

### ANNUAL MONITORING REPORT





#### **2009 ANNUAL REPORT HUGH GATHERING 090402**

PLAINS SRS NO.: 2002-10235

#### **UL-P, SECTION 11, T21S, R37E**

### Lea County, New Mexico NMOCD No.: AP-0041

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PREPARED FOR



333 CLAY STREET, SUITE 1600 HOUSTON, TEXAS 77002

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Oil Conservation Division

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Project No. 207032.00

**March 2010** 

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March 30, 2010

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

Re: 2009 Annual Reports for Vacuum to Jal 14" Mainline #3 Vacuum to Jal 14" Mainline #5 D S Hugh Hugh Gathering

Dear Mr. Hansen:

Please find enclosed one copy each of the 2009 Annual Report required to be submitted to the New Mexico Oil Conservation Division (NMOCD). Annual Reports for the year 2009 were prepared by Premier Environmental Services, Inc. (Premier) on behalf of Plains Pipeline, L.P. (Plains) for the following Plains' sites located in Lea County, New Mexico:

- Vacuum to Jal 14" Mainline #3; NMOCD # 1R 455; Plains SRS # 2003 00117
- Vacuum to Jal 14" Mainline #5; NMOCD # 1R 0464; Plains SRS # 2003 00134
- D S Hugh; NMOCD # 1R 0463; Plains SRS # 2000 10807
- Hugh Gathering; NMOCD # AP-0041; Plains SRS # 2002 ~ 10235

If you have any questions or concerns, please feel free to call us at (281) 240-5200 extension 2703.

Yours very truly,

Chan Patel Senior Project Manager

cc: Larry Johnson (NMOCD Hobbs) Mr. Jeffrey Dann, P.G. (Plains) Local Plains Representative Premier Environmental Services

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Steven M Sellepack Project Geologist

Albuquerque, NM 

Albuquerque,

#### Attachments

2009 Annual Report - Vacuum to Jal 14" Mainline #3 2009 Annual Report - Vacuum to Jal 14" Mainline #5 2009 Annual Report - D S Hugh 2009 Annual Report - Hugh Gathering



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Premier has examined and relied upon the file information provided by Plains. Premier has not conducted an independent examination of the information contained in the Plains files; furthermore, we assume the genuineness of the documents reviewed and that the information provided in these documents to be true and accurate. Premier has prepared this report using the level of care and professionalism in the industry for similar projects under similar conditions. Premier will not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time this report was prepared. Premier believes the conclusions stated herein are factual, but no guarantee is made or implied.



Premier Environmental Services, Inc. (Premier) has prepared this Annual Report on behalf of Plains Pipeline, L.P. (Plains) for the Hugh Gathering (site), located in Unit Letter P (the SE¼ of the SE¼) of Section 11, T21S, R37E, of Lea County, New Mexico, approximately three miles northeast of Eunice, New Mexico. The hydrocarbon impact at the site is the result of a 50-barrel crude oil release that occurred in May 2002. The leak was apparently caused by corrosion of a 6 inch steel pipeline which was replaced, tested and put back into service.

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According to Environmental Plus, Inc. (EPI) documents, the May 2002 release resulted in crude oil impacting two areas, on the east and west sides of the New Mexico State Road 18 (NMSR 18), hereafter referred to as the east and west side release areas. On the west side of NMSR 18 during June and July 2003, groundwater monitor wells MW-1 through MW-5 were installed. Phase separated hydrocarbons (PSH) were discovered on the groundwater at monitor wells MW-1, MW-2 and MW-4. In 2004, groundwater monitoring wells MW-6, MW-7, MW-8, MW-9, MW-10, MW-11 and MW-12 were installed to further delineate the horizontal extent of PSH and dissolved phase hydrocarbons.

