1R - 395

Annual GW Mon. Report

Year: 2011

2011 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 1R – 0395

Terracon Project Number A4117007 (Formerly A4077007)

June 1, 2012

RECEIVED
JUN 11 2012
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Prepared for:

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

Prepared by:

Terracon

Midland, Texas

PLAINS
ALL AMERICAN

RECEIVED

JUN 11 2012

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

March 29, 2012

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

Re: Plains All American – 2011 Annual Monitoring Reports
2 Sites in Lea County, New Mexico

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:

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

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

Jason Henry
Remediation Coordinator
Plains All American

CC: Geoff Leking, NMOCD, Hobbs, NM

Enclosures

Terracon

June 1, 2012

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: 2011 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 1R - 0395
Plains Pipeline, L.P. SRS Number 2001-11226
Terracon Project Number A4127007 (Formerly A4077007)

Dear Mr. Henry:

Terracon is pleased to submit four copies of the 2011 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:

Wesley Ty Burrow
Staff Geologist

Reviewed by:

Barrett W. Bole, P. G.
Senior Associate

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Terracon

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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 1R – 0395
Terracon Project Number A4117007 (Formerly 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 through 2010 annual groundwater monitoring and soil closure status reports for submittal to the NMOCD. Four quarterly groundwater monitoring and sampling events were conducted during 2011 by Terracon. The events were performed on February 17, 2011, May 24, 2011, August 19, 2011, and November 10, 2011 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, 2011.

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 17, 2011, May 24, 2011, August 19, 2011, and November 10, 2011, 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 0.13 feet in monitor well MW-4 during 2011. Previously, PSH was present as a sheen in monitor well MW-4. No additional monitor wells at the site contained measurable PSH during 2011. Groundwater monitor well MW-1 was dry in November 2007 and has remained dry throughout 2011. As such, a water sample was not obtained from this well during 2011. 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 2011.

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 2011 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 2011 sampling and gauging events are summarized below:

- The gradient/direction during the February 2011 sampling event was 0.002 ft/ft and toward the southeast;
- The gradient/direction during the May 2011 sampling event was 0.002 ft/ft and toward the southeast;
- The gradient/direction during the August 2011 sampling event was 0.002 ft/ft and toward the southeast; and
- The gradient/direction during the November 2011 sampling event was 0.003 ft/ft and toward the south-southeast.

Groundwater flow direction was relatively consistent during 2011. 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 2011, 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 2011

Groundwater samples were collected and analyzed for BTEX constituents during the first quarter on February 17, 2011. The first quarter results are summarized below:

- Groundwater was not collected from monitor well MW-1 in February 2011, 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-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, MW-5, MW-8 and MW-9 contained benzenes concentration of 0.0101 mg/l, 0.0638 mg/l, 0.010 mg/l, and 0.0328 mg/l, respectfully, which either met or exceeded the NMWQCC groundwater standard of 0.01 mg/l; and,
- 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;

2nd Quarter

Groundwater samples were collected and analyzed for BTEX and PAH constituents during the second quarter on May 24, 2011. 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 due to a presence of PSH;
- Measurable PSH was not detected in any of the monitor wells during the second quarter of 2011.

- 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 monitoring wells MW-5, MW-8 and MW-9, at concentrations of 0.106 mg/l, 0.01 mg/l and 0.0374 mg/l, respectively, which wither met or exceeded the NMWQCC groundwater standard of 0.01 mg/l for benzene; and,

- 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;

3rd Quarter

Groundwater samples were collected and analyzed for BTEX constituents during the third quarter on August 19, 2011. 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 due to a presence of PSH;

- Measurable PSH was not detected in any of the monitor wells during the third quarter of 2011.

- 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-8, MW-10 and MW-11;

- Benzene was detected in the groundwater samples collected from monitor wells MW-2, MW-5 and MW-9, at concentrations of 0.0163 mg/l, 0.163 mg/l and 0.126 mg/l, which exceeded the NMWQCC groundwater standard of 0.01 mg/l for benzene; and,

- 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;

4th Quarter

Groundwater samples were collected and analyzed for BTEX constituents during the fourth quarter on November 10, 2011. 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-2, MW-3, MW-6, MW-7, 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 monitoring wells MW-5, MW-8 and MW-9, at concentrations of 0.115 mg/l, 0.0241 mg/l and 0.0371 mg/l, respectively, which exceeded the NMWQCC groundwater standard of 0.01 mg/l for benzene; and
- 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;

3.3 Historical Data Comparisons

Monitor wells MW-1, MW-3, MW-7 and MW-11 have historically not contained BTEX 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 2011. 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. Terracon has been purging large volumes of groundwater from monitor wells MW-2, MW-4, MW-5, and MW-8 during 2011 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 2011 calendar year.

- Monitor well MW-1 contained no fluids during the 2011 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 0.13 feet in 2011;
- 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-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 2011;
- 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 2011;
- Groundwater samples collected in 2011 did not contain toluene, ethylbenzene and total xylenes at concentrations above 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 2011; 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 southernmost 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-monthly schedule;

- Continue quarterly groundwater sampling for BTEX on all monitor wells for the calendar year of 2012 in accordance with the NMOCD approved sample reduction plan;
- Submit an annual report to the NMOCD detailing the 2012 site activities.

DISTRIBUTION

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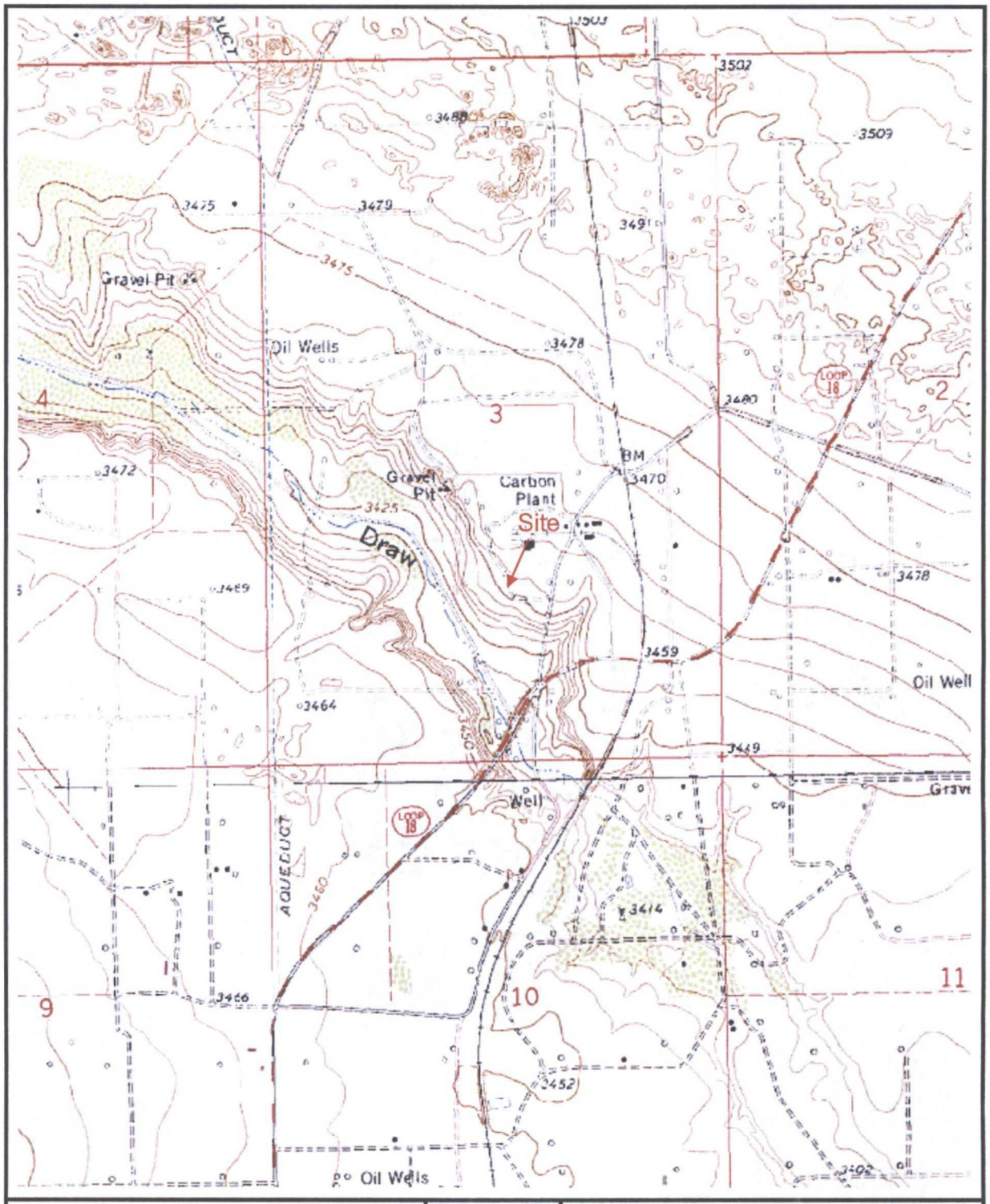
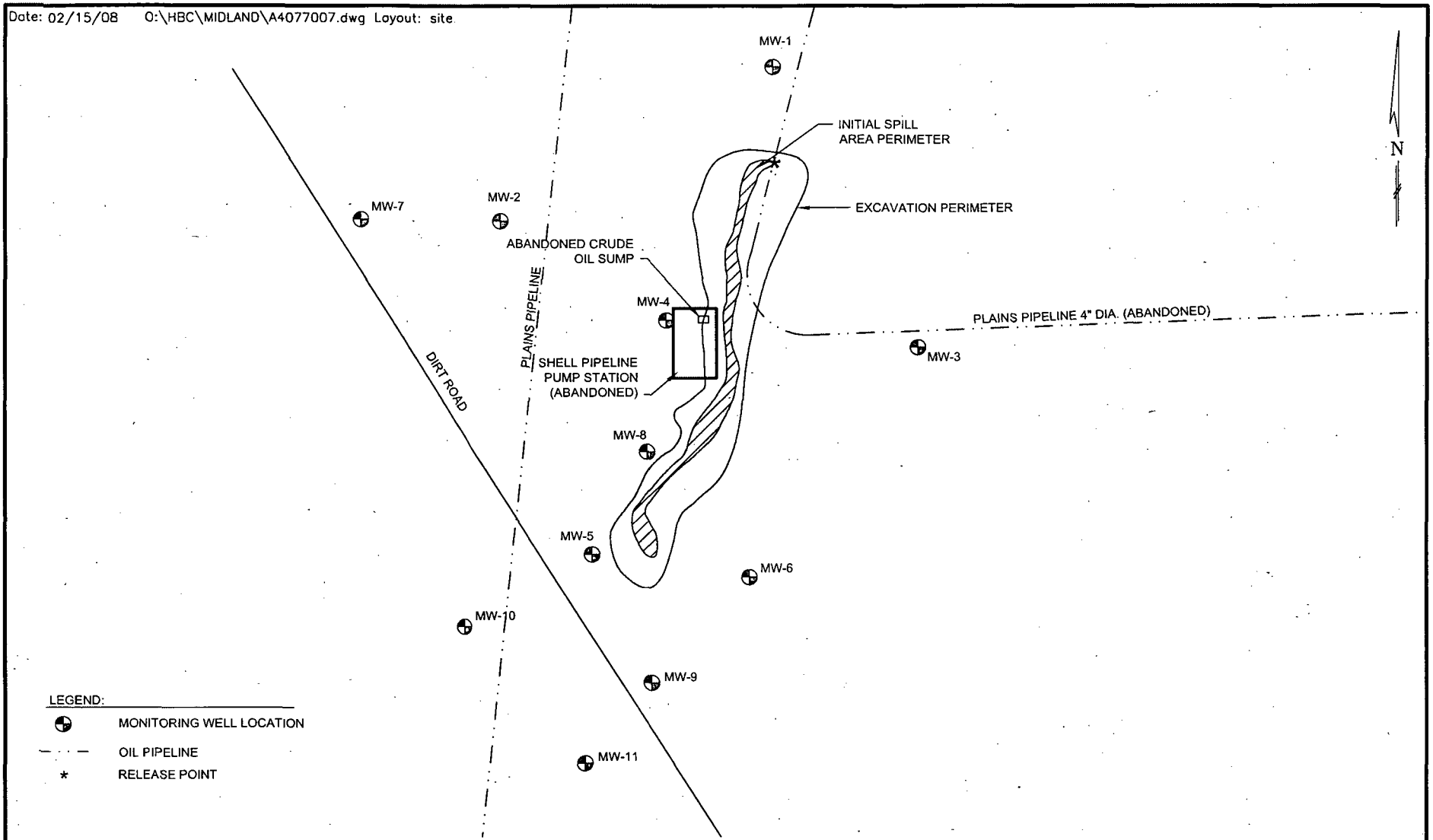
bwbole@terracon.com

APPENDIX A

Appendix A: Figure 1– Topographic Map
Figure 2 – Site Plan
Figure 3 – Groundwater Gradient Map (02/17/11)
Figure 4 – Groundwater Gradient Map (05/24/11)
Figure 5 – Groundwater Gradient Map (08/19/11)
Figure 6 – Groundwater Gradient Map (11/10/11)
Figure 7 – Groundwater Contaminant Concentration Map (02/17/11)
Figure 8 – Groundwater Contaminant Concentration Map (05/24/11)
Figure 9 – Groundwater Contaminant Concentration Map (08/19/11)
Figure 10 – Groundwater Contaminant Concentration Map (11/10/11)



USGS TOPOGRAPHIC QUADRANGLE MAP Hobbs SW, NM		**Livingston Line - Bob McCasland** NE 1/4 of SW1/4, Sec. 3, T21S, R37E NMOCD File Number: 1R-0395 Eunice, Lea County, New Mexico
Dated: 1979 SCALE: 1" = 1,600'	↑ N	Terracon
PROJECT NO. A4077007		**FIGURE 1: TOPOGRAPHIC MAP**



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APPROXIMATE SCALE

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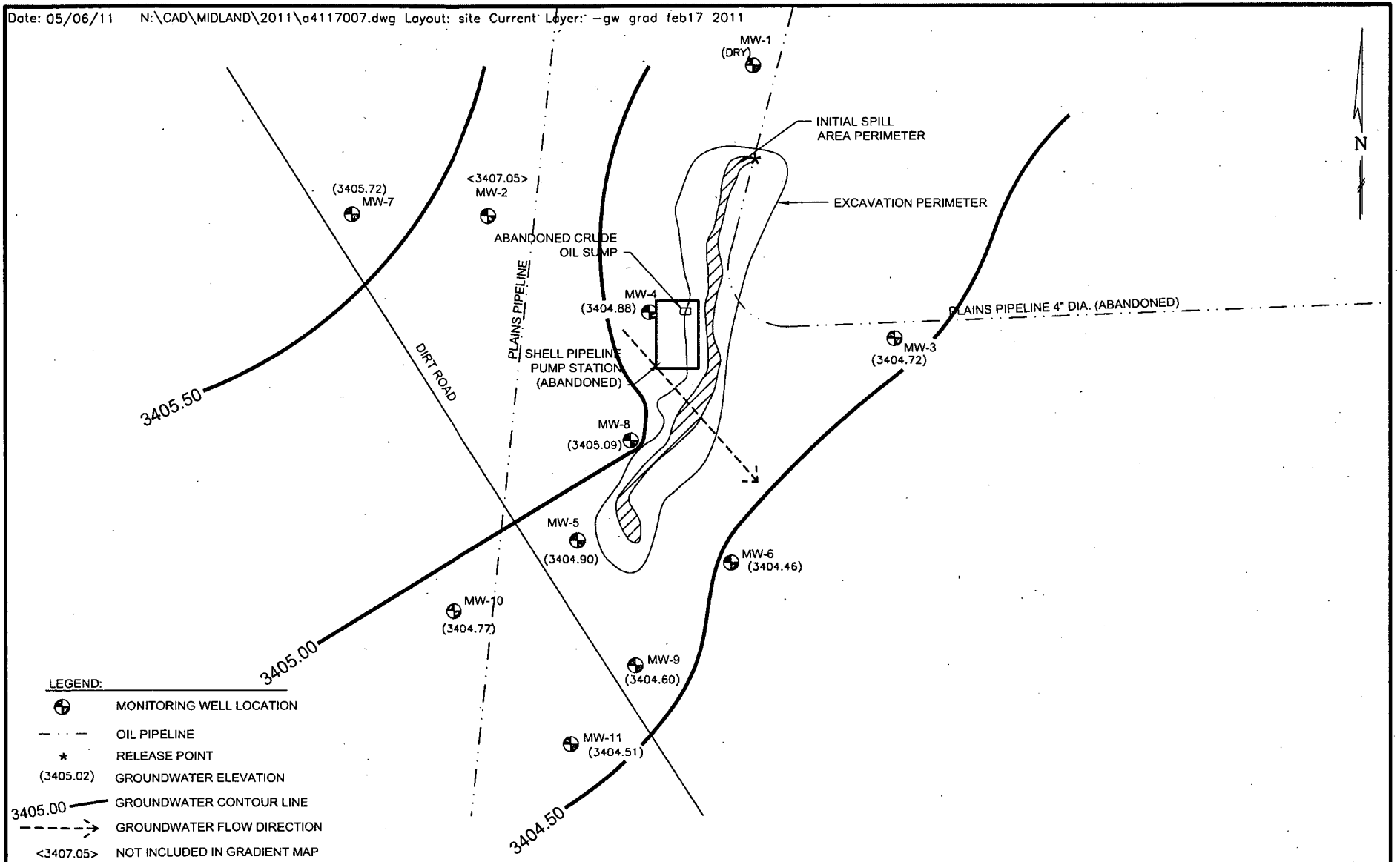
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

