by:



Joshua B. Woodall
Field Geologist

Reviewed by:



Barrett W. Bole, P. G.
Senior Associate



Terracon Consultants, Inc. 1211 W. Florida Ave. Midland, Texas 79701 Registration No. F-3272

P [432] 684 9600 F [432] 684 9608 terracon.com

Geotechnical

Environmental

Construction Materials

Facilities

TABLE OF CONTENTS



Page No.

1.0	INTRODUCTION	1
2.0	FIELD ACTIVITIES	3
3.0	DATA EVALUATION	4
4.0	FINDINGS AND RECOMMENDATIONS	8

LIST OF APPENDICES

Appendix A:	Figure 1– Topographic Map
	Figure 2 – Site Plan
	Figure 3 – Groundwater Gradient Map (02/03/10)
	Figure 4 – Groundwater Gradient Map (05/27/10)
	Figure 5 – Groundwater Gradient Map (08/16/10)
	Figure 6 – Groundwater Gradient Map (11/10/10)
	Figure 7 – Groundwater Contaminant Concentration Map (02/05/10)
	Figure 8 – Groundwater Contaminant Concentration Map (05/27/10)
	Figure 9 – Groundwater Contaminant Concentration Map (08/16/10)
	Figure 10 – Groundwater Contaminant Concentration Map (11/10/10)
Appendix B:	Tables
Appendix C:	Laboratory Data Sheets
Appendix D:	CD of the 2010 Annual Groundwater Monitoring Report

2010 Annual Groundwater Monitoring Report

**Livingston Line - Bob McCasland Site
NE ¼ of the SW ¼ of Section 3, T21S, R37E
Plains SRS Number 2001-11226
Lea County, New Mexico
NMOCD File Number IR – 0395
Terracon Project Number A4077007**

1.0 INTRODUCTION

1.1 Site Description

Site Name	Livingston Line – Bob McCasland
Site Location	Approximately 5 miles north-northeast of Eunice, Lea County, New Mexico on Loop 207.
General Site Description	Pipeline right-of-way surrounded by native pasture land, in close proximity of the abandoned Carbon Black Plant.

A topographic map is included as Figure 1 and a site plan is included as Figure 2 of Appendix A.

On July 13, 2001, a reported four barrels of crude oil were released from the Livingston four-inch steel pipeline. The release covered an area of approximately 1,600 square feet of pipeline right-of-way and caliche road.

Initial investigative activities were conducted from August 16, 2001 through August 22, 2001, and included advancing 17 soil borings. It was determined during this time that groundwater, situated approximately 30 feet below ground surface (bgs), had been impacted. Three groundwater monitor wells (MW-1, MW-2 and MW-3) were installed around the release area to evaluate the extent and magnitude of the release. Samples collected from the groundwater monitor wells indicated groundwater concentrations for benzene, toluene, ethylbenzene, and total xylenes (BTEX) were above New Mexico Water Quality Control Commission (NMWQCC) Groundwater Standards. Three additional groundwater monitor wells (MW-4, MW-5 and MW-6) were installed at the site. Phase separated hydrocarbon (PSH) was detected in groundwater monitor well MW-4 following its installation.

In December 2001, approximately 11,445 cubic yards of hydrocarbon impacted soil were excavated and stockpiled on-site. Earthen berms were constructed around the stockpiles to prevent runoff. Analytical results for soil samples collected from the excavation indicated BTEX concentrations above New Mexico Oil Conservation Division (NMOCD) remedial threshold limits.

To delineate the lateral extent of groundwater impact at the site, three additional groundwater monitor wells (MW-7, MW-8 and MW-9) were installed in June 2004. Two additional monitor wells (MW-10 and MW-11) were installed in November of 2004. During installation of these five groundwater monitor wells in June and December 2004, soil samples were collected and submitted to AnalySys, Inc., an analytical laboratory in Austin, Texas for analysis of total petroleum hydrocarbons (TPH) (gasoline and diesel range organics) and BTEX constituents. BTEX constituents for each of soil samples from the monitor wells were below NMOCD remedial threshold limits. TPH concentrations from soil samples collected from groundwater monitor wells MW-7, MW-10 and MW-11 were at or below laboratory analytical method detection limits (MDLs).

1.2 Scope of Work

Terracon's scope of work included assuming oversight of remedial activities on February 1, 2007. Oversight activities included the preparation of 2006, 2007 and 2008 annual groundwater monitoring and soil closure status reports for submittal to the NMOCD. Four quarterly groundwater monitoring and sampling events were conducted during 2010 by Terracon. The events were performed on February 3, 2010, May 27, 2010, August 16, 2010, and November 10, 2010 at the Livingston Line - Bob McCasland site located in Lea County, New Mexico.

The objective of the quarterly sampling events was to gauge the eleven groundwater monitor wells (MW-1 through MW-11) and to collect samples of groundwater from each well for analysis of BTEX (quarterly) and polycyclic aromatic hydrocarbons (PAHs), (annually). Groundwater samples for PAH analysis were collected from monitoring well MW-5 only, on November 10, 2010.

1.3 Standard of Care

Terracon was awarded this project on February 1, 2007. A previous consultant hired by Plains performed site activities prior to Terracon assuming over site on this project. Terracon makes no assumptions or warranties regarding services being performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report.

1.4 Additional Scope Limitations

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of

work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this remediation activities. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.5 Reliance

This report has been prepared for the exclusive use of Plains Pipeline, L. P., and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of Plains Pipeline, L.P. and Terracon. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in this report, and Terracon's Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to the client and all relying parties unless otherwise agreed in writing.

2.0 FIELD ACTIVITIES

2.1 Groundwater Monitoring and Sampling

Quarterly monitoring and sampling events were performed on February 3, 2010, May 27, 2010, August 16, 2010, and November 10, 2010, by Terracon. Figure 1 presents the general boundaries and topography of the site on portions of the USGS topographic quadrangle map of Hobbs Southwest, New Mexico (Appendix A). Figure 2 is a site plan that indicates the approximate locations of the monitor wells in relation to the pertinent structures and general site boundaries (Appendix A).

During each sampling event, monitor wells were gauged to determine the depth to groundwater and to check for the presence of crude oil or PSH. Based on the gauging data, PSH was present at a thicknesses ranging from non-detect to 0.06 feet in monitor well MW-4 during 2010. Previously, PSH was present as a sheen in monitor well MW-4. No additional monitor wells at the site contained measurable PSH during 2010. Groundwater monitor well MW-1 was dry in November 2007 and has remained dry throughout 2010. As such, a water sample was not obtained from this well during 2010. Groundwater gradient maps for each quarter are included as Figures 3 through 6 (Appendix A). Gauging data is included in Appendix B as Table 1.

A groundwater sample was collected and analyzed from ten of the eleven groundwater monitor

wells in accordance with the NMOCD. Prior to sample collection, each of these monitor wells was micro-purged until consistent values (i.e., less than 10% variance between consecutive readings) were obtained for pH, temperature and conductivity. Following purging, a groundwater sample was collected directly from polyethylene tubing attached to the downhole pump.

Groundwater samples were placed in laboratory-supplied containers appropriate to the analyses requested and placed on ice in a cooler. The sample coolers and completed chain-of-custody forms were delivered to Xenco Laboratories Company, in Odessa, Texas for standard turnaround for analysis of BTEX using EPA SW-846 Method 8021B in each of the four quarters, and TPH using EPA SW-846 Method 8015M and PAHs using EPA SW-846 Method 8270C in February 2010.

3.0 DATA EVALUATION

3.1 Water Level Data

Water level measurement data collected during the respective quarterly sampling events were used to construct groundwater gradient maps that are included as Figures 3, 4, 5, and 6 (Appendix A). Groundwater elevation contours generated from the quarterly sampling events of 2010 indicated the groundwater gradient was generally consistent with previous sampling events. Previous gauging data at the site indicated that the groundwater gradient had been predominately to the south-southeast. Groundwater gradients during 2010 sampling and gauging events are summarized below:

- The gradient/direction during the February 2010 sampling event was 0.005 ft/ft and toward the southeast;
- The gradient/direction during the May 2010 sampling event was 0.003 ft/ft and toward the southeast;
- The gradient/direction during the August 2010 sampling event was 0.005 ft/ft and toward the southeast; and
- The gradient/direction during the November 2010 sampling event was 0.003 ft/ft and toward the southeast.

Groundwater flow direction was relatively consistent during 2010. Water level measurement data is summarized in Table 1 in Appendix B.

Monitor well MW-1 has been dry, containing no fluids, since November 2007. During 2010, groundwater elevations increased by an average 0.48 feet in site monitor wells.

3.2 Groundwater Analysis Data

Laboratory results from the analysis of groundwater samples collected from monitor wells MW-1 through MW-11 are summarized in Table 2 and Table 3 in Appendix B and presented on Figure 7 through Figure 10 in Appendix A. The executed chain-of-custody forms and laboratory data sheets are provided in Appendix C.

1st Quarter 2010

Groundwater samples were collected and analyzed for BTEX constituents during the first quarter on February 3, 2010. The first quarter results are summarized below:

- Groundwater was not collected from monitor well MW-1 in February 2010, as the well was dry and contained no fluids;
- BTEX constituents were not detected in the groundwater samples collected from monitor wells MW-3, MW-6, MW-7, MW-8, MW-9, MW-10 and MW-11 at concentrations which exceeded their respective laboratory reporting limit and/or NMWQCC groundwater standards;
- The groundwater samples collected from monitor wells MW-2 (at 0.0287 mg/l), MW-4 (at 2.019 mg/l), and MW-5 (at 0.0432 mg/l), contained concentrations of benzene which exceeded the NMWQCC groundwater standard of 0.01 mg/l;
- Toluene, ethylbenzene and total xylenes were not detected in any of the groundwater samples collected at the site above their respective laboratory reporting limits and/or NMWQCC groundwater standards; and,
- Measurable PSH was not detected in any of the monitor wells during the first quarter of 2010.

2nd Quarter

Groundwater samples were collected and analyzed for BTEX and PAH constituents during the second quarter on May 27, 2010. The second quarter results are summarized below:

- A groundwater sample was not collected from monitor well MW-1, as it was dry;
- A groundwater sample was not collected from monitor well MW-4 because of a presence of PSH;

- Benzene was not detected at concentrations exceeding the respective laboratory reporting limit and/or NMWQCC groundwater standard in the groundwater samples collected from monitor wells MW-3, MW-6, MW-7, MW-10 and MW-11;
- Benzene was detected in the groundwater samples collected monitor wells MW-2 (at 0.0262 mg/l), MW-5 (at 0.0824 mg/l), MW-8 (at 0.0268 mg/l), and MW-9 (at 0.0279 mg/l); exceeding the NMWQCC groundwater standard of 0.01 mg/l for benzene;
- Toluene, ethylbenzene and total xylenes were not detected in any of the groundwater samples collected at the site above their respective laboratory reporting limits and/or NMWQCC groundwater standards; and,
- Measurable PSH was detected in the monitor well MW-4 during the second quarter of 2010 at a thickness of 0.05 feet.

3rd Quarter

Groundwater samples were collected and analyzed for BTEX constituents during the third quarter on August 16, 2010. The third quarter results are summarized below:

- A groundwater sample was not collected from monitor well MW-1, as it was dry;
- A groundwater sample was not collected from monitor well MW-4 because of a presence of PSH;
- Benzene was not detected at concentrations exceeding the respective laboratory reporting limit and/or NMWQCC groundwater standard in the groundwater samples collected from monitor wells MW-2, MW-3, MW-6, MW-7, MW-10 and MW-11;
- Benzene was detected in the groundwater samples collected from monitor wells MW-5 (at 0.2479 mg/l), MW-8 (at 0.0478 mg/l), and MW-9 (at 0.0373 mg/l), which exceeded the NMWQCC groundwater standard of 0.01 mg/l for benzene;
- Toluene, ethylbenzene and total xylenes were not detected in the groundwater samples collected from the site monitor wells at concentrations above laboratory reporting limits and/or their respective NMWQCC groundwater standards; and,
- Measureable PSH was detected in the monitor well MW-4 during the third quarter of 2010 at a thickness of 0.3 inches.

4th Quarter

Groundwater samples were collected and analyzed for BTEX constituents during the fourth quarter on November 10, 2010. The fourth quarter results are summarized below:

- A groundwater sample was not collected from monitor well MW-1, as it contained no fluids during the fourth quarter sampling event;
- A groundwater sample was not collected from monitor well MW-4 because of a presence of PSH;
- The groundwater samples collected from monitor wells MW-3, MW-6, MW-7, MW-8, MW-10, and MW-11 did not contain benzene at concentrations exceeding the laboratory reporting limit and/or NMWQCC groundwater standard;
- Benzene was detected in the groundwater samples collected from monitor wells MW-2 (at 0.01 mg/l), MW-5 (at 0.0133 mg/l), and MW-9 (at 0.0345 mg/l), exceeding the NMWQCC groundwater standard of 0.01 mg/l for benzene;
- Toluene, ethylbenzene and total xylenes were not detected in any of the groundwater samples collected from the monitor wells at concentrations above their respective laboratory reporting limits and/or NMWQCC groundwater standards;
- PAH constituent were not detected in the groundwater sample collected from monitoring well MW-5 at concentrations exceeding their respective laboratory reporting limits and/or the NMWQCC groundwater standards. Groundwater from monitoring well MW-5 was the only sample to be analyzed for PAH constituents; and,
- Measurable PSH was only detected in monitoring well MW-4 at a thickness of 0.06 inches.

3.3 Historical Data Comparisons

Monitor wells MW-1, MW-3, MW-7 and MW-11 have historically not contained BTEX or TPH at concentrations exceeding their respective laboratory reporting limits and/or NMWQCC groundwater standards. Monitor well MW-1 has been dry since December 2007. Monitor well MW-1 was reportedly drilled to 40 feet bgs and it measures dry at approximately 32 feet bgs likely due to silting of sediments through the well screen. Minor thicknesses or a sheen of PSH

have been detected in monitor well MW-4 since it was installed in January 2002. PSH has been detected periodically in monitor well MW-8; however, PSH has not been detected in monitor well MW-8 during 2010. With a few exceptions, groundwater samples from monitor wells MW-2, MW-4, MW-5, MW-8, and MW-9 have historically contained benzene at concentrations exceeding the NMWQCC groundwater standards. Monitoring wells MW-6 and MW-10 have not contained benzene at concentrations exceeding the laboratory reporting limit and/or the NMWQCC groundwater standards since 2008.

With the exception of periodic concentrations of naphthalene detected in monitor wells MW-4 and MW-5, TPH and PAHs have not been detected at concentrations exceeding the laboratory reporting limits and/or NMWQCC groundwater standards since the monitor wells were installed. During 2010, none of the groundwater samples contained PAH constituents at concentrations exceeding their respective laboratory reporting limits and/or NMWQCC groundwater standards. Terracon has been purging large volumes of groundwater from monitor wells MW-2, MW-4, MW-5, MW-8 and MW-9 during 2010 in an attempt to enhance remediation of the plume at the site.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Findings

The annual groundwater report presents the results of four groundwater monitoring and sampling events for the 2010 calendar year.

- Monitor well MW-1 contained no fluids during the 2010 sampling events;
- Measurable PSH has not been detected in the monitor wells at the site, with the exception of monitor well MW-4. PSH was measured at thicknesses ranging from a sheen to 0.06 feet in 2010;
- With a few exceptions, groundwater samples collected from monitor wells MW-1, MW-3, MW-7, MW-10, and MW-11 have not contained BTEX constituents above their respective laboratory reporting limits and/or NMWQCC groundwater standards since the monitor wells were installed in 2001 (MW-1 and MW-3) and 2004 (MW-7, MW-10 and MW-11);
- Groundwater samples collected from monitor wells MW-2, MW-4, MW-5, MW-8 and MW-9 contained benzene at concentrations exceeding the NMWQCC groundwater standard during at least two of the four quarters they were sampled in 2010;
- The groundwater samples collected from monitor well MW-6 and MW-10 did not contain

benzene at concentrations exceeding the respective laboratory reporting limit and/or NNMQCC groundwater standard during any of the four quarters of 2010;

- Groundwater samples collected in 2010 did not contain toluene, ethylbenzene and total xylenes at concentrations above their respective laboratory reporting limits and/or the NMWQCC groundwater standards;
- PAH constituents were not detected in the groundwater sample collected from monitoring well MW-5 in November 2010 at concentrations exceeding their respective laboratory reporting limits and/or the NMWQCC groundwater standards;
- The extent of the PSH plume and the dissolved phase plume exceeding the NMWQCC groundwater standards have been defined. Detected concentrations of BTEX and PAHs have demonstrated a decreasing trend since groundwater sampling activities were initiated;
- The NMOCD recommended that a monitor well be installed down-gradient from the release site; however, landowner constraints have delayed any additional activities at the site, with the exception of sampling and gauging the existing monitor wells. However, it should be noted that monitor well MW-11 is slightly down-gradient and monitor well MW-6 is cross-gradient and that both exhibited benzene concentrations below the NMWQCC groundwater standards during 2010; and,
- A Soil Characterization Report and Remediation Plan report dated June 2006, by Environmental Plus, Inc. (EPI) was submitted to the NMOCD. This report detailed remediation activities conducted at the site, in-place soil concentrations, and recommendations for in-situ hydrocarbon-impacted soil closure.

4.2 Recommendations

Based upon the results of this report, EPI's report and correspondence from the NMOCD, Terracon recommends the following:

- Excavate the south-southwest sidewall of the excavation pit and level the excavation floor;
- Collect confirmation soil samples from the sidewalls and floor of the excavated area and analyze for BTEX and TPH;
- Install a 20-mil thick polyethylene liner from the location of former soil boring SB-15

(located approximately 120 feet from the southern most edge of the excavation) to the northern most edge of the excavation along the excavation floor. Cushion the liner with six inches of sand above and below the liner;

- Sample stockpiled material excavated from the release area for BTEX and TPH. If the stockpiled material are less than 1,000 mg/kg TPH and non-detect for BTEX, use the stockpile material to backfill the excavation;
- If the stockpiled materials are impacted above the site-specific risk-based remedial guidelines, blend and mix the stockpiled soils with native soils and/or caliche at the site to concentrations below the site-specific risk-based levels and backfill the excavation to surface grade then grade the release site area to allow natural drainage;
- After grading operations, seed the area with a grass blend approved by the landowner;
- Continue PSH recovery efforts on monitor wells (as necessary) on a bi-weekly schedule;
- Continue quarterly groundwater sampling for BTEX on all monitor wells for the calendar year of 2011 in accordance with the NMOCD approved sample reduction plan;
- Submit an annual report to the NMOCD detailing the 2011 site activities.

DISTRIBUTION

Copy 1: Mr. Edward J. Hansen, Hydrologist
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Copy 2: Mr. Geoffrey R. Leking
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 1
1625 French Drive
Hobbs, New Mexico 88240

Copy 3: Mr. Jason Henry
Plains Pipeline, L.P.
2530 State Highway 214

Plains Pipeline, L.P.
Livingston Line – Bob McCasland
Terracon Project Number A4077007
February 8, 2011

Denver City, Texas 79323
JHenry@paalp.com

Copy 4: Mr. Jeff Dann
Plains Pipeline, L.P.
333 Clay Street, Suite 1600
Houston, Texas 77002
jpdann@paalp.com

Copy 5: Mr. Barrett W. Bole
Terracon Consultants
1211 West Florida
Midland, Texas 79701
bwbole@terracon.com

APPENDIX A

Figure 1 – Topographic Map

Figure 2 – Site Plan

Figure 3 – Groundwater Gradient Map (02/03/10)

Figure 4 – Groundwater Gradient Map (05/27/10)

Figure 5 – Groundwater Gradient Map (08/16/10)

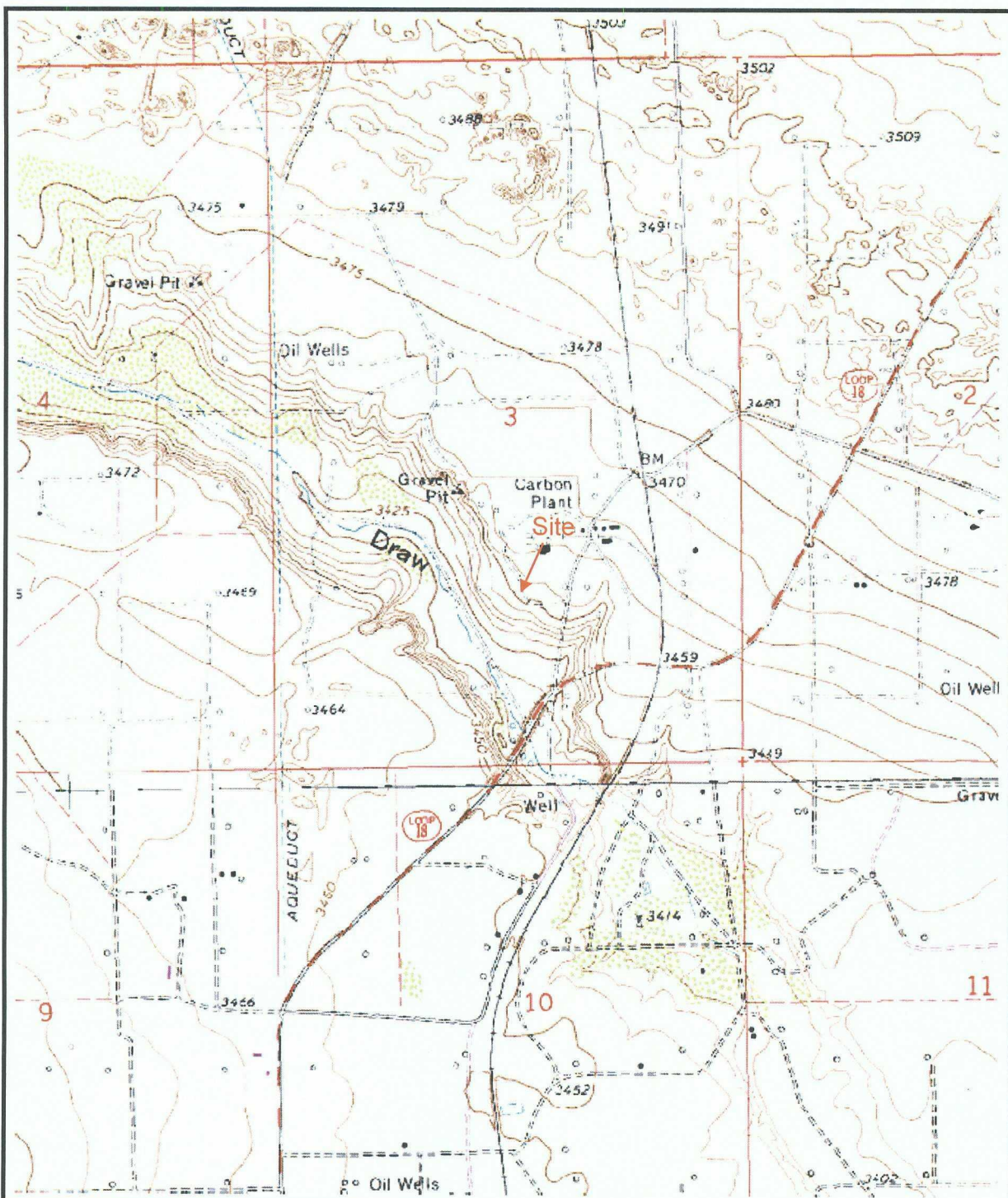
Figure 6 – Groundwater Gradient Map (11/10/10)

Figure 7 – Groundwater Contaminant Concentration Map (02/05/10)

Figure 8 – Groundwater Contaminant Concentration Map (05/27/10)

Figure 9 – Groundwater Contaminant Concentration Map (08/16/10)

Figure 10 – Groundwater Contaminant Concentration Map (11/10/10)



USGS TOPOGRAPHIC QUADRANGLE MAP

Hobbs SW, NM

Dated: 1979

SCALE: 1" = 1,600'

PROJECT NO. A4077007

↑
N



Terracon

Livingston Line - Bob McCasland

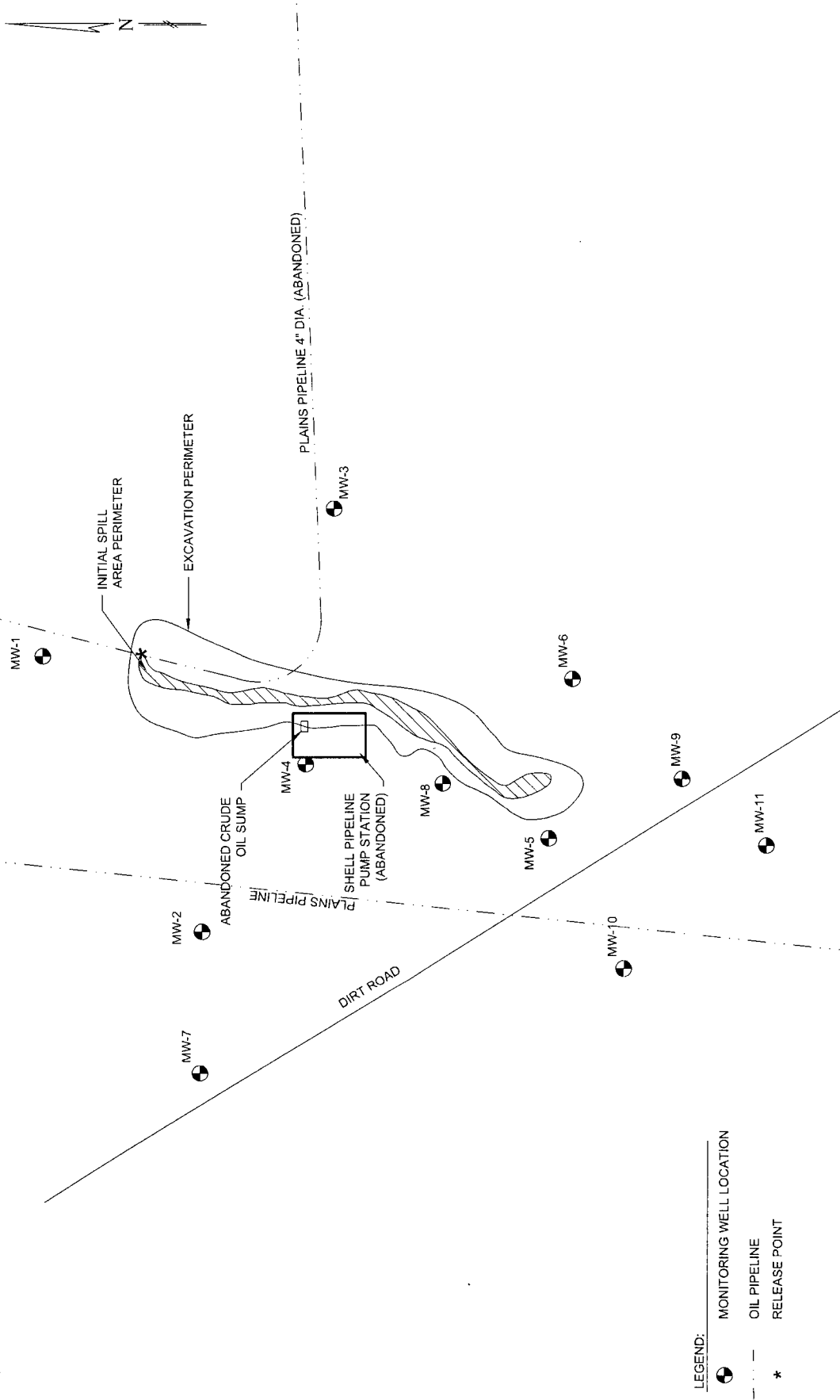
NE 1/4 of SW1/4, Sec. 3, T21S, R37E

NMOCD File Number: 1R-0395

Eunice, Lea County, New Mexico

FIGURE 1: TOPOGRAPHIC MAP

Date: 02/15/08 O:\HBC\MIDLAND\A4077007.dwg Layout: site

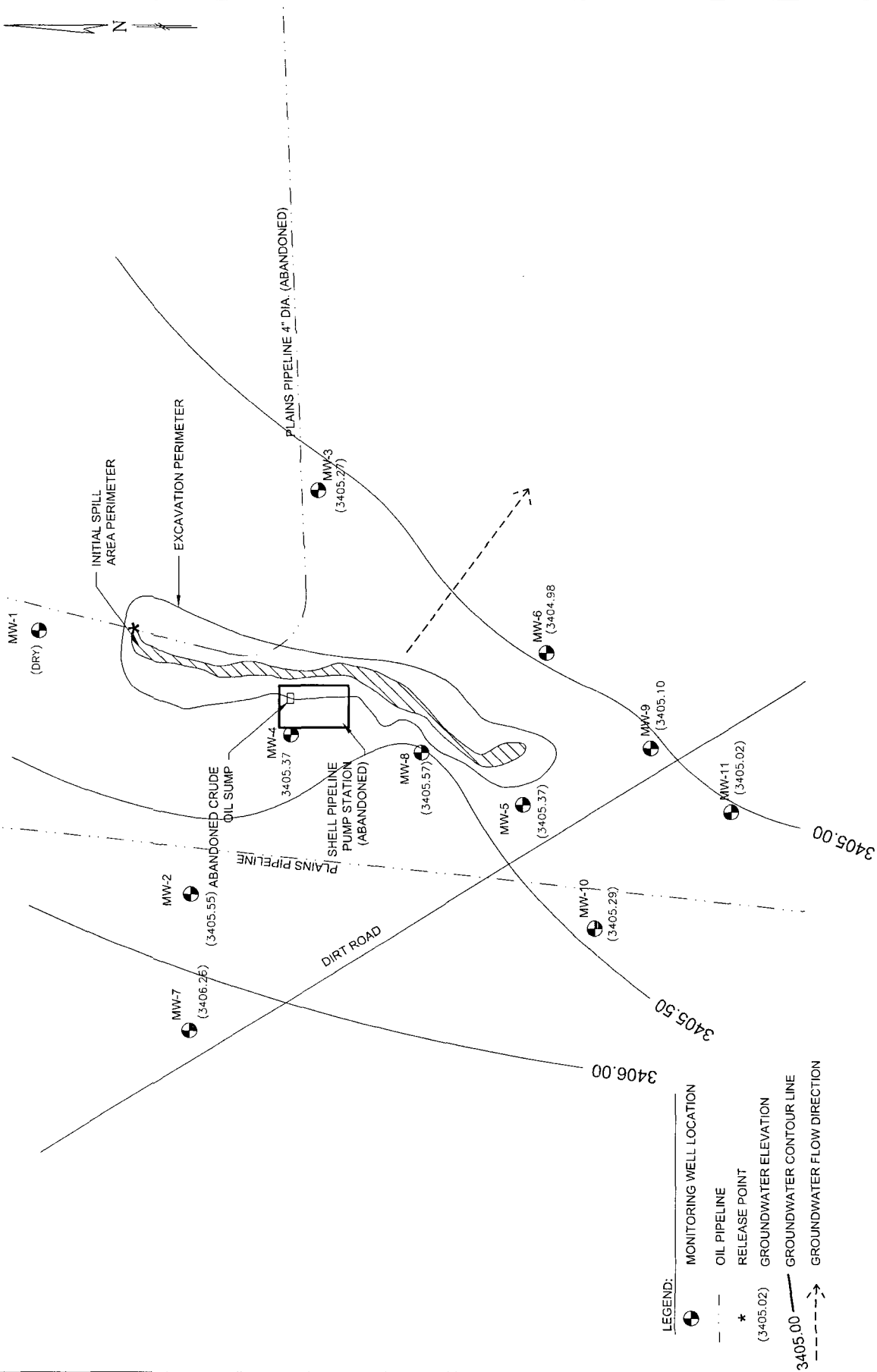


THIS DRAWING SHOULD
NOT BE USED SEPARATELY
FROM ORIGINAL REPORT.