New Mexico Oil Conservation Division (NMOCD) approved Plains' *Stage 1 and Stage 2 Abatement Plan* (Abatement Plan) for the Site. During December 2006, EPI conducted excavation, confirmation soil sampling, treatment of residual soils using MicroBlaze Spill Control<sup>®</sup> (MicroBlaze), installation of a passive vapor recovery system, clay liner placement, and backfilling of the site on the west side of NMSR 18. Details of these field activities were presented in the *2006 Annual Report* and in the *Soil Closure Report West Side NMSR 18.* 

The release on the east side of NMSR 18 was initially delineated with the installation of borings BH1 to BH8 in September 2002, and further delineated by borings BH9 to BH16 in July 2006. To address the hydrocarbon impact on the east side of NMSR 18, a work plan was prepared and submitted on May 2, 2008 to the NMOCD and approved. The work plan was implemented during July through October 2008. Details of these field activities were presented in the *Soil Closure Report East Side NMSR 18* dated December 2008 and also the *2008 Annual Report*.

This annual report presents the data collected at the site during weekly groundwater gauging and PSH recovery activities and also summarizes the analytical results of the groundwater samples collected from the four quarterly groundwater sampling events conducted in 2009.



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The objective of the on-going quarterly groundwater sampling activities at the site is to monitor the affected groundwater. Weekly PSH recovery activities are conducted to remove residual crude oil from groundwater. This report also summarizes soil remediation activities completed at the site in 2009.

During 2009, groundwater sampling activities were completed predominantly on the west side of NMSR 18. Although monitor well MW-12 is on the east side of NMSR 18, the dissolved phase concentrations observed are thought to have originated from the west side of NMSR 18. Of all the quarterly groundwater samples collected from monitor wells associated with the release on the west side of NMSR 18, that did not contain PSH, only monitor wells MW-5 and MW-12 displayed benzene concentrations that were above the NMOCD regulatory levels.

To address the constituents of concern (COCs) in groundwater on the east side of NMSR 18, a *Groundwater Investigation and Delineation Work Plan* letter dated February 23, 2009 was submitted to the NMOCD. This work plan proposed the installation of two additional monitor wells on the east side, to delineate the groundwater impact. Pending approval and implementation of this work plan, monitor well MW-13 remains the only well to evaluate the impact to groundwater from the release associated with the east side of NMSR 18.

Based on the field monitoring during 2009, measurable PSH was present only in monitor well MW-1. The average measurable PSH observed during 2009 in monitor well MW-1 is 3.15 ft. A hydrocarbon sheen was observed in monitor wells MW-2, MW-3, MW-4, MW-8, MW-9, and MW-10. In 2009, approximately 186 gallons of PSH and 2,437 gallons of dissolved phase fluids were recovered. To address the PSH in groundwater, total fluid removal activities will be continued during 2010 on a weekly basis using bailers, electric pumps, and absorbent socks in wells with PSH and/or sheen.

Quarterly groundwater sampling results for monitor wells associated with the release on the west side of NMSR 18 that did not contain PSH displayed benzene concentrations that were above the NMOCD regulatory limits for monitor wells MW-5 and MW-12. The benzene concentrations in monitor well MW-5 decreased to below regulatory limits during fourth quarter of 2009. Toluene, ethylbenzene, and total xylenes were all below regulatory limits.

Groundwater monitoring completed for the release associated with the east side of NMSR 18 only included quarterly sampling of monitor well MW-13. Groundwater sample collected from monitor well MW-13 revealed an average benzene concentration



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of 2 mg/L, and was above the regulatory limit throughout 2009. This indicates that the COCs in groundwater are not delineated on the east side of NMSR 18.

A plume stability analysis for the plume on the west side of NMSR 18 was conducted to establish baseline benzene plume characteristics using the 2008 and 2009 benzene data. The initial plume characteristics indicated a decreasing plume mass and average plume concentration for benzene. However, no assertive trend analysis could be completed at this time as there are only two sampling events that include all the wells at the site. Additional sampling events will be necessary at this time to establish trends.