Terracon **Project No.: A4077007**

FIGURE 2: SITE DIAGRAM



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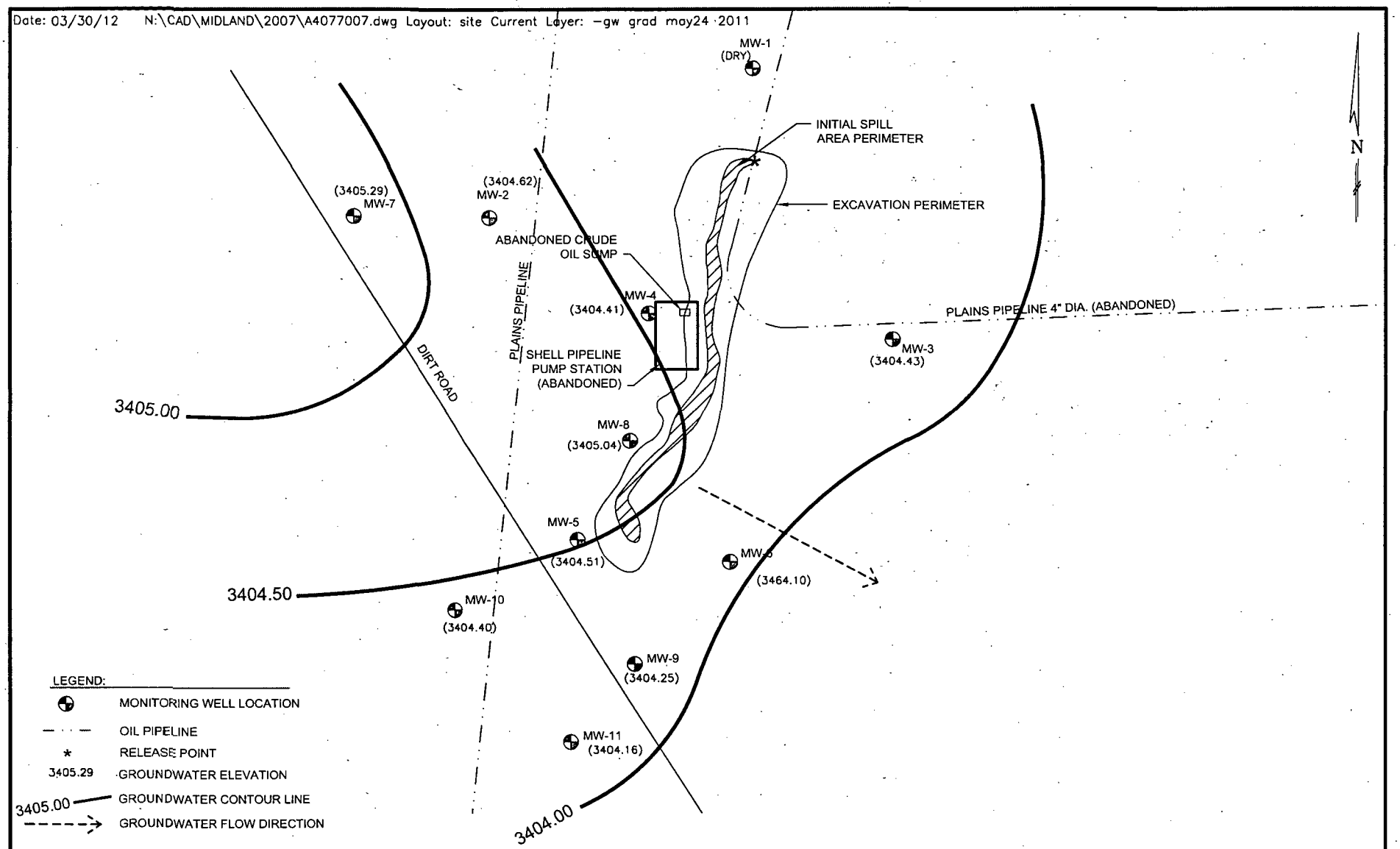
Terracon Project No.: A4117007

FIGURE 3: GROUNDWATER GRADIENT MAP (02/17/11)



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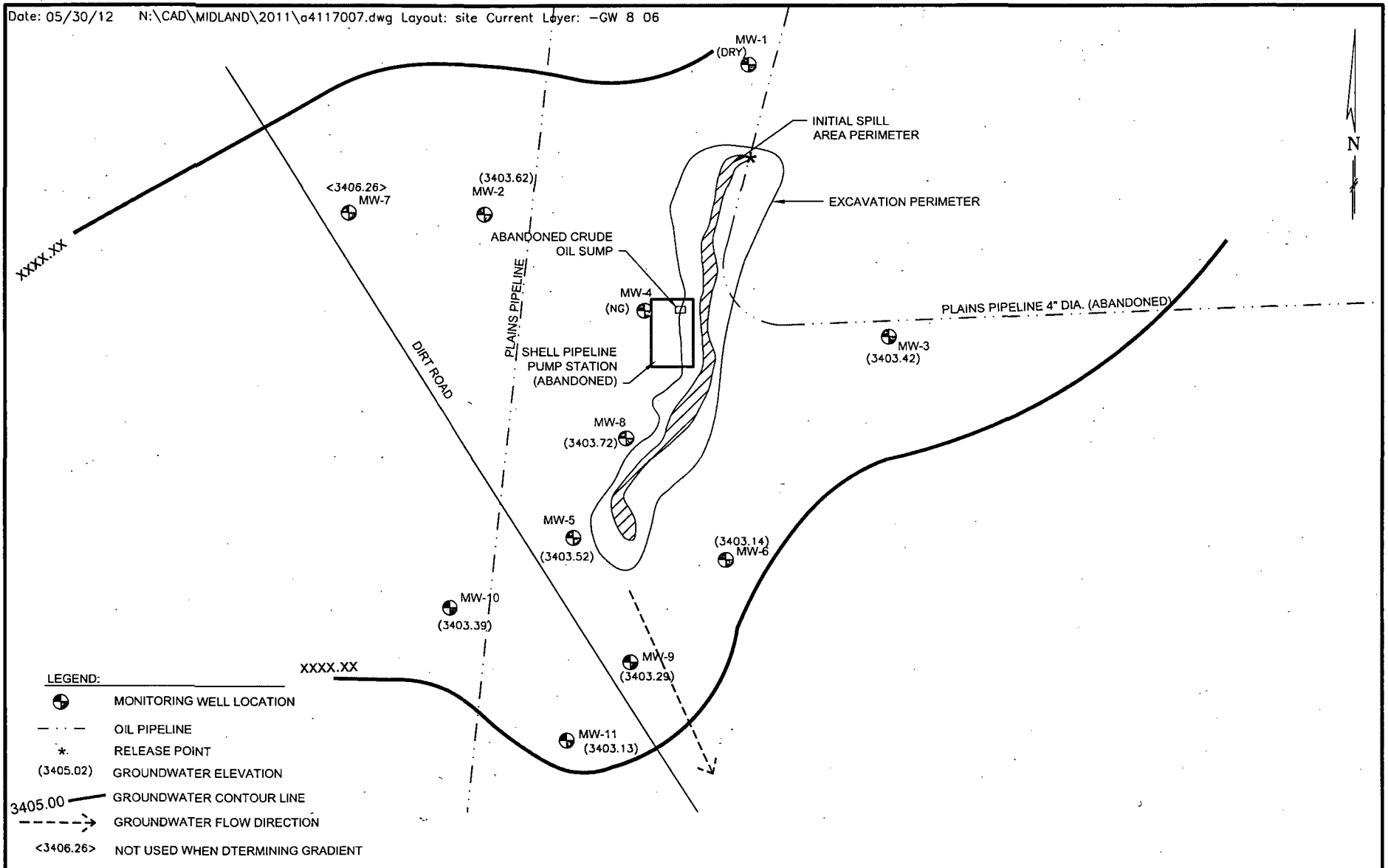
Terracon **Project No.: A4077007**

FIGURE 4: GROUNDWATER GRADIENT MAP (5/24/11)



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LEA COUNTY, NEW MEXICO
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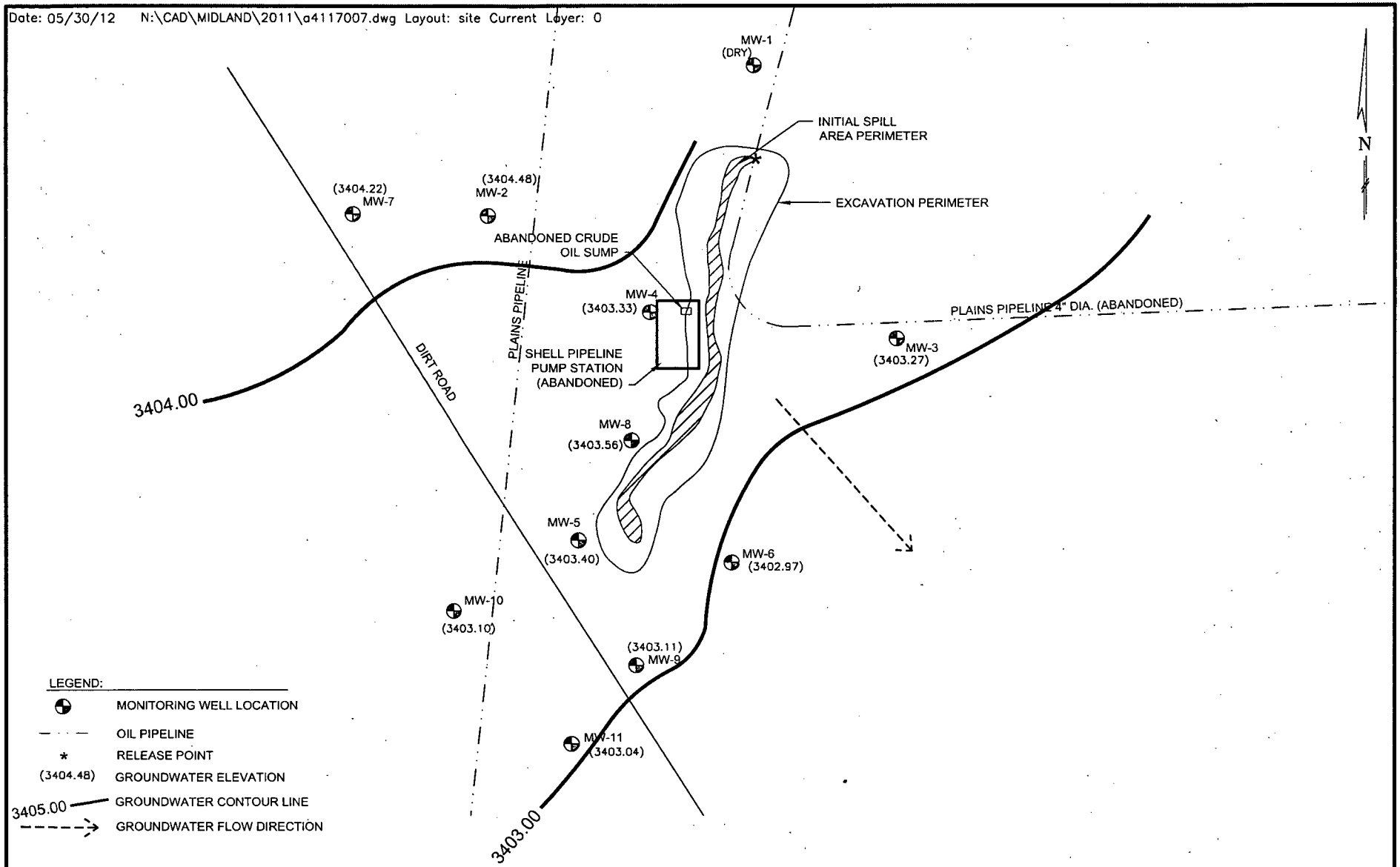
Terracon **Project No.: A4117007**

FIGURE 5: GROUNDWATER GRADIENT MAP (8/19/11)



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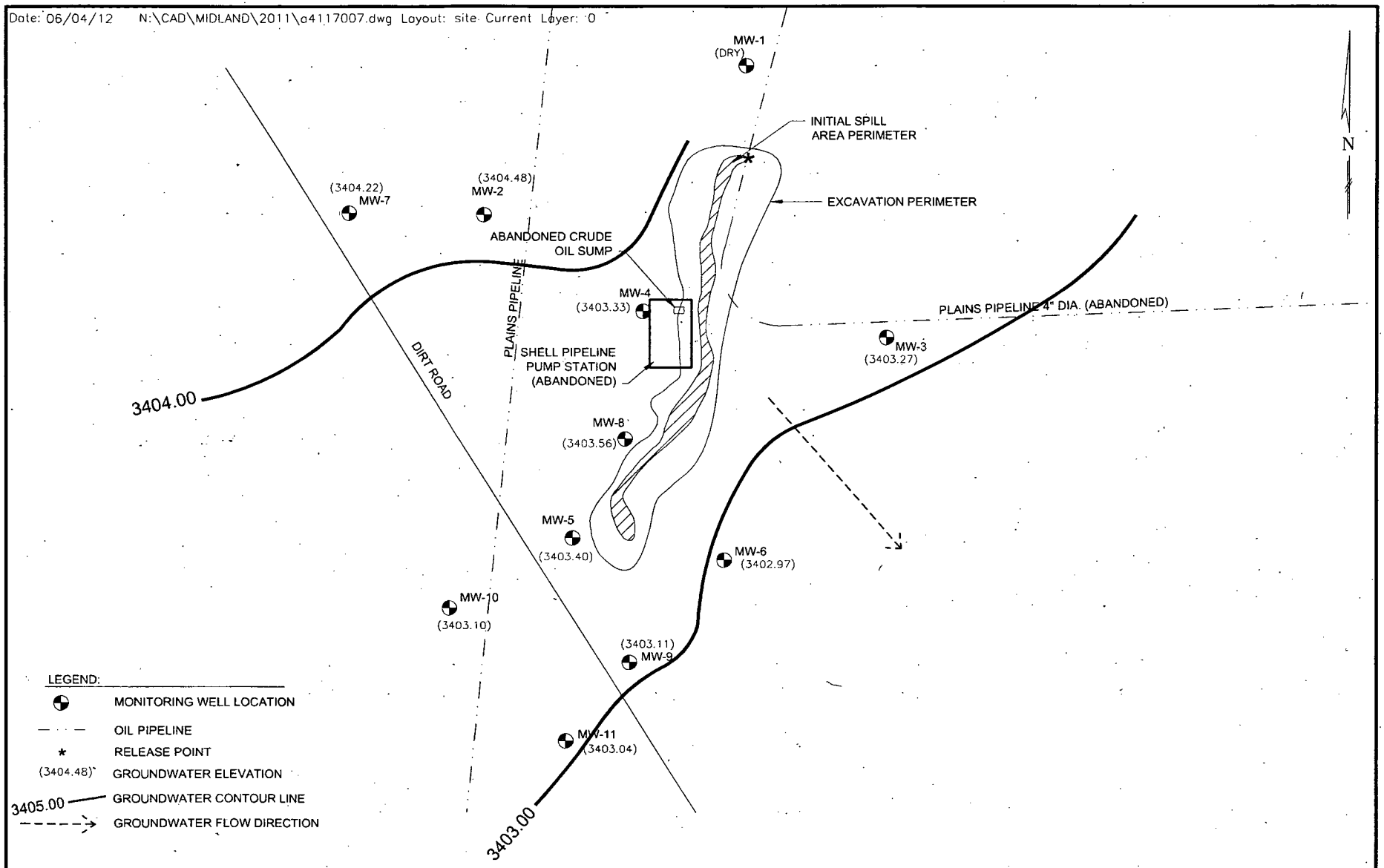
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