0 50 100 FEET
APPROXIMATE SCALE

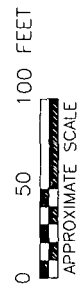
PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

Date: 02/19/10 0:\HBC\MIDLAND\A4077007.dwg Layout: site Current Layer: gw grad 020310



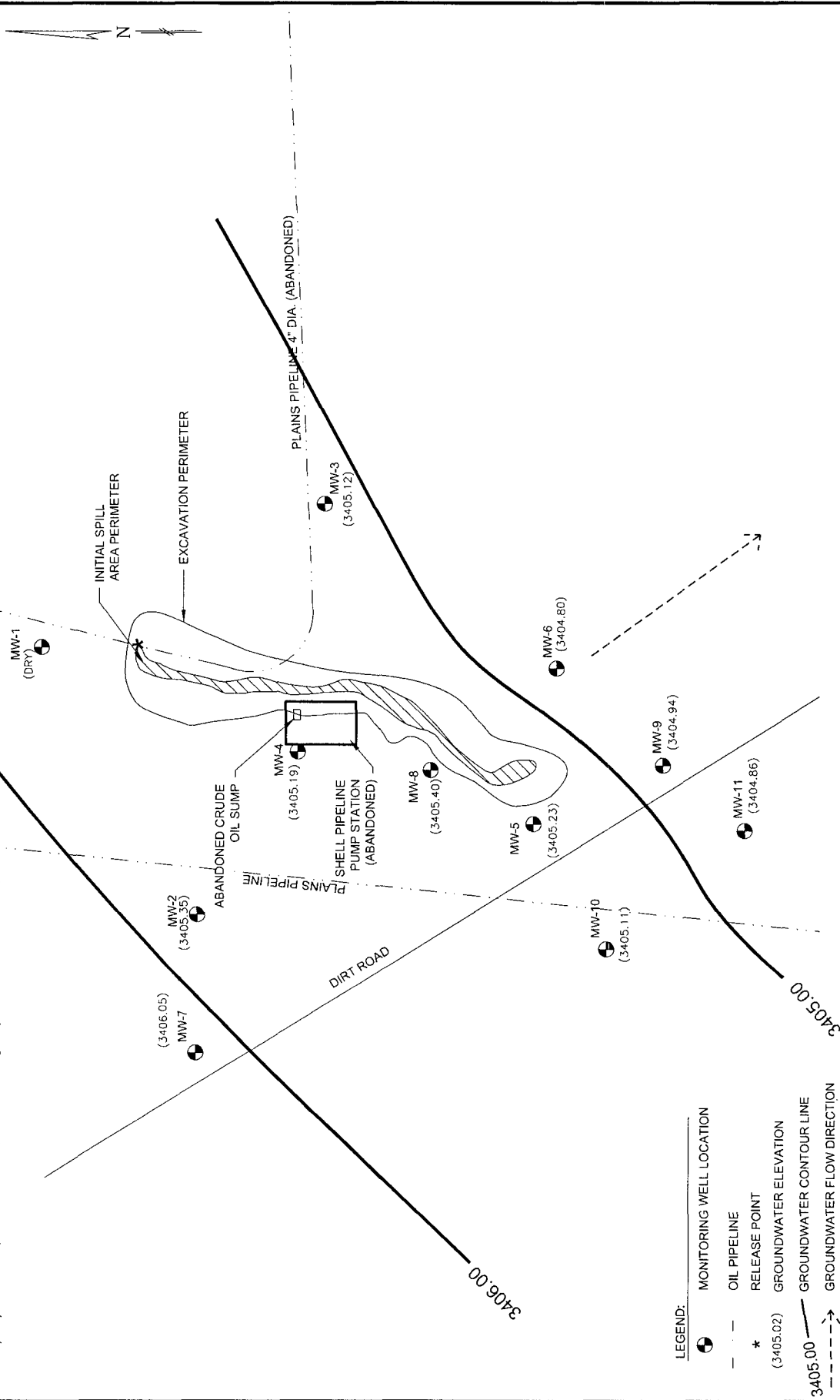
PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRSH2001-11226, NMOCD File# 1R-0395

FIGURE 3: GROUNDWATER GRADIENT MAP (02/03/10)

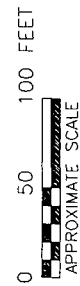


THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.

Date: 06/11/10 O:\HBC\MIDLAND\A4077007.dwg Layout: site Current Layer: GW GRAD 5/27/10



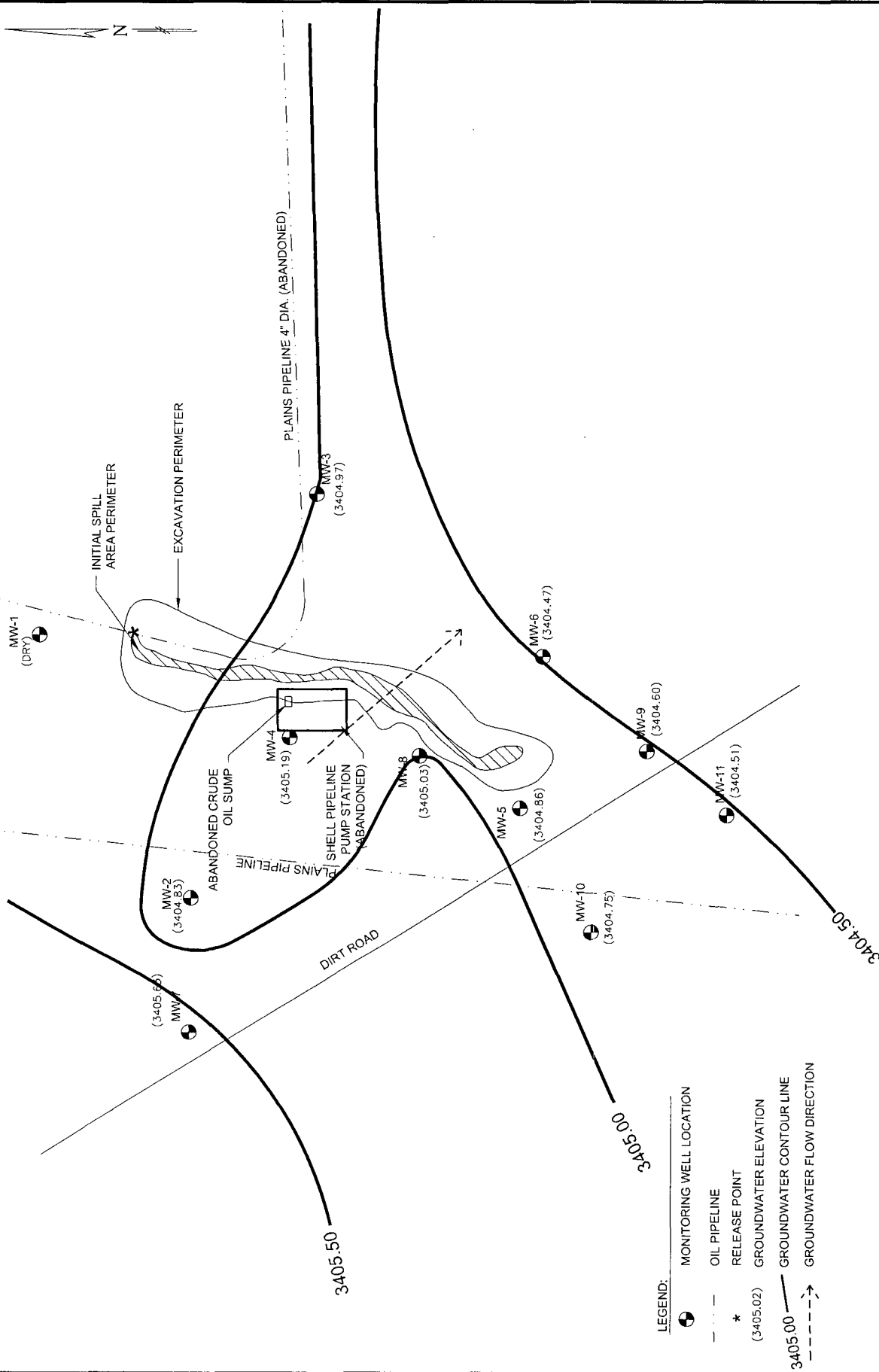
THIS DRAWING SHOULD
NOT BE USED SEPARATELY
FROM ORIGINAL REPORT.



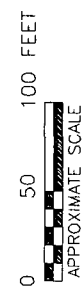
PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

**FIGURE 4: GROUNDWATER GRADIENT
MAP (05/27/10)**

Date: 08/25/10 O:\HBC\MIDLAND\A4077007.dwg Layout: site Current Layer: GW GRAD 8 16 10



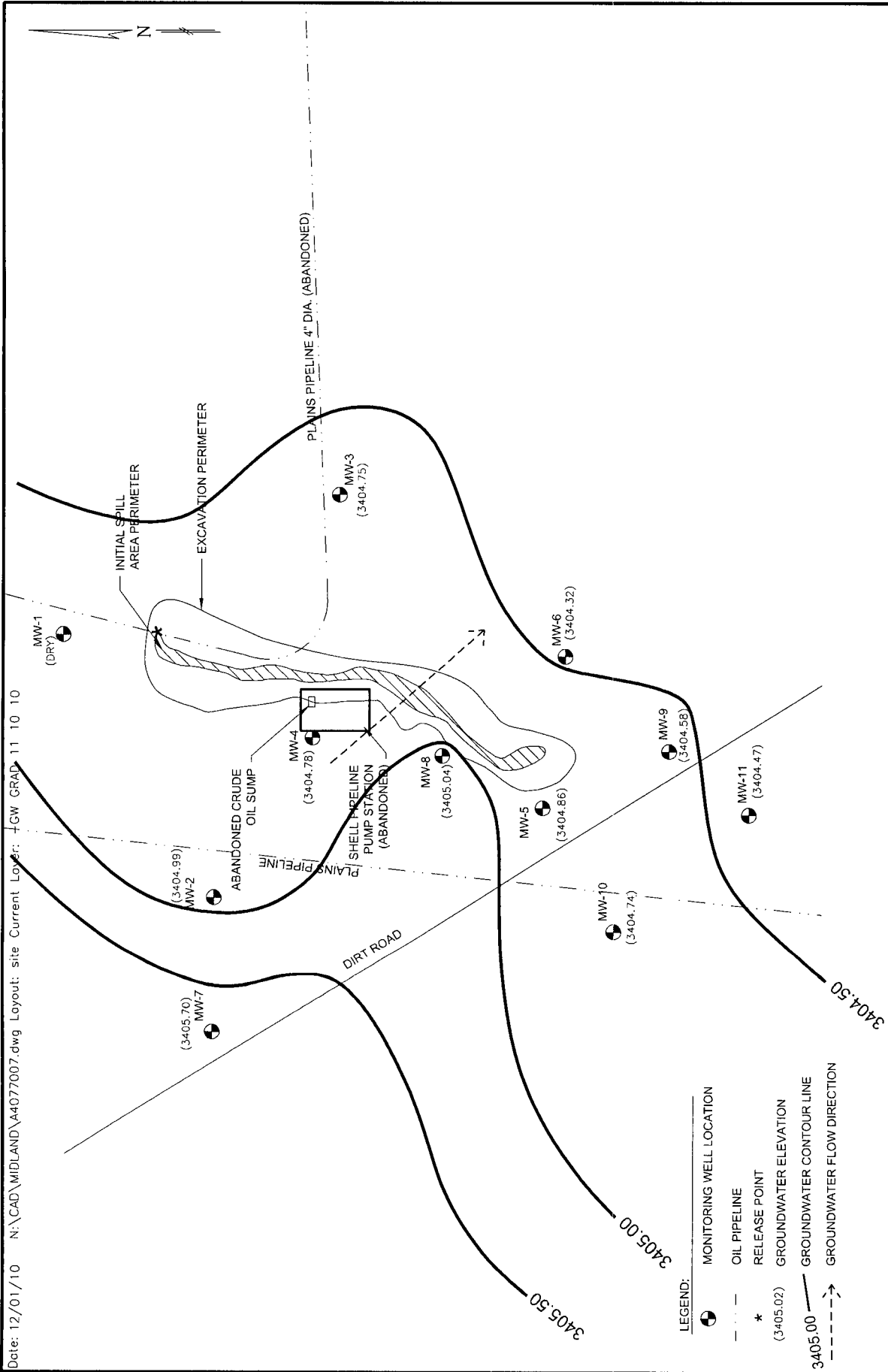
THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.



PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

FIGURE 5: GROUNDWATER GRADIENT MAP (08/16/10)

Date: 12/01/10 N:\CAD\MIDLAND\A4077007.dwg Layout: site Current Layer: +GW GRAD 11 10 10



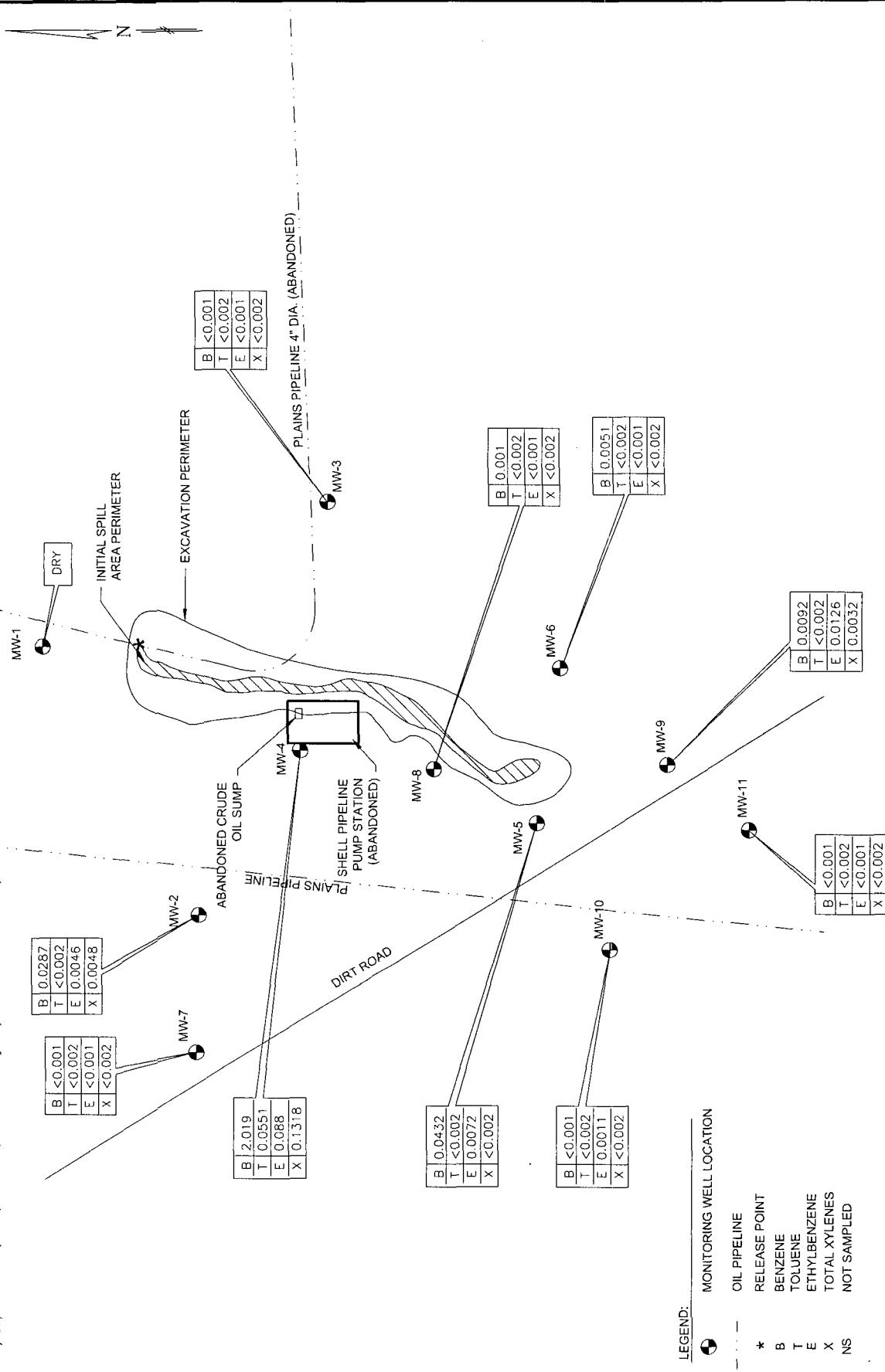
PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

FIGURE 6: GROUNDWATER GRADIENT MAP (11/10/10)



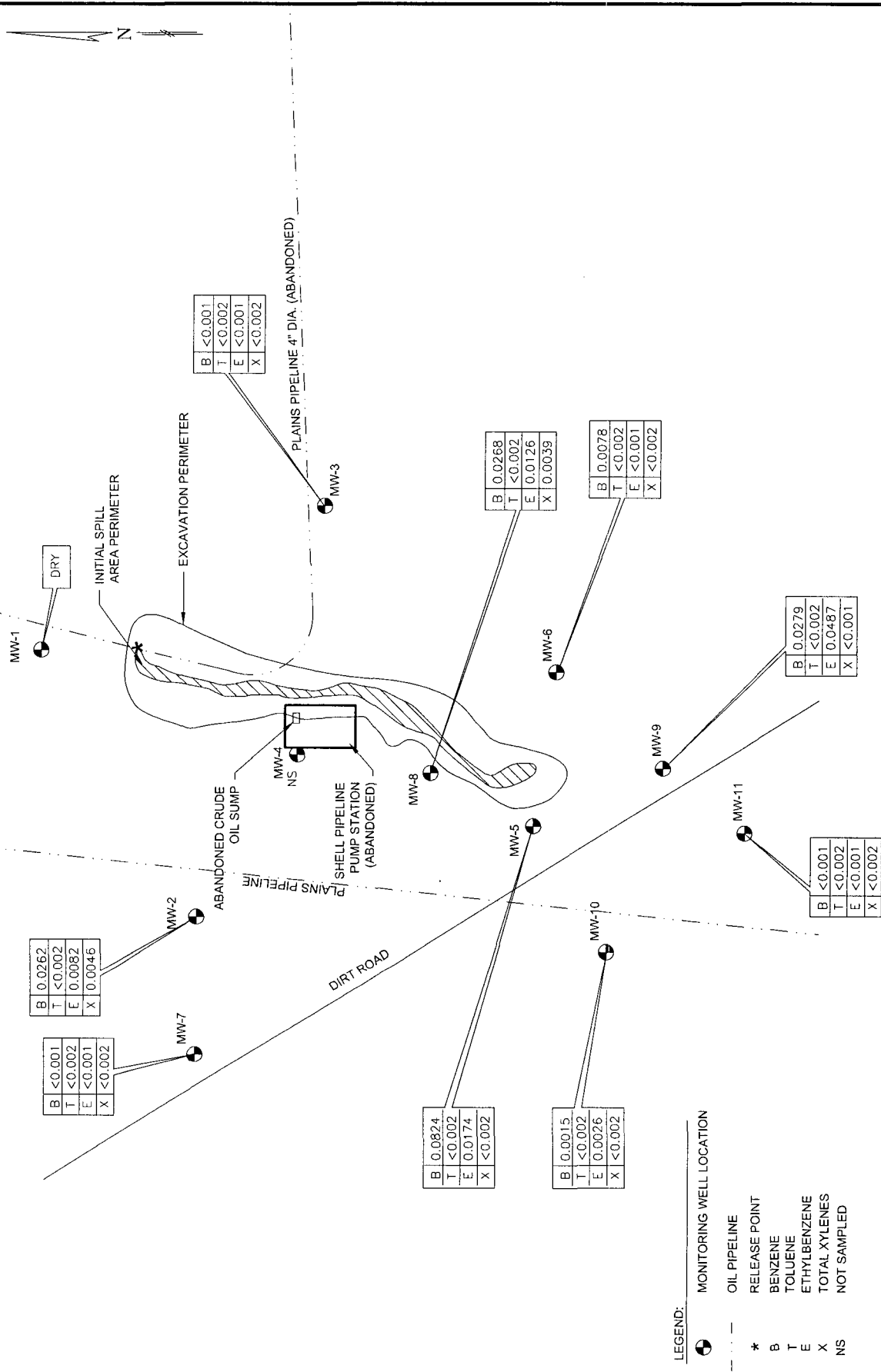
THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.

Date: 02/23/10 O:\HBC\MIDLAND\A4077007.dwg Layout: site Current Layer: GW CONC 020510



PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

FIGURE 7: GROUNDWATER CONTAMINANT CONCENTRATION MAP 02/05/10



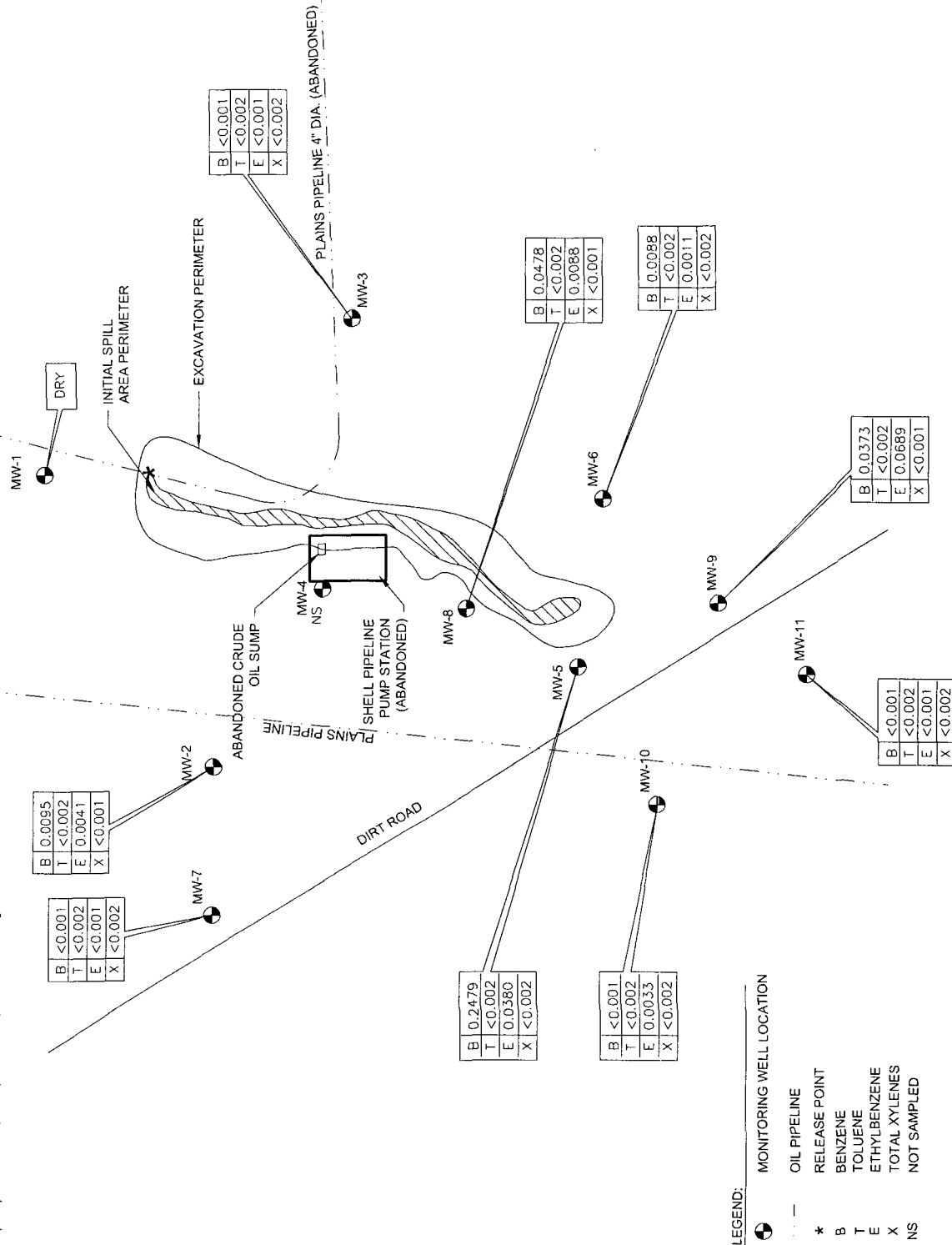
PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

FIGURE 8: GROUNDWATER CONTAMINANT CONCENTRATION MAP 05/27/10

0 50 100 FEET
APPROXIMATE SCALE

THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.