No plume stability analysis was completed for the plume associated wit the release on the east side of NMSR 18 as there is only one monitoring location sampled over a one year period. Additional data from the east side of NMSR 18 is necessary to evaluate the extent of benzene concentrations.



#### 1.1 Objectives and Site Background

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This report includes a summary of activities completed during 2009 at the Hugh Gathering Site, located in Unit Letter P (the SE¼ of the SE¼) of Section 11, T21S, R37E, of Lea County, New Mexico, approximately three miles northeast of Eunice, New Mexico (Figure 1, Appendix A), at latitude 32°29'11.007"N and longitude 103°07'33.864"W. Premier was retained by Plains to complete the delineation investigation, remediation and reporting activities undertaken at the Hugh Gathering site, SRS No. 2002-10235. The release was initially considered to be less than one barrel (bbl) of crude oil because of the small extent of surface impact; however, during replacement of the line and discovery of more significant soil impacts. EOTT Energy Pipeline (EOTT) upgraded the release to a 50 bbl release. The pipeline under NMSR 18 was situated inside another protective pipe with vent pipes on the east and west sides of NMSR 18. When the release occurred due to internal corrosion on the pipeline. the release was contained in the second pipe and the releases on the east and west side occurred through the vent pipes. As such, although this is considered as one release, release into the surface soil occurred at two separate points.

The initial release notification form (**Form No. C-141, Appendix D**) that was prepared by Plains, provided documentation of the release to Mr. Larry Johnson of the NMOCD. The leak was apparently caused by corrosion of a 6 inch steel pipeline which was replaced, tested and put back into service. The crude oil release volume was estimated to be approximately 50 barrel (bbls) with none recovered.

#### **1.2** Previous Environmental Investigations

At the time of the intital release in May 2002, the pipeline was owned by EOTT (the EOTT name changed to Link Energy in October 2003) and as of April 1, 2004, Plains purchased the assets from Link Energy. According to documents available from the previous environmental consultant, Environmental Plus Inc., (EPI), the May 2002 release resulted in crude oil impacting two areas one on either side of NMSR 18 and referenced as the east and west side release areas. A surface area measuring approximately 98 feet x 12 feet was initially impacted by the release. Impacted soils to a depth of approximately four feet below ground surface (bgs) were excavated and disposed of in an NMOCD-approved landfarm. Soil and groundwater delineation activities were initiated in September 2002 with the installation of soil borings BH9 to BH16 on the west side, of which BH-10 was converted to a monitor well, MW-1. PSH



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was detected on the surface of the groundwater from monitor well MW-1 at approximately 60 feet bgs.

On the east side of the release, initial delineation activities were completed with the installation of soil borings BH1 to BH8 in September 2002. The horizontal extent of soil impact on the east side appears to have covered an approximately 55 feet x 10 feet of surface area from the point of release. The vertical extent of soil impact was delineated to approximately 25 feet below ground surface (bgs) and the groundwater was not believed to be affected. In July 2006, additional delineation was completed on the east side, with the installation of soil borings BH9 through BH14. In soil boring BH13, delineation was achieved at a depth of 46 ft bgs. However, in soil boring BH11 delineation could not be completed as refusal was met at 22 feet and hydrocarbons exceeding regulatory guidelines were present at 20 feet bgs.

#### 1.2.1 West Side Investigations and Remediation

On the west side of NMSR 18 during June and July 2003, with NMOCD approval, groundwater monitor wells MW-1, through MW-5 were installed. Recovery of PSH from groundwater monitoring wells MW-1, MW-2 and MW-4 was initiated on a weekly basis and in August 2003, daily recovery began using a gasoline powered eductor type PSH recovery system.