Terracon **Project No.: A4117007**

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



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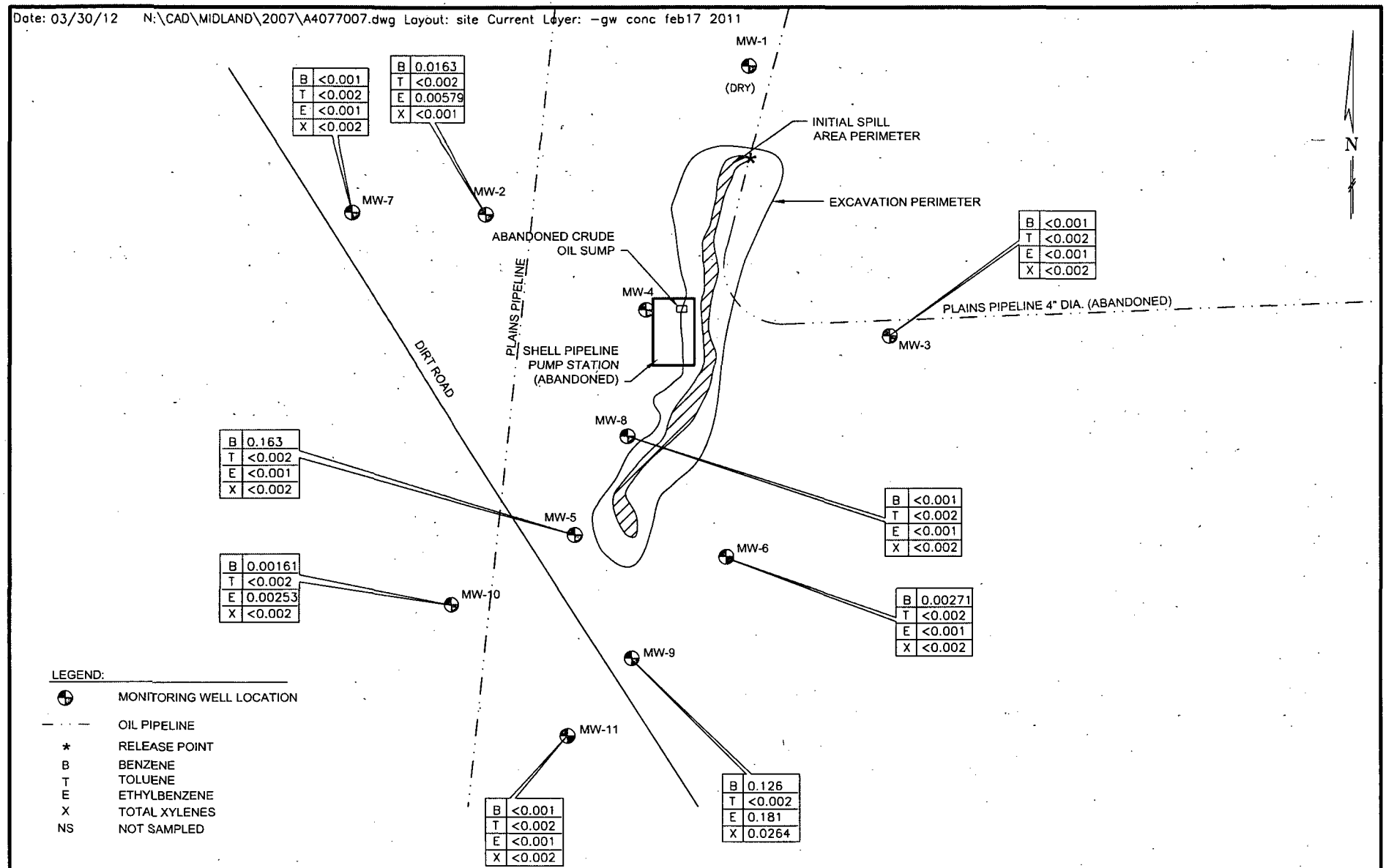
SRS#2001-11226, NMOCD File# 1R-0395

Terracon **Project No.: A4117007**

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



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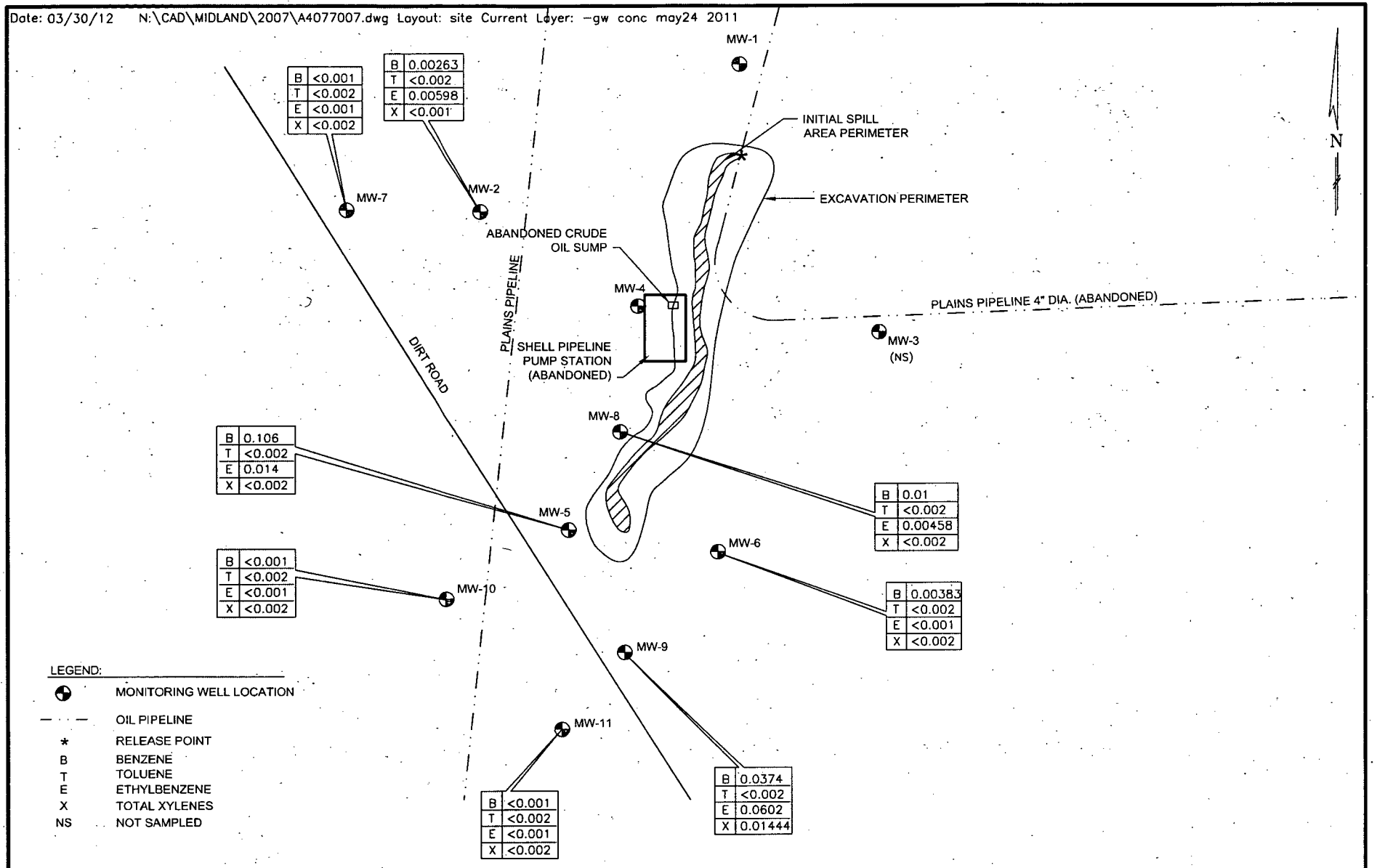
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

Terracon Project No.: A4077007

FIGURE 7: GROUNDWATER CONTAMINANT CONCENTRATION MAP (2/17/11)



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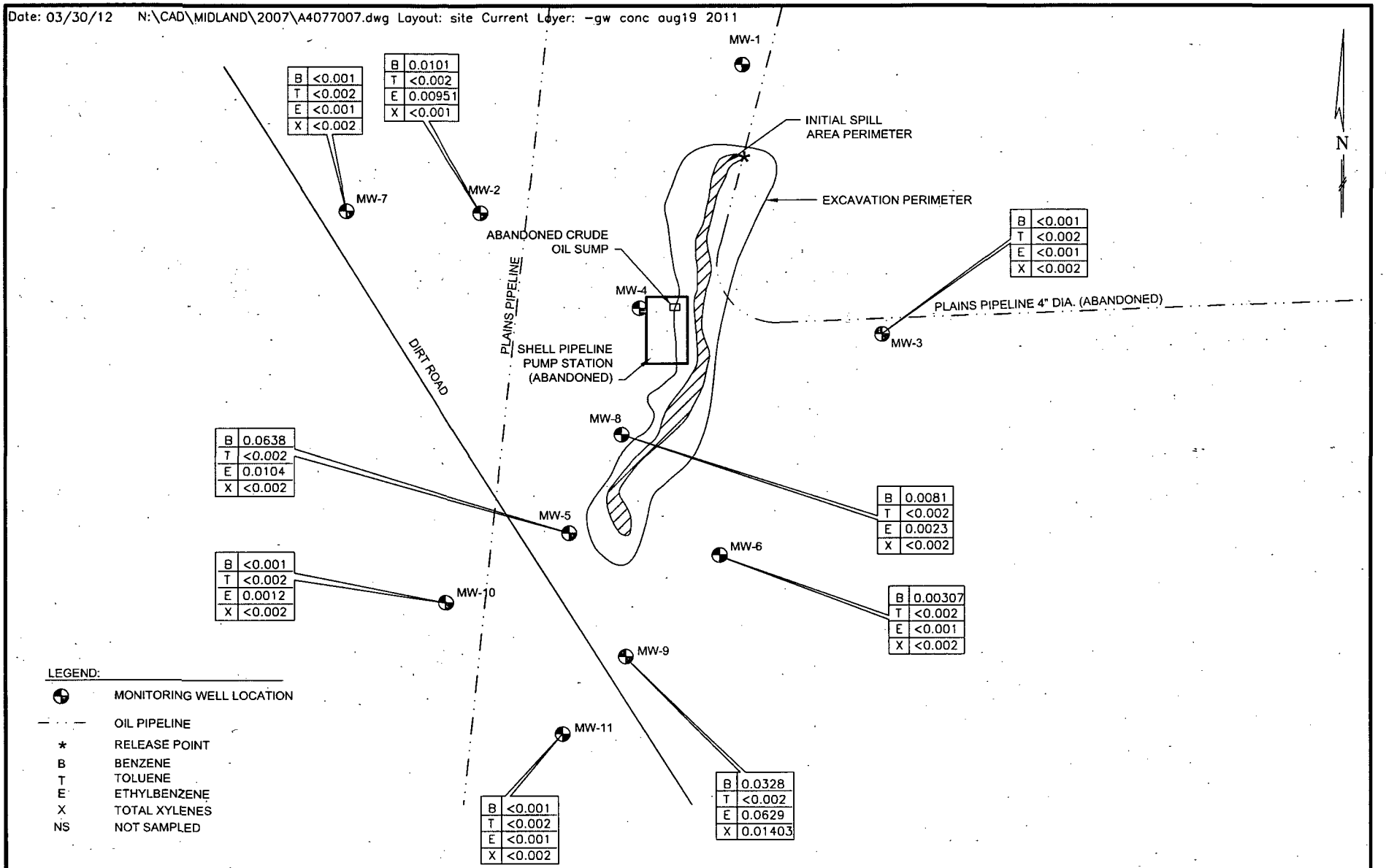
LEA COUNTY, NEW MEXICO
SRS#2001-11226, NMOCD File# 1R-0395

Terracon **Project No.: A4077007**

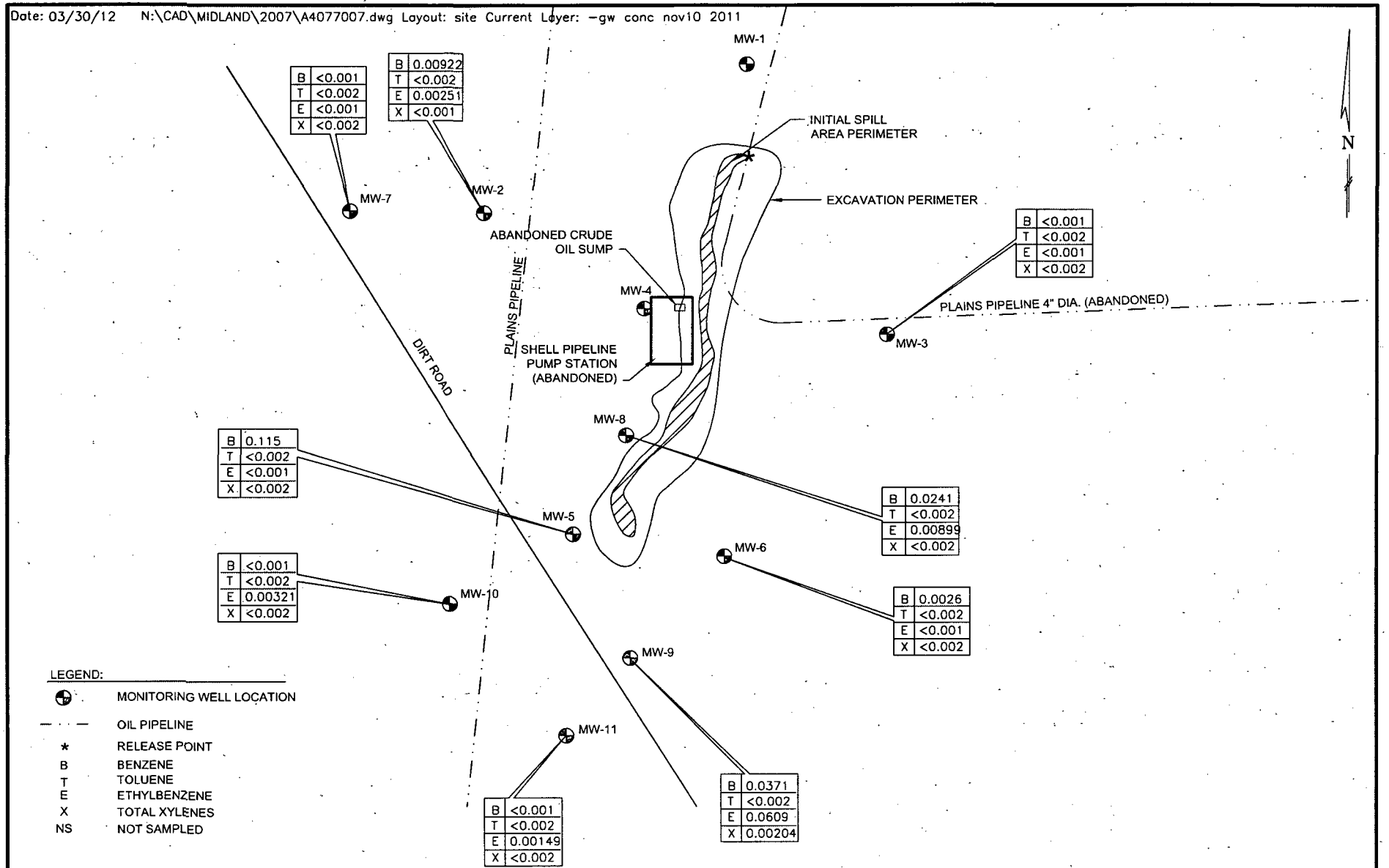
FIGURE 8: GROUNDWATER CONTAMINANT CONCENTRATION MAP (5/24/11)



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

Terracon **Project No.: A4077007**

FIGURE 9: GROUNDWATER CONTAMINANT CONCENTRATION MAP (8/19/11)



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

Terracon **Project No.: A4077007**

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

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
MW-1	02/17/11		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	05/24/11		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	10/03/11		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	11/10/11		DRY	DRY	DRY	DRY	DRY	DRY
MW-1	12/09/11		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	06/10/07		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
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

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	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	05/05/09		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	09/21/10		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
MW-2	02/17/11		0.00	27.57	3,405.05	0.00	0.00	0.00
MW-2	05/24/11		0.00	28.00	3,404.62	0.00	0.00	0.00
MW-2	08/19/11		0.00	29.00	3,403.62	0.00	0.00	0.00
MW-2	10/03/11		0.00	28.17	3,404.45	0.00	0.00	0.00
MW-2	11/10/11		0.00	28.14	3,404.48	0.00	0.00	0.00
MW-2	12/09/11		0.00	29.09	3,403.53	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	26.27	3,405.34	0.00	0.00	0.00
MW-3	09/07/06		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	06/10/07		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
MW-3	02/17/11		0.00	28.84	3,404.77	0.00	0.00	0.00
MW-3	05/24/11		0.00	29.18	3,404.43	0.00	0.00	0.00
MW-3	08/19/11		0.00	30.19	3,403.42	0.00	0.00	0.00
MW-3	10/03/11		0.00	30.30	3,403.31	0.00	0.00	0.00
MW-3	11/10/11		0.00	30.34	3,403.27	0.00	0.00	0.00
MW-3	12/09/11		0.00	30.36	3,403.25	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	3,402.46	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	06/15/05		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	09/07/06		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
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