Date: 08/25/10 O:\HBC\MIDLAND\A4077007.dwg Layout: site Current Layer: + GW CONC 8 16 10



CONCENTRATIONS ARE IN mg/L

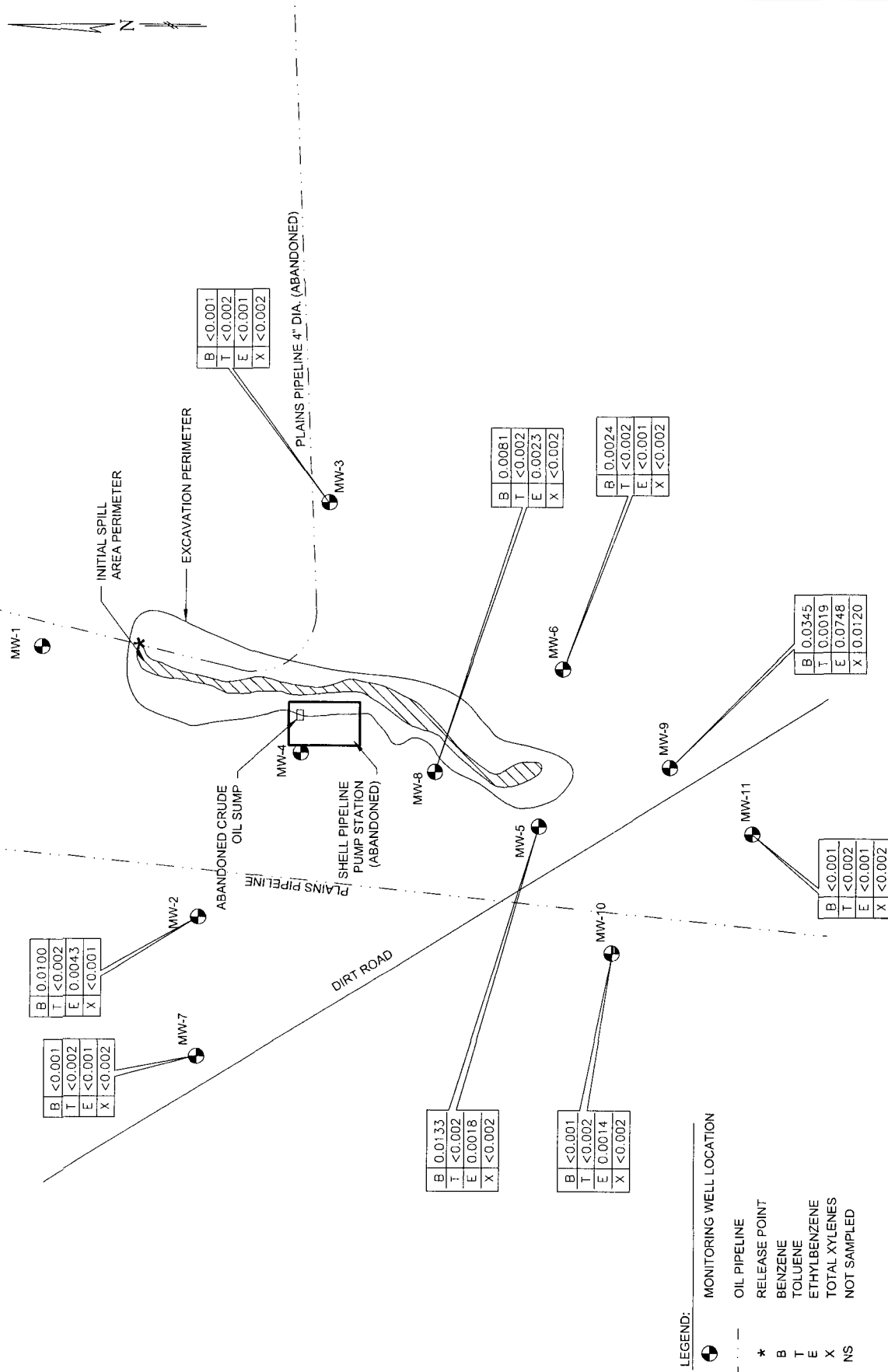
THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.



PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

FIGURE 9: GROUNDWATER CONTAMINANT CONCENTRATION MAP 08/16/10

Date: 12/01/10 N:\CAD\MIDLAND\A4077007.dwg Layout: site Current Layer: +GW CONC 11 10 10



PLAINS PIPELINE, L.P.
LIVINGSTON LINE-BOB MCCASLAND
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

FIGURE 10: GROUNDWATER CONTAMINANT CONCENTRATION MAP (11/10/10)

0 50 100 FEET
APPROXIMATE SCALE

THIS DRAWING SHOULD NOT BE USED SEPARATELY FROM ORIGINAL REPORT.

APPENDIX B

Tables

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-1	07/10/02	3,439.09	0.00	38.10	3,400.99	0.00	0.00	0.00
MW-1	04/15/03		0.00	37.31	3,401.78	0.00	0.00	0.00
MW-1	07/14/03		0.00	38.13	3,400.96	0.00	0.00	0.00
MW-1	04/20/04		0.00	35.62	3,403.47	0.00	0.00	0.00
MW-1	05/07/04		0.00	35.55	3,403.54	0.00	0.00	0.00
MW-1	05/25/04		0.00	35.62	3,403.47	0.00	0.00	0.00
MW-1	06/10/04		0.00	35.77	3,403.32	0.00	0.00	0.00
MW-1	07/14/04		0.00	34.90	3,404.19	0.00	0.00	0.00
MW-1	07/21/04		0.00	34.69	3,404.40	0.00	0.00	0.00
MW-1	08/02/04		0.00	34.73	3,404.36	0.00	0.00	0.00
MW-1	09/10/04		0.00	34.24	3,404.85	0.00	0.00	0.00
MW-1	09/14/04		0.00	34.26	3,404.83	0.00	0.00	0.00
MW-1	10/05/04		0.00	32.64	3,406.45	0.00	0.00	0.00
MW-1	10/19/04		0.00	30.92	3,408.17	0.00	0.00	0.00
MW-1	11/02/04		0.00	31.01	3,408.08	0.00	0.00	0.00
MW-1	11/15/04		0.00	30.41	3,408.68	0.00	0.00	0.00
MW-1	12/06/04		0.00	30.30	3,408.79	0.00	0.00	0.00
MW-1	12/21/04		0.00	30.29	3,408.80	0.00	0.00	0.00
MW-1	01/03/05		0.00	30.45	3,408.64	0.00	0.00	0.00
MW-1	01/18/05		0.00	30.57	3,408.52	0.00	0.00	0.00
MW-1	02/01/05		0.00	30.65	3,408.44	0.00	0.00	0.00
MW-1	03/21/05		0.00	30.81	3,408.28	0.00	0.00	0.00
MW-1	04/21/05		0.00	31.03	3,408.06	0.00	0.00	0.00
MW-1	05/05/05		0.00	31.04	3,408.05	0.00	0.00	0.00
MW-1	05/17/05		0.00	31.11	3,407.98	0.00	0.00	0.00
MW-1	08/15/05		0.00	31.50	3,407.59	0.00	0.00	0.00
MW-1	10/05/05		0.00	31.24	3,407.85	0.00	0.00	0.00
MW-1	11/18/05		0.00	31.44	3,407.65	0.00	0.00	0.00
MW-1	01/12/06		0.00	31.56	3,407.53	0.00	0.00	0.00
MW-1	02/16/06		0.00	31.68	3,407.41	0.00	0.00	0.00
MW-1	03/16/06		0.00	31.88	3,407.21	0.00	0.00	0.00
MW-1	04/10/06		0.00	31.83	3,407.26	0.00	0.00	0.00
MW-1	05/22/06		0.00	31.97	3,407.12	0.00	0.00	0.00
MW-1	07/20/06		0.00	32.44	3,406.65	0.00	0.00	0.00
MW-1	08/07/06		0.00	32.55	3,406.54	0.00	0.00	0.00
MW-1	09/11/06		0.00	31.87	3,407.22	0.00	0.00	0.00
MW-1	10/17/06		0.00	31.81	3,407.28	0.00	0.00	0.00
MW-1	11/21/06		0.00	31.91	3,407.18	0.00	0.00	0.00
MW-1	12/13/06		0.00	31.93	3,407.16	0.00	0.00	0.00
MW-1	01/09/07		0.00	32.07	3,407.02	0.00	0.00	0.00
MW-1	02/14/07		0.00	31.99	3,407.10	0.00	0.00	0.00
MW-1	02/22/07		0.00	32.01	3,407.08	0.00	0.00	0.00
MW-1	03/01/07		0.00	31.99	3,407.10	0.00	0.00	0.00
MW-1	03/13/07		0.00	32.03	3,407.06	0.00	0.00	0.00
MW-1	05/10/07		0.00	31.71	3,407.38	0.00	0.10	6.00
MW-1	08/10/07		0.00	31.82	3,407.27	0.00	0.00	0.00
MW-1	08/20/07		0.00	31.94	3,407.15	0.00	0.00	0.00
MW-1	11/15/07		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	02/28/08		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	05/28/08		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	05/30/08		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	08/20/08		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	11/07/08		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	02/09/09		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	05/14/09		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	08/12/09		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	11/10/09		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	02/03/10		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	05/27/10		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	08/16/10		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	11/10/10		DRY	DRY	DRY	DRY	DRY	DRY