In 2004, with NMOCD approval, groundwater monitor wells MW-6 through MW-12, were installed to further delineate the horizontal extent of PSH and dissolved phase hydrocarbons. PSH was observed in groundwater monitor wells MW-8, MW-9 and MW-10. Dissolved phase hydrocarbons consisting of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and polynuclear aromatic hydrocarbons (PAH) constituents were detected in the 2004 analytical results from groundwater monitor well MW-5. BTEX and PAH constituents were not detected at or above the respective laboratory method detection limits in 2004 samples from groundwater monitor wells MW-6, MW-7, MW-11 and MW-12 located on the site periphery. PSH was present in groundwater monitor wells MW-1, MW-2, MW-3, MW-4, MW-8, MW-9 and MW-10 with thicknesses ranging from 0.25 feet to11.13 feet.

In May 2005, Plains submitted an Abatement Plan to the NMOCD for approval (prepared by EPI). After a public comment period, the NMOCD subsequently approved implementation of the Abatement Plan through a November 5, 2005 letter to Plains.

Site surveillance continued in 2005 with daily PSH removal and inspections, monthly monitoring of groundwater and PSH levels, and quarterly sampling of groundwater monitor wells not impacted with PSH. In August 2005, because of declining PSH thicknesses and production rates, PSH recovery was changed from daily deployment of



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the PSH recovery system to weekly hand bailing of PSH impacted wells and installation of absorbent socks. In 2005, approximately 550 gallons of crude oil were recovered and reintroduced into the Plains pipeline system. The total recovered volume of oil as of December 31, 2005, including the 600 gallons recovered from 2002 through 2004, was approximately 1,150 gallons.

During December 2006, EPI conducted excavation, confirmation soil sampling, treatment of residual soils using MicroBlaze, installation of a passive vapor recovery system, clay liner placement, and backfilling of the site on the west side of NMSR 18 (the Bryant Property). Details of these field activities were presented in the 2006 *Annual Report* and in the *Soil Closure Report West Side NMSR 18*.

#### 1.2.2 East Side Investigations and Remediation

The release on the east side of NMSR18 was initially delineated with the installation of borings BH1 to BH8 in September 2002, and further delineated by borings BH9 to BH16 in July 2006. Soil samples collected from boring BH13 identified hydrocarbon impacted soils to 35 feet bgs. Remediation of the impacted soil on the east side of NMSR 18 was delayed due to access permission from the landowner.

To address the hydrocarbon impact on the east side of NMSR 18, a work plan dated May 2, 2008 was prepared and submitted to the NMOCD and approved. The work plan was implemented during July through October 2008. During the implementation of this work plan, Premier supervised the soil remediation activities such as excavation of the top 19 feet of hydrocarbon impacted soil, clay barrier installation, and backfilling of the excavated soils. A *Soil Closure Report. East Side NMSR 18* was submitted to NMOCD in October 2008 indicating the completion of the soil remediation activities and the achievement of the target cleanup goals for soil at the site.

One monitor well, MW-13 was installed on the east side of NMSR 18 to determine if the groundwater on the east side of NMSR 18 was affected. Details of these field activities were presented to the NMOCD in *2008 Annual Report* submitted in March 2009.



#### 2.1 Site Cleanup Goals (Groundwater)

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Based on standards outlined in the New Mexico Administrative Code (NMAC), Title 20, Chapter 6, Part 2, the remediation criteria for groundwater at the Site are as follows

Benzene	0.010 mg/L
Toluene	0.750 mg/L
Ethyl benzene	0.750 mg/L
Total Xylenes	0.620 mg/L
PAHs <sup>1, 2</sup>	0.03 mg/L
Benzo-a-pyrene <sup>2</sup>	0.0007 mg/L

 PAHs: Total naphthalenes plus monomethyl naphthalenes
 PAH remediation standards will be used as target concentrations only upon permanent removal of PSH.

In addition to using these concentrations as the target cleanup goals in groundwater at the site, PSH removal will also be an integral part of on-going remediation activities at the site.

#### 2.2 2009 PSH Recovery and Groundwater Monitoring Activities

During 2009, PSH recovery activities included weekly removal of total fluids from PSHor sheen-impacted wells and placement of absorbent socks in these wells to passively remove PSH. These wells include monitor wells MW-1 through MW-4 and MW-8 through MW-10. These activities were completed exclusively on the monitor wells located on the west side of NMSR 18.