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	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	04/09/09		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	07/09/09		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		0.00	27.06	3,405.29	0.00	0.00	10.00
MW-4	01/22/10		0.00	26.93	3,405.42	0.00	0.00	20.00
MW-4	01/26/10		0.00	27.08	3,405.27	0.00	0.00	0.00
MW-4	01/08/10		0.00	27.06	3,405.29	0.00	0.00	0.00
MW-4	01/22/10		0.00	26.93	3,405.42	0.00	0.00	30.00
MW-4	01/26/10		0.00	27.08	3,405.27	0.00	0.00	30.00
MW-4	02/03/10		0.00	26.98	3,405.37	0.00	0.00	50.00
MW-4	02/10/10		0.00	27.06	3,405.29	0.00	0.00	50.00
MW-4	02/22/10		0.00	26.98	3,405.37	0.00	0.00	50.00
MW-4	03/09/10		0.00	26.94	3,405.41	0.00	0.00	50.00
MW-4	03/24/10		0.00	26.96	3,405.39	0.00	0.00	0.00
MW-4	04/12/10		0.00	26.95	3,405.40	0.00	0.00	0.00
MW-4	04/27/10		0.00	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		0.00	27.33	3,405.02	0.00	0.00	45.00
MW-4	07/20/10		0.00	27.17	3,405.18	0.00	0.00	50.00
MW-4	08/03/10		0.00	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		0.00	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-4	12/29/10		0.00	27.36	3,404.99	0.00	0.00	30.00
MW-4	02/17/11		27.46	27.58	3,404.88	0.12	0.00	0.00
MW-4	03/02/11		0.00	25.99	3,406.36	0.00	0.00	30.00
MW-4	03/16/11		0.00	26.54	3,405.81	0.00	0.00	20.00
MW-4	03/29/11		0.00	27.46	3,404.89	0.00	0.00	25.00
MW-4	04/15/11		27.64	27.77	3,404.70	0.13	0.00	30.00
MW-4	04/18/11		0.00	27.42	3,404.93	0.00	0.00	20.00
MW-4	05/06/11		0.00	27.78	3,404.57	0.00	0.00	25.00
MW-4	05/20/11		0.00	27.93	3,404.42	0.00	0.00	25.00
MW-4	05/24/11		0.00	27.94	3,404.41	0.00	0.00	0.00
MW-4	06/01/11		0.00	28.00	3,404.35	0.00	0.00	20.00
MW-4	06/14/11		0.00	28.11	3,404.24	0.00	0.00	25.00
MW-4	06/30/11		0.00	28.31	3,404.04	0.00	0.00	20.00
MW-4	07/30/11		0.00	28.64	3,403.71	0.00	0.00	25.00
MW-4	09/20/11		0.00	28.93	3,403.42	0.00	0.00	0.00
MW-4	10/03/11		0.00	29.03	3,403.32	0.00	0.00	0.00
MW-4	11/10/11		0.00	29.02	3,403.33	0.00	0.00	20.00
MW-4	12/09/11		0.00	29.00	3,403.35	0.00	0.00	20.00
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

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	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
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	23.65	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

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	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
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
MW-5	02/17/11		0.00	24.73	3,404.90	0.00	0.00	0.00
MW-5	04/29/11		0.00	24.90	3,404.73	0.00	0.00	0.00
MW-5	05/09/11		0.00	24.95	3,404.68	0.00	0.00	0.00
MW-5	05/20/11		0.00	25.12	3,404.51	0.00	0.00	0.00
MW-5	05/24/11		0.00	25.12	3,404.51	0.00	0.00	0.00
MW-5	08/19/11		0.00	26.11	3,403.52	0.00	0.00	0.00
MW-5	09/20/11		0.00	26.20	3,403.43	0.00	0.00	0.00
MW-5	10/03/11		0.00	26.28	3,403.35	0.00	0.00	0.00
MW-5	11/10/11		0.00	26.23	3,403.40	0.00	0.00	0.00
MW-5	12/09/11		0.00	26.19	3,403.44	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-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
MW-6	02/17/11		0.00	24.84	3,404.46	0.00	0.00	0.00
MW-6	05/24/11		0.00	25.20	3,404.10	0.00	0.00	0.00
MW-6	08/19/11		0.00	26.16	3,403.14	0.00	0.00	0.00
MW-6	10/03/11		0.00	26.36	3,402.94	0.00	0.00	0.00
MW-6	11/10/11		0.00	26.33	3,402.97	0.00	0.00	0.00
MW-6	12/09/11		0.00	26.31	3,402.99	0.00	0.00	0.00

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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
MW-7	02/17/11		0.00	25.60	3,405.77	0.00	0.00	0.00
MW-7	05/24/11		0.00	26.08	3,405.29	0.00	0.00	0.00
MW-7	08/19/11		0.00	25.11	3,406.26	0.00	0.00	0.00
MW-7	10/03/11		0.00	27.25	3,404.12	0.00	0.00	0.00
MW-7	11/10/11		0.00	27.15	3,404.22	0.00	0.00	0.00
MW-7	12/09/11		0.00	27.09	3,404.28	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	12/05/04		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
MW-8	09/27/08		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

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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

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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-8	12/29/10		0.00	25.86	3,405.21	0.00	0.00	20.00
MW-8	02/17/11		0.00	25.98	3,405.09	0.00	0.00	0.00
MW-8	03/02/11		0.00	25.99	3,405.08	0.00	0.00	30.00
MW-8	03/16/11		0.00	26.06	3,405.01	0.00	0.00	30.00
MW-8	03/29/11		25.90	25.95	3,405.12	0.05	0.00	30.00
MW-8	04/15/11		0.00	26.15	3,404.92	0.00	0.00	30.00
MW-8	04/18/11		0.00	26.08	3,404.99	0.00	0.00	25.00
MW-8	05/09/11		0.00	26.20	3,404.87	0.00	0.00	25.00
MW-8	05/20/11		0.00	26.39	3,404.68	0.00	0.00	25.00
MW-8	05/24/11		0.00	26.39	3,404.68	0.00	0.00	0.00
MW-8	06/01/11		0.00	26.46	3,404.61	0.00	0.00	20.00
MW-8	06/14/11		0.00	26.62	3,404.45	0.00	0.00	25.00
MW-8	06/30/11		0.00	26.81	3,404.26	0.00	0.00	25.00
MW-8	07/30/11		0.00	27.17	3,403.90	0.00	0.00	25.00
MW-8	08/19/11		0.00	27.35	3,403.72	0.00	0.00	0.00
MW-8	09/20/11		0.00	27.45	3,403.62	0.00	0.00	0.00
MW-8	10/03/11		0.00	27.54	3,403.53	0.00	0.00	0.00
MW-8	11/10/11		0.00	27.51	3,403.56	0.00	0.00	20.00
MW-8	12/09/11		0.00	27.47	3,403.60	0.00	0.00	20.00
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	06/15/05		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

Table 1

GROUNDWATER ELEVATION AND PSH DATA

Livingston Line - Bob McCasland Pipeline Leak
Lea County, New Mexico [1]
NMOCD File Number: 1R-0395
[1] 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	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
MW-9	08/20/08		0.00	24.14	3,405.65	0.00	0.00	0.00
MW-9	09/27/08		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	04/09/09		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	01/09/10		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	24.86	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-9	02/17/11		0.00	25.19	3,404.60	0.00	0.00	0.00
MW-9	05/24/11		0.00	25.54	3,404.25	0.00	0.00	0.00
MW-9	08/19/11		0.00	26.50	3,403.29	0.00	0.00	0.00
MW-9	10/03/11		0.00	26.72	3,403.07	0.00	0.00	0.00
MW-9	11/10/11		0.00	26.68	3,403.11	0.00	0.00	0.00
MW-9	12/09/11		0.00	26.63	3,403.16	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	12/09/04		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	09/07/06		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	09/20/07		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
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

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	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-10	02/17/11		0.00	24.72	3,404.77	0.00	0.00	0.00
MW-10	04/29/11		0.00	24.88	3,404.61	0.00	0.00	0.00
MW-10	05/09/11		0.00	24.92	3,404.57	0.00	0.00	0.00
MW-10	05/20/11		0.00	25.09	3,404.40	0.00	0.00	0.00
MW-10	05/24/11		0.00	25.09	3,404.40	0.00	0.00	0.00
MW-10	08/19/11		0.00	26.10	3,403.39	0.00	0.00	0.00
MW-10	09/20/11		0.00	26.20	3,403.29	0.00	0.00	0.00
MW-10	10/03/11		0.00	26.27	3,403.22	0.00	0.00	0.00
MW-10	11/10/11		0.00	26.39	3,403.10	0.00	0.00	0.00
MW-10	12/09/11		0.00	26.15	3,403.34	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
MW-11	02/17/11		0.00	23.81	3,404.51	0.00	0.00	0.00
MW-11	05/24/11		0.00	24.16	3,404.16	0.00	0.00	0.00
MW-11	08/19/11		0.00	25.19	3,403.13	0.00	0.00	0.00
MW-11	10/03/11		0.00	25.34	3,402.98	0.00	0.00	0.00
MW-11	11/10/11		0.00	25.28	3,403.04	0.00	0.00	0.00
MW-11	12/09/11		0.00	25.23	3,403.09	0.00	0.00	0.00
							5.25	Total Gallons
							0.13	Total Barrels

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

* - 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	08/19/10	Dry - Not Sampled								
MW-1	11/16/11	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

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-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-2	02/18/11	0.0101	<0.002	0.00951	<0.001	<0.001	NA	NA	NA	NA
MW-2	05/24/11	0.00263	<0.002	0.00598	<0.001	<0.001	NA	NA	NA	NA
MW-2	08/19/11	0.0163	<0.002	0.00579	<0.001	<0.001	NA	NA	NA	NA
MW-2	11/16/11	0.00922	<0.002	0.00251	<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
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
MW-3	02/18/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	08/19/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	11/16/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-4	01/24/02	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	04/12/02	0.48	0.361	0.199	0.334	0.216	NA	NA	NA	NA
MW-4	07/10/02	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	04/15/03	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	07/14/03	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	04/20/04	3.21	2.31	0.845	1.87	1.03	NA	NA	NA	NA
MW-4	07/14/04	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	09/14/04	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	12/21/04	0.829	0.0066	0.173	0.176	0.0595	NA	NA	NA	NA
MW-4	03/21/05	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	05/17/05	Not Sampled due to the presence of Phase Separated Hydrocarbons								
MW-4	08/15/05	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	08/20/08	Not Sampled due to the Presence of Phase Separated Hydrocarbons								

Table 2

CONCENTRATIONS OF BTEX AND TPH IN GROUNDW ATER

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-4	11/07/08	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	02/05/10	2.019	0.0551	0.088	0.1318	<0.01	NA	NA	NA	NA
MW-4	05/27/10	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	08/19/10	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	0.00834	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
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-5	02/18/11	0.0638	<0.002	0.0104	<0.002	0.00106	NA	NA	NA	NA
MW-5	05/24/11	0.106	<0.003	0.014	<0.002	<0.001	NA	NA	NA	NA
MW-5	08/19/11	0.163	<0.040	<0.020	<0.040	<0.020	NA	NA	NA	NA
MW-5	11/16/11	0.115	<0.020	<0.010	<0.020	<0.010	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

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-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	08/16/10	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-6	02/18/11	0.00307	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	05/24/11	0.00383	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	08/19/11	0.00271	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/16/11	0.0026	<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
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-7	02/18/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	05/24/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	08/19/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	11/16/11	<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	0.00568	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-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		NA	NA	NA	NA
MW-8	05/10/07	0.209	<0.001	0.0473	0.0529		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-8	02/18/11	0.01	<0.002	0.00458	<0.002	<0.001	NA	NA	NA	NA
MW-8	08/19/11	<0.001	<0.002	0.00458	<0.002	<0.001	NA	NA	NA	NA
MW-8	11/16/11	0.0241	<0.002	0.00899	<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		NA	NA	NA	NA
MW-9	05/10/07	0.0607	<0.001	0.0815	0.0532		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
MW-9	02/18/11	0.0328	<0.002	0.0629	0.00994	0.00409	NA	NA	NA	NA
MW-9	05/24/11	0.0374	<0.002	0.0602	0.00848	0.00596	NA	NA	NA	NA
MW-9	08/19/11	0.126	<0.040	0.181	0.05	0.0214	NA	NA	NA	NA
MW-9	11/16/11	0.0371	<0.002	0.0609	0.00856	0.0038	NA	NA	NA	NA
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

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	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-10	02/18/11	0.001	<0.002	0.0012	<0.002	<0.001	NA	NA	NA	NA
MW-10	05/24/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-10	08/19/11	0.00161	<0.002	0.00253	<0.002	<0.001	NA	NA	NA	NA
MW-10	11/16/11	<0.001	<0.002	0.00321	<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
MW-11	02/18/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	05/24/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	08/19/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/16/11	<0.001	<0.002	0.00149	<0.002	<0.001	NA	NA	NA	NA
NMW QCC 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

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}

NMWQCC - New Mexico Water Quality Control Commission
Results in BOLD equal or exceed NMWQCC Groundwater Standards
NE - Not Established

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	08/19/10	Dry - Not Sampled								
MW-1	11/16/11	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

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-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-2	02/18/11	0.0101	<0.002	0.00951	<0.001	<0.001	NA	NA	NA	NA
MW-2	05/24/11	0.00263	<0.002	0.00598	<0.001	<0.001	NA	NA	NA	NA
MW-2	08/19/11	0.0163	<0.002	0.00579	<0.001	<0.001	NA	NA	NA	NA
MW-2	11/16/11	0.00922	<0.002	0.00251	<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
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
MW-3	02/18/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	08/19/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-3	11/16/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-4	01/24/02	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	04/12/02	0.48	0.361	0.199	0.334	0.216	NA	NA	NA	NA
MW-4	07/10/02	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	04/15/03	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	07/14/03	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	04/20/04	3.21	2.31	0.845	1.87	1.03	NA	NA	NA	NA
MW-4	07/14/04	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	09/14/04	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	12/21/04	0.829	0.0066	0.173	0.176	0.0595	NA	NA	NA	NA
MW-4	03/21/05	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	05/17/05	Not Sampled due to the presence of Phase Separated Hydrocarbons								
MW-4	08/15/05	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	08/20/08	Not Sampled due to the Presence of 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-4	11/07/08	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
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	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	02/05/10	2.019	0.0551	0.088	0.1318	<0.01	NA	NA	NA	NA
MW-4	05/27/10	Not Sampled due to the Presence of Phase Separated Hydrocarbons								
MW-4	08/19/10	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
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-5	02/18/11	0.0638	<0.002	0.0104	<0.002	0.00106	NA	NA	NA	NA
MW-5	05/24/11	0.106	<0.003	0.014	<0.002	<0.001	NA	NA	NA	NA
MW-5	08/19/11	0.163	<0.040	<0.020	<0.040	<0.020	NA	NA	NA	NA
MW-5	11/16/11	0.115	<0.020	<0.010	<0.020	<0.010	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

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-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	08/16/10	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-6	02/18/11	0.00307	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	05/24/11	0.00383	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	08/19/11	0.00271	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-6	11/16/11	0.0026	<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
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-7	02/18/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	05/24/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	08/19/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-7	11/16/11	<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	0.00568	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-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		NA	NA	NA	NA
MW-8	05/10/07	0.209	<0.001	0.0473	0.0529		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-8	02/18/11	0.01	<0.002	0.00458	<0.002	<0.001	NA	NA	NA	NA
MW-8	08/19/11	<0.001	<0.002	0.00456	<0.002	<0.001	NA	NA	NA	NA
MW-8	11/16/11	0.0241	<0.002	0.00899	<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		NA	NA	NA	NA
MW-9	05/10/07	0.0607	<0.001	0.0815	0.0532		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
MW-9	02/18/11	0.0328	<0.002	0.0629	0.00994	0.00409	NA	NA	NA	NA
MW-9	05/24/11	0.0374	<0.002	0.0602	0.00848	0.00596	NA	NA	NA	NA
MW-9	08/19/11	0.126	<0.040	0.181	0.05	0.0214	NA	NA	NA	NA
MW-9	11/16/11	0.0371	<0.002	0.0609	0.00856	0.0038	NA	NA	NA	NA
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

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	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-10	02/18/11	0.001	<0.002	0.0012	<0.002	<0.001	NA	NA	NA	NA
MW-10	05/24/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-10	08/19/11	0.00161	<0.002	0.00253	<0.002	<0.001	NA	NA	NA	NA
MW-10	11/16/11	<0.001	<0.002	0.00321	<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
MW-11	02/18/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	05/24/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	08/19/11	<0.001	<0.002	<0.001	<0.002	<0.001	NA	NA	NA	NA
MW-11	11/16/11	<0.001	<0.002	0.00149	<0.002	<0.001	NA	NA	NA	NA
NMW QCC 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

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}

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 407525

for

PLAINS ALL AMERICAN EH&S

Project Manager: Jason Henry

Livingston Ridge

2001-11005

25-FEB-11

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 (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: 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), 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)

25-FEB-11

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

Reference: XENCO Report No: **407525**
Livingston Ridge
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 407525. 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. 407525 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

Sample Cross Reference 407525

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Ridge

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	Feb-17-11 14:24		407525-001
MW-2	W	Feb-17-11 15:00		407525-002
MW-3	W	Feb-17-11 15:30		407525-003
MW-6	W	Feb-17-11 16:04		407525-004
MW-11	W	Feb-17-11 16:26		407525-005
MW-10	W	Feb-17-11 16:45		407525-006
MW-9	W	Feb-17-11 17:12		407525-007
MW-5	W	Feb-17-11 17:49		407525-008
MW-8	W	Feb-17-11 18:16		407525-009

CASE NARRATIVE

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

Project ID:	*2001-11005*	*Report Date:*	*25-FEB-11*
Work Order Number:	*407525*	*Date Received:*	*02/22/2011*

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-845258 BTEX by EPA 8021
m,p-xylene was detected in the blank. Samples that have no hit of m,p-xylene and one's that have a hit of 10X or higher are reported as is.