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-2	07/10/02	3,432.62	0.00	31.31	3,401.31	0.00	0.00	0.00
MW-2	04/15/03		0.00	30.68	3,401.94	0.00	0.00	0.00
MW-2	07/14/03		0.00	31.70	3,400.92	0.00	0.00	0.00
MW-2	04/20/04		0.00	28.20	3,404.42	0.00	0.00	0.00
MW-2	05/07/04		0.00	28.44	3,404.18	0.00	0.00	0.00
MW-2	05/25/04		0.00	28.72	3,403.90	0.00	0.00	0.00
MW-2	06/10/04		0.00	29.14	3,403.48	0.00	0.00	0.00
MW-2	07/14/04		0.00	27.73	3,404.89	0.00	0.00	0.00
MW-2	07/21/04		0.00	27.71	3,404.91	0.00	0.00	0.00
MW-2	08/02/04		0.00	27.96	3,404.66	0.00	0.00	0.00
MW-2	09/10/04		0.00	27.52	3,405.10	0.00	0.00	0.00
MW-2	09/14/04		0.00	27.51	3,405.11	0.00	0.00	0.00
MW-2	10/05/04		0.00	24.25	3,408.37	0.00	0.00	0.00
MW-2	10/19/04		0.00	23.12	3,409.50	0.00	0.00	0.00
MW-2	11/02/04		0.00	23.22	3,409.40	0.00	0.00	0.00
MW-2	11/15/04		0.00	23.50	3,409.12	0.00	0.00	0.00
MW-2	12/06/04		0.00	23.63	3,408.99	0.00	0.00	0.00
MW-2	12/21/04		0.00	23.63	3,408.99	0.00	0.00	0.00
MW-2	01/03/05		0.00	23.91	3,408.71	0.00	0.00	0.00
MW-2	01/18/05		0.00	24.05	3,408.57	0.00	0.00	0.00
MW-2	02/01/05		0.00	24.17	3,408.45	0.00	0.00	0.00
MW-2	03/21/05		0.00	24.44	3,408.18	0.00	0.00	0.00
MW-2	04/21/05		0.00	24.67	3,407.95	0.00	0.00	0.00
MW-2	05/05/05		0.00	24.63	3,407.99	0.00	0.00	0.00
MW-2	05/17/05		0.00	24.78	3,407.84	0.00	0.00	0.00
MW-2	08/15/05		0.00	25.18	3,407.44	0.00	0.00	0.00
MW-2	10/05/05		0.00	24.93	3,407.69	0.00	0.00	0.00
MW-2	11/18/05		0.00	25.07	3,407.55	0.00	0.00	0.00
MW-2	01/12/06		0.00	25.18	3,407.44	0.00	0.00	0.00
MW-2	02/16/06		0.00	25.36	3,407.26	0.00	0.00	0.00
MW-2	03/16/06		0.00	25.57	3,407.05	0.00	0.00	0.00
MW-2	04/10/06		0.00	25.48	3,407.14	0.00	0.00	0.00
MW-2	05/22/06		0.00	25.63	3,406.99	0.00	0.00	0.00
MW-2	07/20/06		0.00	26.15	3,406.47	0.00	0.00	0.00
MW-2	08/07/06		0.00	26.28	3,406.34	0.00	0.00	0.00
MW-2	09/11/06		0.00	25.30	3,407.32	0.00	0.00	0.00
MW-2	10/17/06		0.00	25.39	3,407.23	0.00	0.00	0.00
MW-2	11/21/06		0.00	25.46	3,407.16	0.00	0.00	0.00
MW-2	12/13/06		0.00	25.48	3,407.14	0.00	0.00	0.00
MW-2	01/09/07		0.00	25.61	3,407.01	0.00	0.00	0.00
MW-2	02/14/07		0.00	25.52	3,407.10	0.00	0.00	0.00
MW-2	02/22/07		0.00	25.54	3,407.08	0.00	0.00	0.00
MW-2	03/01/07		0.00	25.47	3,407.15	0.00	0.00	0.00
MW-2	03/13/07		0.00	25.53	3,407.09	0.00	0.00	0.00
MW-2	05/10/07		0.00	25.12	3,407.50	0.00	0.00	0.00
MW-2	08/10/07		0.00	25.41	3,407.21	0.00	0.00	0.00
MW-2	08/20/07		0.00	25.57	3,407.05	0.00	0.00	0.00
MW-2	11/15/07		0.00	25.73	3,406.89	0.00	0.00	0.00
MW-2	02/28/08		0.00	25.69	3,406.93	0.00	0.00	0.00
MW-2	04/30/08		0.00	25.73	3,406.89	0.00	0.00	0.00
MW-2	05/28/08		0.00	26.04	3,406.58	0.00	0.00	0.00
MW-2	05/30/08		0.00	25.73	3,406.89	0.00	0.00	0.00
MW-2	07/07/08		0.00	26.45	3,406.17	0.00	0.00	10.00
MW-2	07/14/08		0.00	26.45	3,406.17	0.00	0.00	25.00
MW-2	07/22/08		0.00	26.54	3,406.08	0.00	0.00	10.00
MW-2	07/30/08		0.00	26.60	3,406.02	0.00	0.00	15.00
MW-2	08/05/08		0.00	26.62	3,406.00	0.00	0.00	15.00
MW-2	08/14/08		0.00	26.70	3,405.92	0.00	0.00	15.00
MW-2	08/20/08		0.00	26.70	3,405.92	0.00	0.00	0.00
MW-2	08/27/08		0.00	0.00	3,432.62	0.00	0.00	45.00
MW-2	09/03/08							45.00
MW-2	09/20/08		0.00	26.30	3,406.32	0.00	0.00	35.00
MW-2	09/29/08		0.00	26.26	3,406.36	0.00	0.00	40.00
MW-2	11/07/08		0.00	26.19	3,406.43	0.00	0.00	0.00
MW-2	11/15/08		0.00	26.32	3,406.30	0.00	0.00	50.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-2	11/24/08		0.00	26.19	3,406.43	0.00	0.00	25.00
MW-2	11/26/08		0.00	26.21	3,406.41	0.00	0.00	25.00
MW-2	12/20/08		0.00	26.23	3,406.39	0.00	0.00	50.00
MW-2	01/16/09		0.00	26.25	3,406.37	0.00	0.00	0.00
MW-2	02/09/09		0.00	26.30	3,406.32	0.00	0.00	0.00
MW-2	02/25/09		0.00			0.00	0.00	50.00
MW-2	03/05/09		0.00			0.00	0.00	50.00
MW-2	03/11/09		0.00			0.00	0.00	50.00
MW-2	03/19/09		0.00			0.00	0.00	50.00
MW-2	04/08/09		0.00	26.35	3,406.27	0.00	0.00	50.00
MW-2	04/16/09		0.00	26.35	3,406.27	0.00	0.00	52.00
MW-2	04/23/09		0.00	26.41	3,406.21	0.00	0.00	50.00
MW-2	04/29/08		0.00	26.43	3,406.19	0.00	0.00	50.00
MW-2	05/06/09		0.00	26.45	3,406.17	0.00	0.00	40.00
MW-2	05/14/09		0.00	26.51	3,406.11	0.00	0.00	0.00
MW-2	07/08/09		0.00	26.93	3,405.69	0.00	0.00	25.00
MW-2	07/24/09		0.00	26.99	3,405.63	0.00	0.00	0.00
MW-2	08/04/09		0.00	26.93	3,405.69	0.00	0.00	55.00
MW-2	08/12/09		0.00	27.05	3,405.57	0.00	0.00	0.00
MW-2	08/19/09		0.00	27.18	3,405.44	0.00	0.00	45.00
MW-2	09/01/09		0.00	27.21	3,405.41	0.00	0.00	48.50
MW-2	09/22/09		0.00	27.30	3,405.32	0.00	0.00	5.00
MW-2	10/12/09		0.00	27.27	3,405.35	0.00	0.00	25.00
MW-2	10/30/09		0.00	27.32	3,405.30	0.00	0.00	0.00
MW-2	11/10/09		0.00	27.27	3,405.35	0.00	0.00	10.00
MW-2	01/08/10		0.00	27.15	3,405.47	0.00	0.00	10.00
MW-2	01/22/10		0.00	27.01	3,405.61	0.00	0.00	10.00
MW-2	01/26/10		0.00	27.17	3,405.45	0.00	0.00	0.00
MW-2	02/03/10		0.00	27.07	3,405.55	0.00	0.00	0.00
MW-2	02/10/10		0.00	27.11	3,405.51	0.00	0.00	30.00
MW-2	02/22/10		0.00	27.06	3,405.56	0.00	0.00	30.00
MW-2	03/09/10		0.00	27.02	3,405.60	0.00	0.00	0.00
MW-2	03/24/10		0.00	27.03	3,405.59	0.00	0.00	0.00
MW-2	04/12/10		0.00	27.02	3,405.60	0.00	0.00	0.00
MW-2	04/27/10		0.00	27.05	3,405.57	0.00	0.00	0.00
MW-2	05/27/10		0.00	27.27	3,405.35	0.00	0.00	0.00
MW-2	06/21/10		0.00	27.53	3,405.09	0.00	0.00	0.00
MW-2	07/07/10		0.00	27.47	3,405.15	0.00	0.00	0.00
MW-2	07/20/10		0.00	27.31	3,405.31	0.00	0.00	0.00
MW-2	08/03/10		0.00	27.48	3,405.14	0.00	0.00	0.00
MW-2	08/16/10		0.00	27.65	3,404.97	0.00	0.00	0.00
MW-2	09/02/10		0.00	27.62	3,405.00	0.00	0.00	0.00
MW-2	09/17/10		0.00	27.72	3,404.90	0.00	0.00	0.00
MW-2	11/10/10		0.00	27.63	3,404.99	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-3	07/10/02	3,433.61	0.00	34.48	3,399.13	0.00	0.00	0.00
MW-3	04/15/03		0.00	32.14	3,401.47	0.00	0.00	0.00
MW-3	07/14/03		0.00	32.95	3,400.66	0.00	0.00	0.00
MW-3	04/20/04		0.00	29.17	3,404.44	0.00	0.00	0.00
MW-3	05/07/04		0.00	29.55	3,404.06	0.00	0.00	0.00
MW-3	05/25/04		0.00	29.80	3,403.81	0.00	0.00	0.00
MW-3	06/10/04		0.00	30.12	3,403.49	0.00	0.00	0.00
MW-3	07/14/04		0.00	28.33	3,405.28	0.00	0.00	0.00
MW-3	07/21/04		0.00	28.59	3,405.02	0.00	0.00	0.00
MW-3	08/02/04		0.00	28.85	3,404.76	0.00	0.00	0.00
MW-3	09/10/04		0.00	28.35	3,405.26	0.00	0.00	0.00
MW-3	09/14/04		0.00	28.45	3,405.16	0.00	0.00	0.00
MW-3	10/05/04		0.00	25.00	3,408.61	0.00	0.00	0.00
MW-3	10/19/04		0.00	23.24	3,410.37	0.00	0.00	0.00
MW-3	11/02/04		0.00	23.29	3,410.32	0.00	0.00	0.00
MW-3	11/15/04		0.00	24.10	3,409.51	0.00	0.00	0.00
MW-3	12/06/04		0.00	24.33	3,409.28	0.00	0.00	0.00
MW-3	12/21/04		0.00	24.39	3,409.22	0.00	0.00	0.00
MW-3	01/03/05		0.00	24.73	3,408.88	0.00	0.00	0.00
MW-3	01/18/05		0.00	24.94	3,408.67	0.00	0.00	0.00
MW-3	02/01/05		0.00	25.08	3,408.53	0.00	0.00	0.00
MW-3	03/21/05		0.00	25.40	3,408.21	0.00	0.00	0.00
MW-3	04/21/05		0.00	25.66	3,407.95	0.00	0.00	0.00
MW-3	05/05/05		0.00	25.63	3,407.98	0.00	0.00	0.00
MW-3	05/17/05		0.00	25.82	3,407.79	0.00	0.00	0.00
MW-3	08/15/05		0.00	26.06	3,407.55	0.00	0.00	0.00
MW-3	10/05/05		0.00	25.98	3,407.63	0.00	0.00	0.00
MW-3	11/18/05		0.00	26.26	3,407.35	0.00	0.00	0.00
MW-3	01/12/06		0.00	26.37	3,407.24	0.00	0.00	0.00
MW-3	02/16/06		0.00	26.52	3,407.09	0.00	0.00	0.00
MW-3	03/16/06		0.00	26.71	3,406.90	0.00	0.00	0.00
MW-3	04/10/06		0.00	26.69	3,406.92	0.00	0.00	0.00
MW-3	05/22/06		0.00	26.84	3,406.77	0.00	0.00	0.00
MW-3	07/20/06		0.00	28.27	3,405.34	0.00	0.00	0.00
MW-3	08/07/06		0.00	27.39	3,406.22	0.00	0.00	0.00
MW-3	09/11/06		0.00	26.52	3,407.09	0.00	0.00	0.00
MW-3	10/17/06		0.00	22.62	3,410.99	0.00	0.00	0.00
MW-3	11/21/06		0.00	26.77	3,406.84	0.00	0.00	0.00
MW-3	12/13/06		0.00	26.80	3,406.81	0.00	0.00	0.00
MW-3	01/09/07		0.00	26.92	3,406.69	0.00	0.00	0.00
MW-3	02/14/07		0.00	26.84	3,406.77	0.00	0.00	0.00
MW-3	02/22/07		0.00	26.87	3,406.74	0.00	0.00	0.00
MW-3	03/01/07		0.00	26.84	3,406.77	0.00	0.00	0.00
MW-3	03/13/07		0.00	26.89	3,406.72	0.00	0.00	0.00
MW-3	05/10/07		0.00	26.48	3,407.13	0.00	0.00	0.00
MW-3	08/10/07		0.00	26.61	3,407.00	0.00	0.00	0.00
MW-3	08/20/07		0.00	26.70	3,406.91	0.00	0.00	0.00
MW-3	11/15/07		0.00	27.07	3,406.54	0.00	0.00	0.00
MW-3	02/28/08		0.00	26.99	3,406.62	0.00	0.00	0.00
MW-3	05/28/08		0.00	27.76	3,405.85	0.00	0.00	0.00
MW-3	08/20/08		0.00	27.85	3,405.76	0.00	0.00	0.00
MW-3	11/07/08		0.00	27.47	3,406.14	0.00	0.00	0.00
MW-3	02/09/09		0.00	27.58	3,406.03	0.00	0.00	0.00
MW-3	05/14/09		0.00	27.44	3,406.17	0.00	0.00	0.00
MW-3	08/12/09		0.00	28.18	3,405.43	0.00	0.00	0.00
MW-3	11/10/09		0.00	28.48	3,405.13	0.00	0.00	0.00
MW-3	02/03/10		0.00	28.64	3,404.97	0.00	0.00	0.00
MW-3	05/27/10		0.00	28.49	3,405.12	0.00	0.00	0.00
MW-3	08/16/10		0.00	28.78	3,404.83	0.00	0.00	0.00
MW-3	11/10/10		0.00	28.86	3,404.75	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-4	07/10/02	3,432.35	30.70	30.95	3,401.63	0.25	0.00	0.00
MW-4	11/18/02		29.28	29.95	3,403.00	0.67	0.00	0.00
MW-4	12/13/02		29.75	30.99	3,402.48	1.24	0.00	0.00
MW-4	03/24/03		30.56	31.03	3,401.74	0.47	0.00	0.00
MW-4	04/15/03		30.55	31.05	3,401.75	0.50	0.00	0.00
MW-4	05/02/03		30.71	30.94	3,401.62	0.23	0.00	0.00
MW-4	06/16/03		31.09	31.18	3,401.25	0.09	0.00	0.00
MW-4	07/14/03		31.50	31.81	3,400.82	0.31	0.00	0.00
MW-4	07/31/03		31.49	31.80	3,400.83	0.31	0.00	0.00
MW-4	09/22/03		32.05	32.07	3,400.30	0.02	0.00	0.00
MW-4	10/23/03		32.03	33.07	3,400.22	1.04	0.00	0.00
MW-4	11/05/03		32.10	34.65	3,400.00	2.55	0.00	0.00
MW-4	01/02/04		31.82	35.30	3,400.18	3.48	0.00	0.00
MW-4	01/30/04		32.20	34.20	3,399.95	2.00	0.00	0.00
MW-4	03/03/04		32.19	34.21	3,399.96	2.02	0.00	0.00
MW-4	03/15/04		32.15	33.87	3,400.03	1.72	0.00	0.00
MW-4	03/25/04		32.14	33.87	3,400.04	1.73	0.00	0.00
MW-4	04/20/04		27.20	27.86	3,405.08	0.66	0.00	0.00
MW-4	05/07/04		27.89	28.63	3,404.39	0.74	0.00	0.00
MW-4	05/25/04		28.55	28.78	3,403.78	0.23	0.00	0.00
MW-4	06/10/04		28.80	28.84	3,403.55	0.04	0.00	0.00
MW-4	07/14/04		0.00	26.88	3,405.47	0.00	0.00	0.00
MW-4	07/21/04		0.00	27.67	3,404.68	0.00	0.00	0.00
MW-4	08/02/04		0.00	27.28	3,405.07	0.00	0.00	0.00
MW-4	09/10/04		0.00	27.25	3,405.10	0.00	0.00	0.00
MW-4	09/14/04		0.00	27.15	3,405.20	0.00	0.00	0.00
MW-4	10/05/04		0.00	23.20	3,409.15	0.00	0.00	0.00
MW-4	10/19/04		0.00	22.00	3,410.35	0.00	0.00	0.00
MW-4	11/02/04		0.00	22.29	3,410.06	0.00	0.00	0.00
MW-4	11/15/04		0.00	22.95	3,409.40	0.00	0.00	0.00
MW-4	12/06/04		0.00	23.19	3,409.16	0.00	0.00	0.00
MW-4	12/21/04		0.00	23.21	3,409.14	0.00	0.00	0.00
MW-4	01/03/05		0.00	23.56	3,408.79	0.00	0.00	0.00
MW-4	01/18/05		0.00	23.75	3,408.60	0.00	0.00	0.00
MW-4	02/01/05		0.00	23.83	3,408.52	0.00	0.00	0.00
MW-4	03/21/05		0.00	24.11	3,408.24	0.00	0.00	0.00
MW-4	04/21/05		0.00	24.56	3,407.79	0.00	0.00	0.00
MW-4	05/05/05		0.00	24.54	3,407.81	0.00	0.00	0.00
MW-4	05/17/05		0.00	24.68	3,407.67	0.00	0.00	0.00
MW-4	08/15/05		0.00	24.98	3,407.37	0.00	0.00	0.00
MW-4	10/05/05		0.00	24.85	3,407.50	0.00	0.00	0.00
MW-4	11/18/05		0.00	25.04	3,407.31	0.00	0.00	0.00
MW-4	01/12/06		0.00	25.13	3,407.22	0.00	0.00	0.00
MW-4	02/16/06		0.00	25.31	3,407.04	0.00	0.00	0.00
MW-4	03/16/06		0.00	25.42	3,406.93	0.00	0.00	0.00
MW-4	04/10/06		0.00	25.42	3,406.93	0.00	0.00	0.00
MW-4	05/22/06		0.00	25.29	3,407.06	0.00	0.00	0.00
MW-4	07/20/06		0.00	26.02	3,406.33	0.00	0.00	0.00
MW-4	08/07/06		0.00	26.33	3,406.02	0.00	0.00	0.00
MW-4	09/11/06		0.00	25.02	3,407.33	0.00	0.00	0.00
MW-4	10/17/06		0.00	25.34	3,407.01	0.00	0.00	0.00
MW-4	11/21/06		0.00	25.37	3,406.98	0.00	0.00	0.00
MW-4	12/13/06		0.00	24.71	3,407.64	0.00	0.00	0.00
MW-4	01/09/07		0.00	25.81	3,406.54	0.00	0.00	0.00
MW-4	02/14/07		0.00	25.51	3,406.84	0.00	0.00	0.00
MW-4	02/22/07		0.00	25.47	3,406.88	0.00	0.00	0.00
MW-4	03/01/07		0.00	25.43	3,406.92	0.00	0.00	0.00
MW-4	03/13/07		0.00	25.46	3,406.89	0.00	0.00	0.00
MW-4	03/23/07		0.00			0.25	0.00	0.00
MW-4	04/09/07		0.00	25.39	3,406.96	0.00	0.00	0.00
MW-4	05/10/07		0.00	25.05	3,407.30	0.00	0.00	0.00
MW-4	05/16/07		0.00	24.83	3,407.52	0.00	0.00	0.00
MW-4	05/29/07		0.00	24.71	3,407.64	0.00	0.00	0.00
MW-4	06/06/07		0.00	22.12	3,410.23	0.00	0.00	0.00
MW-4	06/21/07		0.00	24.94	3,407.41	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCF File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-4	07/12/07		0.00	25.10	3,407.25	0.00	0.00	0.00
MW-4	07/25/07		0.00	25.26	3,407.09	0.00	0.00	0.00
MW-4	08/08/07		0.00	25.38	3,406.97	0.00	0.00	0.00
MW-4	08/20/07		0.00	25.49	3,406.86	0.00	0.00	0.00
MW-4	09/07/07		0.00	26.66	3,405.69	0.00	0.00	0.00
MW-4	09/19/07		0.00	25.64	3,406.71	0.00	0.00	0.00
MW-4	10/01/07		0.00	24.03	3,408.32	0.00	0.00	0.00
MW-4	10/15/07		0.00	25.69	3,406.66	0.00	0.00	0.00
MW-4	11/02/07		0.00	25.71	3,406.64	0.00	0.00	0.00
MW-4	11/15/07		0.00	25.73	3,406.62	0.00	0.00	0.00
MW-4	11/29/07		0.00	25.75	3,406.60	0.00	0.00	0.00
MW-4	12/27/07		0.00	25.65	3,406.70	0.00	0.00	0.00
MW-4	01/18/08		0.00	25.66	3,406.69	0.00	0.00	0.00
MW-4	02/20/08		0.00	25.17	3,407.18	0.00	0.00	0.00
MW-4	02/28/08		0.00	25.65	3,406.70	0.00	0.00	6.25
MW-4	04/30/08		0.00	25.71	3,406.64	0.00	0.10	0.00
MW-4	05/28/08		0.00	25.94	3,406.41	0.00	0.00	0.00
MW-4	05/30/08		0.00	25.71	3,406.64	0.00	0.00	0.00
MW-4	06/25/08		0.00	26.13	3,406.22	0.00	0.00	0.00
MW-4	07/02/08		0.00	26.20	3,406.15	0.00	0.00	0.00
MW-4	07/07/08		0.00	26.25	3,406.10	0.00	0.00	10.00
MW-4	07/14/08		0.00	26.30	3,406.05	0.00	0.00	25.00
MW-4	07/22/08		0.00	26.35	3,406.00	0.00	0.00	0.00
MW-4	07/30/08		0.00	26.40	3,405.95	0.00	0.00	0.00
MW-4	08/05/08		26.40	26.47	3,405.94	0.07	0.10	0.00
MW-4	08/14/08		0.00	26.52	3,405.83	0.00	0.00	10.00
MW-4	08/20/08		0.00	26.49	3,405.86	0.00	0.00	0.00
MW-4	09/03/08							15.00
MW-4	09/20/08		0.00	26.17	3,406.18	0.00	0.00	15.00
MW-4	11/07/08		0.00	26.08	3,406.27	0.00	0.00	0.00
MW-4	11/15/08		0.00	23.24	3,409.11	0.00	0.00	0.00
MW-4	11/24/08		0.00	26.10	3,406.25	0.00	0.10	0.00
MW-4	11/26/08		0.00	26.19	3,406.16	0.00	0.00	0.00
MW-4	12/20/08		0.00	26.06	3,406.29	0.00	0.00	0.00
MW-4	01/16/09		0.00	26.19	3,406.16	0.00	0.00	0.00
MW-4	02/09/09		0.00	26.22	3,406.13	0.00	0.00	0.00
MW-4	02/25/09		0.00			0.00	0.00	50.00
MW-4	03/05/09		0.00			0.00	0.00	50.00
MW-4	03/11/09		0.00			0.00	0.00	50.00
MW-4	03/19/09		0.00			0.00	0.00	50.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-4	04/08/09		0.00	26.51	3,405.84	0.00	0.00	50.00
MW-4	04/16/09		0.00	26.40	3,405.95	0.00	0.00	52.00
MW-4	04/23/09		0.00	26.45	3,405.90	0.00	0.00	50.00
MW-4	05/06/09		0.00	26.59	3,405.76	0.00	0.00	40.00
MW-4	05/14/09		0.00	26.62	3,405.73	0.00	0.00	0.00
MW-4	07/08/09		0.00	26.79	3,405.56	0.00	0.00	50.00
MW-4	07/24/09		0.00	26.82	3,405.53	0.00	0.00	0.00
MW-4	08/04/09		0.00	26.84	3,405.51	0.00	0.00	55.00
MW-4	08/12/09		26.89	26.90	3,405.46	0.01	0.00	0.00
MW-4	08/19/09		0.00	26.90	3,405.45	0.00	0.00	47.00
MW-4	09/01/09		27.02	27.08	3,405.32	0.06	3.00	43.00
MW-4	09/22/09		27.15	27.18	3,405.20	0.03	0.25	5.00
MW-4	10/12/09		27.15	27.16	3,405.20	0.01	0.50	12.00
MW-4	10/30/09		0.00	27.21	3,405.14	0.00	0.00	0.00
MW-4	11/10/09		27.15	27.17	3,405.20	0.02	1.00	10.00
MW-4	01/08/10			27.06	3,405.29	0.00	0.00	10.00
MW-4	01/22/10			26.93	3,405.42	0.00	0.00	20.00
MW-4	01/26/10			27.08	3,405.27	0.00	0.00	0.00
MW-4	01/08/10			27.06	3,405.29	0.00	0.00	0.00
MW-4	01/22/10			26.93	3,405.42	0.00	0.00	30.00
MW-4	01/26/10			27.08	3,405.27	0.00	0.00	30.00
MW-4	02/03/10			26.98	3,405.37	0.00	0.00	50.00
MW-4	02/10/10			27.06	3,405.29	0.00	0.00	50.00
MW-4	02/22/10			26.98	3,405.37	0.00	0.00	50.00
MW-4	03/09/10			26.94	3,405.41	0.00	0.00	50.00
MW-4	03/24/10			26.96	3,405.39	0.00	0.00	0.00
MW-4	04/12/10			26.95	3,405.40	0.00	0.00	0.00
MW-4	04/27/10			26.97	3,405.38	0.00	0.00	50.00
MW-4	05/27/10		27.16	27.21	3,405.19	0.05	0.00	50.00
MW-4	06/21/10		27.39	27.45	3,404.95	0.06	0.00	50.00
MW-4	07/07/10			27.33	3,405.02	0.00	0.00	45.00
MW-4	07/20/10			27.17	3,405.18	0.00	0.00	50.00
MW-4	08/03/10			27.35	3,405.00	0.00	0.00	50.00
MW-4	08/16/10		27.50	27.53	3,404.85	0.03	0.00	50.00
MW-4	09/02/10			27.51	3,404.84	0.00	0.00	45.00
MW-4	09/17/10		27.59	27.60	3,404.76	0.01	0.00	50.00
MW-4	10/05/10		27.59	27.61	3,404.76	0.02	0.00	50.00
MW-4	11/10/10		27.51	27.57	3,404.83	0.06	0.00	50.00
MW-5	07/10/02	3,429.63	0.00	27.16	3,402.47	0.00	0.00	0.00
MW-5	04/15/03		0.00	27.79	3,401.84	0.00	0.00	0.00
MW-5	07/14/03		0.00	28.79	3,400.84	0.00	0.00	0.00
MW-5	04/20/04		0.00	23.73	3,405.90	0.00	0.00	0.00
MW-5	05/07/04		0.00	24.75	3,404.88	0.00	0.00	0.00
MW-5	05/25/04		0.00	25.32	3,404.31	0.00	0.00	0.00
MW-5	06/10/04		0.00	25.66	3,403.97	0.00	0.00	0.00
MW-5	07/14/04		0.00	23.33	3,406.30	0.00	0.00	0.00
MW-5	07/21/04		0.00	24.30	3,405.33	0.00	0.00	0.00
MW-5	08/02/04		0.00	23.88	3,405.75	0.00	0.00	0.00
MW-5	09/10/04		0.00	23.58	3,406.05	0.00	0.00	0.00
MW-5	09/14/04		0.00	23.88	3,405.75	0.00	0.00	0.00
MW-5	10/05/04		0.00	17.86	3,411.77	0.00	0.00	0.00
MW-5	10/19/04		0.00	17.50	3,412.13	0.00	0.00	0.00
MW-5	11/02/04		0.00	17.52	3,412.11	0.00	0.00	0.00
MW-5	11/15/04		0.00	19.54	3,410.09	0.00	0.00	0.00
MW-5	12/06/04		0.00	20.04	3,409.59	0.00	0.00	0.00
MW-5	12/21/04		0.00	20.17	3,409.46	0.00	0.00	0.00
MW-5	01/03/05		0.00	20.60	3,409.03	0.00	0.00	0.00
MW-5	01/18/05		0.00	20.86	3,408.77	0.00	0.00	0.00
MW-5	02/01/05		0.00	21.05	3,408.58	0.00	0.00	0.00
MW-5	03/21/05		0.00	21.41	3,408.22	0.00	0.00	0.00
MW-5	04/21/05		0.00	21.76	3,407.87	0.00	0.00	0.00
MW-5	05/05/05		0.00	21.76	3,407.87	0.00	0.00	0.00
MW-5	05/17/05		0.00	21.87	3,407.76	0.00	0.00	0.00
MW-5	08/15/05		0.00	22.00	3,407.63	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-5	10/05/05		0.00	22.01	3,407.62	0.00	0.00	0.00
MW-5	11/18/05		0.00	22.20	3,407.43	0.00	0.00	0.00
MW-5	01/12/06		0.00	22.32	3,407.31	0.00	0.00	0.00
MW-5	02/16/06		0.00	22.56	3,407.07	0.00	0.00	0.00
MW-5	03/16/06		0.00	22.71	3,406.92	0.00	0.00	0.00
MW-5	04/10/06		0.00	22.66	3,406.97	0.00	0.00	0.00
MW-5	05/22/06		0.00	22.83	3,406.80	0.00	0.00	0.00
MW-5	07/20/06		0.00	23.26	3,406.37	0.00	0.00	0.00
MW-5	08/07/06		0.00	23.27	3,406.36	0.00	0.00	0.00
MW-5	09/11/06		0.00	22.23	3,407.40	0.00	0.00	0.00
MW-5	10/17/06		0.00	22.67	3,406.96	0.00	0.00	0.00
MW-5	11/21/06		0.00	22.67	3,406.96	0.00	0.00	0.00
MW-5	12/13/06		0.00	22.71	3,406.92	0.00	0.00	0.00
MW-5	01/09/07		0.00	22.83	3,406.80	0.00	0.00	0.00
MW-5	02/14/07		0.00	22.67	3,406.96	0.00	0.00	0.00
MW-5	02/22/07		0.00	22.69	3,406.94	0.00	0.00	0.00
MW-5	03/01/07		0.00	22.64	3,406.99	0.00	0.00	0.00
MW-5	03/13/07		0.00	22.68	3,406.95	0.00	0.00	0.00
MW-5	05/10/07		0.00	21.88	3,407.75	0.00	0.00	0.00
MW-5	08/10/07		0.00	22.49	3,407.14	0.00	0.00	0.00
MW-5	08/20/07		0.00	22.60	3,407.03	0.00	0.00	0.00
MW-5	11/15/07		0.00	22.87	3,406.76	0.00	0.00	0.00
MW-5	02/28/08		0.00	22.84	3,406.79	0.00	0.00	0.00
MW-5	04/30/08		0.00	22.89	3,406.74	0.00	0.00	0.00
MW-5	05/28/08		0.00	23.14	3,406.49	0.00	0.00	0.00
MW-5	05/30/08		0.00	22.89	3,406.74	0.00	0.00	10.00
MW-5	07/07/08		0.00	26.47	3,403.16	0.00	0.00	10.00
MW-5	07/14/08		0.00	23.50	3,406.13	0.00	0.00	25.00
MW-5	07/22/08		0.00	23.50	3,406.13	0.00	0.00	10.00
MW-5	07/30/08		0.00	23.65	3,405.98	0.00	0.00	20.00
MW-5	08/05/08		0.00	23.70	3,405.93	0.00	0.00	20.00
MW-5	08/14/08		0.00	23.74	3,405.89	0.00	0.00	12.00
MW-5	08/20/08		0.00	23.75	3,405.88	0.00	0.00	0.00
MW-5	08/27/08		0.00	0.00	3,429.63	0.00	0.00	15.00
MW-5	09/03/08							45.00
MW-5	09/20/08		0.00	23.33	3,406.30	0.00	0.00	35.00
MW-5	09/29/08		0.00	23.39	3,406.24	0.00	0.00	40.00
MW-5	11/07/08		0.00	24.59	3,405.04	0.00	0.00	0.00
MW-5	11/15/08		0.00	23.45	3,406.18	0.00	0.00	50.00
MW-5	11/24/08		0.00	23.34	3,406.29	0.00	0.00	25.00
MW-5	11/26/08		0.00	23.37	3,406.26	0.00	0.00	25.00
MW-5	12/20/08		0.00	23.39	3,406.24	0.00	0.00	50.00
MW-5	01/16/09		0.00	23.42	3,406.21	0.00	0.00	0.00
MW-5	02/09/09		0.00	23.44	3,406.19	0.00	0.00	0.00
MW-5	02/25/09		0.00			0.00	0.00	50.00
MW-5	03/05/09		0.00			0.00	0.00	50.00
MW-5	03/11/09		0.00			0.00	0.00	50.00
MW-5	03/19/09		0.00			0.00	0.00	50.00
MW-5	04/08/09		0.00	23.49	3,406.14	0.00	0.00	50.00
MW-5	04/16/09		0.00	23.50	3,406.13	0.00	0.00	50.00
MW-5	04/23/09		0.00	24.31	3,405.32	0.00	0.00	50.00
MW-5	04/29/08		0.00	23.51	3,406.12	0.00	0.00	50.00
MW-5	05/06/09		0.00	23.59	3,406.04	0.00	0.00	50.00
MW-5	05/14/09		0.00	23.66	3,405.97	0.00	0.00	0.00
MW-5	07/08/09		0.00	24.01	3,405.62	0.00	0.00	35.00
MW-5	07/24/09		0.00	24.07	3,405.56	0.00	0.00	0.00
MW-5	08/04/09		0.00	24.48	3,405.15	0.00	0.00	55.00
MW-5	08/12/09		0.00	24.12	3,405.51	0.00	0.00	0.00
MW-5	08/19/09		0.00	24.16	3,405.47	0.00	0.00	2.00
MW-5	09/01/09		0.00	24.02	3,405.61	0.00	0.00	3.00
MW-5	09/22/09		0.00	24.38	3,405.25	0.00	0.00	5.00
MW-5	10/12/09		0.00	24.38	3,405.25	0.00	0.00	18.00
MW-5	10/30/09		0.00	24.41	3,405.22	0.00	0.00	0.00
MW-5	11/10/09		0.00	24.40	3,405.23	0.00	0.00	20.00
MW-5	01/08/10		0.00	24.29	3,405.34	0.00	0.00	10.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-5	01/22/10		0.00	24.08	3,405.55	0.00	0.00	10.00
MW-5	01/26/10		0.00	24.32	3,405.31	0.00	0.00	0.00
MW-5	02/03/10		0.00	24.26	3,405.37	0.00	0.00	0.00
MW-5	02/10/10		0.00	24.28	3,405.35	0.00	0.00	30.00
MW-5	02/22/10		0.00	24.22	3,405.41	0.00	0.00	30.00
MW-5	03/09/10		0.00	24.20	3,405.43	0.00	0.00	0.00
MW-5	03/24/10		0.00	24.21	3,405.42	0.00	0.00	0.00
MW-5	04/12/10		0.00	24.20	3,405.43	0.00	0.00	0.00
MW-5	04/27/10		0.00	24.23	3,405.40	0.00	0.00	0.00
MW-5	05/27/10		0.00	24.40	3,405.23	0.00	0.00	0.00
MW-5	06/21/10		0.00	24.63	3,405.00	0.00	0.00	0.00
MW-5	07/07/10		0.00	24.54	3,405.09	0.00	0.00	0.00
MW-5	07/20/10		0.00	24.42	3,405.21	0.00	0.00	0.00
MW-5	08/03/10		0.00	24.60	3,405.03	0.00	0.00	0.00
MW-5	08/16/10		0.00	24.77	3,404.86	0.00	0.00	0.00
MW-5	09/02/10		0.00	24.76	3,404.87	0.00	0.00	0.00
MW-5	09/17/10		0.00	24.84	3,404.79	0.00	0.00	50.00
MW-5	10/05/10		0.00	24.83	3,404.80	0.00	0.00	50.00
MW-5	11/10/10		0.00	24.77	3,404.86	0.00	0.00	50.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-6	07/10/02	3,429.30	0.00	27.16	3,402.14	0.00	0.00	0.00
MW-6	04/15/03		0.00	27.93	3,401.37	0.00	0.00	0.00
MW-6	07/14/03		0.00	28.90	3,400.40	0.00	0.00	0.00
MW-6	04/20/04		0.00	23.65	3,405.65	0.00	0.00	0.00
MW-6	05/07/04		0.00	24.72	3,404.58	0.00	0.00	0.00
MW-6	05/25/04		0.00	25.30	3,404.00	0.00	0.00	0.00
MW-6	06/10/04		0.00	25.75	3,403.55	0.00	0.00	0.00
MW-6	07/14/04		0.00	23.15	3,406.15	0.00	0.00	0.00
MW-6	07/21/04		0.00	24.41	3,404.89	0.00	0.00	0.00
MW-6	08/02/04		0.00	23.78	3,405.52	0.00	0.00	0.00
MW-6	09/10/04		0.00	23.86	3,405.44	0.00	0.00	0.00
MW-6	09/14/04		0.00	24.10	3,405.20	0.00	0.00	0.00
MW-6	10/05/04		0.00	16.96	3,412.34	0.00	0.00	0.00
MW-6	10/19/04		0.00	16.84	3,412.46	0.00	0.00	0.00
MW-6	11/02/04		0.00	16.86	3,412.44	0.00	0.00	0.00
MW-6	11/15/04		0.00	19.33	3,409.97	0.00	0.00	0.00
MW-6	12/06/04		0.00	19.77	3,409.53	0.00	0.00	0.00
MW-6	12/21/04		0.00	19.98	3,409.32	0.00	0.00	0.00
MW-6	01/03/05		0.00	20.42	3,408.88	0.00	0.00	0.00
MW-6	01/18/05		0.00	20.70	3,408.60	0.00	0.00	0.00
MW-6	02/01/05		0.00	20.90	3,408.40	0.00	0.00	0.00
MW-6	03/21/05		0.00	21.52	3,407.78	0.00	0.00	0.00
MW-6	04/21/05		0.00	21.64	3,407.66	0.00	0.00	0.00
MW-6	05/05/05		0.00	21.62	3,407.68	0.00	0.00	0.00
MW-6	05/17/05		0.00	21.77	3,407.53	0.00	0.00	0.00
MW-6	08/15/05		0.00	21.91	3,407.39	0.00	0.00	0.00
MW-6	10/05/05		0.00	21.98	3,407.32	0.00	0.00	0.00
MW-6	11/18/05		0.00	22.25	3,407.05	0.00	0.00	0.00
MW-6	01/12/06		0.00	22.36	3,406.94	0.00	0.00	0.00
MW-6	02/16/06		0.00	22.51	3,406.79	0.00	0.00	0.00
MW-6	03/16/06		0.00	22.71	3,406.59	0.00	0.00	0.00
MW-6	04/10/06		0.00	22.65	3,406.65	0.00	0.00	0.00
MW-6	05/22/06		0.00	22.82	3,406.48	0.00	0.00	0.00
MW-6	07/20/06		0.00	23.26	3,406.04	0.00	0.00	0.00
MW-6	08/07/06		0.00	24.37	3,404.93	0.00	0.00	0.00
MW-6	09/11/06		0.00	22.28	3,407.02	0.00	0.00	0.00
MW-6	10/17/06		0.00	22.54	3,406.76	0.00	0.00	0.00
MW-6	11/21/06		0.00	22.66	3,406.64	0.00	0.00	0.00
MW-6	12/13/06		0.00	22.69	3,406.61	0.00	0.00	0.00
MW-6	01/09/07		0.00	22.83	3,406.47	0.00	0.00	0.00
MW-6	02/14/07		0.00	22.75	3,406.55	0.00	0.00	0.00
MW-6	02/22/07		0.00	22.78	3,406.52	0.00	0.00	0.00
MW-6	03/01/07		0.00	22.75	3,406.55	0.00	0.00	0.00
MW-6	03/13/07		0.00	22.78	3,406.52	0.00	0.00	0.00
MW-6	05/10/07		0.00	22.06	3,407.24	0.00	0.00	0.00
MW-6	08/10/07		0.00	22.56	3,406.74	0.00	0.00	0.00
MW-6	08/20/07		0.00	22.67	3,406.63	0.00	0.00	0.00
MW-6	11/15/07		0.00	22.46	3,406.84	0.00	0.00	0.00
MW-6	02/28/08		0.00	22.91	3,406.39	0.00	0.00	0.00
MW-6	05/28/08		0.00	23.19	3,406.11	0.00	0.00	0.00
MW-6	08/20/08		0.00	23.82	3,405.48	0.00	0.00	0.00
MW-6	11/07/08		0.00	23.41	3,405.89	0.00	0.00	0.00
MW-6	02/09/09		0.00	23.53	3,405.77	0.00	0.00	0.00
MW-6	05/14/09		0.00	23.77	3,405.53	0.00	0.00	0.00
MW-6	08/12/09		0.00	24.19	3,405.11	0.00	0.00	0.00
MW-6	11/10/09		0.00	24.46	3,404.84	0.00	0.00	0.00
MW-6	02/03/10		0.00	24.32	3,404.98	0.00	0.00	0.00
MW-6	05/27/10		0.00	24.50	3,404.80	0.00	0.00	0.00
MW-6	08/16/10		0.00	24.89	3,404.41	0.00	0.00	0.00
MW-6	11/10/10		0.00	24.98	3,404.32	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-7	06/10/04	3,431.37	0.00	27.15	3,404.22	0.00	0.00	0.00
MW-7	07/14/04		0.00	25.69	3,405.68	0.00	0.00	0.00
MW-7	07/21/04		0.00	25.93	3,405.44	0.00	0.00	0.00
MW-7	08/02/04		0.00	26.10	3,405.27	0.00	0.00	0.00
MW-7	09/10/04		0.00	25.73	3,405.64	0.00	0.00	0.00
MW-7	09/14/04		0.00	25.75	3,405.62	0.00	0.00	0.00
MW-7	10/05/04		0.00	22.65	3,408.72	0.00	0.00	0.00
MW-7	10/19/04		0.00	21.55	3,409.82	0.00	0.00	0.00
MW-7	11/02/04		0.00	21.58	3,409.79	0.00	0.00	0.00
MW-7	11/15/04		0.00	21.68	3,409.69	0.00	0.00	0.00
MW-7	12/06/04		0.00	21.80	3,409.57	0.00	0.00	0.00
MW-7	12/21/04		0.00	21.43	3,409.94	0.00	0.00	0.00
MW-7	01/03/05		0.00	22.03	3,409.34	0.00	0.00	0.00
MW-7	01/18/05		0.00	22.18	3,409.19	0.00	0.00	0.00
MW-7	02/01/05		0.00	22.29	3,409.08	0.00	0.00	0.00
MW-7	03/21/05		0.00	22.49	3,408.88	0.00	0.00	0.00
MW-7	04/21/05		0.00	22.76	3,408.61	0.00	0.00	0.00
MW-7	05/05/05		0.00	22.74	3,408.63	0.00	0.00	0.00
MW-7	05/17/05		0.00	22.86	3,408.51	0.00	0.00	0.00
MW-7	08/15/05		0.00	23.30	3,408.07	0.00	0.00	0.00
MW-7	10/05/05		0.00	23.01	3,408.36	0.00	0.00	0.00
MW-7	11/18/05		0.00	23.18	3,408.19	0.00	0.00	0.00
MW-7	01/12/06		0.00	23.25	3,408.12	0.00	0.00	0.00
MW-7	02/16/06		0.00	23.41	3,407.96	0.00	0.00	0.00
MW-7	03/16/06		0.00	23.60	3,407.77	0.00	0.00	0.00
MW-7	04/10/06		0.00	23.52	3,407.85	0.00	0.00	0.00
MW-7	05/22/06		0.00	23.75	3,407.62	0.00	0.00	0.00
MW-7	07/20/06		0.00	24.24	3,407.13	0.00	0.00	0.00
MW-7	08/07/06		0.00	24.33	3,407.04	0.00	0.00	0.00
MW-7	09/11/06		0.00	23.41	3,407.96	0.00	0.00	0.00
MW-7	10/17/06		0.00	23.44	3,407.93	0.00	0.00	0.00
MW-7	11/21/06		0.00	23.49	3,407.88	0.00	0.00	0.00
MW-7	12/13/06		0.00	23.48	3,407.89	0.00	0.00	0.00
MW-7	01/09/07		0.00	23.61	3,407.76	0.00	0.00	0.00
MW-7	02/14/07		0.00	23.50	3,407.87	0.00	0.00	0.00
MW-7	02/22/07		0.00	23.54	3,407.83	0.00	0.00	0.00
MW-7	03/01/07		0.00	23.49	3,407.88	0.00	0.00	0.00
MW-7	03/13/07		0.00	23.54	3,407.83	0.00	0.00	0.00
MW-7	05/10/07		0.00	23.20	3,408.17	0.00	0.00	0.00
MW-7	08/10/07		0.00	23.58	3,407.79	0.00	0.00	0.00
MW-7	08/20/07		0.00	23.66	3,407.71	0.00	0.00	0.00
MW-7	11/15/07		0.00	23.85	3,407.52	0.00	0.00	0.00
MW-7	02/28/08		0.00	23.73	3,407.64	0.00	0.00	0.00
MW-7	05/28/08		0.00	24.09	3,407.28	0.00	0.00	0.00
MW-7	08/20/08		0.00	24.76	3,406.61	0.00	0.00	0.00
MW-7	11/07/08		0.00	24.21	3,407.16	0.00	0.00	0.00
MW-7	02/09/09		0.00	24.32	3,407.05	0.00	0.00	0.00
MW-7	04/16/09		0.00	24.35	3,407.02	0.00	0.00	0.00
MW-7	05/14/09		0.00	24.56	3,406.81	0.00	0.00	0.00
MW-7	08/12/09		0.00	25.14	3,406.23	0.00	0.00	0.00
MW-7	11/10/09		0.00	25.31	3,406.06	0.00	0.00	0.00
MW-7	02/03/10		0.00	25.11	3,406.26	0.00	0.00	0.00
MW-7	05/27/10		0.00	25.32	3,406.05	0.00	0.00	0.00
MW-7	08/16/10		0.00	25.74	3,405.63	0.00	0.00	0.00
MW-7	11/10/10		0.00	25.67	3,405.70	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-8	06/10/04	3,431.07	0.00	27.52	3,403.55	0.00	0.00	0.00
MW-8	07/14/04		0.00	25.69	3,405.38	0.00	0.00	0.00
MW-8	07/21/04		0.00	25.46	3,405.61	0.00	0.00	0.00
MW-8	08/02/04		0.00	25.88	3,405.19	0.00	0.00	0.00
MW-8	09/10/04		0.00	25.35	3,405.72	0.00	0.00	0.00
MW-8	09/14/04		0.00	25.51	3,405.56	0.00	0.00	0.00
MW-8	10/05/04		0.00	20.30	3,410.77	0.00	0.00	0.00
MW-8	10/19/04		0.00	19.44	3,411.63	0.00	0.00	0.00
MW-8	11/02/04		0.00	19.46	3,411.61	0.00	0.00	0.00
MW-8	11/15/04		0.00	21.07	3,410.00	0.00	0.00	0.00
MW-8	12/06/04		0.00	21.48	3,409.59	0.00	0.00	0.00
MW-8	12/21/04		0.00	21.58	3,409.49	0.00	0.00	0.00
MW-8	01/03/05		0.00	21.98	3,409.09	0.00	0.00	0.00
MW-8	01/18/05		0.00	22.21	3,408.86	0.00	0.00	0.00
MW-8	02/01/05		0.00	22.37	3,408.70	0.00	0.00	0.00
MW-8	03/21/05		0.00	22.72	3,408.35	0.00	0.00	0.00
MW-8	04/21/05		0.00	22.92	3,408.15	0.00	0.00	0.00
MW-8	05/05/05		0.00	22.90	3,408.17	0.00	0.00	0.00
MW-8	05/17/05		0.00	23.16	3,407.91	0.00	0.00	0.00
MW-8	08/15/05		0.00	23.41	3,407.66	0.00	0.00	0.00
MW-8	10/05/05		0.00	23.29	3,407.78	0.00	0.00	0.00
MW-8	11/18/05		0.00	23.55	3,407.52	0.00	0.00	0.00
MW-8	01/12/06		0.00	23.58	3,407.49	0.00	0.00	0.00
MW-8	02/16/06		0.00	23.80	3,407.27	0.00	0.00	0.00
MW-8	03/16/06		0.00	23.92	3,407.15	0.00	0.00	0.00
MW-8	04/10/06		0.00	24.09	3,406.98	0.00	0.00	0.00
MW-8	05/22/06		0.00	24.25	3,406.82	0.00	0.00	0.00
MW-8	07/20/06		0.00	24.57	3,406.50	0.00	0.00	0.00
MW-8	08/07/06		0.00	24.66	3,406.41	0.00	0.00	0.00
MW-8	09/11/06		0.00	23.65	3,407.42	0.00	0.00	0.00
MW-8	10/17/06		0.00	23.83	3,407.24	0.00	0.00	0.00
MW-8	11/21/06		0.00	24.18	3,406.89	0.00	0.00	0.00
MW-8	12/13/06		0.00	24.23	3,406.84	0.00	0.00	0.00
MW-8	01/09/07		0.00	24.36	3,406.71	0.00	0.00	0.00
MW-8	02/14/07		0.00	24.64	3,406.43	0.00	0.00	0.00
MW-8	02/22/07		0.00	23.95	3,407.12	0.00	0.00	0.00
MW-8	03/01/07		0.00	23.92	3,407.15	0.00	0.00	0.00
MW-8	03/13/07		0.00	23.95	3,407.12	0.00	0.00	0.00
MW-8	05/10/07		0.00	23.37	3,407.70	0.00	0.00	0.00
MW-8	08/10/07		0.00	23.78	3,407.29	0.00	0.00	0.00
MW-8	08/20/07		0.00	23.91	3,407.16	0.00	0.00	0.00
MW-8	09/07/07		0.00	24.09	3,406.98	0.00	0.00	0.00
MW-8	09/19/07		0.00	24.13	3,406.94	0.00	0.00	0.00
MW-8	10/01/07		0.00	25.68	3,405.39	0.00	0.00	0.00
MW-8	10/15/07		0.00	24.16	3,406.91	0.00	0.00	0.00
MW-8	11/02/07		0.00	24.22	3,406.85	0.00	0.00	0.00
MW-8	11/15/07		0.00	24.24	3,406.83	0.00	0.00	0.00
MW-8	11/28/07		0.00	24.23	3,406.84	0.00	0.00	0.00
MW-8	12/27/07		0.00	24.08	3,406.99	0.00	0.00	0.00
MW-8	01/18/08		0.00	24.20	3,406.87	0.00	0.00	0.00
MW-8	02/20/08		0.00	24.23	3,406.84	0.00	0.00	0.00
MW-8	02/28/08		0.00	24.17	3,406.90	0.00	0.00	0.00
MW-8	03/11/08		0.00	24.24	3,406.83	0.00	0.00	0.00
MW-8	04/30/08		0.00	24.30	3,406.77	0.00	0.00	0.00
MW-8	05/28/08		0.00	24.42	3,406.65	0.00	0.00	0.00
MW-8	05/30/08		0.00	24.30	3,406.77	0.00	0.00	0.00
MW-8	06/25/08		0.00	24.74	3,406.33	0.00	0.00	0.00
MW-8	07/02/08		0.00	24.72	3,406.35	0.00	0.00	30.00
MW-8	07/07/08		0.00	24.87	3,406.20	0.00	0.00	0.00
MW-8	07/14/08		0.00	24.90	3,406.17	0.00	0.00	0.00
MW-8	07/22/08		0.00	24.91	3,406.16	0.00	0.00	10.00
MW-8	07/30/08		0.00	25.01	3,406.06	0.00	0.00	20.00
MW-8	08/05/08		0.00	25.05	3,406.02	0.00	0.00	20.00
MW-8	08/14/08		0.00	25.09	3,405.98	0.00	0.00	21.00
MW-8	08/20/08		0.00	24.98	3,406.09	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-8	08/27/08		0.00	0.00	3,431.07	0.00	0.00	55.00
MW-8	09/03/08							45.00
MW-8	09/20/08		0.00	24.64	3,406.43	0.00	0.00	35.00
MW-8	09/29/08		0.00	24.86	3,406.21	0.00	0.00	40.00
MW-8	11/07/08		0.00	24.59	3,406.48	0.00	0.00	0.00
MW-8	11/15/08		0.00	24.73	3,406.34	0.00	0.00	50.00
MW-8	11/24/08		0.00	24.61	3,406.46	0.00	0.00	25.00
MW-8	11/26/08		0.00	24.64	3,406.43	0.00	0.00	25.00
MW-8	12/20/08		0.00	24.66	3,406.41	0.00	0.00	50.00
MW-8	01/16/09		0.00	24.69	3,406.38	0.00	0.00	0.00
MW-8	02/09/09		0.00	24.72	3,406.35	0.00	0.00	0.00
MW-8	02/25/09		0.00			0.00	0.00	50.00
MW-8	03/05/09		0.00			0.00	0.00	50.00
MW-8	03/11/09		0.00			0.00	0.00	50.00
MW-8	03/19/09		0.00			0.00	0.00	50.00
MW-8	04/08/09		0.00	25.05	3,406.02	0.00	0.00	50.00
MW-8	04/16/09		0.00	25.02	3,406.05	0.00	0.00	50.00
MW-8	04/23/09		0.00	24.80	3,406.27	0.00	0.00	50.00
MW-8	04/29/08		0.00	24.98	3,406.09	0.00	0.00	40.00
MW-8	05/06/09		0.00	24.82	3,406.25	0.00	0.00	50.00
MW-8	05/14/09		0.00	24.90	3,406.17	0.00	0.00	0.00
MW-8	07/08/09		0.00	25.29	3,405.78	0.00	0.00	50.00
MW-8	07/24/09		0.00	25.34	3,405.73	0.00	0.00	0.00
MW-8	08/04/09		0.00	25.32	3,405.75	0.00	0.00	55.00
MW-8	08/12/09		0.00	25.41	3,405.66	0.00	0.00	0.00
MW-8	08/19/09		0.00	25.43	3,405.64	0.00	0.10	40.00
MW-8	09/01/09		0.00	25.54	3,405.53	0.00	0.00	44.50
MW-8	09/22/09		0.00	25.65	3,405.42	0.00	0.00	5.00
MW-8	10/12/09		0.00	25.66	3,405.41	0.00	0.00	19.00
MW-8	10/30/09		0.00	25.70	3,405.37	0.00	0.00	0.00
MW-8	11/10/09		0.00	25.68	3,405.39	0.00	0.00	10.00
MW-8	01/08/10		0.00	25.56	3,405.51	0.00	0.00	10.00
MW-8	01/22/10		0.00	25.44	3,405.63	0.00	0.00	10.00
MW-8	01/26/10		0.00	25.58	3,405.49	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-8	02/03/10		0.00	25.50	3,405.57	0.00	0.00	0.00
MW-8	02/10/10		0.00	25.54	3,405.53	0.00	0.00	30.00
MW-8	03/09/10		0.00	25.45	3,405.62	0.00	0.00	30.00
MW-8	03/24/10		0.00	25.46	3,405.61	0.00	0.00	50.00
MW-8	04/12/10		0.00	25.45	3,405.62	0.00	0.00	50.00
MW-8	04/27/10		0.00	25.48	3,405.59	0.00	0.00	50.00
MW-8	05/27/10		0.00	25.67	3,405.40	0.00	0.00	0.00
MW-8	06/21/10		0.00	25.90	3,405.17	0.00	0.00	55.00
MW-8	07/07/10		0.00	25.83	3,405.24	0.00	0.00	50.00
MW-8	07/20/10		0.00	25.68	3,405.39	0.00	0.00	55.00
MW-8	08/03/10		0.00	25.87	3,405.20	0.00	0.00	50.00
MW-8	08/16/10		0.00	26.04	3,405.03	0.00	0.00	45.00
MW-8	09/02/10		0.00	26.02	3,405.05	0.00	0.00	45.00
MW-8	09/17/10		0.00	26.11	3,404.96	0.00	0.00	0.00
MW-8	11/10/10		0.00	26.03	3,405.04	0.00	0.00	0.00
MW-9	06/10/04	3,429.79	0.00	Screen Filled With Mud		0.00	0.00	0.00
MW-9	07/14/04		0.00	24.02	3,405.77	0.00	0.00	0.00
MW-9	07/21/04		0.00	23.84	3,405.95	0.00	0.00	0.00
MW-9	08/02/04		0.00	24.77	3,405.02	0.00	0.00	0.00
MW-9	09/10/04		0.00	24.21	3,405.58	0.00	0.00	0.00
MW-9	09/14/04		0.00	24.27	3,405.52	0.00	0.00	0.00
MW-9	10/05/04		0.00	15.51	3,414.28	0.00	0.00	0.00
MW-9	10/19/04		0.00	16.54	3,413.25	0.00	0.00	0.00
MW-9	11/02/04		0.00	16.57	3,413.22	0.00	0.00	0.00
MW-9	11/15/04		0.00	19.53	3,410.26	0.00	0.00	0.00
MW-9	12/06/04		0.00	20.02	3,409.77	0.00	0.00	0.00
MW-9	12/21/04		0.00	20.36	3,409.43	0.00	0.00	0.00
MW-9	01/03/05		0.00	20.83	3,408.96	0.00	0.00	0.00
MW-9	01/18/05		0.00	21.10	3,408.69	0.00	0.00	0.00
MW-9	02/01/05		0.00	21.30	3,408.49	0.00	0.00	0.00
MW-9	03/21/05		0.00	21.69	3,408.10	0.00	0.00	0.00
MW-9	04/21/05		0.00	22.08	3,407.71	0.00	0.00	0.00
MW-9	05/05/05		0.00	22.06	3,407.73	0.00	0.00	0.00
MW-9	05/17/05		0.00	22.23	3,407.56	0.00	0.00	0.00
MW-9	08/15/05		0.00	22.30	3,407.49	0.00	0.00	0.00
MW-9	10/05/05		0.00	22.41	3,407.38	0.00	0.00	0.00
MW-9	11/18/05		0.00	22.68	3,407.11	0.00	0.00	0.00
MW-9	01/12/06		0.00	22.71	3,407.08	0.00	0.00	0.00
MW-9	02/16/06		0.00	22.93	3,406.86	0.00	0.00	0.00
MW-9	03/16/06		0.00	23.12	3,406.67	0.00	0.00	0.00
MW-9	04/10/06		0.00	23.10	3,406.69	0.00	0.00	0.00
MW-9	05/22/06		0.00	23.21	3,406.58	0.00	0.00	0.00
MW-9	07/20/06		0.00	23.69	3,406.10	0.00	0.00	0.00
MW-9	08/07/06		0.00	24.02	3,405.77	0.00	0.00	0.00
MW-9	09/11/06		0.00	22.61	3,407.18	0.00	0.00	0.00
MW-9	10/17/06		0.00	22.98	3,406.81	0.00	0.00	0.00
MW-9	11/21/06		0.00	23.06	3,406.73	0.00	0.00	0.00
MW-9	12/13/06		0.00	23.71	3,406.08	0.00	0.00	0.00
MW-9	01/09/07		0.00	23.24	3,406.55	0.00	0.00	0.00
MW-9	02/14/07		0.00	23.19	3,406.60	0.00	0.00	0.00
MW-9	02/22/07		0.00	23.09	3,406.70	0.00	0.00	0.00
MW-9	03/01/07		0.00	23.07	3,406.72	0.00	0.00	0.00
MW-9	03/13/07		0.00	23.10	3,406.69	0.00	0.00	0.00
MW-9	05/10/07		0.00	22.04	3,407.75	0.00	0.00	0.00
MW-9	05/29/07		0.00	22.08	3,407.71	0.00	0.00	0.00
MW-9	06/06/07		0.00	24.68	3,405.11	0.00	0.00	0.00
MW-9	06/21/07		0.00	22.35	3,407.44	0.00	0.00	0.00
MW-9	08/10/07		0.00	22.86	3,406.93	0.00	0.00	0.00
MW-9	08/20/07		0.00	22.99	3,406.80	0.00	0.00	0.00
MW-9	11/15/07		0.00	23.28	3,406.51	0.00	0.00	0.00
MW-9	02/28/08		0.00	23.24	3,406.55	0.00	0.00	0.00
MW-9	04/30/08		0.00	23.30	3,406.49	0.00	0.00	0.00
MW-9	05/28/08		0.00	23.53	3,406.26	0.00	0.00	0.00
MW-9	05/30/08		0.00	23.30	3,406.49	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-9	08/20/08		0.00	24.14	3,405.65	0.00	0.00	0.00
MW-9	08/27/08		0.00	0.00	3,429.79	0.00	0.00	5.00
MW-9	09/03/08							5.00
MW-9	09/20/08		0.00	23.71	3,406.08	0.00	0.00	5.00
MW-9	09/29/08		0.00	23.77	3,406.02	0.00	0.00	5.00
MW-9	11/07/08		0.00	23.74	3,406.05	0.00	0.00	0.00
MW-9	11/15/08		0.00	23.86	3,405.93	0.00	0.00	5.00
MW-9	11/24/08		0.00	23.76	3,406.03	0.00	0.00	25.00
MW-9	11/26/08		0.00	23.79	3,406.00	0.00	0.00	5.00
MW-9	12/20/08		0.00	23.82	3,405.97	0.00	0.00	5.00
MW-9	01/16/09		0.00	23.85	3,405.94	0.00	0.00	0.00
MW-9	02/09/09		0.00	23.78	3,406.01	0.00	0.00	0.00
MW-9	02/25/09		0.00			0.00	0.00	5.00
MW-9	03/05/09		0.00			0.00	0.00	5.00
MW-9	03/11/09		0.00			0.00	0.00	5.00
MW-9	03/19/09		0.00			0.00	0.00	5.00
MW-9	04/08/09		0.00	24.15	3,405.64	0.00	0.00	35.00
MW-9	04/16/09		0.00	24.23	3,405.56	0.00	0.00	20.00
MW-9	04/23/09		0.00	25.45	3,404.34	0.00	0.00	30.00
MW-9	04/29/08		0.00	23.95	3,405.84	0.00	0.00	15.00
MW-9	05/06/09		0.00	24.02	3,405.77	0.00	0.00	20.00
MW-9	05/14/09		0.00	24.10	3,405.69	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-9	07/08/09		0.00	24.41	3,405.38	0.00	0.00	7.00
MW-9	07/24/09		0.00	24.48	3,405.31	0.00	0.00	0.00
MW-9	08/04/09		0.00	24.43	3,405.36	0.00	0.00	55.00
MW-9	08/12/09		0.00	24.52	3,405.27	0.00	0.00	0.00
MW-9	08/19/09		0.00	24.55	3,405.24	0.00	0.00	4.00
MW-9	09/01/09		0.00	24.68	3,405.11	0.00	0.00	10.00
MW-9	09/22/09		0.00	24.79	3,405.00	0.00	0.00	5.00
MW-9	10/12/09		0.00	24.78	3,405.01	0.00	0.00	7.00
MW-9	10/30/09		0.00	24.83	3,404.96	0.00	0.00	0.00
MW-9	11/10/09		0.00	24.80	3,404.99	0.00	0.00	15.00
MW-9	01/08/10		0.00	24.74	3,405.05	0.00	0.00	10.00
MW-9	01/22/10		0.00	24.62	3,405.17	0.00	0.00	10.00
MW-9	01/26/10		0.00	24.75	3,405.04	0.00	0.00	0.00
MW-9	02/03/10		0.00	24.69	3,405.10	0.00	0.00	0.00
MW-9	02/10/10		0.00	24.72	3,405.07	0.00	0.00	10.00
MW-9	03/09/10		0.00	24.62	3,405.17	0.00	0.00	0.00
MW-9	03/24/10		0.00	24.65	3,405.14	0.00	0.00	0.00
MW-9	04/12/10		0.00	24.64	3,405.15	0.00	0.00	0.00
MW-9	04/27/10		0.00	24.67	3,405.12	0.00	0.00	0.00
MW-9	05/27/10		0.00	24.85	3,404.94	0.00	0.00	0.00
MW-9	06/21/10		0.00	25.05	3,404.74	0.00	0.00	0.00
MW-9	07/07/10		0.00	24.93	3,404.86	0.00	0.00	0.00
MW-9	07/20/10		0.00	24.88	3,404.91	0.00	0.00	0.00
MW-9	08/03/10		0.00	25.03	3,404.76	0.00	0.00	0.00
MW-9	08/16/10		0.00	25.19	3,404.60	0.00	0.00	0.00
MW-9	09/02/10		0.00	25.18	3,404.61	0.00	0.00	0.00
MW-9	09/17/10		0.00	25.27	3,404.52	0.00	0.00	0.00
MW-9	11/10/10		0.00	25.21	3,404.58	0.00	0.00	0.00
MW-10	11/15/04	3,429.49	0.00	19.61	3,409.88	0.00	0.00	0.00
MW-10	12/06/04		0.00	19.95	3,409.54	0.00	0.00	0.00
MW-10	12/21/04		0.00	20.13	3,409.36	0.00	0.00	0.00
MW-10	01/03/05		0.00	20.56	3,408.93	0.00	0.00	0.00
MW-10	01/18/05		0.00	20.79	3,408.70	0.00	0.00	0.00
MW-10	02/01/05		0.00	20.98	3,408.51	0.00	0.00	0.00
MW-10	03/21/05		0.00	21.36	3,408.13	0.00	0.00	0.00
MW-10	04/21/05		0.00	21.64	3,407.85	0.00	0.00	0.00
MW-10	05/05/05		0.00	21.69	3,407.80	0.00	0.00	0.00
MW-10	05/17/05		0.00	21.81	3,407.68	0.00	0.00	0.00
MW-10	08/15/05		0.00	21.93	3,407.56	0.00	0.00	0.00
MW-10	10/05/05		0.00	21.98	3,407.51	0.00	0.00	0.00
MW-10	11/18/05		0.00	22.22	3,407.27	0.00	0.00	0.00
MW-10	01/12/06		0.00	22.33	3,407.16	0.00	0.00	0.00
MW-10	02/16/06		0.00	22.47	3,407.02	0.00	0.00	0.00
MW-10	03/16/06		0.00	22.77	3,406.72	0.00	0.00	0.00
MW-10	04/10/06		0.00	22.60	3,406.89	0.00	0.00	0.00
MW-10	05/22/06		0.00	22.78	3,406.71	0.00	0.00	0.00
MW-10	07/20/06		0.00	23.18	3,406.31	0.00	0.00	0.00
MW-10	08/07/06		0.00	23.25	3,406.24	0.00	0.00	0.00
MW-10	09/11/06		0.00	22.11	3,407.38	0.00	0.00	0.00
MW-10	10/17/06		0.00	22.46	3,407.03	0.00	0.00	0.00
MW-10	11/21/06		0.00	22.57	3,406.92	0.00	0.00	0.00
MW-10	12/13/06		0.00	22.61	3,406.88	0.00	0.00	0.00
MW-10	01/09/07		0.00	22.71	3,406.78	0.00	0.00	0.00
MW-10	02/14/07		0.00	22.65	3,406.84	0.00	0.00	0.00
MW-10	02/22/07		0.00	22.64	3,406.85	0.00	0.00	0.00
MW-10	03/01/07		0.00	22.58	3,406.91	0.00	0.00	0.00
MW-10	03/13/07		0.00	22.64	3,406.85	0.00	0.00	0.00
MW-10	05/10/07		0.00	21.61	3,407.88	0.00	0.00	0.00
MW-10	08/10/07		0.00	22.48	3,407.01	0.00	0.00	0.00
MW-10	08/20/07		0.00	22.59	3,406.90	0.00	0.00	0.00
MW-10	11/15/07		0.00	22.87	3,406.62	0.00	0.00	0.00
MW-10	02/28/08		0.00	22.81	3,406.68	0.00	0.00	0.00
MW-10	05/28/08		0.00	23.09	3,406.40	0.00	0.00	0.00
MW-10	08/20/08		0.00	23.73	3,405.76	0.00	0.00	0.00