The site groundwater monitoring activities also included monthly gauging of all monitor wells and quarterly sampling of groundwater from monitor wells not impacted with PSH. This included monitor wells MW-5 through MW-7 and MW-11 and MW-12.

In 2008, the NMOCD also required that all recovery wells, and monitor wells containing PSH or sheen, to be sampled for BTEX, PAH and TPH. To meet this requirement, groundwater samples were collected from the wells with PSH and sheen and submitted for laboratory analysis during the second quarter of 2009 groundwater sampling event for analyses of the above listed parameters.



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#### 2.3 Groundwater Gradient

Groundwater levels measured during 2009 indicated a consistent elevation. The groundwater gradient was determined using water level measurements from the groundwater monitor wells not impacted with PSH (i.e., MW-5, MW-6, MW-7, MW-11 and MW-12) and indicated a flow direction to the southeast. The groundwater gradient is contoured for each quarter and the maps are presented in **Figures 3-A**, through **3-D**, **Appendix A**. The groundwater elevation data is presented in **Table 1**, **Appendix B**. The average groundwater gradient during 2009, was found to be 0.0018 ft/ft, as measured across the site between monitor wells MW-6 to MW-12, and is consistent with the gradient measured in previous years based on historical gauging data (**Table 1**, **Appendix B**).

#### 2.4 Groundwater Sampling and Analytical Data

Groundwater monitor wells MW-1, MW-2, MW-3, MW-4, MW-8, MW-9 and MW-10 were not sampled during routine quarterly groundwater sampling events in 2009 due to the presence of PSH and/or sheen. Groundwater monitor wells MW-5, MW-6, MW-7, MW-11 and MW-12 were sampled on February 18, May 20, August 27 and November 17, as part of the 2009 quarterly groundwater sampling activities.

Prior to collecting groundwater samples from each well, approximately three well volumes of water were purged from each well using dedicated polyvinyl chloride (PVC) bailers. After purging was completed, groundwater samples were collected using dedicated disposable bailers. All samples collected for quarterly groundwater sampling in 2009 were placed in laboratory provided containers and placed in a cooler with ice and shipped under Chain of Custody to Trace Analysis, Inc. in Lubbock, Texas for chemical analysis. All purge water was placed in laboratory for quantification of BTEX constituents during the four quarterly groundwater sampling events. The analytical results are summarized in **Table 2, Appendix B**.

To meet the requirements of the NMOCD to sample the groundwater at wells with PSH and or sheen, the second quarter of 2009 groundwater sampling event completed on May 20, 2009 also included collected samples from monitor wells MW-1 through MW-4 and MW-8 through MW-10. The samples from these wells were submitted for BTEX, PAH, and TPH analysis.

Groundwater collected from monitor well MW-13 located on the east side of NMSR 18 was also analyzed for BTEX constituents during all the four quarters in 2009.



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Laboratory reports for all groundwater samples collected during the 2009 groundwater sampling activities are included in **Appendix C**. Details of each quarterly groundwater sampling event with results are presented below.

#### 2.4.1 1<sup>st</sup> Quarter 2009 Groundwater Analytical Results

The groundwater sampling activities during the first quarter of 2009 were conducted on February 18, 2009 and included the collection of groundwater samples from monitor wells MW-5 through MW-7 and monitor wells MW-11 through MW-13 (the six wells without PSH or hydrocarbon sheen) and analyzed for BTEX constituents. Benzene was reported at concentrations greater than the groundwater standards in the groundwater collected from the monitor wells MW-5 and MW-13 at 0.0256 mg/L and 0.923 mg/L, respectively. All the remaining constituents reported above the laboratory reporting limits (RLs) were below the NMOCD remediation criteria. Groundwater samples collected from monitor wells MW-6 and MW-13 also reported ethylbenzene and total xylene concentrations, respectively, greater than the laboratory reporting limits but below the NMOCD remediation criteria. Figure 4-A, Appendix A presents a summary of the analytical results reported during the first quarter of 2009. BTEX constituent analytical results for the first quarter of 2009 were compared to historical analytical data and appeared to be consistent with previous years for all five wells.