Certificate of Analysis Summary 407525

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Ridge

Project Id: 2001-11005
Contact: Jason Henry
Project Location:

Date Received in Lab: Tue Feb-22-11 03:15 pm
Report Date: 25-FEB-11
Project Manager: Brent Barron, II

Analysis Requested													
	Lab Id:	407525-001		407525-002		407525-003		407525-004		407525-005		407525-006	
	Field Id:	MW-7		MW-2		MW-3		MW-6		MW-11		MW-10	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Feb-17-11 14:24		Feb-17-11 15:00		Feb-17-11 15:30		Feb-17-11 16:04		Feb-17-11 16:26		Feb-17-11 16:45	
BTEX by EPA 8021	***Extracted:***	Feb-24-11 15:30		Feb-24-11 15:30		Feb-24-11 15:30		Feb-24-11 15:30		Feb-24-11 15:30		Feb-24-11 15:30	
	Analyzed:	Feb-25-11 01:38		Feb-25-11 02:02		Feb-25-11 02:25		Feb-25-11 02:48		Feb-25-11 06:12		Feb-25-11 06:35	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.0010	0.0101	0.0010	ND	0.0010	0.00307	0.0010	ND	0.0010	ND	0.0010
Toluene		ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020
Ethylbenzene		ND	0.0010	0.00951	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	0.00120	0.0010
m_p-Xylenes		ND	0.0020	ND	0.0020	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	ND	0.0010	ND	0.0010
Xylenes, Total		ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010
Total BTEX		ND	0.0010	0.0196	0.0010	ND	0.0010	0.00307	0.0010	ND	0.0010	0.00120	0.0010

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

Certificate of Analysis Summary 407525

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Ridge

Project Id: 2001-11005
Contact: Jason Henry
Project Location:

Date Received in Lab: Tue Feb-22-11 03:15 pm
Report Date: 25-FEB-11
Project Manager: Brent Barron, II

Analysis Requested											
	Lab Id:	407525-007		407525-008		407525-009					
	Field Id:	MW-9		MW-5		MW-8					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Feb-17-11 17:12		Feb-17-11 17:49		Feb-17-11 18:16					
BTEX by EPA 8021	***Extracted:***	Feb-24-11 15:30		Feb-24-11 15:30		Feb-24-11 15:30					
	Analyzed:	Feb-25-11 06:58		Feb-25-11 07:20		Feb-25-11 07:43					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Benzene		0.0328	0.0010	0.0638	0.0010	0.0100	0.0010				
Toluene		ND	0.0020	ND	0.0020	ND	0.0020				
Ethylbenzene		0.0629	0.0010	0.0104	0.0010	0.00458	0.0010				
m_p-Xylenes		0.00994	0.0020	ND	0.0020	ND	0.0020				
o-Xylene		0.00409	0.0010	0.00106	0.0010	ND	0.0010				
Xylenes, Total		0.0140	0.0010	0.00106	0.0010	ND	0.0010				
Total BTEX		0.110	0.0010	0.0753	0.0010	0.0146	0.0010				

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Ridge

Work Orders : 407525, **Project ID:** 2001-11005

Lab Batch #: 845258 **Sample:** 596518-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/24/11 22:35

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0277	0.0300	92	80-120	

Lab Batch #: 845258 **Sample:** 596518-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/24/11 22:58

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	80-120	
4-Bromofluorobenzene	0.0290	0.0300	97	80-120	

Lab Batch #: 845258 **Sample:** 596518-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 00:07

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0279	0.0300	93	80-120	

Lab Batch #: 845258 **Sample:** 407525-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 01:38

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 845258 **Sample:** 407525-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 02:02

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0280	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Ridge

Work Orders : 407525,

Project ID: 2001-11005

Lab Batch #: 845258 **Sample:** 407525-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 02:25

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 845258 **Sample:** 407525-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 02:48

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0282	0.0300	94	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 845258 **Sample:** 407479-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 04:19

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 845258 **Sample:** 407479-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 04:42

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 845258 **Sample:** 407525-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 06:12

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Ridge

Work Orders : 407525,

Project ID: 2001-11005

Lab Batch #: 845258 **Sample:** 407525-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 06:35

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 845258 **Sample:** 407525-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 06:58

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	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	0.0269	0.0300	90	80-120	

Lab Batch #: 845258 **Sample:** 407525-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 07:20

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	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	0.0285	0.0300	95	80-120	

Lab Batch #: 845258 **Sample:** 407525-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 02/25/11 07:43

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	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	0.0290	0.0300	97	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.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Livingston Ridge

Work Order #: 407525 **Project ID:** 2001-11005

Analyst: ASA **Date Prepared:** 02/24/2011 **Date Analyzed:** 02/24/2011

Lab Batch ID: 845258 **Sample:** 596518-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.0974	97	0.100	0.0973	97	0	70-125	25	
Toluene	<0.00200	0.100	0.112	112	0.100	0.103	103	8	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0993	99	0.100	0.0976	98	2	71-129	25	
m_p-Xylenes	0.00241	0.200	0.221	111	0.200	0.211	106	5	70-131	25	
o-Xylene	<0.00100	0.100	0.101	101	0.100	0.0982	98	3	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 Ridge

Work Order #: 407525 **Project ID:** 2001-11005

Lab Batch ID: 845258 **QC- Sample ID:** 407479-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 02/25/2011 **Date Prepared:** 02/24/2011 **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	<0.00100	0.100	0.104	104	0.100	0.102	102	2	70-125	25	
Toluene	<0.00200	0.100	0.102	102	0.100	0.100	100	2	70-125	25	
Ethylbenzene	<0.00100	0.100	0.101	101	0.100	0.0992	99	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.209	105	0.200	0.199	100	5	70-131	25	
o-Xylene	<0.00100	0.100	0.102	102	0.100	0.0984	98	4	71-133	25	

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

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

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

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: Midland

Project Manager: Barrett Bale

Laboratory: Xenco

Address:

Contact:

Phone:

PO/SO #: ~~A9117008~~ 2001-11005

Sampler's Name: Chris Aulds

Sampler's Signature:

Lab use only
Due Date:

Temp. of coolers when received (C°): 1.6

1	2	3	4	5

Page 1 of 1

Proj. No.: A9117008

Project Name: Livingston Ridge

No/Type of Containers: 18 / VOA

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O	BTEX (8021B)	Lab Sample ID (Lab Use Only)
W	2/17/11	1424			MW-7			2				X	407525-01
		1500			MW-2								-02
		1530			MW-3								-03
		1604			MW-6								-04
		1626			MW-11								-05
		1645			MW-10								-06
		1712			MW-9								-07
		1749			MW-5								-08
		1810			MW-8								-09

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	2/22/11	1515	Andrea Elam	2.22.11	15:15
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

NOTES:
Results to:
bwbale@terracon.com
JBWoodall@terracon.com
Jason Henry
w/labels and seals

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other

Houston Office
11555 Clay Road, Suite 100
Houston, Texas 77043
(713) 690-8989 Fax (713) 690-8787

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

Fort Worth Office
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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	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: Terracon / Plains

Date/Time: 7.22.11 15:15

Lab ID # : 407525

Initials: AC

Sample Receipt Checklist

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

Analytical Report 418003

for

PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

2001-11226

01-JUN-11

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 (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: 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), 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)

XENCO Laboratories

01-JUN-11

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

Reference: XENCO Report No: **418003**
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 418003. 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. 418003 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

XENCO Laboratories

Sample Cross Reference 418003

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	May-24-11 10:53		418003-001
MW-2	W	May-24-11 11:14		418003-002
MW-10	W	May-24-11 11:35		418003-003
MW-11	W	May-24-11 11:54		418003-004
MW-6	W	May-24-11 12:26		418003-005
MW-9	W	May-24-11 12:46		418003-006
MW-5	W	May-24-11 13:18		418003-007

CASE NARRATIVE

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

Project ID:	*2001-11226*	*Report Date:*	*01-JUN-11*
Work Order Number:	*418003*	*Date Received:*	*05/27/2011*

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Certificate of Analysis Summary 418003

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri May-27-11 10:06 am
Report Date: 01-JUN-11
Project Manager: Brent Barron, II

Analysis Requested													
	Lab Id:	418003-001		418003-002		418003-003		418003-004		418003-005		418003-006	
	Field Id:	MW-7		MW-2		MW-10		MW-11		MW-6		MW-9	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	May-24-11 10:53		May-24-11 11:14		May-24-11 11:35		May-24-11 11:54		May-24-11 12:26		May-24-11 12:46	
BTEX by EPA 8021	***Extracted:***	May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30	
	Analyzed:	May-28-11 06:25		May-28-11 06:47		May-28-11 07:10		May-28-11 07:32		May-28-11 07:54		May-28-11 08:17	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.0010	0.00263	0.0010	ND	0.0010	ND	0.0010	0.00383	0.0010	0.0374	0.0010
Toluene		ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020
Ethylbenzene		ND	0.0010	0.00598	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	0.0602	0.0010
m_p-Xylenes		ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	0.00848	0.0020
o-Xylene		ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	0.00596	0.0010
Xylenes, Total		ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	0.0144	0.0010
Total BTEX		ND	0.0010	0.00861	0.0010	ND	0.0010	ND	0.0010	0.00383	0.0010	0.112	0.0010

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

Certificate of Analysis Summary 418003

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri May-27-11 10:06 am
Report Date: 01-JUN-11
Project Manager: Brent Barron, II

Analysis Requested								
	Lab Id:	418003-007						
	Field Id:	MW-5						
	Depth:							
	Matrix:	WATER						
	Sampled:	May-24-11 13:18						
BTEX by EPA 8021	*Extracted:*	May-27-11 11:30						
	Analyzed:	May-28-11 14:56						
	Units/RL:	mg/L	RL					
Benzene		0.106	0.0010					
Toluene		ND	0.0020					
Ethylbenzene		0.0140	0.0010					
m_p-Xylenes		ND	0.0020					
o-Xylene		ND	0.0010					
Xylenes, Total		ND	0.0010					
Total BTEX		0.120	0.0010					

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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

LOD Limit of Detection

LOQ Limit of Quantitation

DL Method Detection Limit

*** Outside XENCO's scope of NELAC Accreditation.**

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 418003,

Project ID: 2001-11226

Lab Batch #: 857992 **Sample:** 603911-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 04:33

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 857992 **Sample:** 603911-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 04:55

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0330	0.0300	110	80-120	

Lab Batch #: 857992 **Sample:** 603911-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 06:02

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0308	0.0300	103	80-120	

Lab Batch #: 857992 **Sample:** 418003-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 06:25

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 857992 **Sample:** 418003-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 06:47

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0282	0.0300	94	80-120	
4-Bromofluorobenzene	0.0318	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 418003,

Project ID: 2001-11226

Lab Batch #: 857992 **Sample:** 418003-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 07:10

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 857992 **Sample:** 418003-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 07:32

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 857992 **Sample:** 418003-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 07:54

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

Lab Batch #: 857992 **Sample:** 418003-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 08:17

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0328	0.0300	109	80-120	

Lab Batch #: 857992 **Sample:** 417920-003 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 10:10

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	80-120	
4-Bromofluorobenzene	0.0343	0.0300	114	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 418003,

Project ID: 2001-11226

Lab Batch #: 857992 **Sample:** 417920-003 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 10:32

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 857992 **Sample:** 418003-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 14:56

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	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.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Livingston Line

Work Order #: 418003 **Project ID:** 2001-11226

Analyst: ASA **Date Prepared:** 05/27/2011 **Date Analyzed:** 05/28/2011

Lab Batch ID: 857992 **Sample:** 603911-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.0877	88	0.100	0.0932	93	6	70-125	25	
Toluene	<0.00200	0.100	0.0906	91	0.100	0.0962	96	6	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0899	90	0.100	0.0965	97	7	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.192	96	0.200	0.204	102	6	70-131	25	
o-Xylene	<0.00100	0.100	0.106	106	0.100	0.114	114	7	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

Final 1.000

Form 3 - MS / MSD Recoveries

Project Name: Livingston Line

Work Order # : 418003 **Project ID:** 2001-11226

Lab Batch ID: 857992 **QC- Sample ID:** 417920-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 05/28/2011 **Date Prepared:** 05/27/2011 **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	<0.00100	0.100	0.0961	96	0.100	0.0876	88	9	70-125	25	
Toluene	<0.00200	0.100	0.0998	100	0.100	0.0914	91	9	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0953	95	0.100	0.0879	88	8	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.186	93	0.200	0.181	91	3	70-131	25	
o-Xylene	<0.00100	0.100	0.109	109	0.100	0.101	101	8	71-133	25	

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

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

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

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: MIDLAND, TX

Project Manager: BARRETT BOLE

Laboratory: XENCO

Address:

Contact:

Phone:

PO/SO #: 2001 - 11226

Sampler's Name: JOSH WOODALL

Sampler's Signature:

Proj. No.: A4117007

Project Name: LIVINGSTON LINE

No/Type of Containers

ANALYSIS REQUESTED: BTEX (8021B)

Lab use only
Due Date:

Temp. of coolers when received (C°): 5.1

1 | 2 | 3 | 4 | 5

Page ____ of ____

418003
Lab Sample ID (Lab Use Only)

	Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O
001	W	5/24	1053		X	MW-7			2			
002			1114			MW-2						
003			1135			MW-10						
004			1154			MW-11						
005			1226			MW-6						
006			1246			MW-9						
007			1318			MW-5						

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	5/27	1016			
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature) Lisa Murdock	Date: 5-27-11	Time: 10:06

NOTES:
Email Results to:
jbwoodall@terracon.com
barbole@terracon.com
smharris@paalp.com

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; 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

Prelogin / Nonconformance Report - Sample Log-In

Client: Plains
Date/Time: 5-27-11 10:06
Lab ID #: 418003
Initials: KM

Sample Receipt Checklist

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

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	5.1 °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 426217

for

PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

01-SEP-11

Collected By: Client

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 (AZ0765), 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 Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

01-SEP-11

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

Reference: XENCO Report No: **426217**
Livingston Line
Project Address: A4117007

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 426217. 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. 426217 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

XENCO Laboratories

Sample Cross Reference 426217

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW7	W	08-19-11 10:00		426217-001
MW2	W	08-19-11 10:30		426217-002
MW3	W	08-19-11 11:00		426217-003
MW6	W	08-19-11 11:30		426217-004
MW9	W	08-19-11 12:00		426217-005
MW11	W	08-19-11 12:30		426217-006
MW10	W	08-19-11 13:00		426217-007
MW5	W	08-19-11 13:30		426217-008
MW8	W	08-19-11 14:00		426217-009

CASE NARRATIVE

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

Project ID:
Work Order Number: 426217

Report Date: 01-SEP-11
Date Received: 08/22/2011

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 426217

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

Project Id:
Contact: Shawn Harris
Project Location: A4117007

Date Received in Lab: Mon Aug-22-11 12:00 pm
Report Date: 01-SEP-11
Project Manager: Brent Barron II

Analysis Requested	*Lab Id:*	426217-001		426217-002		426217-003		426217-004		426217-005		426217-006	
	Field Id:	MW7		MW2		MW3		MW6		MW9		MW11	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Aug-19-11 10:00		Aug-19-11 10:30		Aug-19-11 11:00		Aug-19-11 11:30		Aug-19-11 12:00		Aug-19-11 12:30	
BTEX by EPA 8021	*Extracted:*	Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00	
	Analyzed:	Aug-27-11 06:47		Aug-27-11 07:10		Aug-27-11 07:32		Aug-27-11 07:55		Aug-27-11 13:38		Aug-27-11 08:17	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.00100	0.0163	0.00100	ND	0.00100	0.00271	0.00100	0.126	0.0200	ND	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.0400	ND	0.00200
Ethylbenzene		ND	0.00100	0.00579	0.00100	ND	0.00100	ND	0.00100	0.181	0.0200	ND	0.00100
m_p-Xylenes		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	0.0500	0.0400	ND	0.00200
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.0214	0.0200	ND	0.00100
Xylenes, Total		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.0714	0.0200	ND	0.00100
Total BTEX		ND	0.00100	0.0221	0.00100	ND	0.00100	0.00271	0.00100	0.378	0.0200	ND	0.00100

Brent Barron II
Odessa Laboratory Manager

Final 1.000

Certificate of Analysis Summary 426217

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

Project Id:
Contact: Shawn Harris
Project Location: A4117007

Date Received in Lab: Mon Aug-22-11 12:00 pm
Report Date: 01-SEP-11
Project Manager: Brent Barron II

Analysis Requested											
	Lab Id:	426217-007		426217-008		426217-009					
	Field Id:	MW10		MW5		MW8					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Aug-19-11 13:00		Aug-19-11 13:30		Aug-19-11 14:00					
BTEX by EPA 8021	***Extracted:***	Aug-30-11 15:49		Aug-26-11 15:00		Aug-26-11 15:00					
	Analyzed:	Aug-31-11 06:12		Aug-27-11 14:23		Aug-27-11 08:41					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Benzene		0.00161	0.00100	0.163	0.0200	ND	0.00100				
Toluene		ND	0.00200	ND	0.0400	ND	0.00200				
Ethylbenzene		0.00253	0.00100	ND	0.0200	ND	0.00100				
m_p-Xylenes		ND	0.00200	ND	0.0400	ND	0.00200				
o-Xylene		ND	0.00100	ND	0.0200	ND	0.00100				
Xylenes, Total		ND	0.00100	ND	0.0200	ND	0.00100				
Total BTEX		0.00414	0.00100	0.163	0.0200	ND	0.00100				

Brent Barron II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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 quantiation limit and above the detection limit.