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All measurements are in feet above mean sea level

Monitor Well	Date Gauged	Relative Top of Casing Elevation (TOC)*	Depth to PSH Below Top of Casing	Depth to Water Below Top of Casing	Corrected Relative Groundwater Elevation*	PSH Thickness	PSH Recovered	Volume Purged
MW-10	11/07/08		0.00	23.38	3,406.11	0.00	0.00	0.00
MW-10	02/09/09		0.00	23.41	3,406.08	0.00	0.00	0.00
MW-10	04/16/09		0.00	23.51	3,405.98	0.00	0.00	0.00
MW-10	05/14/09		0.00	23.62	3,405.87	0.00	0.00	0.00
MW-10	08/12/09		0.00	24.11	3,405.38	0.00	0.00	0.00
MW-10	11/10/09		0.00	24.36	3,405.13	0.00	0.00	0.00
MW-10	02/03/10		0.00	24.20	3,405.29	0.00	0.00	0.00
MW-10	05/27/10		0.00	24.38	3,405.11	0.00	0.00	0.00
MW-10	08/16/10		0.00	24.74	3,404.75	0.00	0.00	0.00
MW-10	11/10/10		0.00	24.75	3,404.74	0.00	0.00	0.00
MW-11	11/15/04	3,428.32	0.00	18.26	3,410.06	0.00	0.00	0.00
MW-11	12/06/04		0.00	18.67	3,409.65	0.00	0.00	0.00
MW-11	12/21/04		0.00	18.93	3,409.39	0.00	0.00	0.00
MW-11	01/03/05		0.00	19.40	3,408.92	0.00	0.00	0.00
MW-11	01/18/05		0.00	19.68	3,408.64	0.00	0.00	0.00
MW-11	02/01/05		0.00	19.90	3,408.42	0.00	0.00	0.00
MW-11	03/21/05		0.00	20.34	3,407.98	0.00	0.00	0.00
MW-11	04/21/05		0.00	20.70	3,407.62	0.00	0.00	0.00
MW-11	05/05/05		0.00	20.71	3,407.61	0.00	0.00	0.00
MW-11	05/17/05		0.00	20.87	3,407.45	0.00	0.00	0.00
MW-11	08/15/05		0.00	20.95	3,407.37	0.00	0.00	0.00
MW-11	10/05/05		0.00	21.04	3,407.28	0.00	0.00	0.00
MW-11	11/18/05		0.00	21.31	3,407.01	0.00	0.00	0.00
MW-11	01/12/06		0.00	21.55	3,406.77	0.00	0.00	0.00
MW-11	02/16/06		0.00	21.58	3,406.74	0.00	0.00	0.00
MW-11	03/16/06		0.00	21.77	3,406.55	0.00	0.00	0.00
MW-11	04/10/06		0.00	21.75	3,406.57	0.00	0.00	0.00
MW-11	05/22/06		0.00	21.90	3,406.42	0.00	0.00	0.00
MW-11	08/07/06		0.00	22.32	3,406.00	0.00	0.00	0.00
MW-11	09/11/06		0.00	21.19	3,407.13	0.00	0.00	0.00
MW-11	10/17/06		0.00	21.49	3,406.83	0.00	0.00	0.00
MW-11	11/21/06		0.00	21.61	3,406.71	0.00	0.00	0.00
MW-11	12/13/06		0.00	21.64	3,406.68	0.00	0.00	0.00
MW-11	01/09/07		0.00	21.47	3,406.85	0.00	0.00	0.00
MW-11	02/14/07		0.00	21.70	3,406.62	0.00	0.00	0.00
MW-11	02/22/07		0.00	21.72	3,406.60	0.00	0.00	0.00
MW-11	03/01/07		0.00	21.69	3,406.63	0.00	0.00	0.00
MW-11	03/13/07		0.00	21.73	3,406.59	0.00	0.00	0.00
MW-11	05/10/07		0.00	20.04	3,408.28	0.00	0.00	0.00
MW-11	08/10/07		0.00	22.54	3,405.78	0.00	0.00	0.00
MW-11	08/20/07		0.00	21.63	3,406.69	0.00	0.00	0.00
MW-11	11/15/07		0.00	21.94	3,406.38	0.00	0.00	0.00
MW-11	02/28/08		0.00	21.89	3,406.43	0.00	0.00	0.00
MW-11	05/28/08		0.00	21.17	3,407.15	0.00	0.00	0.00
MW-11	08/20/08		0.00	22.77	3,405.55	0.00	0.00	0.00
MW-11	11/07/08		0.00	22.38	3,405.94	0.00	0.00	0.00
MW-11	02/09/09		0.00	22.51	3,405.81	0.00	0.00	0.00
MW-11	04/16/09		0.00	22.44	3,405.88	0.00	0.00	0.00
MW-11	05/14/09		0.00	22.73	3,405.59	0.00	0.00	0.00
MW-11	08/12/09		0.00	23.17	3,405.15	0.00	0.00	0.00
MW-11	11/10/09		0.00	23.42	3,404.90	0.00	0.00	0.00
MW-11	02/03/10		0.00	23.30	3,405.02	0.00	0.00	0.00
MW-11	05/27/10		0.00	23.46	3,404.86	0.00	0.00	0.00
MW-11	08/16/10		0.00	23.81	3,404.51	0.00	0.00	0.00
MW-11	11/10/10		0.00	23.85	3,404.47	0.00	0.00	0.00
							5.25	Total Gallons
							0.13	Total Barrels

* - Wells are referenced to the TOC of groundwater monitoring well MW-2 (set to an elevation 3,432.62 feet)

PSH - Phase separated hydrocarbons

Table 2
CONCENTRATIONS OF BTEX AND TPH IN GROUNDWATER

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
NMOCD File Number: 1R-0395
Plains Pipeline, L. P. SRS Number 2001-11226
Terracon Project Number A4077007

All concentrations are reported in mg/L

Monitor Well Identification	Date	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	Gasoline TPH C ₆ -C ₁₂	Diesel TPH >C ₁₂ -C ₂₈	Oil TPH >C ₂₈ -C ₃₅	Total TPH C ₆ -C ₃₅
MW-1	09/13/01	0.002	0.003	<0.001	<0.001	<0.001	<0.003	<0.003	NA	<0.006
MW-1	01/24/02	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-1	04/12/02	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-1	07/10/02	0.00188	<0.001	0.00187	0.00104	<0.001	NA	NA	NA	NA
MW-1	04/15/03	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-1	07/14/03	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-1	04/20/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	07/14/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	09/14/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	12/21/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	03/21/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	08/15/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	02/16/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	05/22/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	02/22/07	<0.001	<0.001	<0.001	<0.002		NA	NA	NA	NA
MW-1	05/10/07	<0.001	<0.001	<0.001	<0.001		NA	NA	NA	NA
MW-1	08/10/07	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-1	11/15/07					Dry - Not Sampled				
MW-1	02/28/08					Dry - Not Sampled				
MW-1	05/28/08					Dry - Not Sampled				
MW-1	08/20/08					Dry - Not Sampled				
MW-1	11/07/08					Dry - Not Sampled				
MW-1	02/09/09					Dry - Not Sampled				
MW-1	05/14/09					Dry - Not Sampled				
MW-1	08/12/09					Dry - Not Sampled				
MW-1	11/11/09					Dry - Not Sampled				
MW-1	02/05/10					Dry - Not Sampled				
MW-1	05/27/10					Dry - Not Sampled				
MW-1	08/16/10					Dry - Not Sampled				
MW-2	01/24/02	0.368	<0.001	0.0537	0.065	0.0125	NA	NA	NA	NA
MW-2	04/12/02	0.127	<0.001	0.0254	0.0283	0.00833	NA	NA	NA	NA
MW-2	07/10/02	0.0674	0.00188	0.0176	0.0154	0.00389	NA	NA	NA	NA
MW-2	04/15/03	0.229	0.001	0.0588	0.0443	0.0124	NA	NA	NA	NA
MW-2	07/14/03	0.185	<0.001	0.0351	0.0295	0.00823	NA	NA	NA	NA
MW-2	04/20/04	0.125	<0.001	0.0341	0.0567	0.0153	NA	NA	NA	NA
MW-2	07/14/04	0.209	0.00616	0.047	0.0212	0.0154	NA	NA	NA	NA
MW-2	09/14/04	0.125	0.00276	0.0358	0.0106	0.00701	NA	NA	NA	NA
MW-2	12/21/04	0.267	0.00124	0.0357	<0.002	0.00109	NA	NA	NA	NA
MW-2	03/21/05	0.186	<0.001	0.0136	0.00541	0.00199	NA	NA	NA	NA
MW-2	05/17/05	0.342	0.001	0.0281	0.0334	0.0147	NA	NA	NA	NA
MW-2	08/15/05	0.145	0.00718	0.0187	0.02	0.00849	NA	NA	NA	NA
MW-2	11/18/05	0.413	0.00207	0.114	0.122	0.0349	NA	NA	NA	NA
MW-2	02/16/06	0.433	<0.001	0.146	0.161	0.00465	NA	NA	NA	NA
MW-2	05/22/06	0.694	0.162	0.172	0.206	0.0182	NA	NA	NA	NA
MW-2	08/07/06	0.664	0.00604	0.0496	0.0816	0.00811	NA	NA	NA	NA
MW-2	11/21/06	0.461	<0.005	0.0638	0.0614	<0.005	NA	NA	NA	NA
MW-2	02/22/07	0.292	<0.001	0.0437	0.0337		NA	NA	NA	NA
MW-2	05/10/07	0.19	0.0049	0.0341	0.0233		NA	NA	NA	NA
MW-2	08/10/07	0.0881	0.0012	0.0295	0.0229	<0.001	NA	NA	NA	NA
MW-2	11/15/07	0.0615	<0.002	0.0031	0.0026	<0.001	NA	NA	NA	NA
MW-2	02/28/08	<0.001	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-2	05/28/08	0.0949	<0.002	0.006	0.0029	<0.001	NA	NA	NA	NA
MW-2	08/20/08	0.1011	<0.002	0.005	0.0027	0.0021	NA	NA	NA	NA
MW-2	11/07/08	0.0462	<0.002	0.0044	0.0029	<0.001	NA	NA	NA	NA
MW-2	02/09/09	0.0908	<0.002	0.0019	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-2	05/14/09	0.7167	<0.02	<0.01	<0.02	<0.01	NA	NA	NA	NA
MW-2	11/11/09	0.0476	<0.002	0.0068	0.0047	<0.001	NA	NA	NA	NA
MW-2	02/05/10	0.0287	<0.002	0.0046	0.0033	0.0015	NA	NA	NA	NA
MW-2	05/27/10	0.0262	<0.002	0.0082	0.0046	<0.001	NA	NA	NA	NA
MW-2	08/16/10	0.0095	<0.002	0.0041	<0.001	<0.001	NA	NA	NA	NA
MW-2	11/19/10	0.01	<0.002	0.0043	<0.001	<0.001	NA	NA	NA	NA
MW-3	09/13/01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	NA	<0.006
MW-3	01/24/02	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-3	04/12/02	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-3	07/10/02	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-3	04/15/03	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA