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 **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 426217,

Project ID:

Lab Batch #: 868676 **Sample:** 426217-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 06:47

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0310	0.0300	103	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 868676 **Sample:** 426217-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 07:10

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 868676 **Sample:** 426217-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 07:32

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

Lab Batch #: 868676 **Sample:** 426217-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 07:55

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0251	0.0300	84	80-120	

Lab Batch #: 868676 **Sample:** 426217-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 08:17

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0278	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 426217,

Project ID:

Lab Batch #: 868676 **Sample:** 426217-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 08:41

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0278	0.0300	93	80-120	

Lab Batch #: 868676 **Sample:** 426217-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 13:38

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 868676 **Sample:** 426217-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 14:23

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0270	0.0300	90	80-120	

Lab Batch #: 868958 **Sample:** 426217-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 06:12

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0259	0.0300	86	80-120	

Lab Batch #: 868676 **Sample:** 610643-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 06:24

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 426217,

Project ID:

Lab Batch #: 868958 **Sample:** 610803-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 03:10

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

Lab Batch #: 868676 **Sample:** 610643-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 04:54

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0258	0.0300	86	80-120	

Lab Batch #: 868958 **Sample:** 610803-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 01:39

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 868676 **Sample:** 610643-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 05:17

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0291	0.0300	97	80-120	

Lab Batch #: 868958 **Sample:** 610803-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 02:02

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0268	0.0300	89	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 426217,

Project ID:

Lab Batch #: 868676 **Sample:** 426217-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 10:35

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0290	0.0300	97	80-120	

Lab Batch #: 868958 **Sample:** 426488-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 07:20

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0283	0.0300	94	80-120	

Lab Batch #: 868676 **Sample:** 426217-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 10:58

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0316	0.0300	105	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 868958 **Sample:** 426488-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 07:43

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	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.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Livingston Line

Work Order #: 426217 **Project ID:**

Analyst: ASA **Date Prepared:** 08/26/2011 **Date Analyzed:** 08/27/2011

Lab Batch ID: 868676 **Sample:** 610643-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BTEX by EPA 8021	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
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	<0.00100	0.100	0.0974	97	0.100	0.111	111	13	70-125	25	
Toluene	<0.00200	0.100	0.0861	86	0.100	0.0974	97	12	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0921	92	0.100	0.106	106	14	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.181	91	0.200	0.208	104	14	70-131	25	
o-Xylene	<0.00100	0.100	0.0870	87	0.100	0.0988	99	13	71-133	25	

Analyst: ASA **Date Prepared:** 08/30/2011 **Date Analyzed:** 08/31/2011

Lab Batch ID: 868958 **Sample:** 610803-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BTEX by EPA 8021	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
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	<0.00100	0.100	0.117	117	0.100	0.115	115	2	70-125	25	
Toluene	<0.00200	0.100	0.104	104	0.100	0.102	102	2	70-125	25	
Ethylbenzene	<0.00100	0.100	0.112	112	0.100	0.110	110	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.226	113	0.200	0.222	111	2	70-131	25	
o-Xylene	<0.00100	0.100	0.104	104	0.100	0.104	104	0	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

Final 1.000

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Livingston Line

Work Order # : 426217 **Project ID:**

Lab Batch ID: 868676 **QC- Sample ID:** 426217-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 08/27/2011 **Date Prepared:** 08/26/2011 **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	<0.00100	0.100	0.115	115	0.100	0.119	119	3	70-125	25	
Toluene	<0.00200	0.100	0.101	101	0.100	0.106	106	5	70-125	25	
Ethylbenzene	<0.00100	0.100	0.111	111	0.100	0.113	113	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.216	108	0.200	0.222	111	3	70-131	25	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.107	107	2	71-133	25	

Lab Batch ID: 868958 **QC- Sample ID:** 426488-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 08/31/2011 **Date Prepared:** 08/30/2011 **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	<0.00100	0.100	0.110	110	0.100	0.117	117	6	70-125	25	
Toluene	<0.00200	0.100	0.0964	96	0.100	0.102	102	6	70-125	25	
Ethylbenzene	<0.00100	0.100	0.105	105	0.100	0.111	111	6	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.211	106	0.200	0.223	112	6	70-131	25	
o-Xylene	<0.00100	0.100	0.0998	100	0.100	0.104	104	4	71-133	25	

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

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

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

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: Midland TX
Project Manager: Barrett Bole

Laboratory: Xenco
Address:
Contact:
Phone:
PO/SO #:

Sampler's Name: Wesley Ty Burrow
Sampler's Signature:

Proj. No.: A4117007
Project Name: Livingston Line
No/Type of Containers: 18-VOAs

ANALYSIS REQUESTED: BTEX 8021

Lab use only
Due Date:
Temp. of coolers when received (C°): 3.5
1 | 2 | 3 | 4 | 5
Page 1 of 1

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O	BTEX 8021	Lab Sample ID (Lab Use Only)
W	8-19-11	1000		X	MW7			2				X	426217-001
W	8-19-11	1030		X	MW2			2				X	-002
W	8-19-11	1100		X	MW3			2				X	-003
W	8-19-11	1130		X	MW6			2				X	-004
W	8-19-11	1200		X	MW9			2				X	-005
W	8-19-11	1230		X	MW11			2				X	-006
W	8-19-11	1300		X	MW10			2				X	-007
W	8-19-11	1330		X	MW5			2				X	-008
W	8-19-11	1400		X	MW8			2				X	-009

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	8-22-11	1200			
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date: 8/22/11	Time: 1200

NOTES: please email results to Barrett Bole, WTBurrow@Terracon, Shawn Harris@Plains

Matrix: W - Water, WW - Wastewater, S - Soil, SD - Solid, L - Liquid, A - Air Bag, C - Charcoal tube, SL - sludge, O - Oil
Container: VOA - 40 ml vial, A/G - Amber / Or Glass 1 Liter, 250 ml - Glass wide mouth, 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

Prelogin / Nonconformance Report - Sample Log-In

Client: Plains
Date/Time: 8.22.11 12:00
Lab ID # : 426217
Initials: BB/AE

Sample Receipt Checklist

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

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	3.5 °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 431802

for

PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

2001-11226

01-DEC-11

Collected By: Client

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 (AZ0765), 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 Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

XENCO Laboratories

01-DEC-11

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

Reference: XENCO Report No: **431802**
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 431802. 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. 431802 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

XENCO Laboratories

Sample Cross Reference 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	11-16-11 11:20		431802-001
MW-2	W	11-16-11 11:40		431802-002
MW-3	W	11-16-11 12:15		431802-003
MW-6	W	11-16-11 12:40		431802-004
MW-9	W	11-16-11 14:45		431802-005
MW-11	W	11-16-11 13:15		431802-006
MW-10	W	11-16-11 13:30		431802-007
MW-5	W	11-16-11 13:50		431802-008
MW-8	W	11-16-11 14:15		431802-009

CASE NARRATIVE

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

Project ID:	*2001-11226*	*Report Date:*	*01-DEC-11*
Work Order Number:	*431802*	*Date Received:*	*11/18/2011*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri Nov-18-11 09:20 am
Report Date: 01-DEC-11
Project Manager: Brent Barron II

Analysis Requested													
	Lab Id:	431802-001		431802-002		431802-003		431802-004		431802-005		431802-006	
	Field Id:	MW-7		MW-2		MW-3		MW-6		MW-9		MW-11	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Nov-16-11 11:20		Nov-16-11 11:40		Nov-16-11 12:15		Nov-16-11 12:40		Nov-16-11 14:45		Nov-16-11 13:15	
BTEX by EPA 8021	*Extracted:*	Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15	
	Analyzed:	Nov-26-11 16:06		Nov-26-11 16:29		Nov-26-11 16:51		Nov-26-11 18:43		Nov-26-11 19:06		Nov-26-11 19:29	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.00100	0.00922	0.00100	ND	0.00100	0.00260	0.00100	0.0371	0.00100	ND	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	0.00251	0.00100	ND	0.00100	ND	0.00100	0.0609	0.00100	0.00149	0.00100
m_p-Xylenes		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	0.00856	0.00200	ND	0.00200
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.00380	0.00100	ND	0.00100
Xylenes, Total		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.0124	0.00100	ND	0.00100
Total BTEX		ND	0.00100	0.0117	0.00100	ND	0.00100	0.00260	0.00100	0.110	0.00100	0.00149	0.00100

Brent Barron II
Odessa Laboratory Manager

Final 1.000

Certificate of Analysis Summary 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri Nov-18-11 09:20 am
Report Date: 01-DEC-11
Project Manager: Brent Barron II

Analysis Requested											
	Lab Id:	431802-007		431802-008		431802-009					
	Field Id:	MW-10		MW-5		MW-8					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Nov-16-11 13:30		Nov-16-11 13:50		Nov-16-11 14:15					
BTEX by EPA 8021	***Extracted:***	Nov-30-11 08:07		Nov-23-11 13:15		Nov-23-11 13:15					
	Analyzed:	Nov-30-11 11:21		Nov-26-11 21:43		Nov-26-11 19:51					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Benzene		ND	0.00100	0.115	0.0100	0.0241	0.00100				
Toluene		ND	0.00200	ND	0.0200	ND	0.00200				
Ethylbenzene		0.00321	0.00100	ND	0.0100	0.00899	0.00100				
m_p-Xylenes		ND	0.00200	ND	0.0200	ND	0.00200				
o-Xylene		ND	0.00100	ND	0.0100	ND	0.00100				
Xylenes, Total		ND	0.00100	ND	0.0100	ND	0.00100				
Total BTEX		0.00321	0.00100	0.115	0.0100	0.0331	0.00100				

Brent Barron II
Odessa Laboratory Manager

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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 quantiation limit and above the detection limit.

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.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation. ^ NELAC or State program does not offer Accreditation at this time.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431802-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:06

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021 **Analytes**	**Amount Found [A]**	**True Amount [B]**	**Recovery %R [D]**	**Control Limits %R**	**Flags**
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0257	0.0300	86	80-120	

Lab Batch #: 875777 **Sample:** 431802-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 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	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 875777 **Sample:** 431802-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:51

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021 **Analytes**	**Amount Found [A]**	**True Amount [B]**	**Recovery %R [D]**	**Control Limits %R**	**Flags**
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 875777 **Sample:** 431802-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 18:43

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	0.0260	0.0300	87	80-120	

Lab Batch #: 875777 **Sample:** 431802-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:06

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021 **Analytes**	**Amount Found [A]**	**True Amount [B]**	**Recovery %R [D]**	**Control Limits %R**	**Flags**
1,4-Difluorobenzene	0.0253	0.0300	84	80-120	
4-Bromofluorobenzene	0.0253	0.0300	84	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431802-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:29

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0252	0.0300	84	80-120	

Lab Batch #: 875777 **Sample:** 431802-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:51

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0264	0.0300	88	80-120	

Lab Batch #: 875777 **Sample:** 431802-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 21:43

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0262	0.0300	87	80-120	

Lab Batch #: 875989 **Sample:** 431802-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 11:21

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0252	0.0300	84	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 13:06

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802, **Project ID:** 2001-11226

Lab Batch #: 875989 **Sample:** 614825-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 10:13

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 11:36

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0266	0.0300	89	80-120	

Lab Batch #: 875989 **Sample:** 614825-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 08:41

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 11:58

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0270	0.0300	90	80-120	

Lab Batch #: 875989 **Sample:** 614825-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 09:04

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802, **Project ID:** 2001-11226

Lab Batch #: 875777 **Sample:** 431795-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 17:14

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0277	0.0300	92	80-120	

Lab Batch #: 875989 **Sample:** 431805-003 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 16:20

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 875777 **Sample:** 431795-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 17:36

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0271	0.0300	90	80-120	

Lab Batch #: 875989 **Sample:** 431805-003 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 16:43

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	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.

BS / BSD Recoveries

Project Name: Livingston Line

Work Order #: 431802 **Project ID:** 2001-11226

Analyst: ASA **Date Prepared:** 11/23/2011 **Date Analyzed:** 11/26/2011

Lab Batch ID: 875777 **Sample:** 614670-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.104	104	0.100	0.106	106	2	70-125	25	
Toluene	<0.00200	0.100	0.103	103	0.100	0.106	106	3	70-125	25	
Ethylbenzene	<0.00100	0.100	0.105	105	0.100	0.108	108	3	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.204	102	0.200	0.210	105	3	70-131	25	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.107	107	2	71-133	25	

Analyst: ASA **Date Prepared:** 11/30/2011 **Date Analyzed:** 11/30/2011

Lab Batch ID: 875989 **Sample:** 614825-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.101	101	0.100	0.106	106	5	70-125	25	
Toluene	<0.00200	0.100	0.103	103	0.100	0.107	107	4	70-125	25	
Ethylbenzene	<0.00100	0.100	0.108	108	0.100	0.113	113	5	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.214	107	0.200	0.226	113	5	70-131	25	
o-Xylene	<0.00100	0.100	0.106	106	0.100	0.113	113	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

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Livingston Line

Work Order # : 431802 **Project ID:** 2001-11226

Lab Batch ID: 875777 **QC- Sample ID:** 431795-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/26/2011 **Date Prepared:** 11/23/2011 **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	<0.00100	0.100	0.0959	96	0.100	0.0979	98	2	70-125	25	
Toluene	<0.00200	0.100	0.0929	93	0.100	0.0964	96	4	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0904	90	0.100	0.0960	96	6	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.156	78	0.200	0.163	82	4	70-131	25	
o-Xylene	<0.00100	0.100	0.0868	87	0.100	0.0921	92	6	71-133	25	

Lab Batch ID: 875989 **QC- Sample ID:** 431805-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/30/2011 **Date Prepared:** 11/30/2011 **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	0.00118	0.100	0.0890	88	0.100	0.0951	94	7	70-125	25	
Toluene	<0.00200	0.100	0.0908	91	0.100	0.0984	98	8	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0964	96	0.100	0.104	104	8	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.191	96	0.200	0.207	104	8	70-131	25	
o-Xylene	<0.00100	0.100	0.0971	97	0.100	0.105	105	8	71-133	25	

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

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

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

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: Midland
Project Manager: Barrett Bole

Laboratory: Xenco
Address:
Contact:
Phone:
PO/SO #: 2001 - 11226

Analysis Requested: BTEX 8021-B

Lab use only
Due Date:

Temp. of coolers when received (C°): 5.0

1	2	3	4	5

Page ____ of ____

Sampler's Name: Michael O'Ferrall
Sampler's Signature: Michael O'Ferrall

Proj. No.: A411007
Project Name: Livingston Line
No/Type of Containers: 36

431802
Lab Sample ID (Lab Use Only)

	Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O
1	W	11/10/11	1120			MW-7						
2			1140			MW-2						
3			1215			MW-3						
4			1240			MW-6						
5			1445			MW-9						
6			1315			MW-11						
7			1330			MW-10						
8			1350			MW-5						
9			1415			MW-8						
						~~MW-4~~						

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Michael O'Ferrall	11/10/11	9:20			
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature) S. Hernandez	Date: 11/18/11	Time: 9:20

NOTES:
Email results to
bwbole@terracon.com
wtburrow@terracon.com

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; 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

Prelogin / Nonconformance Report - Sample Log-In

Client: Plains

Date/Time: 11/18/11 9:20

Lab ID # :

Initials: AH

Sample Receipt Checklist

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

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	5.0 °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 418003

for

PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

2001-11226

01-JUN-11

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 (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: 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), 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)

XENCO Laboratories

01-JUN-11

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

Reference: XENCO Report No: **418003**
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 418003. 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. 418003 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

XENCO Laboratories

Sample Cross Reference 418003

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	May-24-11 10:53		418003-001
MW-2	W	May-24-11 11:14		418003-002
MW-10	W	May-24-11 11:35		418003-003
MW-11	W	May-24-11 11:54		418003-004
MW-6	W	May-24-11 12:26		418003-005
MW-9	W	May-24-11 12:46		418003-006
MW-5	W	May-24-11 13:18		418003-007

CASE NARRATIVE

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

Project ID:	*2001-11226*	*Report Date:*	*01-JUN-11*
Work Order Number:	*418003*	*Date Received:*	*05/27/2011*

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Certificate of Analysis Summary 418003

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri May-27-11 10:06 am
Report Date: 01-JUN-11
Project Manager: Brent Barron, II

Analysis Requested													
	Lab Id:	418003-001		418003-002		418003-003		418003-004		418003-005		418003-006	
	Field Id:	MW-7		MW-2		MW-10		MW-11		MW-6		MW-9	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	May-24-11 10:53		May-24-11 11:14		May-24-11 11:35		May-24-11 11:54		May-24-11 12:26		May-24-11 12:46	
BTEX by EPA 8021	***Extracted:***	May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30		May-27-11 11:30	
	Analyzed:	May-28-11 06:25		May-28-11 06:47		May-28-11 07:10		May-28-11 07:32		May-28-11 07:54		May-28-11 08:17	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.0010	0.00263	0.0010	ND	0.0010	ND	0.0010	0.00383	0.0010	0.0374	0.0010
Toluene		ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020
Ethylbenzene		ND	0.0010	0.00598	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	0.0602	0.0010
m_p-Xylenes		ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	ND	0.0020	0.00848	0.0020
o-Xylene		ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	0.00596	0.0010
Xylenes, Total		ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	ND	0.0010	0.0144	0.0010
Total BTEX		ND	0.0010	0.00861	0.0010	ND	0.0010	ND	0.0010	0.00383	0.0010	0.112	0.0010

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

Certificate of Analysis Summary 418003

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri May-27-11 10:06 am
Report Date: 01-JUN-11
Project Manager: Brent Barron, II

Analysis Requested								
	Lab Id:	418003-007						
	Field Id:	MW-5						
	Depth:							
	Matrix:	WATER						
	Sampled:	May-24-11 13:18						
BTEX by EPA 8021	*Extracted:*	May-27-11 11:30						
	Analyzed:	May-28-11 14:56						
	Units/RL:	mg/L	RL					
Benzene		0.106	0.0010					
Toluene		ND	0.0020					
Ethylbenzene		0.0140	0.0010					
m_p-Xylenes		ND	0.0020					
o-Xylene		ND	0.0010					
Xylenes, Total		ND	0.0010					
Total BTEX		0.120	0.0010					

Brent Barron, II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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

LOD Limit of Detection

LOQ Limit of Quantitation

DL Method Detection Limit

*** Outside XENCO's scope of NELAC Accreditation.**

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 418003,

Project ID: 2001-11226

Lab Batch #: 857992 **Sample:** 603911-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 04:33

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 857992 **Sample:** 603911-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 04:55

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0330	0.0300	110	80-120	

Lab Batch #: 857992 **Sample:** 603911-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 06:02

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0308	0.0300	103	80-120	

Lab Batch #: 857992 **Sample:** 418003-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 06:25

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 857992 **Sample:** 418003-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 06:47

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0282	0.0300	94	80-120	
4-Bromofluorobenzene	0.0318	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 418003,

Project ID: 2001-11226

Lab Batch #: 857992 **Sample:** 418003-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 07:10

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 857992 **Sample:** 418003-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 07:32

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 857992 **Sample:** 418003-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 07:54

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

Lab Batch #: 857992 **Sample:** 418003-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 08:17

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0328	0.0300	109	80-120	

Lab Batch #: 857992 **Sample:** 417920-003 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 10:10

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	80-120	
4-Bromofluorobenzene	0.0343	0.0300	114	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 418003,

Project ID: 2001-11226

Lab Batch #: 857992 **Sample:** 417920-003 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 10:32

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 857992 **Sample:** 418003-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 05/28/11 14:56

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	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.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Livingston Line

Work Order #: 418003 **Project ID:** 2001-11226

Analyst: ASA **Date Prepared:** 05/27/2011 **Date Analyzed:** 05/28/2011

Lab Batch ID: 857992 **Sample:** 603911-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.0877	88	0.100	0.0932	93	6	70-125	25	
Toluene	<0.00200	0.100	0.0906	91	0.100	0.0962	96	6	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0899	90	0.100	0.0965	97	7	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.192	96	0.200	0.204	102	6	70-131	25	
o-Xylene	<0.00100	0.100	0.106	106	0.100	0.114	114	7	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

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Livingston Line

Work Order # : 418003 **Project ID:** 2001-11226

Lab Batch ID: 857992 **QC- Sample ID:** 417920-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 05/28/2011 **Date Prepared:** 05/27/2011 **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	<0.00100	0.100	0.0961	96	0.100	0.0876	88	9	70-125	25	
Toluene	<0.00200	0.100	0.0998	100	0.100	0.0914	91	9	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0953	95	0.100	0.0879	88	8	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.186	93	0.200	0.181	91	3	70-131	25	
o-Xylene	<0.00100	0.100	0.109	109	0.100	0.101	101	8	71-133	25	

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

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

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

Final 1.000

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: MIDLAND, TX

Project Manager: BARRETT BOWE

Laboratory: XENCO

Address:

Contact:

Phone:

PO/SO #: 2001 - 11226

Lab use only
Due Date:

Temp. of coolers when received (C°): 5.1

1	2	3	4	5

Page ____ of ____

Sampler's Name: JOSH WOODALL

Sampler's Signature:

Proj. No.: A4117007

Project Name: LIVINGSTON LINE

No/Type of Containers

ANALYSIS REQUESTED: BTEX (8021B)

418003
Lab Sample ID (Lab Use Only)

	Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O
001	W	5/24	1053		X	MW-7			2			
002			1114			MW-2						
003			1135			MW-10						
004			1154			MW-11						
005			1226			MW-6						
006			1246			MW-9						
007			1318			MW-5						

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	5/27	1016			
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature) Lisa Murdock	Date: 5-27-11	Time: 10:00

NOTES:
Email Results to:
jbwoodall@terracon.com
barbolle@terracon.com
SMharris@paalp.com

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; 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

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
Date/Time: 5-27-11 10:06
Lab ID # : 418003
Initials: LM

Sample Receipt Checklist

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

18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs 5.1 °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 426217

for

PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

01-SEP-11

Collected By: Client

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 (AZ0765), 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 Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

01-SEP-11

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

Reference: XENCO Report No: **426217**
Livingston Line
Project Address: A4117007

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 426217. 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. 426217 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

XENCO Laboratories

Sample Cross Reference 426217

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW7	W	08-19-11 10:00		426217-001
MW2	W	08-19-11 10:30		426217-002
MW3	W	08-19-11 11:00		426217-003
MW6	W	08-19-11 11:30		426217-004
MW9	W	08-19-11 12:00		426217-005
MW11	W	08-19-11 12:30		426217-006
MW10	W	08-19-11 13:00		426217-007
MW5	W	08-19-11 13:30		426217-008
MW8	W	08-19-11 14:00		426217-009

CASE NARRATIVE

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

Project ID:
Work Order Number: 426217

Report Date: 01-SEP-11
Date Received: 08/22/2011

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 426217

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

Project Id:
Contact: Shawn Harris
Project Location: A4117007

Date Received in Lab: Mon Aug-22-11 12:00 pm
Report Date: 01-SEP-11
Project Manager: Brent Barron II

Analysis Requested													
	Lab Id:	426217-001		426217-002		426217-003		426217-004		426217-005		426217-006	
	Field Id:	MW7		MW2		MW3		MW6		MW9		MW11	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Aug-19-11 10:00		Aug-19-11 10:30		Aug-19-11 11:00		Aug-19-11 11:30		Aug-19-11 12:00		Aug-19-11 12:30	
BTEX by EPA 8021	***Extracted:***	Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00		Aug-26-11 15:00	
	Analyzed:	Aug-27-11 06:47		Aug-27-11 07:10		Aug-27-11 07:32		Aug-27-11 07:55		Aug-27-11 13:38		Aug-27-11 08:17	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.00100	0.0163	0.00100	ND	0.00100	0.00271	0.00100	0.126	0.0200	ND	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.0400	ND	0.00200
Ethylbenzene		ND	0.00100	0.00579	0.00100	ND	0.00100	ND	0.00100	0.181	0.0200	ND	0.00100
m_p-Xylenes		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	0.0500	0.0400	ND	0.00200
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.0214	0.0200	ND	0.00100
Xylenes, Total		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.0714	0.0200	ND	0.00100
Total BTEX		ND	0.00100	0.0221	0.00100	ND	0.00100	0.00271	0.00100	0.378	0.0200	ND	0.00100

Brent Barron II
Odessa Laboratory Manager

Final 1.000

Certificate of Analysis Summary 426217

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

Project Id:
Contact: Shawn Harris
Project Location: A4117007

Date Received in Lab: Mon Aug-22-11 12:00 pm
Report Date: 01-SEP-11
Project Manager: Brent Barron II

Analysis Requested	*Lab Id:*	426217-007		426217-008		426217-009				
	Field Id:	MW10		MW5		MW8				
	Depth:									
	Matrix:	WATER		WATER		WATER				
	Sampled:	Aug-19-11 13:00		Aug-19-11 13:30		Aug-19-11 14:00				
BTEX by EPA 8021	*Extracted:*	Aug-30-11 15:49		Aug-26-11 15:00		Aug-26-11 15:00				
	Analyzed:	Aug-31-11 06:12		Aug-27-11 14:23		Aug-27-11 08:41				
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL			
Benzene		0.00161	0.00100	0.163	0.0200	ND	0.00100			
Toluene		ND	0.00200	ND	0.0400	ND	0.00200			
Ethylbenzene		0.00253	0.00100	ND	0.0200	ND	0.00100			
m_p-Xylenes		ND	0.00200	ND	0.0400	ND	0.00200			
o-Xylene		ND	0.00100	ND	0.0200	ND	0.00100			
Xylenes, Total		ND	0.00100	ND	0.0200	ND	0.00100			
Total BTEX		0.00414	0.00100	0.163	0.0200	ND	0.00100			

Brent Barron II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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 quantiation limit and above the detection limit.

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 **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 426217,

Project ID:

Lab Batch #: 868676 **Sample:** 426217-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 06:47

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0310	0.0300	103	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 868676 **Sample:** 426217-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 07:10

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 868676 **Sample:** 426217-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 07:32

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

Lab Batch #: 868676 **Sample:** 426217-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 07:55

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0251	0.0300	84	80-120	

Lab Batch #: 868676 **Sample:** 426217-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 08:17

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0278	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 426217,

Project ID:

Lab Batch #: 868676 **Sample:** 426217-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 08:41

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0278	0.0300	93	80-120	

Lab Batch #: 868676 **Sample:** 426217-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 13:38

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 868676 **Sample:** 426217-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 14:23

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0270	0.0300	90	80-120	

Lab Batch #: 868958 **Sample:** 426217-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 06:12

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0259	0.0300	86	80-120	

Lab Batch #: 868676 **Sample:** 610643-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 06:24

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 426217,

Project ID:

Lab Batch #: 868958 **Sample:** 610803-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 03:10

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

Lab Batch #: 868676 **Sample:** 610643-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 04:54

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0258	0.0300	86	80-120	

Lab Batch #: 868958 **Sample:** 610803-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 01:39

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 868676 **Sample:** 610643-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 05:17

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0291	0.0300	97	80-120	

Lab Batch #: 868958 **Sample:** 610803-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 02:02

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0268	0.0300	89	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 : 426217,

Project ID:

Lab Batch #: 868676 **Sample:** 426217-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 10:35

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	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	0.0290	0.0300	97	80-120	

Lab Batch #: 868958 **Sample:** 426488-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 07:20

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	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	0.0283	0.0300	94	80-120	

Lab Batch #: 868676 **Sample:** 426217-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/27/11 10:58

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0316	0.0300	105	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 868958 **Sample:** 426488-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/31/11 07:43

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY				
	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	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.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Livingston Line

Work Order #: 426217 **Project ID:**

Analyst: ASA **Date Prepared:** 08/26/2011 **Date Analyzed:** 08/27/2011

Lab Batch ID: 868676 **Sample:** 610643-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.0974	97	0.100	0.111	111	13	70-125	25	
Toluene	<0.00200	0.100	0.0861	86	0.100	0.0974	97	12	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0921	92	0.100	0.106	106	14	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.181	91	0.200	0.208	104	14	70-131	25	
o-Xylene	<0.00100	0.100	0.0870	87	0.100	0.0988	99	13	71-133	25	

Analyst: ASA **Date Prepared:** 08/30/2011 **Date Analyzed:** 08/31/2011

Lab Batch ID: 868958 **Sample:** 610803-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.117	117	0.100	0.115	115	2	70-125	25	
Toluene	<0.00200	0.100	0.104	104	0.100	0.102	102	2	70-125	25	
Ethylbenzene	<0.00100	0.100	0.112	112	0.100	0.110	110	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.226	113	0.200	0.222	111	2	70-131	25	
o-Xylene	<0.00100	0.100	0.104	104	0.100	0.104	104	0	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

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Livingston Line

Work Order # : 426217 **Project ID:**

Lab Batch ID: 868676 **QC- Sample ID:** 426217-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 08/27/2011 **Date Prepared:** 08/26/2011 **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	<0.00100	0.100	0.115	115	0.100	0.119	119	3	70-125	25	
Toluene	<0.00200	0.100	0.101	101	0.100	0.106	106	5	70-125	25	
Ethylbenzene	<0.00100	0.100	0.111	111	0.100	0.113	113	2	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.216	108	0.200	0.222	111	3	70-131	25	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.107	107	2	71-133	25	

Lab Batch ID: 868958 **QC- Sample ID:** 426488-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 08/31/2011 **Date Prepared:** 08/30/2011 **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	<0.00100	0.100	0.110	110	0.100	0.117	117	6	70-125	25	
Toluene	<0.00200	0.100	0.0964	96	0.100	0.102	102	6	70-125	25	
Ethylbenzene	<0.00100	0.100	0.105	105	0.100	0.111	111	6	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.211	106	0.200	0.223	112	6	70-131	25	
o-Xylene	<0.00100	0.100	0.0998	100	0.100	0.104	104	4	71-133	25	

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

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

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

Final 1.000

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: Midland TX
Project Manager: Barrett Bole

Laboratory: Xenco
Address:
Contact:
Phone:
PO/SO #:

Lab use only
Due Date:
Temp. of coolers when received (C°): 3.5
1 | 2 | 3 | 4 | 5
Page 1 of 1

Sampler's Name: Wesley Ty Burrow
Sampler's Signature:

Proj. No.: 24117007
Project Name: Livingston Line
No/Type of Containers: 18-VOAs

ANALYSIS REQUESTED: BTEX 8021

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O	Lab Sample ID (Lab Use Only)
W	8-19-11	1000		X	MW7			2				426217-001
W	8-19-11	1030		X	MW2			2				-002
W	8-19-11	1100		X	MW3			2				-003
W	8-19-11	1130		X	MW6			2				-004
W	8-19-11	1200		X	MW9			2				-005
W	8-19-11	1230		X	MW11			2				-006
W	8-19-11	1300		X	MW10			2				-007
W	8-19-11	1330		X	MW5			2				-008
W	8-19-11	1400		X	MW8			2				-009

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	8-22-11	1200			
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date: 8/22/11	Time: 1200

NOTES: please email result to Barrett Bole, WTBurrow @ Terracon, Shawn Harris @ Plains

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; 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

Prelogin / Nonconformance Report - Sample Log-In

Client: Plains
Date/Time: 8.22.11 12:00
Lab ID # : 426217
Initials: BB/AE

Sample Receipt Checklist

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

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	3.5 °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 431802

for

PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

2001-11226

01-DEC-11

Collected By: Client

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 (AZ0765), 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 Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

01-DEC-11

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

Reference: XENCO Report No: **431802**
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 431802. 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. 431802 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

XENCO Laboratories

Sample Cross Reference 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	11-16-11 11:20		431802-001
MW-2	W	11-16-11 11:40		431802-002
MW-3	W	11-16-11 12:15		431802-003
MW-6	W	11-16-11 12:40		431802-004
MW-9	W	11-16-11 14:45		431802-005
MW-11	W	11-16-11 13:15		431802-006
MW-10	W	11-16-11 13:30		431802-007
MW-5	W	11-16-11 13:50		431802-008
MW-8	W	11-16-11 14:15		431802-009

CASE NARRATIVE

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

Project ID:	*2001-11226*	*Report Date:*	*01-DEC-11*
Work Order Number:	*431802*	*Date Received:*	*11/18/2011*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri Nov-18-11 09:20 am
Report Date: 01-DEC-11
Project Manager: Brent Barron II

Analysis Requested													
	Lab Id:	431802-001		431802-002		431802-003		431802-004		431802-005		431802-006	
	Field Id:	MW-7		MW-2		MW-3		MW-6		MW-9		MW-11	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Nov-16-11 11:20		Nov-16-11 11:40		Nov-16-11 12:15		Nov-16-11 12:40		Nov-16-11 14:45		Nov-16-11 13:15	
BTEX by EPA 8021	***Extracted:***	Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15	
	Analyzed:	Nov-26-11 16:06		Nov-26-11 16:29		Nov-26-11 16:51		Nov-26-11 18:43		Nov-26-11 19:06		Nov-26-11 19:29	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.00100	0.00922	0.00100	ND	0.00100	0.00260	0.00100	0.0371	0.00100	ND	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	0.00251	0.00100	ND	0.00100	ND	0.00100	0.0609	0.00100	0.00149	0.00100
m_p-Xylenes		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	0.00856	0.00200	ND	0.00200
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.00380	0.00100	ND	0.00100
Xylenes, Total		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.0124	0.00100	ND	0.00100
Total BTEX		ND	0.00100	0.0117	0.00100	ND	0.00100	0.00260	0.00100	0.110	0.00100	0.00149	0.00100

Brent Barron II
Odessa Laboratory Manager

Certificate of Analysis Summary 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri Nov-18-11 09:20 am
Report Date: 01-DEC-11
Project Manager: Brent Barron II

Analysis Requested											
	Lab Id:	431802-007		431802-008		431802-009					
	Field Id:	MW-10		MW-5		MW-8					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Nov-16-11 13:30		Nov-16-11 13:50		Nov-16-11 14:15					
BTEX by EPA 8021	***Extracted:***	Nov-30-11 08:07		Nov-23-11 13:15		Nov-23-11 13:15					
	Analyzed:	Nov-30-11 11:21		Nov-26-11 21:43		Nov-26-11 19:51					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Benzene		ND	0.00100	0.115	0.0100	0.0241	0.00100				
Toluene		ND	0.00200	ND	0.0200	ND	0.00200				
Ethylbenzene		0.00321	0.00100	ND	0.0100	0.00899	0.00100				
m_p-Xylenes		ND	0.00200	ND	0.0200	ND	0.00200				
o-Xylene		ND	0.00100	ND	0.0100	ND	0.00100				
Xylenes, Total		ND	0.00100	ND	0.0100	ND	0.00100				
Total BTEX		0.00321	0.00100	0.115	0.0100	0.0331	0.00100				

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

Brent Barron II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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 quantiation limit and above the detection limit.