Table 2

CONCENTRATIONS OF BTEX AND TPH IN GROUNDWATER

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All concentrations are reported in mg/L

Monitor Well Identification	Date	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	Gasoline TPH C ₆ -C ₁₂	Diesel TPH >C ₁₂ -C ₂₈	Oil TPH >C ₂₈ -C ₃₅	Total TPH C ₆ -C ₃₅
MW-3	07/14/03	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-3	04/20/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	07/14/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	09/14/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	12/21/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	08/15/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	02/16/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	05/22/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	02/22/07	<0.001	<0.001	<0.001	<0.002		NA	NA	NA	NA
MW-3	05/10/07	<0.001	<0.001	<0.001	<0.001		NA	NA	NA	NA
MW-3	08/10/07	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	11/15/07	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	02/28/08	0.0193	<0.002	0.0032	0.0023	<0.001	<1.5	<1.5	<1.5	<1.5
MW-3	05/28/08	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	08/20/08	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	11/07/08	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	08/12/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	11/11/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	02/05/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	05/27/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	08/16/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	11/19/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
Not Sampled due to the Presence of Phase Separated Hydrocarbons										
MW-4	01/24/02									
MW-4	04/12/02	0.48	0.361	0.199	0.334	0.216	NA	NA	NA	NA
MW-4	07/10/02									
MW-4	04/15/03									
MW-4	07/14/03									
MW-4	04/20/04	3.21	2.31	0.845	1.87	1.03	NA	NA	NA	NA
MW-4	07/14/04									
MW-4	09/14/04									
MW-4	12/21/04	0.829	0.0066	0.173	0.176	0.0595	NA	NA	NA	NA
MW-4	03/21/05									
MW-4	05/17/05									
MW-4	08/15/05									
MW-4	11/18/05	2.62	<0.002	0.379	0.711	0.0365	NA	NA	NA	NA
MW-4	02/16/06	2.1	<0.001	0.414	0.806	<0.001	NA	NA	NA	NA
MW-4	05/22/06	2.11	<0.005	0.372	0.663	<0.005	NA	NA	NA	NA
MW-4	08/07/06	2.84	0.00604	0.049	0.0816	0.00811	NA	NA	NA	NA
MW-4	11/21/06									
MW-4	02/22/07	1.42	<0.001	0.291	0.443		NA	NA	NA	NA
MW-4	05/10/07	1.21	<0.001	0.267	0.382		NA	NA	NA	NA
MW-4	08/10/07	1.227	0.0075	0.2418	0.3456	<0.005	NA	NA	NA	NA
MW-4	11/15/07									
MW-4	02/28/08	0.0073	<0.002	0.0026	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-4	05/28/08									
MW-4	08/20/08									
MW-4	11/07/08									
MW-4	02/09/09	0.7677	<0.002	0.059	0.0764	0.0026	5.52	2.3	<1.5	7.82
MW-4	05/14/09	0.492	<0.001	0.0312	0.0476	<0.005	NA	NA	NA	NA
MW-4	08/12/09	1.357	<0.04	0.1026	0.1532	<0.02	NA	NA	NA	NA
MW-4	11/11/09									
MW-4	02/05/10	2.019	0.0551	0.088	0.1318	<0.01	NA	NA	NA	NA
MW-4	05/27/10									
MW-4	08/16/10									
Not Sampled due to the Presence of Phase Separated Hydrocarbons										
Not Sampled due to the Presence of Phase Separated Hydrocarbons										
MW-5	09/13/01	0.535	0.075	0.084	0.438	0.04	0.00634	0.00302	NA	0.00936
MW-5	01/24/02	0.28	0.00319	0.107	0.00828	0.00565	NA	NA	NA	NA
MW-5	04/12/02	0.303	0.00948	0.129	0.00816	0.0132	NA	NA	NA	NA
MW-5	04/15/03	0.129	0.00354	0.0366	0.00352	0.00238	NA	NA	NA	NA
MW-5	07/14/03	0.0814	<0.001	0.0344	0.00141	<0.001	NA	NA	NA	NA
MW-5	04/20/04	0.482	0.00237	0.101	0.0601	0.0313	NA	NA	NA	NA
MW-5	07/14/04	0.0708	<0.001	0.0486	0.0046	0.00207	NA	NA	NA	NA
MW-5	09/14/04	0.118	0.00135	0.0588	0.0045	0.00161	NA	NA	NA	NA
MW-5	12/21/04	0.204	<0.001	0.0667	<0.002	<0.001	NA	NA	NA	NA
MW-5	03/21/05	0.0308	<0.001	0.0171	0.00367	<0.001	NA	NA	NA	NA
MW-5	05/17/05	0.00966	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-5	08/15/05	0.0138	0.00173	0.00438	<0.002	<0.001	NA	NA	NA	NA
MW-5	11/18/05	0.0107	0.00115	<0.001	<0.002	<0.001	NA	NA	NA	NA

Table 2
CONCENTRATIONS OF BTEX AND TPH IN GROUNDWATER

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico
NMOCD File Number: 1R-0395
Plains Pipeline, L. P. SRS Number 2001-11226
Terracon Project Number A4077007

All concentrations are reported in mg/L

Monitor Well Identification	Date	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	Gasoline TPH C ₆ -C ₁₂	Diesel TPH >C ₁₂ -C ₂₈	Oil TPH >C ₂₈ -C ₃₅	Total TPH C ₆ -C ₃₅
MW-5	02/16/06	0.00747	<0.001	0.00293	<0.002	<0.001	NA	NA	NA	NA
MW-5	05/22/06	0.00318	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-5	08/07/06	0.0964	0.00763	0.0028	<0.002	0.00133	NA	NA	NA	NA
MW-5	11/21/06	0.0883	0.0241	0.00988	0.013	0.00727	NA	NA	NA	NA
MW-5	02/22/07	0.0443	<0.001	0.0289	0.0123		NA	NA	NA	NA
MW-5	05/10/07	0.0462	<0.001	0.0357	0.0159		NA	NA	NA	NA
MW-5	08/10/07	0.0266	<0.005	0.0141	<0.01	<0.005	NA	NA	NA	NA
MW-5	11/15/07	0.011	<0.002	0.0036	<0.002	<0.001	NA	NA	NA	NA
MW-5	02/28/08	0.5605	0.0192	0.1301	0.2109	0.007	4.55	3.33	<1.52	7.88
MW-5	05/28/08	0.0112	<0.002	0.0021	<0.002	<0.001	NA	NA	NA	NA
MW-5	08/20/08	0.0048	<0.002	0.0017	<0.002	0.0013	NA	NA	NA	NA
MW-5	11/07/08	0.035	<0.002	0.0081	<0.002	<0.001	NA	NA	NA	NA
MW-5	02/09/09	0.093	<0.002	0.0045	0.0044	0.0012	<1.5	<1.5	<1.5	<1.5
MW-5	05/14/09	0.1093	<0.002	0.0043	<0.002	<0.001	NA	NA	NA	NA
MW-5	08/12/09	0.057	<0.002	0.0041	<0.002	0.002	NA	NA	NA	NA
MW-5	11/11/09	0.1185	<0.01	0.0248	<0.01	<0.005	NA	NA	NA	NA
MW-5	02/05/10	0.0432	<0.002	0.0072	<0.002	<0.001	NA	NA	NA	NA
MW-5	05/27/10	0.0824	<0.002	0.0174	<0.002	<0.001	NA	NA	NA	NA
MW-5	08/18/10	0.2479	<0.002	0.038	<0.002	<0.001	NA	NA	NA	NA
MW-5	11/19/10	0.0133	<0.002	0.0018	<0.002	<0.001	NA	NA	NA	NA
MW-6	01/24/02	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-6	04/12/02	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-6	07/10/02	0.00153	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-6	04/15/03	0.00274	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-6	07/14/03	0.00254	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA
MW-6	04/20/04	0.00106	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	07/14/04	0.00195	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	09/14/04	0.01	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	12/21/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	03/21/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	05/17/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	08/15/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/18/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	02/16/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	05/22/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	08/07/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/21/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	02/22/07	<0.001	<0.001	<0.001	<0.002		NA	NA	NA	NA
MW-6	05/10/07	0.0238	<0.001	0.014	0.0076		NA	NA	NA	NA
MW-6	08/10/07	0.0152	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/15/07	0.0149	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	02/28/08	0.0444	<0.002	0.0299	0.0374	<0.001	1.72	<1.5	<1.5	1.72
MW-6	05/28/08	0.0021	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	08/20/08	0.0121	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/07/08	0.0069	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	02/09/09	<0.001	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-6	05/14/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	08/12/09	0.008	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/11/09	0.0072	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	02/05/10	0.0051	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	05/27/10	0.0078	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	08/18/10	0.0088	<0.002	0.0011	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/19/10	0.0024	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	07/14/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	09/14/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	12/21/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	03/21/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	05/17/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	08/15/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	11/18/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	02/16/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	05/22/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	08/07/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	11/21/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	02/22/07	<0.001	<0.001	<0.001	<0.002		NA	NA	NA	NA
MW-7	05/10/07	<0.001	<0.001	<0.001	<0.001		NA	NA	NA	NA
MW-7	08/10/07	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA

Table 2

CONCENTRATIONS OF BTEX AND TPH IN GROUNDWATER

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All concentrations are reported in mg/L

Monitor Well Identification	Date	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	Gasoline TPH C ₆ -C ₁₂	Diesel TPH >C ₁₂ -C ₂₈	Oil TPH >C ₂₈ -C ₃₅	Total TPH C ₆ -C ₃₅
MW-7	11/15/07	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	02/28/08	0.0486	<0.002	0.0599	0.0437	0.0546	1.89	<1.5	<1.5	1.89
MW-7	05/28/08	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	08/20/08	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	11/07/08	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	02/09/09	<0.001	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-7	05/14/09	0.0013	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	08/12/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	11/11/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	02/05/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	05/27/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	08/16/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	11/19/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-8	07/14/04	0.575	0.141	0.0884	0.0762	0.0868	NA	NA	NA	NA
MW-8	09/14/04	0.482	0.0356	0.106	0.0582	0.0551	NA	NA	NA	NA
MW-8	12/21/04	4.22	0.113	0.695	0.208	0.075	NA	NA	NA	NA
MW-8	03/21/05	3.41	<0.01	0.452	0.133	0.0152	NA	NA	NA	NA
MW-8	05/17/05	2.29	<0.001	0.115	0.0323	0.00563	NA	NA	NA	NA
MW-8	08/15/05	1.21	<0.001	0.0749	0.0326	0.00149	NA	NA	NA	NA
MW-8	11/18/05	0.67	<0.001	0.0299	0.0165	<0.001	NA	NA	NA	NA
MW-8	02/16/06	0.243	<0.001	0.0359	0.0239	<0.001	NA	NA	NA	NA
MW-8	05/22/06	0.0974	<0.001	0.0278	0.022	<0.001	NA	NA	NA	NA
MW-8	08/07/06	0.133	<0.001	0.00758	0.00497	<0.001	NA	NA	NA	NA
MW-8	02/22/07	0.118	<0.001	0.0384	0.0429	<0.001	NA	NA	NA	NA
MW-8	05/10/07	0.209	<0.001	0.0473	0.0529	<0.001	NA	NA	NA	NA
MW-8	08/10/07	0.05	0.0012	0.0254	0.0298	<0.001	NA	NA	NA	NA
MW-8	11/15/07	0.0186	<0.002	0.0079	0.0096	<0.001	NA	NA	NA	NA
MW-8	02/28/08	0.0056	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-8	05/28/08	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-8	08/20/08	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-8	11/07/08	0.012	<0.002	0.0043	0.0054	<0.001	NA	NA	NA	NA
MW-8	02/09/09	<0.001	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-8	05/14/09	0.0121	<0.002	0.0044	0.005	<0.001	NA	NA	NA	NA
MW-8	08/12/09	0.0138	<0.002	0.0057	0.0057	<0.001	NA	NA	NA	NA
MW-8	11/11/09	0.0085	<0.002	0.0024	<0.002	<0.001	NA	NA	NA	NA
MW-8	02/05/10	0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-8	05/27/10	0.0268	<0.002	0.0126	0.0039	<0.001	NA	NA	NA	NA
MW-8	08/16/10	0.0478	<0.002	0.0088	<0.002	<0.001	NA	NA	NA	NA
MW-8	11/19/10	0.0081	<0.002	0.0023	<0.002	<0.001	NA	NA	NA	NA
MW-9	07/14/04	0.0275	0.0109	0.487	0.305	0.319	NA	NA	NA	NA
MW-9	09/14/04	0.15	0.00215	0.225	0.029	0.119	NA	NA	NA	NA
MW-9	12/21/04	<0.001	<0.001	0.0335	0.00261	0.0204	NA	NA	NA	NA
MW-9	03/21/05	0.00925	<0.001	0.0151	0.00961	0.0209	NA	NA	NA	NA
MW-9	05/17/05	0.00498	<0.001	0.0148	0.0145	0.0311	NA	NA	NA	NA
MW-9	08/15/05	0.0228	<0.001	0.063	0.0208	0.0357	NA	NA	NA	NA
MW-9	11/18/05	0.00399	<0.001	0.0281	0.0276	0.0607	NA	NA	NA	NA
MW-9	02/16/06	0.00881	<0.001	0.0327	0.0324	0.0727	NA	NA	NA	NA
MW-9	05/22/06	0.00738	<0.001	0.0346	0.0381	0.0743	NA	NA	NA	NA
MW-9	08/07/06	0.00426	<0.001	0.0228	0.0249	0.0423	NA	NA	NA	NA
MW-9	11/21/06	0.00342	<0.001	0.0271	0.0232	0.048	NA	NA	NA	NA
MW-9	02/22/07	0.0467	<0.001	0.109	0.169	<0.001	NA	NA	NA	NA
MW-9	05/10/07	0.0607	<0.001	0.0815	0.0532	<0.001	NA	NA	NA	NA
MW-9	08/10/07	<0.05	<0.05	<0.05	<0.1	<0.05	NA	NA	NA	NA
MW-9	11/15/07	<0.001	0.0022	0.0012	<0.002	0.054	NA	NA	NA	NA
MW-9	02/28/08	<0.001	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-9	05/28/08	0.0581	0.0023	0.0537	0.0355	0.0427	NA	NA	NA	NA
MW-9	08/20/08	0.0512	<0.002	0.07	0.0399	0.0499	NA	NA	NA	NA
MW-9	11/07/08	0.0597	<0.002	0.0353	0.022	0.0251	NA	NA	NA	NA
MW-9	02/09/09	0.0509	<0.002	0.0382	0.022	0.0472	1.57	<1.5	<1.5	1.57
MW-9	05/14/09	0.0336	<0.002	0.0381	0.0252	0.0305	NA	NA	NA	NA
MW-9	08/12/09	0.0452	<0.04	0.0568	<0.04	0.0288	NA	NA	NA	NA
MW-9	11/11/09	0.0363	<0.002	0.0403	0.0119	0.0089	NA	NA	NA	NA
MW-9	02/05/10	0.0092	<0.002	0.0126	0.0032	<0.001	NA	NA	NA	NA
MW-9	05/27/10	0.0279	<0.002	0.0487	<0.02	<0.01	NA	NA	NA	NA
MW-9	08/16/10	0.0373	<0.002	0.0689	<0.02	<0.01	NA	NA	NA	NA
MW-9	11/19/10	0.03445	0.0019	0.0768	0.0091	0.0029	NA	NA	NA	NA

Table 2

CONCENTRATIONS OF BTEX AND TPH IN GROUNDWATER

Livingston Line - Bob McCasland Pipeline Leak
 Lea County, New Mexico
 NMOCD File Number: 1R-0395
 Plains Pipeline, L. P. SRS Number 2001-11226
 Terracon Project Number A4077007

All concentrations are reported in mg/L

Monitor Well Identification	Date	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	Gasoline TPH C ₆ -C ₁₂	Diesel TPH >C ₁₂ -C ₂₈	Oil TPH >C ₂₈ -C ₃₅	Total TPH C ₆ -C ₃₅
MW-10	11/15/04	1.25	0.0967	0.14	0.109	0.0108	NA	NA	NA	NA
MW-10	03/21/05	1.13	0.0141	0.138	0.05	0.00484	NA	NA	NA	NA
MW-10	05/17/05	2.17	0.0144	0.194	0.147	0.00755	NA	NA	NA	NA
MW-10	08/15/05	0.791	<0.001	0.074	0.0437	<0.001	NA	NA	NA	NA
MW-10	11/18/05	1.25	<0.001	0.916	0.0597	<0.001	NA	NA	NA	NA
MW-10	02/16/06	0.276	<0.001	0.538	0.0859	<0.001	NA	NA	NA	NA
MW-10	05/22/06	1.32	<0.005	0.105	<0.01	<0.005	NA	NA	NA	NA
MW-10	08/07/06	1.51	<0.001	0.103	0.023	<0.001	NA	NA	NA	NA
MW-10	11/21/06	0.222	<0.005	0.0215	<0.01	<0.005	NA	NA	NA	NA
MW-10	02/22/07	0.0791	<0.001	0.0061	<0.002		NA	NA	NA	NA
MW-10	05/10/07	0.0023	<0.001	0.0072	<0.001		NA	NA	NA	NA
MW-10	08/10/07	0.0883	0.0011	0.0047	<0.002	<0.001	NA	NA	NA	NA
MW-10	11/15/07	0.0728	0.0281	0.0279	0.005	0.094	NA	NA	NA	NA
MW-10	02/28/08	<0.001	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-10	05/28/08	0.0193	<0.002	0.0023	<0.002	0.0024	NA	NA	NA	NA
MW-10	08/20/08	0.1847	0.0031	0.271	0.2018	0.1267	NA	NA	NA	NA
MW-10	11/07/08	0.0012	<0.002	<0.001	<0.002	0.0012	NA	NA	NA	NA
MW-10	02/09/09	<0.001	<0.002	0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-10	05/14/09	0.0028	<0.002	<0.001	<0.002	0.0013	NA	NA	NA	NA
MW-10	08/12/09	0.0014	<0.002	0.0021	<0.002	0.0016	NA	NA	NA	NA
MW-10	11/11/09	<0.001	<0.002	0.0022	<0.002	0.0011	NA	NA	NA	NA
MW-10	02/05/10	<0.001	<0.002	0.0011	<0.002	<0.001	NA	NA	NA	NA
MW-10	05/27/10	<0.001	<0.002	0.0026	<0.002	<0.001	NA	NA	NA	NA
MW-10	08/16/10	<0.001	<0.002	0.0033	<0.002	<0.001	NA	NA	NA	NA
MW-10	11/19/10	0.0007	<0.002	0.0014	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/15/04	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	03/21/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	05/17/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	08/15/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/18/05	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	02/16/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	05/22/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	08/07/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/21/06	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	02/22/07	<0.001	<0.001	<0.001	<0.002		NA	NA	NA	NA
MW-11	05/10/07	<0.001	<0.001	<0.001	<0.001		NA	NA	NA	NA
MW-11	08/10/07	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/15/07	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	02/28/08	0.005	<0.002	0.0019	0.0021	0.0025	<1.5	<1.5	<1.5	<1.5
MW-11	05/28/08	<0.001	<0.002	0.0012	<0.002	<0.001	NA	NA	NA	NA
MW-11	08/20/08	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/07/08	<0.001	<0.002	<0.001	<0.002	<0.001	<0.001	<0.002	<0.001	<0.002
MW-11	02/09/09	<0.001	<0.002	<0.001	<0.002	<0.001	<1.5	<1.5	<1.5	<1.5
MW-11	05/14/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	08/12/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/11/09	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	02/05/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	05/27/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	08/16/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/19/10	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
NMWQCC										
Groundwater Standards		0.01	0.75	0.75	Total Xylenes 0.62		NE	NE	NE	NE

BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes

TPH - Total Petroleum Hydrocarbons

mg/L - milligrams per liter

NMWQCC - New Mexico Water Quality Control Commission

Results in **BOLD** equal or exceed NMWQCC Groundwater Standards

NE - Not Established

APPENDIX C

Laboratory Data Sheets

Analytical Report 361470

for

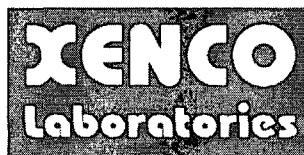
PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

2001-11226

15-FEB-10



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL00449):

Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)

North Carolina(444), Texas(T104704468-TX), Illinois(002295)



15-FEB-10

Project Manager: **Shawn Harris**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No: **361470**
Livingston Line
Project Address:

Shawn Harris:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 361470. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 361470 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



Sample Cross Reference 361470



PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-9	W	Feb-05-10 10:15		361470-001
MW-6	W	Feb-05-10 10:30		361470-002
MW-3	W	Feb-05-10 10:45		361470-003
MW-7	W	Feb-05-10 11:00		361470-004
MW-2	W	Feb-05-10 11:15		361470-005
MW-4	W	Feb-05-10 11:30		361470-006
MW-8	W	Feb-05-10 11:45		361470-007
MW-5	W	Feb-05-10 12:00		361470-008
MW-10	W	Feb-05-10 12:15		361470-009
MW-11	W	Feb-05-10 12:30		361470-010



CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: Livingston Line



Project ID: 2001-11226

Report Date: 15-FEB-10

Work Order Number: 361470

Date Received: 02/08/2010

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-793606 BTEX by EPA 8021
SW8021BM

Batch 793606, 1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data not confirmed by re-analysis
Samples affected are: 361470-007.

Batch: LBA-793807 BTEX by EPA 8021
SW8021BM

Batch 793807, 1,4-Difluorobenzene recovered below QC limits. Sample data confirmed by re-analysis Qc data not confirmed for surrogate failures. Samples affected are: 550347-1-BLK, 361470-009, 361470-001.



Certificate of Analysis Summary 361470

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: 2001-11226
Contact: Shawn Harris
Project Location:

Project Name: Livingston Line

Date Received in Lab: Mon Feb-08-10 11:25 am
Report Date: 15-FEB-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	361470-001	361470-002	361470-003	361470-004	361470-005	361470-006
	Field Id:	MW-9	MW-6	MW-3	MW-7	MW-2	MW-4
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	Feb-05-10 10:15	Feb-05-10 10:30	Feb-05-10 10:45	Feb-05-10 11:00	Feb-05-10 11:15	Feb-05-10 11:30
BTEX by EPA 8021	Extracted:	Feb-15-10 08:00	Feb-10-10 13:00	Feb-10-10 13:00	Feb-10-10 13:00	Feb-10-10 13:00	Feb-10-10 13:00
	Analyzed:	Feb-15-10 11:03	Feb-12-10 07:17	Feb-12-10 07:39	Feb-12-10 08:01	Feb-12-10 08:23	Feb-12-10 12:12
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
	Benzene	0.0092 0.0010	0.0051 0.0010	ND 0.0010	ND 0.0010	0.0287 0.0010	2.019 0.0100
	Toluene	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	0.0551 0.0200
m,p-Xylenes	Ethylbenzene	0.0126 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	0.0046 0.0010	0.0880 0.0100
	m,p-Xylenes	0.0032 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	0.0033 0.0020	0.1318 0.0200
	o-Xylene	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	0.0015 0.0010	ND 0.0100
Total BTEX	Xylenes, Total	0.0032 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	0.0048 0.0010	0.1318 0.0100
	Total BTEX	0.0250 0.0010	0.0051 0.0010	ND 0.0010	ND 0.0010	0.0381 0.0010	2.294 0.0100

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Since 1990 Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America - Atlanta - Corpus Christi

Brett Barron, II
Odessa Laboratory Manager



Certificate of Analysis Summary 361470

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Id: 2001-11226
Contact: Shawn Harris
Project Location:

Project Name: Livingston Line

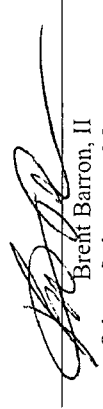
Date Received in Lab: Mon Feb-08-10 11:25 am
Report Date: 15-FEB-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	361470-007	361470-008	361470-009	361470-010	
	Field Id:	MW-8	MW-5	MW-10	MW-11	
	Depth:					
	Matrix:	WATER	WATER	WATER	WATER	
	Sampled:	Feb-05-10 11:45	Feb-05-10 12:00	Feb-05-10 12:15	Feb-05-10 12:30	
BTX by EPA 8021	Extracted:	Feb-10-10 13:00	Feb-15-10 08:00	Feb-15-10 08:00	Feb-10-10 13:00	
	Analyzed:	Feb-12-10 08:46	Feb-15-10 11:26	Feb-15-10 11:49	Feb-12-10 10:40	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
	Benzene	ND 0.0010	0.0432 0.0010	ND 0.0010	ND 0.0010	
	Toluene	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	
m,p-Xylenes	Ethylbenzene	ND 0.0010	0.0072 0.0010	0.0011 0.0010	ND 0.0010	
		ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	
	o-Xylene	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	
Xylenes, Total		ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	
	Total BTX	ND 0.0010	0.0504 0.0010	0.0011 0.0010	ND 0.0010	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Since 1990 Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America - Atlanta - Corpus Christi


Brent Barron, II
Odessa Laboratory Manager



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the MQL and above the SQL.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

* Outside XENCO's scope of NELAC Accreditation.

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Corpus Christi - Midland/Odessa - Tampa - Miami - Latin America

4143 Greenbriar Dr, Stafford, Tx 77477
9701 Harry Hines Blvd , Dallas, TX 75220
5332 Blackberry Drive, San Antonio TX 78238
2505 North Falkenburg Rd, Tampa, FL 33619
5757 NW 158th St, Miami Lakes, FL 33014
12600 West I-20 East, Odessa, TX 79765
842 Cantwell Lane, Corpus Christi, TX 78408

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(361) 884-0371	(361) 884-9116



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 361470,

Project ID: 2001-11226

Lab Batch #: 793606

Sample: 550215-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 04:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0317	0.0300	106	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

Lab Batch #: 793606

Sample: 550215-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 04:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0292	0.0300	97	80-120	

Lab Batch #: 793606

Sample: 550215-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 05:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	80-120	
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 793606

Sample: 361470-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 07:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 793606

Sample: 361470-003 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 07:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0264	0.0300	88	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 361470,

Project ID: 2001-11226

Lab Batch #: 793606

Sample: 361470-004 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 08:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0261	0.0300	87	80-120	
4-Bromofluorobenzene	0.0303	0.0300	101	80-120	

Lab Batch #: 793606

Sample: 361470-005 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 08:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0249	0.0300	83	80-120	
4-Bromofluorobenzene	0.0263	0.0300	88	80-120	

Lab Batch #: 793606

Sample: 361470-007 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 08:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0226	0.0300	75	80-120	*
4-Bromofluorobenzene	0.0260	0.0300	87	80-120	

Lab Batch #: 793606

Sample: 361470-010 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 10:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0259	0.0300	86	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 793606

Sample: 361470-006 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 12:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0314	0.0300	105	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 361470,

Project ID: 2001-11226

Lab Batch #: 793606

Sample: 361674-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 12:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0315	0.0300	105	80-120	
4-Bromofluorobenzene	0.0303	0.0300	101	80-120	

Lab Batch #: 793606

Sample: 361674-001 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/12/10 12:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 793807

Sample: 550347-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 08:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 793807

Sample: 550347-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 09:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 793807

Sample: 550347-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 10:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0231	0.0300	77	80-120	*
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 361470,

Project ID: 2001-11226

Lab Batch #: 793807

Sample: 361470-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 11:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0229	0.0300	76	80-120	**
4-Bromofluorobenzene	0.0339	0.0300	113	80-120	

Lab Batch #: 793807

Sample: 361470-008 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 11:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0329	0.0300	110	80-120	

Lab Batch #: 793807

Sample: 361470-009 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 11:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0222	0.0300	74	80-120	**
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Lab Batch #: 793807

Sample: 361470-009 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 13:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0256	0.0300	85	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 793807

Sample: 361470-009 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 02/15/10 13:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0264	0.0300	88	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Project Name: Livingston Line

Work Order #: 361470

Analyst: ASA

Lab Batch ID: 793606

Sample: 550215-1-BKS

Date Prepared: 02/10/2010

Batch #: 1

Project ID: 2001-11226

Date Analyzed: 02/12/2010

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021											
Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ND	0.1000	0.1121	112	0.1	0.1125	113	0	70-125	25	
Toluene	ND	0.1000	0.1124	112	0.1	0.1105	111	2	70-125	25	
Ethylbenzene	ND	0.1000	0.1091	109	0.1	0.1083	108	1	71-129	25	
m,p-Xylenes	ND	0.2000	0.2206	110	0.2	0.2167	108	2	70-131	25	
o-Xylene	ND	0.1000	0.1078	108	0.1	0.1063	106	1	71-133	25	

Analyst: ASA

Lab Batch ID: 793807

Sample: 550347-1-BKS

Date Prepared: 02/15/2010

Batch #: 1

Date Analyzed: 02/15/2010

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
BTEX by EPA 8021		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		ND	0.1000	0.0848	85	0.1	0.0883	88	4	70-125	25	
Toluene		ND	0.1000	0.0846	85	0.1	0.0886	89	5	70-125	25	
Ethylbenzene		ND	0.1000	0.0822	82	0.1	0.0864	86	5	71-129	25	
m,p-Xylenes		ND	0.2000	0.1692	85	0.2	0.1783	89	5	70-131	25	
o-Xylene		ND	0.1000	0.0880	88	0.1	0.0928	93	5	71-133	25	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Livingston Line

Work Order #: 361470

Lab Batch ID: 793606

Date Analyzed: 02/12/2010

Reporting Units: mg/L

Project ID: 2001-11226

QC- Sample ID: 361674-001 S

Date Prepared: 02/10/2010

Batch #: 1 Matrix: Water

Analyst: ASA

Reporting Units: mg/L											
BTEX by EPA 8021 Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	ND	0.1000	0.1090	109	0.1000	0.1004	100	8	70-125	25
	Toluene	ND	0.1000	0.1058	106	0.1000	0.0986	99	7	70-125	25
	Ethylbenzene	ND	0.1000	0.1024	102	0.1000	0.0972	97	5	71-129	25
	m,p-Xylenes	ND	0.2000	0.2018	101	0.2000	0.1923	96	5	70-131	25
o-Xylene	ND	0.1000	0.1021	102	0.1000	0.0959	96	6	71-133	25	

Lab Batch ID: 793807

Date Analyzed: 02/15/2010

Reporting Units: mg/L

QC- Sample ID: 361470-009 S

Date Prepared: 02/15/2010

Batch #: 1 Matrix: Water

Analyst: ASA

Reporting Units: mg/L											
MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	ND	0.1000	0.0808	81	0.1000	0.0817	82	1	70-125	25
	Toluene	ND	0.1000	0.0814	81	0.1000	0.0822	82	1	70-125	25
	Ethylbenzene	0.0011	0.1000	0.0804	79	0.1000	0.0820	81	2	71-129	25
	m,p-Xylenes	ND	0.2000	0.1621	81	0.2000	0.1661	83	2	70-131	25
	o-Xylene	ND	0.1000	0.0846	85	0.1000	0.0864	86	2	71-133	25

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
Relative Percent Difference $RPD = 200 \times [(C-F)/(C+F)]$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable, N = See Narrative, EQL = Estimated Quantitation Limit

Terracon
Consulting Engineers & Scientists

Office Location Midland, TX

Project Manager Baillat Bole

Sampler's Name Sean Hightower

Sampler's Signature Sean Hightower

Laboratory: Xenco

Address:

Contact:

Phone:

PO/ISO #:

ANALYSIS
REQUESTED

Lab use only
Due Date:

Temp. of coolers
when received (C°): 11

1 2 3 4 5

Page 1 of 1

Proj. No. A407009 Project Name Livingston Ridge No/Type of Containers 20 / VOA

Matrix	Date	Time	Identifying Marks of Sample(s)	VOA	AG 1 L	250 ml	PO
W	2.5.10	1015	MW-9	2			
W	2.5.10	1030	MW-8	2			
W	2.5.10	1045	MW-3	2			
W	2.5.10	1100	MW-7	2			
W	2.5.10	1115	MW-2	2			
W	2.5.10	1130	MW-4	2			
W	2.5.10	1145	MW-8	2			
W	2.5.10	1200	MW-5	2			
W	2.5.10	1215	MW-10	2			
W	2.5.10	1230	MW-11	2			

Lab Sample ID (Lab Use Only)
361470-01

-01
-02
-03
-04
-05
-06
-07
-08
-09
-10

Turn around time ☐ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

Relinquished by (Signature) SA Date: 2.8.10 Time: 1125 Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

Relinquished by (Signature) Date: Time: Received by: (Signature)

SL - sludge O - Oil
C - Charcoal tube
PFO - Plastic or other

NOTES: Plains: Shawn Harris

2001-11220

w/labels as seals

Houston Office
11535 Clay Road, Suite 100
Houston, Texas 77043
(713) 690-8969 Fax (713) 690-8787

Dallas Office
8901 Carpenter Freeway, Suite 100
Dallas, Texas 75247
(214) 630-1010 Fax (214) 630-7070

Fort Worth Office
2601 Gravel Drive
Fort Worth, Texas 76118
(817) 268-8600 Fax (817) 268-8602

Austin Office
5307 Industrial Oaks Blvd. # 160
Austin, Texas 78735
(512) 442-1122 Fax (512) 442-1181

Midland Office
24 Smith Rd., # 261
Midland, Texas 79705
(432) 684-9600 Fax (432) 684-9608

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

Client: Terraron / Plains
 Date/ Time: 2.8.10 11:25
 Lab ID #: 361470
 Initials: AL

Sample Receipt Checklist

				Client Initials
#1	Temperature of container/ cooler?	<u>Yes</u>	No	<u>1.1</u> °C
#2	Shipping container in good condition?	<u>Yes</u>	No	
#3	Custody Seals intact on shipping container/ cooler?	<u>Yes</u>	No	<u>Not Present</u>
#4	Custody Seals intact on sample bottles/ container?	<u>Yes</u>	No	Not Present
#5	Chain of Custody present?	<u>Yes</u>	No	
#6	Sample instructions complete of Chain of Custody?	<u>Yes</u>	No	
#7	Chain of Custody signed when relinquished/ received?	<u>Yes</u>	No	
#8	Chain of Custody agrees with sample label(s)?	<u>Yes</u>	No	ID written on Cont./ Lid
#9	Container label(s) legible and intact?	<u>Yes</u>	No	Not Applicable
#10	Sample matrix/ properties agree with Chain of Custody?	<u>Yes</u>	No	
#11	Containers supplied by ELOT?	<u>Yes</u>	No	
#12	Samples in proper container/ bottle?	<u>Yes</u>	No	See Below
#13	Samples properly preserved?	<u>Yes</u>	No	See Below
#14	Sample bottles intact?	<u>Yes</u>	No	
#15	Preservations documented on Chain of Custody?	<u>Yes</u>	No	
#16	Containers documented on Chain of Custody?	<u>Yes</u>	No	
#17	Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No	See Below
#18	All samples received within sufficient hold time?	<u>Yes</u>	No	See Below
#19	Subcontract of sample(s)?	<u>Yes</u>	No	<u>Not Applicable</u>
#20	VOC samples have zero headspace?	<u>Yes</u>	No	Not Applicable

Variance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that Apply:

☐
☐
☐

- See attached e-mail/ fax
- Client understands and would like to proceed with analysis
- Cooling process had begun shortly after sampling event

Analytical Report 374792

for

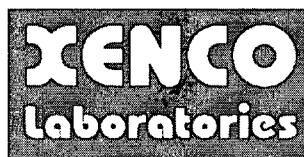
PLAINS ALL AMERICAN EH&S

Project Manager: Jason Henry

Livingston Line

2001-11043

10-JUN-10



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AAL11), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL00449):

Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)

North Carolina(444), Texas(T104704468-TX), Illinois(002295)



10-JUN-10

Project Manager: **Jason Henry**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No: **374792**
Livingston Line
Project Address:

Jason Henry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 374792. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 374792 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



Sample Cross Reference 374792



PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-9	W	May-27-10 09:30		374792-001
MW-6	W	May-27-10 09:50		374792-002
MW-3	W	May-27-10 10:10		374792-003
MW-7	W	May-27-10 10:30		374792-004
MW-2	W	May-27-10 10:50		374792-005
MW-8	W	May-27-10 11:15		374792-006
MW-5	W	May-27-10 11:35		374792-007
MW-10	W	May-27-10 11:55		374792-008
MW-11	W	May-27-10 12:25		374792-009



CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S
Project Name: Livingston Line



Project ID: 2001-11043
Work Order Number: 374792

Report Date: 10-JUN-10
Date Received: 05/28/2010

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-809667 BTEX by EPA 8021
SW8021BM

Batch 809667, 1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data not confirmed by re-analysis
Samples affected are: 374792-001.

Batch: LBA-809848 BTEX by EPA 8021
SW8021BM

Batch 809848, 1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data not confirmed by re-analysis
Samples affected are: 374792-008.

Batch: LBA-809918 BTEX by EPA 8021

Samples for workorder (374792-001 through -004) were initially reported with small hits of Toluene. The Method Blank for the initial report was non-detect, therefore it was reported. Upon confirmation analysis requested by the client, the Toluene was not detected in the samples. The contamination in the initial analysis is most likely due to a sporadic bottle contamination. Non-conformance OD060910VOA001 has been generated, with the resultant corrective action being all positive results for Toluene that are at the reporting limit will be reanalyzed until such a time when it is determined that there is no Toluene contamination present in the bottles.



Certificate of Analysis Summary 374792

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: 2001-11043

Contact: Jason Henry

Project Location:

Project Name: Livingston Line

Date Received in Lab: Fri May-28-10 08:52 am

Report Date: 10-JUN-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	374792-001	374792-002	374792-003	374792-004	374792-005	374792-006
	Field Id:	MW-9	MW-6	MW-3	MW-7	MW-2	MW-8
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	May-27-10 09:30	May-27-10 09:50	May-27-10 10:10	May-27-10 10:30	May-27-10 10:50	May-27-10 11:15
BTEX by EPA 8021	Extracted:	Jun-07-10 12:13	Jun-09-10 06:45	Jun-09-10 06:45	Jun-09-10 06:45	Jun-09-10 06:45	Jun-09-10 06:45
	Analyzed:	Jun-08-10 03:19	Jun-09-10 11:29	Jun-09-10 11:51	Jun-09-10 12:13	Jun-09-10 16:23	Jun-09-10 16:45
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
		0.0279 0.0100	0.0078 0.0010	ND 0.0010	ND 0.0010	0.0262 0.0010	0.0268 0.0010
Benzene		ND 0.0200	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020
Toluene		0.0487 0.0100	ND 0.0010	ND 0.0010	ND 0.0010	0.0082 0.0010	0.0126 0.0010
Ethylbenzene		ND 0.0200	ND 0.0020	ND 0.0020	ND 0.0020	0.0046 0.0020	0.0039 0.0020
m,p-Xylenes		ND 0.0100	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010
o-Xylene		ND 0.0100	ND 0.0010	ND 0.0010	ND 0.0010	0.0046 0.0010	0.0039 0.0010
Xylenes, Total		0.0766 0.0100	0.0078 0.0010	ND 0.0010	ND 0.0010	0.0390 0.0010	0.0433 0.0010
Total BTEX							

This analytical report, and the entire data package, it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi


Brent Barron, II
Odessa Laboratory Manager



Certificate of Analysis Summary 374792

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: 2001-11043

Contact: Jason Henry

Project Location:

Project Name: Livingston Line

Date Received in Lab: Fri May-28-10 08:52 am

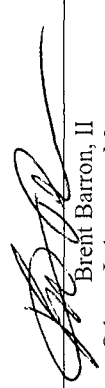
Report Date: 10-JUN-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	374792-007	374792-008	374792-009	
	Field Id:	MW-5	MW-10	MW-11	
	Depth:				
	Matrix:	WATER	WATER	WATER	
	Sampled:	May-27-10 11:35	May-27-10 11:55	May-27-10 12:25	
BTX by EPA 8021	Extracted:	Jun-09-10 06:45	Jun-08-10 16:00	Jun-09-10 06:45	
	Analyzed:	Jun-09-10 17:08	Jun-08-10 23:31	Jun-09-10 17:30	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	
	Benzene	0.0824 0.0010	0.0015 0.0010	ND 0.0010	
	Toluene	ND 0.0020	ND 0.0020	ND 0.0020	
	Ethylbenzene	0.0174 0.0010	0.0026 0.0010	ND 0.0010	
	m,p-Xylenes	ND 0.0020	ND 0.0020	ND 0.0020	
	o-Xylene	ND 0.0010	ND 0.0010	ND 0.0010	
	Xylenes, Total	ND 0.0010	ND 0.0010	ND 0.0010	
	Total BTX	0.0998 0.0010	0.0041 0.0010	ND 0.0010	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi


Brent Barron, II
Odessa Laboratory Manager



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the MQL and above the SQL.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

* Outside XENCO's scope of NELAC Accreditation.

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Corpus Christi - Midland/Odessa - Tampa - Miami - Latin America

4143 Greenbriar Dr, Stafford, Tx 77477
9701 Harry Hines Blvd , Dallas, TX 75220
5332 Blackberry Drive, San Antonio TX 78238
2505 North Falkenburg Rd, Tampa, FL 33619
5757 NW 158th St, Miami Lakes, FL 33014
12600 West I-20 East, Odessa, TX 79765
842 Cantwell Lane, Corpus Christi, TX 78408

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(361) 884-0371	(361) 884-9116



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 374792,

Project ID: 2001-11043

Lab Batch #: 809667

Sample: 565158-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/07/10 17:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

Lab Batch #: 809667

Sample: 565158-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/07/10 18:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0327	0.0300	109	80-120	
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

Lab Batch #: 809667

Sample: 565158-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/07/10 19:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 809667

Sample: 374792-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/08/10 03:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0236	0.0300	79	80-120	*
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 809667

Sample: 374793-009 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/08/10 04:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 374792,

Project ID: 2001-11043

Lab Batch #: 809667

Sample: 374793-009 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/08/10 04:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 809848

Sample: 565236-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/08/10 18:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 809848

Sample: 565236-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/08/10 18:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 809848

Sample: 565236-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/08/10 19:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 809848

Sample: 374792-008 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/08/10 23:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0231	0.0300	77	80-120	*
4-Bromofluorobenzene	0.0270	0.0300	90	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 374792,

Project ID: 2001-11043

Lab Batch #: 809848

Sample: 375188-002 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 04:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 809848

Sample: 375188-002 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 04:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0281	0.0300	94	80-120	

Lab Batch #: 809918

Sample: 565281-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 06:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 809918

Sample: 565281-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 07:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0274	0.0300	91	80-120	

Lab Batch #: 809918

Sample: 565281-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 08:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0262	0.0300	87	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 374792,

Project ID: 2001-11043

Lab Batch #: 809918

Sample: 374792-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 11:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0247	0.0300	82	80-120	

Lab Batch #: 809918

Sample: 374792-003 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 11:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0314	0.0300	105	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 809918

Sample: 374792-004 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 12:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0250	0.0300	83	80-120	

Lab Batch #: 809918

Sample: 374793-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 12:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0336	0.0300	112	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 809918

Sample: 374793-001 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 12:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 374792,

Project ID: 2001-11043

Lab Batch #: 809918

Sample: 374792-005 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 16:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0258	0.0300	86	80-120	
4-Bromofluorobenzene	0.0242	0.0300	81	80-120	

Lab Batch #: 809918

Sample: 374792-006 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 16:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0260	0.0300	87	80-120	
4-Bromofluorobenzene	0.0255	0.0300	85	80-120	

Lab Batch #: 809918

Sample: 374792-007 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 17:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0268	0.0300	89	80-120	

Lab Batch #: 809918

Sample: 374792-009 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 06/09/10 17:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0259	0.0300	86	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Project Name: Livingston Line

Work Order #: 374792

Analyst: ASA

Lab Batch ID: 809667

Sample: 565158-1-BKS

Batch #: 1

Date Prepared: 06/07/2010

Project ID: 2001-11043

Date Analyzed: 06/07/2010

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
BTEX by EPA 8021		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		ND	0.1000	0.1053	105	0.1	0.1110	111	5	70-125	25	
Toluene		ND	0.1000	0.1042	104	0.1	0.1094	109	5	70-125	25	
Ethylbenzene		ND	0.1000	0.1057	106	0.1	0.1108	111	5	71-129	25	
m,p-Xylenes		ND	0.2000	0.2115	106	0.2	0.2221	111	5	70-131	25	
o-Xylene		ND	0.1000	0.1039	104	0.1	0.1090	109	5	71-133	25	

Analyst: ASA

Date Prepared: 06/08/2010

Date Analyzed: 06/08/2010

Lab Batch ID: 809848

Sample: 565236-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY													
Units: mg/L													
Analytes	BTEX by EPA 8021		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene		ND	0.1000	0.0959	96	0.1	0.1012	101	5	70-125	25	
	Toluene		ND	0.1000	0.0961	96	0.1	0.1019	102	6	70-125	25	
	Ethylbenzene		ND	0.1000	0.1011	101	0.1	0.1066	107	5	71-129	25	
	m,p-Xylenes		ND	0.2000	0.2021	101	0.2	0.2135	107	5	70-131	25	
	o-Xylene		ND	0.1000	0.0998	100	0.1	0.1061	106	6	71-133	25	

Relative Percent Difference RPD = $200 * [(C-F) / (C+F)]$

Blank Spike Recovery [D] = $100 * (C) / (B)$

Blank Spike Duplicate Recovery [G] = $100 * (F) / (E)$

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Livingston Line

Work Order #: 374792

Analyst: ASA

Lab Batch ID: 809918

Sample: 565281-1-BKS

Date Prepared: 06/09/2010

Batch #: 1

Project ID: 2001-11043

Date Analyzed: 06/09/2010

Matrix: Water

Units: mg/L

BLANK / BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY														
Units: mg/L	BTEX by EPA 8021	Analytes	Blank Sample Result	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate Result	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag	
			[A]	[B]	[C]	[D]	[E]	[F]	[G]					
					</									

Relative Percent Difference $RPD = 200 * [(C-F) / (C+F)]$
Blank Spike Recovery $[D] = 100 * (C) / [B]$
Blank Spike Duplicate Recovery $[G] = 100 * (F) / [E]$
All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries

Project Name: Livingston Line



Work Order #: 374792

Lab Batch ID: 809667

Date Analyzed: 06/08/2010

Reporting Units: mg/L

Project ID: 2001-11043

QC- Sample ID: 374793-009 S

Date Prepared: 06/07/2010

Batch #: 1

Analyst: ASA

Matrix: Water

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	ND	0.1000	0.0947	95	0.1000	0.0915	92	3	70-125	25
	Toluene	ND	0.1000	0.0940	94	0.1000	0.0915	92	3	70-125	25
	Ethylbenzene	ND	0.1000	0.0936	94	0.1000	0.0903	90	4	71-129	25
	m,p-Xylenes	ND	0.2000	0.1878	94	0.2000	0.1802	90	4	70-131	25
	o-Xylene	ND	0.1000	0.0923	92	0.1000	0.0890	89	4	71-133	25

Lab Batch ID: 809848

Date Analyzed: 06/09/2010

QC- Sample ID: 375188-002 S

Date Prepared: 06/08/2010

Batch #: 1

Analyst: ASA

Matrix: Water

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY													
Reporting Units: mg/L	BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
		Benzene	0.0013	0.1000	0.0848	84	0.1000	0.0873	86	3	70-125	25	
		Toluene	ND	0.1000	0.0845	85	0.1000	0.0882	88	4	70-125	25	
		Ethylbenzene	ND	0.1000	0.0869	87	0.1000	0.0908	91	4	71-129	25	
		m,p-Xylenes	ND	0.2000	0.1727	86	0.2000	0.1773	89	3	70-131	25	
		o-Xylene	ND	0.1000	0.0845	85	0.1000	0.0886	89	5	71-133	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E



Form 3 - MS / MSD Recoveries

Project Name: Livingston Line



Work Order # : 374792

Lab Batch ID: 809918

Date Analyzed: 06/09/2010

Project ID: 2001-11043

QC- Sample ID: 374793-001 S

Batch #: 1 Matrix: Water

Date Prepared: 06/09/2010

Analyst: ASA

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ND	0.1000	0.0872	87	0.1000	0.0842	84	4	70-125	25	
Toluene	ND	0.1000	0.0976	98	0.1000	0.0941	94	4	70-125	25	
Ethylbenzene	ND	0.1000	0.0939	94	0.1000	0.0893	89	5	71-129	25	
m,p-Xylenes	ND	0.2000	0.2029	101	0.2000	0.1949	97	4	70-131	25	
o-Xylene	ND	0.1000	0.1020	102	0.1000	0.0971	97	5	71-133	25	

Matrix Spike Percent Recovery $[D] = 100 \cdot (C-A)/B$
Relative Percent Difference $RPD = 200 \cdot (C-F)/(C+F)$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \cdot (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

Terracon

Consulting Engineers & Scientists

Office Location Midland, TXLaboratory: Xenco

Address: _____

Contact: _____

Phone: _____

PO/ISO #: _____

Sampler's Signature _____

Project Manager Bullett Ball

Sampler's Name _____

Sean HightowerSam KishProj. No. A4077007Project Name Livingston LineNo. Type of Containers 18/VOA

Matrix	Date	Time	Identifying Marks of Sample(s)	VOA	AG	250 ml	PHO	Lab Sample ID (Lab Use Only)
W	5-27-10	0930	MW-9	2				374792-01
W	5-27-10	0950	MW-6	2				02
W	5-27-10	1010	MW-3	2				03
W	5-27-10	1030	MW-7	2				04
W	5-27-10	1050	MW-2	2				05
W	5-27-10	1115	MW-8	2				06
W	5-27-10	1135	MW-5	2				07
W	5-27-10	1155	MW-10	2				08
W	5-27-10	1225	MW-11	2				09

Turn around time ☒ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% RushRelinquished by (Signature) Sam Kish

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Relinquished by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Received by (Signature) _____

Date: 5/28/10Date: 8:52

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

NOTES: Plans: bw bole @ tellacon.comNOTES: Jason HenryNOTES: 2001-11043

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

NOTES: _____

SL - sludge O - Oil

C - Charcoal tube

P/O - Plastic or other

Houston Office

11555 Clay Road, Suite 100

Houston, Texas 77043

(713) 690-8989

Fax (713) 690-8787

Dallas Office

8901 Carpenter Freeway, Suite 100

Dallas, Texas 75247

(214) 630-1010

Fax (214) 630-7070

Fort Worth Office

2601 Gravel Drive

Fort Worth, Texas 76118

(817) 268-8600

Fax (817) 268-8602

Austin Office

5307 Industrial Oaks Blvd. # 160

Austin, Texas 78735

(512) 442-1122

Fax (512) 442-1181

Midland Office

24 Smith Rd., # 261

Midland, Texas 79705

(432) 684-9600

Fax (432) 684-9608



XENCO Laboratories
Atlanta, Corpus Christi, Dallas,
Houston, Miami, Midland, Philadelphia,
San Antonio, Tampa

Document Title: Sample Receipt Checklist
Document No.: SYS - SRC
Revision/Date : No.00 , 05/18/10
Effective Date: 05/20/10
Page No.: 1 of 1

Prelogin / Nonconformance Report – Sample Log-In

Client: Terraviva / Plains
Date/Time: 5-28-10 8:52
Lab ID #: 374792
Initials: BB / AL

Sample Receipt Checklist

1. Sample on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and <u>bottles</u> ?	<u>Yes</u>	No	N/A	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample lable(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	No	<u>N/A</u>	
17. Voc sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>6.0</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/Time: _____

Regarding: _____

Corrective Action Taken: _____

- Check all that apply:
- ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
 - ☐ Initial and Backup Temperature confirm out of temperature conditions
 - ☐ Client understands and would like to proceed with analysis

Analytical Report 386035

for

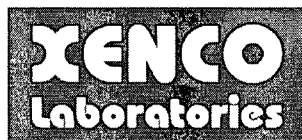
PLAINS ALL AMERICAN EH&S

Project Manager: Jason Henry

Livingston Line

2001-11226

24-AUG-10



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AAL11), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL00449):

Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)



24-AUG-10

Project Manager: **Jason Henry**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No: **386035**
Livingston Line
Project Address:

Jason Henry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 386035. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 386035 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



Sample Cross Reference 386035



PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	Aug-16-10 11:10		386035-001
MW-3	W	Aug-16-10 10:20		386035-002
MW-5	W	Aug-16-10 11:30		386035-003
MW-6	W	Aug-16-10 10:00		386035-004
MW-7	W	Aug-16-10 10:40		386035-005
MW-8	W	Aug-16-10 11:45		386035-006
MW-9	W	Aug-16-10 09:45		386035-007
MW-10	W	Aug-16-10 12:00		386035-008
MW-11	W	Aug-16-10 12:15		386035-009



CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: Livingston Line



Project ID: 2001-11226

Report Date: 24-AUG-10

Work Order Number: 386035

Date Received: 08/17/2010

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-820028 BTEX by EPA 8021

None

Batch: LBA-820031 BTEX by EPA 8021

None



Certificate of Analysis Summary 386035

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

Project Id: 2001-11226

Contact: Jason Henry

Project Location:

Date Received in Lab: Tue Aug-17-10 04:10 pm

Report Date: 24-AUG-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	386035-001	386035-002	386035-003	386035-004	386035-005	386035-006
	Field Id:	MW-2	MW-3	MW-5	MW-6	MW-7	MW-8
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	Aug-16-10 11:10	Aug-16-10 10:20	Aug-16-10 11:30	Aug-16-10 10:00	Aug-16-10 10:40	Aug-16-10 11:45
BTEx by EPA 8021	Extracted:	Aug-20-10 16:35	Aug-20-10 09:00	Aug-20-10 09:00	Aug-20-10 09:00	Aug-20-10 09:00	Aug-20-10 09:00
	Analyzed:	Aug-20-10 18:40	Aug-20-10 12:47	Aug-20-10 21:41	Aug-20-10 13:53	Aug-20-10 14:16	Aug-20-10 17:14
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
	Benzene	0.0095 0.0010	ND 0.0010	0.2479 0.0100	0.0088 0.0010	ND 0.0010	0.0478 0.0010
	Toluene	ND 0.0020	ND 0.0020	ND 0.0200	ND 0.0020	ND 0.0020	ND 0.0020
Ethylbenzene		0.0041 0.0010	ND 0.0010	0.0380 0.0100	0.0011 0.0010	ND 0.0010	0.0088 0.0010
m,p-Xylenes		ND 0.0020	ND 0.0020	ND 0.0200	ND 0.0020	ND 0.0020	ND 0.0020
o-Xylene		ND 0.0010	ND 0.0010	ND 0.0100	ND 0.0010	ND 0.0010	ND 0.0010
Xylenes, Total		ND 0.0010	ND 0.0010	ND 0.0100	ND 0.0010	ND 0.0010	ND 0.0010
Total BTEx		0.0136 0.0010	ND 0.0010	0.2859 0.0100	0.0099 0.0010	ND 0.0010	0.0566 0.0010

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi


Brent Barron, II
Odessa Laboratory Manager



Certificate of Analysis Summary 386035

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: 2001-11226

Contact: Jason Henry

Project Location:

Project Name: Livingston Line

Date Received in Lab: Tue Aug-17-10 04:10 pm

Report Date: 24-AUG-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	386035-007	386035-008	386035-009	
	Field Id:	MW-9	MW-10	MW-11	
	Depth:				
	Matrix:	WATER	WATER	WATER	
	Sampled:	Aug-16-10 09:45	Aug-16-10 12:00	Aug-16-10 12:15	
BTEX by EPA 8021	Extracted:	Aug-20-10 09:00	Aug-20-10 09:00	Aug-20-10 09:00	
	Analyzed:	Aug-20-10 14:38	Aug-20-10 16:07	Aug-20-10 16:29	
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	
	Benzene	0.0373 0.0100	ND 0.0010	ND 0.0010	
	Toluene	ND 0.0200	ND 0.0020	ND 0.0020	
Ethylbenzene		0.0689 0.0100	0.0033 0.0010	ND 0.0010	
m,p-Xylenes		ND 0.0200	ND 0.0020	ND 0.0020	
o-Xylene		ND 0.0100	ND 0.0010	ND 0.0010	
Xylenes, Total		ND 0.0100	ND 0.0010	ND 0.0010	
Total BTEX		0.1062 0.0100	0.0033 0.0010	ND 0.0010	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi


Brent Barron, II
Odessa Laboratory Manager

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and *flagged* as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the MQL and above the SQL.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- BRL** Below Reporting Limit.
- RL** Reporting Limit
- MDL** Method Detection Limit
- PQL** Practical Quantitation Limit

* Outside XENCO's scope of NELAC Accreditation.