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.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation. ^ NELAC or State program does not offer Accreditation at this time.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431802-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:06

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0257	0.0300	86	80-120	

Lab Batch #: 875777 **Sample:** 431802-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:29

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 875777 **Sample:** 431802-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:51

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 875777 **Sample:** 431802-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 18:43

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0260	0.0300	87	80-120	

Lab Batch #: 875777 **Sample:** 431802-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:06

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0253	0.0300	84	80-120	
4-Bromofluorobenzene	0.0253	0.0300	84	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431802-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:29

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0252	0.0300	84	80-120	

Lab Batch #: 875777 **Sample:** 431802-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:51

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0264	0.0300	88	80-120	

Lab Batch #: 875777 **Sample:** 431802-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 21:43

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0262	0.0300	87	80-120	

Lab Batch #: 875989 **Sample:** 431802-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 11:21

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0252	0.0300	84	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 13:06

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875989 **Sample:** 614825-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 10:13

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 11:36

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0266	0.0300	89	80-120	

Lab Batch #: 875989 **Sample:** 614825-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 08:41

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 11:58

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0270	0.0300	90	80-120	

Lab Batch #: 875989 **Sample:** 614825-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 09:04

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431795-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 17:14

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0277	0.0300	92	80-120	

Lab Batch #: 875989 **Sample:** 431805-003 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 16:20

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 875777 **Sample:** 431795-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 17:36

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0271	0.0300	90	80-120	

Lab Batch #: 875989 **Sample:** 431805-003 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 16:43

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	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.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Livingston Line

Work Order #: 431802 **Project ID:** 2001-11226

Analyst: ASA **Date Prepared:** 11/23/2011 **Date Analyzed:** 11/26/2011

Lab Batch ID: 875777 **Sample:** 614670-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.104	104	0.100	0.106	106	2	70-125	25	
Toluene	<0.00200	0.100	0.103	103	0.100	0.106	106	3	70-125	25	
Ethylbenzene	<0.00100	0.100	0.105	105	0.100	0.108	108	3	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.204	102	0.200	0.210	105	3	70-131	25	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.107	107	2	71-133	25	

Analyst: ASA **Date Prepared:** 11/30/2011 **Date Analyzed:** 11/30/2011

Lab Batch ID: 875989 **Sample:** 614825-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.101	101	0.100	0.106	106	5	70-125	25	
Toluene	<0.00200	0.100	0.103	103	0.100	0.107	107	4	70-125	25	
Ethylbenzene	<0.00100	0.100	0.108	108	0.100	0.113	113	5	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.214	107	0.200	0.226	113	5	70-131	25	
o-Xylene	<0.00100	0.100	0.106	106	0.100	0.113	113	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

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Livingston Line

Work Order # : 431802 **Project ID:** 2001-11226

Lab Batch ID: 875777 **QC- Sample ID:** 431795-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/26/2011 **Date Prepared:** 11/23/2011 **Analyst:** ASA

Reporting Units: mg/L

BTEX by EPA 8021	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
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	<0.00100	0.100	0.0959	96	0.100	0.0979	98	2	70-125	25	
Toluene	<0.00200	0.100	0.0929	93	0.100	0.0964	96	4	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0904	90	0.100	0.0960	96	6	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.156	78	0.200	0.163	82	4	70-131	25	
o-Xylene	<0.00100	0.100	0.0868	87	0.100	0.0921	92	6	71-133	25	

Lab Batch ID: 875989 **QC- Sample ID:** 431805-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/30/2011 **Date Prepared:** 11/30/2011 **Analyst:** ASA

Reporting Units: mg/L

BTEX by EPA 8021	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
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	0.00118	0.100	0.0890	88	0.100	0.0951	94	7	70-125	25	
Toluene	<0.00200	0.100	0.0908	91	0.100	0.0984	98	8	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0964	96	0.100	0.104	104	8	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.191	96	0.200	0.207	104	8	70-131	25	
o-Xylene	<0.00100	0.100	0.0971	97	0.100	0.105	105	8	71-133	25	

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

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

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

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: Midland
Project Manager: Barrett Bole

Laboratory: Xenco
Address:
Contact:
Phone:
PO/SO #: 2001-11226

Sampler's Name: Michael O'Ferrall
Sampler's Signature: Michael O'Ferrall

Proj. No.: A4117007
Project Name: Livingston Line
No/Type of Containers: 36

ANALYSIS REQUESTED: BTEX 8021-B

Lab use only
Due Date:
Temp. of coolers when received (C°): 5.0
1 | 2 | 3 | 4 | 5
Page ____ of ____

	Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O	Lab Sample ID (Lab Use Only)
1	W	11/10/11	1120			MW-7							431802
2			1140			MW-2							
3			1215			MW-3							
4			1240			MW-6							
5			1445			MW-9							
6			1315			MW-11							
7			1330			MW-10							
8			1350			MW-5							
9			1415			MW-8							
						~~MW-4~~							

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Michael O'Ferrall	11/10/11	9:20			
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
			S. Hernandez	11/18/11	9:20

NOTES:
Email results to
bwbole@terracon.com
wtburrow@terracon.com

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; 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

Prelogin / Nonconformance Report - Sample Log-In

Client: Plains

Date/Time: 11/18/11 9:20

Lab ID # :

Initials: AH

Sample Receipt Checklist

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

18. Cooler 1 No.		Cooler 2 No.		Cooler 3 No.		Cooler 4 No.		Cooler 5 No.	
lbs	5.0 °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 431802

for

PLAINS ALL AMERICAN EH&S

Project Manager: Shawn Harris

Livingston Line

2001-11226

01-DEC-11

Collected By: Client

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 (AZ0765), 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 Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

XENCO Laboratories

01-DEC-11

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

Reference: XENCO Report No: **431802**
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 431802. 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. 431802 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

XENCO Laboratories

Sample Cross Reference 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Livingston Line

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-7	W	11-16-11 11:20		431802-001
MW-2	W	11-16-11 11:40		431802-002
MW-3	W	11-16-11 12:15		431802-003
MW-6	W	11-16-11 12:40		431802-004
MW-9	W	11-16-11 14:45		431802-005
MW-11	W	11-16-11 13:15		431802-006
MW-10	W	11-16-11 13:30		431802-007
MW-5	W	11-16-11 13:50		431802-008
MW-8	W	11-16-11 14:15		431802-009

CASE NARRATIVE

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

Project ID:	*2001-11226*	*Report Date:*	*01-DEC-11*
Work Order Number:	*431802*	*Date Received:*	*11/18/2011*

Sample receipt non conformances and comments:
None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri Nov-18-11 09:20 am
Report Date: 01-DEC-11
Project Manager: Brent Barron II

Analysis Requested													
	Lab Id:	431802-001		431802-002		431802-003		431802-004		431802-005		431802-006	
	Field Id:	MW-7		MW-2		MW-3		MW-6		MW-9		MW-11	
	Depth:												
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Nov-16-11 11:20		Nov-16-11 11:40		Nov-16-11 12:15		Nov-16-11 12:40		Nov-16-11 14:45		Nov-16-11 13:15	
BTEX by EPA 8021	***Extracted:***	Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15		Nov-23-11 13:15	
	Analyzed:	Nov-26-11 16:06		Nov-26-11 16:29		Nov-26-11 16:51		Nov-26-11 18:43		Nov-26-11 19:06		Nov-26-11 19:29	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Benzene		ND	0.00100	0.00922	0.00100	ND	0.00100	0.00260	0.00100	0.0371	0.00100	ND	0.00100
Toluene		ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200	ND	0.00200
Ethylbenzene		ND	0.00100	0.00251	0.00100	ND	0.00100	ND	0.00100	0.0609	0.00100	0.00149	0.00100
m_p-Xylenes		ND	*0.00200*	ND	*0.00200*	ND	*0.00200*	ND	*0.00200*	*0.00856*	*0.00200*	ND	*0.00200*
o-Xylene		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.00380	0.00100	ND	0.00100
Xylenes, Total		ND	0.00100	ND	0.00100	ND	0.00100	ND	0.00100	0.0124	0.00100	ND	0.00100
Total BTEX		ND	0.00100	0.0117	0.00100	ND	0.00100	0.00260	0.00100	0.110	0.00100	0.00149	0.00100

Brent Barron II
Odessa Laboratory Manager

Final 1.000

Certificate of Analysis Summary 431802

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Livingston Line

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

Date Received in Lab: Fri Nov-18-11 09:20 am
Report Date: 01-DEC-11
Project Manager: Brent Barron II

Analysis Requested											
	Lab Id:	431802-007		431802-008		431802-009					
	Field Id:	MW-10		MW-5		MW-8					
	Depth:										
	Matrix:	WATER		WATER		WATER					
	Sampled:	Nov-16-11 13:30		Nov-16-11 13:50		Nov-16-11 14:15					
BTEX by EPA 8021	***Extracted:***	Nov-30-11 08:07		Nov-23-11 13:15		Nov-23-11 13:15					
	Analyzed:	Nov-30-11 11:21		Nov-26-11 21:43		Nov-26-11 19:51					
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL				
Benzene		ND	0.00100	0.115	0.0100	0.0241	0.00100				
Toluene		ND	0.00200	ND	0.0200	ND	0.00200				
Ethylbenzene		0.00321	0.00100	ND	0.0100	0.00899	0.00100				
m_p-Xylenes		ND	0.00200	ND	0.0200	ND	0.00200				
o-Xylene		ND	0.00100	ND	0.0100	ND	0.00100				
Xylenes, Total		ND	0.00100	ND	0.0100	ND	0.00100				
Total BTEX		0.00321	0.00100	0.115	0.0100	0.0331	0.00100				

Brent Barron II
Odessa Laboratory Manager

Final 1.000

XENCO Laboratories

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 affect the recovery of the spike concentration. This condition could also affect 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 quantiation limit and above the detection limit.

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.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation. ^ NELAC or State program does not offer Accreditation at this time.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431802-001 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:06

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0257	0.0300	86	80-120	

Lab Batch #: 875777 **Sample:** 431802-002 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:29

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 875777 **Sample:** 431802-003 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 16:51

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 875777 **Sample:** 431802-004 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 18:43

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0260	0.0300	87	80-120	

Lab Batch #: 875777 **Sample:** 431802-005 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:06

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0253	0.0300	84	80-120	
4-Bromofluorobenzene	0.0253	0.0300	84	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431802-006 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:29

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0252	0.0300	84	80-120	

Lab Batch #: 875777 **Sample:** 431802-009 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 19:51

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0264	0.0300	88	80-120	

Lab Batch #: 875777 **Sample:** 431802-008 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 21:43

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0262	0.0300	87	80-120	

Lab Batch #: 875989 **Sample:** 431802-007 / SMP **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 11:21

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0252	0.0300	84	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 13:06

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802, **Project ID:** 2001-11226

Lab Batch #: 875989 **Sample:** 614825-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 10:13

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 11:36

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
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	0.0266	0.0300	89	80-120	

Lab Batch #: 875989 **Sample:** 614825-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 08:41

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0280	0.0300	93	80-120	

Lab Batch #: 875777 **Sample:** 614670-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 11:58

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0270	0.0300	90	80-120	

Lab Batch #: 875989 **Sample:** 614825-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 09:04

BTEX by EPA 8021	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	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.

XENCO Laboratories

Form 2 - Surrogate Recoveries

Project Name: Livingston Line

Work Orders : 431802,

Project ID: 2001-11226

Lab Batch #: 875777 **Sample:** 431795-001 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 17:14

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0277	0.0300	92	80-120	

Lab Batch #: 875989 **Sample:** 431805-003 S / MS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 16:20

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 875777 **Sample:** 431795-001 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/26/11 17:36

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY 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	0.0271	0.0300	90	80-120	

Lab Batch #: 875989 **Sample:** 431805-003 SD / MSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 11/30/11 16:43

BTEX by EPA 8021 Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	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.

XENCO Laboratories

BS / BSD Recoveries

Project Name: Livingston Line

Work Order #: 431802 **Project ID:** 2001-11226

Analyst: ASA **Date Prepared:** 11/23/2011 **Date Analyzed:** 11/26/2011

Lab Batch ID: 875777 **Sample:** 614670-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.104	104	0.100	0.106	106	2	70-125	25	
Toluene	<0.00200	0.100	0.103	103	0.100	0.106	106	3	70-125	25	
Ethylbenzene	<0.00100	0.100	0.105	105	0.100	0.108	108	3	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.204	102	0.200	0.210	105	3	70-131	25	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.107	107	2	71-133	25	

Analyst: ASA **Date Prepared:** 11/30/2011 **Date Analyzed:** 11/30/2011

Lab Batch ID: 875989 **Sample:** 614825-1-BKS **Batch #:** 1 **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	<0.00100	0.100	0.101	101	0.100	0.106	106	5	70-125	25	
Toluene	<0.00200	0.100	0.103	103	0.100	0.107	107	4	70-125	25	
Ethylbenzene	<0.00100	0.100	0.108	108	0.100	0.113	113	5	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.214	107	0.200	0.226	113	5	70-131	25	
o-Xylene	<0.00100	0.100	0.106	106	0.100	0.113	113	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

XENCO Laboratories

Form 3 - MS / MSD Recoveries

Project Name: Livingston Line

Work Order # : 431802 **Project ID:** 2001-11226

Lab Batch ID: 875777 **QC- Sample ID:** 431795-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/26/2011 **Date Prepared:** 11/23/2011 **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	<0.00100	0.100	0.0959	96	0.100	0.0979	98	2	70-125	25	
Toluene	<0.00200	0.100	0.0929	93	0.100	0.0964	96	4	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0904	90	0.100	0.0960	96	6	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.156	78	0.200	0.163	82	4	70-131	25	
o-Xylene	<0.00100	0.100	0.0868	87	0.100	0.0921	92	6	71-133	25	

Lab Batch ID: 875989 **QC- Sample ID:** 431805-003 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 11/30/2011 **Date Prepared:** 11/30/2011 **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	0.00118	0.100	0.0890	88	0.100	0.0951	94	7	70-125	25	
Toluene	<0.00200	0.100	0.0908	91	0.100	0.0984	98	8	70-125	25	
Ethylbenzene	<0.00100	0.100	0.0964	96	0.100	0.104	104	8	71-129	25	
m_p-Xylenes	<0.00200	0.200	0.191	96	0.200	0.207	104	8	70-131	25	
o-Xylene	<0.00100	0.100	0.0971	97	0.100	0.105	105	8	71-133	25	

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

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

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

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: Midland

Project Manager: Barrett Bole

Laboratory: Xenco

Address:

Contact:

Phone:

PO/SO #: 2001 - 11226

Sampler's Name: Michael O'Ferrall

Sampler's Signature: Michael O'Ferrall

Proj. No.: A4117007

Project Name: Livingston Line

No/Type of Containers: 36

ANALYSIS REQUESTED: BTEX 8021-B

Lab use only
Due Date:

Temp. of coolers when received (C°): 5.0

1	2	3	4	5

Page ____ of ____

	Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt	250 ml	P/O	Lab Sample ID (Lab Use Only)
1	W	11/10/11	1120			MW-7							431802
2			1140			MW-2							
3			1215			MW-3							
4			1240			MW-6							
5			1445			MW-9							
6			1315			MW-11							
7			1330			MW-10							
8			1350			MW-5							
9			1415			MW-8							
						~~MW-4~~							

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

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Michael O'Ferrall	11/10/11	9:20			
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date: 11/18/11	Time: 9:20

NOTES:
Email results to
bwbole@terracon.com
wtburrow@terracon.com

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; A/G - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; 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

Prelogin / Nonconformance Report - Sample Log-In

Client: Plains

Date/Time: 11/18/11 9:20

Lab ID # :

Initials: AH

Sample Receipt Checklist

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

18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs 5.0 °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 2011 Annual Groundwater Monitoring Report