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Corpus Christi - Midland/Odessa - Tampa - Miami - Latin America

4143 Greenbriar Dr. Stafford, Tx 77477
 9701 Harry Hines Blvd , Dallas, TX 75220
 5332 Blackberry Drive, San Antonio TX 78238
 2505 North Falkenburg Rd, Tampa, FL 33619
 5757 NW 158th St, Miami Lakes, FL 33014
 12600 West I-20 East, Odessa, TX 79765
 842 Cantwell Lane, Corpus Christi, TX 78408

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(361) 884-0371	(361) 884-9116



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 386035,

Project ID: 2001-11226

Lab Batch #: 820028

Sample: 571284-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 16:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0343	0.0300	114	80-120	
4-Bromofluorobenzene	0.0350	0.0300	117	80-120	

Lab Batch #: 820028

Sample: 571284-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 17:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0341	0.0300	114	80-120	
4-Bromofluorobenzene	0.0338	0.0300	113	80-120	

Lab Batch #: 820028

Sample: 571284-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 18:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0264	0.0300	88	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 820028

Sample: 386035-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 18:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

Lab Batch #: 820028

Sample: 386224-001 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 21:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0339	0.0300	113	80-120	
4-Bromofluorobenzene	0.0332	0.0300	111	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 386035,

Project ID: 2001-11226

Lab Batch #: 820028

Sample: 386224-001 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 22:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0342	0.0300	114	80-120	
4-Bromofluorobenzene	0.0340	0.0300	113	80-120	

Lab Batch #: 820031

Sample: 571286-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 11:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0326	0.0300	109	80-120	

Lab Batch #: 820031

Sample: 571286-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 12:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0323	0.0300	108	80-120	

Lab Batch #: 820031

Sample: 571286-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 12:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 820031

Sample: 386035-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 12:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0277	0.0300	92	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 386035,

Project ID: 2001-11226

Lab Batch #: 820031

Sample: 386035-002 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 13:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 820031

Sample: 386035-002 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 13:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0262	0.0300	87	80-120	

Lab Batch #: 820031

Sample: 386035-004 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 13:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0267	0.0300	89	80-120	

Lab Batch #: 820031

Sample: 386035-005 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 14:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0252	0.0300	84	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

Lab Batch #: 820031

Sample: 386035-007 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 14:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 386035,

Project ID: 2001-11226

Lab Batch #: 820031

Sample: 386035-008 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 16:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0282	0.0300	94	80-120	

Lab Batch #: 820031

Sample: 386035-009 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 16:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	80-120	
4-Bromofluorobenzene	0.0260	0.0300	87	80-120	

Lab Batch #: 820031

Sample: 386035-006 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 17:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0248	0.0300	83	80-120	

Lab Batch #: 820031

Sample: 386035-003 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 08/20/10 21:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Project Name: Livingston Line

Work Order #: 386035

Analyst: ASA

Lab Batch ID: 820028

Date Prepared: 08/20/2010

Sample: 571284-1-BKS Batch #: 1

Project ID: 2001-11226

Date Analyzed: 08/20/2010

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021											
Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ND	0.1000	0.0861	86	0.1	0.1073	107	22	70-125	25	
Toluene	ND	0.1000	0.0886	89	0.1	0.1104	110	22	70-125	25	
Ethylbenzene	ND	0.1000	0.0898	90	0.1	0.1123	112	22	71-129	25	
m,p-Xylenes	ND	0.2000	0.1773	89	0.2	0.2190	110	21	70-131	25	
o-Xylene	ND	0.1000	0.0865	87	0.1	0.1079	108	22	71-133	25	

Analyst: ASA

Lab Batch ID: 820031

Date Prepared: 08/20/2010

Batch #: 1

Date Analyzed: 08/20/2010

Matrix: Water

Units: mg/L

BLANK/BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Analytes	BTEX by EPA 8021										
	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	ND	0.1000	0.1056	106	0.1	0.1076	108	2	70-125	25
	Toluene	ND	0.1000	0.1045	105	0.1	0.1075	108	3	70-125	25
	Ethylbenzene	ND	0.1000	0.1146	115	0.1	0.1140	114	1	71-129	25
	m,p-Xylenes	ND	0.2000	0.2260	113	0.2	0.2314	116	2	70-131	25
	o-Xylene	ND	0.1000	0.1115	112	0.1	0.1141	114	2	71-133	25

Relative Percent Difference RPD = $200 * [(C-F) / (C+F)]$

Blank Spike Recovery [D] = $100 * (C) / (B)$

Blank Spike Duplicate Recovery [G] = $100 * (F) / (E)$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries

Project Name: Livingston Line



Work Order # : 386035

Lab Batch ID: 820028

Date Analyzed: 08/20/2010

Reporting Units: mg/L

Project ID: 2001-11226

QC- Sample ID: 386224-001 S

Batch #: 1 Matrix: Water

Date Prepared: 08/20/2010 Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	ND	0.1000	0.1027	103	0.1000	0.1004	100	2	70-125	25
	Toluene	ND	0.1000	0.1057	106	0.1000	0.1031	103	2	70-125	25
	Ethylbenzene	ND	0.1000	0.1090	109	0.1000	0.1060	106	3	71-129	25
	m,p-Xylenes	ND	0.2000	0.2136	107	0.2000	0.2058	103	4	70-131	25
	o-Xylene	ND	0.1000	0.1032	103	0.1000	0.0995	100	4	71-133	25

Lab Batch ID: 820031

Date Analyzed: 08/20/2010

Reporting Units: mg/L

QC- Sample ID: 386035-002 S

Batch #: 1 Matrix: Water

Date Prepared: 08/20/2010 Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
BTEX by EPA 8021 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Benzene	ND	0.1000	0.0988	99	0.1000	0.0974	97	1	70-125	25	
	Toluene	ND	0.1000	0.0973	97	0.1000	0.0965	97	1	70-125	25	
	Ethylbenzene	ND	0.1000	0.1058	106	0.1000	0.1049	105	1	71-129	25	
	m,p-Xylenes	ND	0.2000	0.2092	105	0.2000	0.2061	103	1	70-131	25	
	o-Xylene	ND	0.1000	0.1047	105	0.1000	0.1025	103	2	71-133	25	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit

Terracon

Consulting Engineers & Scientists

Office Location Midland, TXProject Manager Bailett B110

Sampler's Name

Sean Hightower

Sampler's Signature

Sean HightowerLaboratory: Xeno

Address: _____

Contact: _____

Phone: _____

POISO #: _____

ANALYSIS
REQUESTEDBTEX (4021B)Lab use only
Due Date: _____Temp of coolers
when received (C°):

1 2 3 4 5

Page 1 of 1

Lab Sample ID (Lab Use Only)

386035-001

Proj. No.	Project Name		No. Type of Containers				
Matrix	Date	Time	Identifying Marks of Sample(s)	VOA	AG	250	P/O
				11	11	11	11
W	8-16-10	1110	✓	MW-2	2		2
W	8-16-10	1020	✓	MW-3	2		2
W	8-16-10	1130	✓	MW-5	2		2
W	8-16-10	1000	✓	MW-6	2		2
W	8-16-10	1040	✓	MW-7	2		2
W	8-16-10	1145	✓	MW-8	2		2
W	8-16-10	0945	✓	MW-9	2		2
W	8-16-10	1800	✓	MW-10	2		2
W	8-16-10	1215	✓	MW-11	2		2

Turn around time ☒ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% RushRelinquished by (Signature) Sam Lash Date: 8-16-10 Time: 1515

Relinquished by (Signature) _____ Date: _____ Time: _____

Relinquished by (Signature) _____ Date: _____ Time: _____

Relinquished by (Signature) _____ Date: _____ Time: _____

Matrix: W - Wastewater VOA - 40 ml vial W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Chemical tube SL - sludge O - Oil
Container: W - Amber / O - Glass 1 Liter 250 ml - Glass vials modish P/O - Plastic or other

Houston Office 11555 Clay Road, Suite 100 Houston, Texas 77063 (713) 690-8989 Fax (713) 690-8787

Dallas Office 8901 Carpenter Freeway, Suite 100 Dallas, Texas 75247 (214) 630-1010 Fax (214) 630-7070

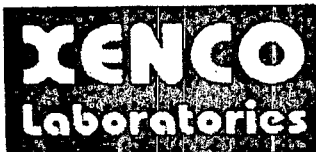
Fort Worth Office 2601 Gravel Drive Fort Worth, Texas 76118 (817) 268-8600 Fax (817) 268-8602

Austin Office 5307 Industrial Oaks Blvd # 160 Austin, Texas 78735 (512) 442-1122 Fax (512) 442-1181

Midland Office 24 Smith Rd. # 261 Midland, Texas 79705 (432) 684-9600 Fax (432) 684-9608

NOTES:

Plains, Jason Henry2001-11226bubble @ terracon.comS11

**XENCO Laboratories**

Atlanta, Boca Raton, Corpus Christi, Dallas

Houston, Miami, Odessa, Philadelphia

Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-In

Client: Plains / Terracon
Date/Time: 8/12/10 16:10
Lab ID #: 38603S
Initials: TB

Sample Receipt Checklist

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	<u>Yes</u>	No	N/A	<u>Labels as seals</u>
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	<u>No</u>	N/A	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>5.1</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/Time: _____

Regarding: _____

Corrective Action Taken: _____

Check all that apply: ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
☐ Initial and Backup Temperature confirm out of temperature conditions
☐ Client understands and would like to proceed with analysis

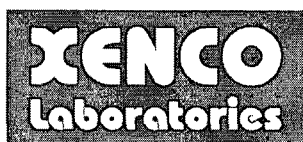
Analytical Report 397102
for
PLAINS ALL AMERICAN EH&S

Project Manager: Jason Henry

Livingston Line

2001-11043

19-NOV-10



Celebrating 20 Years of commitment to excellence in Environmental Testing Services



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AAL11), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370)

Xenco-Boca Raton (EPA Lab Code: FL01273):

Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)
North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)

Xenco Phoenix (EPA Lab Code: AZ00901):

Arizona(AZ0757), California(06244CA), Texas(104704435-10-2), Nevada(NAC-445A), DoD(65816)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)



19-NOV-10

Project Manager: **Jason Henry**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No: **397102**
Livingston Line
Project Address:

Jason Henry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 397102. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 397102 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



Sample Cross Reference 397102



PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2	W	Nov-10-10 16:27		397102-001
MW-3	W	Nov-10-10 14:57		397102-002
MW-5	W	Nov-10-10 16:45		397102-003
MW-6	W	Nov-10-10 15:34		397102-004
MW-7	W	Nov-10-10 14:10		397102-005
MW-8	W	Nov-10-10 17:19		397102-006
MW-9	W	Nov-10-10 16:12		397102-007
MW-10	W	Nov-10-10 15:18		397102-008
MW-11	W	Nov-10-10 15:39		397102-009



CASE NARRATIVE

Client Name: PLAINS ALL AMERICAN EH&S

Project Name: Livingston Line



Project ID: 2001-11043

Work Order Number: 397102

Report Date: 19-NOV-10

Date Received: 11/12/2010

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-831978 BTEX by EPA 8021B

SW8021BM

Batch 831978, 1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data not confirmed by re-analysis

Samples affected are: 397102-001.

Batch: LBA-832098 BTEX by EPA 8021B

Batch: LBA-832746 PAHs by GCMS SIM



Certificate of Analysis Summary 397102

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: 2001-11043

Contact: Jason Henry

Project Location:

Project Name: Livingston Line

Date Received in Lab: Fri Nov-12-10 12:14 pm

Report Date: 19-NOV-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	397102-001	397102-002	397102-003	397102-004	397102-005	397102-006
	Field Id:	MW-2	MW-3	MW-5	MW-6	MW-7	MW-8
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	Nov-10-10 16:27	Nov-10-10 14:57	Nov-10-10 16:45	Nov-10-10 15:34	Nov-10-10 14:10	Nov-10-10 17:19
BTEX by EPA 8021B	Extracted:	Nov-12-10 15:15	Nov-12-10 15:15	Nov-12-10 15:15	Nov-12-10 15:15	Nov-12-10 15:15	Nov-12-10 15:15
	Analyzed:	Nov-13-10 19:56	Nov-13-10 12:02	Nov-13-10 15:16	Nov-13-10 13:29	Nov-13-10 13:50	Nov-13-10 14:11
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
		0.0100 0.0010	ND 0.0010	0.0133 0.0010	0.0024 0.0010	ND 0.0010	0.0081 0.0010
Benzene		ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020
Toluene		0.0043 0.0010	ND 0.0010	0.0018 0.0010	ND 0.0010	ND 0.0010	0.0023 0.0010
Ethylbenzene		ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020	ND 0.0020
m_p-Xylenes		ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010
o-Xylene		ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010	ND 0.0010
Total Xylenes		0.0143 0.0010	ND 0.0010	0.0151 0.0010	0.0024 0.0010	ND 0.0010	0.0104 0.0010
Total BTEX							

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi


Brent Barron, II
Odessa Laboratory Manager



Certificate of Analysis Summary 397102

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: 2001-11043

Contact: Jason Henry

Project Location:

Project Name: Livingston Line

Date Received in Lab: Fri Nov-12-10 12:14 pm

Report Date: 19-NOV-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	397102-001	397102-002	397102-003	397102-004	397102-005	397102-006
	Field Id:	MW-2	MW-3	MW-5	MW-6	MW-7	MW-8
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	Nov-10-10 16:27	Nov-10-10 14:57	Nov-10-10 16:45	Nov-10-10 15:34	Nov-10-10 14:10	Nov-10-10 17:19
PAHs by GCMS SIM SUB: T104704215-TX	Extracted:			Nov-17-10 09:12			
	Analyzed:			Nov-18-10 14:11			
	Units/RL:			ug/L RL			
Acenaphthene				0.066 0.047			
Acenaphthylene				0.047 0.047			
Anthracene				ND 0.047			
Benzo(a)anthracene				ND 0.047			
Benzo(a)pyrene				ND 0.047			
Benzo(g,h,i)perylene				ND 0.047			
Benzo(k)fluoranthene				ND 0.047			
Benzo(b)fluoranthene				ND 0.047			
Chrysene				ND 0.047			
Dibenz(a,h)anthracene				ND 0.047			
Fluoranthene				0.019 J 0.047			
Fluorene				0.197 0.047			
Indeno(1,2,3-c,d)Pyrene				ND 0.047			
Naphthalene				0.732 0.469			
Phenanthrene				0.038 J 0.047			
Pyrene				ND 0.047			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Brent Barron, II
Odessa Laboratory Manager



Certificate of Analysis Summary 397102

PLAINS ALL AMERICAN EH&S, Midland, TX



Project Id: 2001-11043

Contact: Jason Henry

Project Location:

Project Name: Livingston Line

Date Received in Lab: Fri Nov-12-10 12:14 pm

Report Date: 19-NOV-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:		397102-007	397102-008	397102-009		
	Field Id:	Depth:	MW-9	MW-10	MW-11		
	Matrix:		WATER	WATER	WATER		
	Sampled:		Nov-10-10 16:12	Nov-10-10 15:18	Nov-10-10 15:39		
BTEx by EPA 8021B	Extracted:		Nov-15-10 16:36	Nov-12-10 15:15	Nov-12-10 15:15		
	Analyzed:		Nov-16-10 00:46	Nov-13-10 14:33	Nov-13-10 14:54		
	Units/RL:		mg/L RL	mg/L RL	mg/L RL		
	Benzene		0.0345 0.0010	0.0007 J 0.0010	ND 0.0010		
	Toluene		0.0019 J 0.0020	ND 0.0020	ND 0.0020		
	Ethylbenzene		0.0748 0.0010	0.0014 0.0010	ND 0.0010		
	m_p-Xylenes		0.0091 0.0020	ND 0.0020	ND 0.0020		
	o-Xylene		0.0029 0.0010	ND 0.0010	ND 0.0010		
	Total Xylenes		0.0120 0.0010	ND 0.0010	ND 0.0010		
	Total BTEx		0.1232 0.0010	0.0021 0.0010	ND 0.0010		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi


Brent Barron, II
Odessa Laboratory Manager



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the MQL and above the SQL.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- BRL** Below Reporting Limit.
- RL** Reporting Limit
- MDL** Method Detection Limit
- PQL** Practical Quantitation Limit
- * Outside XENCO's scope of NELAC Accreditation.

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - San Antonio - Corpus Christi - Midland/Odessa - Tampa - Miami - Latin America

4143 Greenbriar Dr, Stafford, Tx 77477
9701 Harry Hines Blvd , Dallas, TX 75220
5332 Blackberry Drive, San Antonio TX 78238
2505 North Falkenburg Rd, Tampa, FL 33619
5757 NW 158th St, Miami Lakes, FL 33014
12600 West I-20 East, Odessa, TX 79765
842 Cantwell Lane, Corpus Christi, TX 78408

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(361) 884-0371	(361) 884-9116



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 397102,

Project ID: 2001-11043

Lab Batch #: 831978

Sample: 578732-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 10:37

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0274	0.0300	91	80-120	

Lab Batch #: 831978

Sample: 578732-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 10:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

Lab Batch #: 831978

Sample: 578732-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 11:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0252	0.0300	84	80-120	
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 831978

Sample: 397102-002 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 12:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0244	0.0300	81	80-120	
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 831978

Sample: 397102-002 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 12:24

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0355	0.0300	118	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 397102,

Project ID: 2001-11043

Lab Batch #: 831978

Sample: 397102-002 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 12:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0357	0.0300	119	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 831978

Sample: 397102-004 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 13:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0261	0.0300	87	80-120	
4-Bromofluorobenzene	0.0330	0.0300	110	80-120	

Lab Batch #: 831978

Sample: 397102-005 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 13:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0239	0.0300	80	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Lab Batch #: 831978

Sample: 397102-006 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 14:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0240	0.0300	80	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

Lab Batch #: 831978

Sample: 397102-008 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 14:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0333	0.0300	111	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 397102,

Project ID: 2001-11043

Lab Batch #: 831978

Sample: 397102-009 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 14:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

Lab Batch #: 831978

Sample: 397102-003 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 15:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 831978

Sample: 397102-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/13/10 19:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0227	0.0300	76	80-120	*
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 832098

Sample: 397099-002 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/15/10 00:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0240	0.0300	80	80-120	

Lab Batch #: 832098

Sample: 578788-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/15/10 21:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0320	0.0300	107	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 397102,

Project ID: 2001-11043

Lab Batch #: 832098

Sample: 578788-1-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/15/10 22:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 832098

Sample: 578788-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/15/10 22:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 832098

Sample: 397099-002 S / MS

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/15/10 23:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0267	0.0300	89	80-120	
4-Bromofluorobenzene	0.0239	0.0300	80	80-120	

Lab Batch #: 832098

Sample: 397102-007 / SMP

Batch: 1 Matrix: Water

Units: mg/L

Date Analyzed: 11/16/10 00:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 397102,

Project ID: 2001-11043

Lab Batch #: 832746

Sample: 578999-1-BLK / BLK

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 11/18/10 12:26

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.610	1.00	61	33-141	
2-Fluorobiphenyl	0.580	1.00	58	43-116	
Nitrobenzene-d5	0.620	1.00	62	35-114	
2,4,6-Tribromophenol	0.760	1.00	76	10-123	

Lab Batch #: 832746

Sample: 578999-1-BKS / BKS

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 11/18/10 12:47

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.620	1.00	62	33-141	
2-Fluorobiphenyl	0.590	1.00	59	43-116	
Nitrobenzene-d5	0.620	1.00	62	35-114	
2,4,6-Tribromophenol	0.880	1.00	88	10-123	

Lab Batch #: 832746

Sample: 578999-1-BSD / BSD

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 11/18/10 13:08

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.590	1.00	59	33-141	
2-Fluorobiphenyl	0.570	1.00	57	43-116	
Nitrobenzene-d5	0.580	1.00	58	35-114	
2,4,6-Tribromophenol	0.880	1.00	88	10-123	

Lab Batch #: 832746

Sample: 397102-003 / SMP

Batch: 1 Matrix: Water

Units: ug/L

Date Analyzed: 11/18/10 14:11

SURROGATE RECOVERY STUDY

PAHs by GCMS SIM Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Terphenyl-D14	0.592	0.939	63	33-141	
2-Fluorobiphenyl	0.516	0.939	55	43-116	
Nitrobenzene-d5	0.685	0.939	73	35-114	
2,4,6-Tribromophenol	1.08	0.939	115	10-123	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Project Name: Livingston Line

Work Order #: 397102

Analyst: ASA

Lab Batch ID: 831978

Sample: 578732-1-BKS

Date Prepared: 11/12/2010

Batch #: 1

Project ID: 2001-11043

Date Analyzed: 11/13/2010

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Units: mg/L												
Analytes	BTEX by EPA 8021B											
	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Benzene	ND	0.1000	0.0973	97	0.1	0.1055	106	8	70-125	25	
	Toluene	ND	0.1000	0.0947	95	0.1	0.1021	102	8	70-125	25	
	Ethylbenzene	ND	0.1000	0.0953	95	0.1	0.1037	104	8	71-129	25	
	m,p-Xylenes	ND	0.2000	0.1901	95	0.2	0.2093	105	10	70-131	25	
	o-Xylene	ND	0.1000	0.0912	91	0.1	0.0988	99	8	71-133	25	

Analyst: ASA

Date Prepared: 11/15/2010

Date Analyzed: 11/15/2010

Lab Batch ID: 832098

Sample: 578788-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
BTEX by EPA 8021B		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		ND	0.1000	0.1002	100	0.1	0.0919	92	9	70-125	25	
Toluene		ND	0.1000	0.0973	97	0.1	0.0901	90	8	70-125	25	
Ethylbenzene		ND	0.1000	0.0982	98	0.1	0.0908	91	8	71-129	25	
m,p-Xylenes		ND	0.2000	0.2015	101	0.2	0.1891	95	6	70-131	25	
o-Xylene		ND	0.1000	0.0996	100	0.1	0.0948	95	5	71-133	25	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$

Blank Spike Recovery [D] = $100 * (C/[B])$

Blank Spike Duplicate Recovery [G] = $100 * (F/[E])$

All results are based on MDL and Validated for QC Purposes

Project Name: Livingston Line

Work Order #: 397102

Analyst: KAN

Lab Batch ID: 832746

Sample: 578999-1-BKS

Date Prepared: 11/17/2010

Batch #: 1

Project ID: 2001-11043

Date Analyzed: 11/18/2010

Matrix: Water

Units: ug/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
PAHs by GC/MS SIM	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Acenaphthene	ND	0.500	0.440	88	0.5	0.440	88	0	27-132	25	
Acenaphthylene	ND	0.500	0.450	90	0.5	0.450	90	0	46-108	25	
Anthracene	ND	0.500	0.460	92	0.5	0.470	94	2	47-145	25	
Benzo(a)anthracene	ND	0.500	0.430	86	0.5	0.440	88	2	33-143	25	
Benzo(a)pyrene	ND	0.500	0.470	94	0.5	0.490	98	4	65-135	25	
Benzo(g,h,i)perylene	ND	0.500	0.460	92	0.5	0.450	90	2	65-135	25	
Benzo(k)fluoranthene	ND	0.500	0.500	100	0.5	0.510	102	2	25-125	25	
Benzo(b)fluoranthene	ND	0.500	0.430	86	0.5	0.440	88	2	24-159	25	
Chrysene	ND	0.500	0.470	94	0.5	0.480	96	2	65-135	25	
Dibenz(a,h)anthracene	ND	0.500	0.460	92	0.5	0.460	92	0	50-125	25	
Fluoranthene	ND	0.500	0.500	100	0.5	0.520	104	4	47-125	25	
Fluorene	ND	0.500	0.460	92	0.5	0.460	92	0	48-139	25	
Indeno(1,2,3-c,d)Pyrene	ND	0.500	0.470	94	0.5	0.460	92	2	27-160	25	
Naphthalene	ND	0.500	0.470	94	0.5	0.460	92	2	26-175	25	
Phenanthrene	ND	0.500	0.460	92	0.5	0.470	94	2	65-135	25	
Pyrene	ND	0.500	0.470	94	0.5	0.470	94	0	23-152	25	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$
Blank Spike Recovery [D] = $100 * (C/[B])$
Blank Spike Duplicate Recovery [G] = $100 * (F/[E])$
All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Livingston Line

Work Order #: 397102

Lab Batch ID: 831978

Date Analyzed: 11/13/2010

Reporting Units: mg/L

Project ID: 2001-11043

QC- Sample ID: 397102-002 S

Batch #: 1 Matrix: Water

Date Prepared: 11/12/2010

Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY													
Reporting Units: mg/L	BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Benzene	ND	0.1000	0.1094	109	0.1000	0.1067	107	2	70-125	25		
	Toluene	ND	0.1000	0.1067	107	0.1000	0.1041	104	2	70-125	25		
	Ethylbenzene	ND	0.1000	0.1082	108	0.1000	0.1052	105	3	71-129	25		
	m,p-Xylenes	ND	0.2000	0.2222	111	0.2000	0.2176	109	2	70-131	25		
	o-Xylene	ND	0.1000	0.1096	110	0.1000	0.1066	107	3	71-133	25		

Lab Batch ID: 832098

Date Analyzed: 11/15/2010

Reporting Units: mg/L

QC- Sample ID: 397099-002 S

Batch #: 1 Matrix: Water

Date Prepared: 11/15/2010

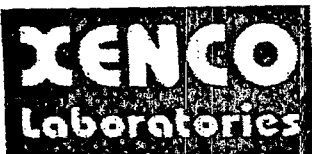
Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	0.0335	0.1000	0.1051	72	0.1000	0.1107	77	5	70-125	25
	Toluene	0.0011	0.1000	0.0729	72	0.1000	0.0768	76	5	70-125	25
	Ethylbenzene	0.0196	0.1000	0.0910	71	0.1000	0.0953	76	5	71-129	25
	m_p-Xylenes	0.0029	0.2000	0.1525	75	0.2000	0.1597	78	5	70-131	25
o-Xylene	ND	0.1000	0.0740	74	0.1000	0.0769	77	4	71-133	25	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

**XENCO Laboratories**

Atlanta, Boca Raton, Corpus Christi, Dallas
Houston, Miami, Odessa, Philadelphia
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

Prelogin / Nonconformance Report - Sample Log-InClient: TerraconDate/Time: 11-12-10 12:14Lab ID #: 397102Initials: LM**Sample Receipt Checklist**

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	<u>N/A</u>	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	<u>No</u>	N/A	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs 1.6 °C	lbs °C	lbs °C	lbs °C	lbs °C

Nonconformance Documentation

Contact: _____ Contacted by: _____ Date/Time: _____

Regarding: _____

Corrective Action Taken: _____

- Check all that apply:
- ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.
 - ☐ Initial and Backup Temperature confirm out of temperature conditions
 - ☐ Client understands and would like to proceed with analysis

APPENDIX D

CD of the 2010 Annual Groundwater Monitoring Report