Due to the presence of PSH or hydrocarbon sheen in monitor wells MW-1 through MW-4 and MW-8, MW9 and MW-10, groundwater samples were not collected from these wells during the first quarter of 2009 groundwater sampling event (see **Figure 4-D in Appendix A**).

The depth to water level measurements collected from all wells at the site during the first quarter of 2009 sampling event were used to construct the hydraulic gradient map included in **Figure 3-A**, **Appendix A**. The water level data collected on February 18, 2009 indicates a southeast groundwater flow across the site with an approximate gradient of 0.0018 feet/foot as measured between monitor wells MW-6 and MW-12.

During the first quarter of 2009, approximately 39 gallons of PSH and 625 gallons of groundwater with dissolved phase hydrocarbons were recovered from the seven wells with PSH or sheen. The individual well gauging data and the recovery volumes during each weekly site visit for 2009 are summarized in **Table 1, Appendix B**. A summary of the total fluids recovered each month from the wells with PSH or sheen, is presented in **Table 5, Appendix B**.



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#### 2.4.2 2<sup>nd</sup> Quarter 2009 Groundwater Results

The groundwater sampling activities during the second quarter of 2009 were conducted on May 20, 2009 and included the collection of groundwater samples from monitor wells MW-1 through MW-13.

Of the six monitor wells without PSH (MW-5, MW-6, MW-7, MW-11, MW-12 and MW-13) that are sampled quarterly, monitor wells MW-5, MW-12 and MW-13 reported benzene at concentrations above the NMOCD remediation criteria. Toluene, ethylbenzene and total xylenes were detected in the groundwater sample from monitor well MW-5 at concentrations that exceeded the laboratory reporting limit, but were below the New Mexico WQCC groundwater standards. Total xylene was also detected in the groundwater sample from monitor well MW-13 at concentrations greater than the laboratory reporting limit, but below the NMOCD remediation criteria. All other parameters for the groundwater samples collected from these monitor wells (wells without PSH), sampled during the second quarter of 2009, were reported below the laboratory reporting limit. **Figure 4-B, Appendix A** presents the analytical results reported for these wells during the second quarter of 2009.

In order to meet NMOCD requirements, groundwater samples were also collected from monitor wells with PSH or sheen specifically, monitor wells MW-1 through MW-4 and MW-8 through MW-10. As expected, results indicated that benzene concentrations were above NMOCD remediation criteria for the groundwater samples from monitor wells MW-1, MW-2, MW-3, MW-4, MW-8, MW-9, and MW-10 (see **Table 3, Appendix B** for all results). Toluene, ethylbenzene and total xylene concentrations were reported in the groundwater sample collected from monitor well MW-1 above the regulatory limits. Toluene, ethylbenzene and total xylene concentrations in the groundwater samples collected from remaining wells with PSH or hydrocarbon sheen were reported below the regulatory limits.

Groundwater samples from monitor wells MW-1, MW-2, MW-3, MW-4, MW-8, MW-9 and MW-10 were also analyzed for PAHs and TPH during this quarter. The PAH analyses of the dissolved phase hydrocarbons in samples from wells with PSH or hydrocarbon sheen was evaluated for screening purposes only. PAH concentrations for compliance should only be evaluated once the PSH is permanently removed and BTEX concentrations in the dissolved phase plume indicate a stable or reducing dissolved phase plume.

As part of the evaluation process, PAH constituents detected (associated with crude oil) are compared directly to the New Mexico WQCC groundwater standards for PAH.



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PAH compounds reported above the laboratory reporting limits were naphthalene, fluorine. phenanthrene, fluoranthene. pyrene, benzo(a)anthracene, chrysene, Of these, only dibenzofuran, 1-methylnaphthalene, and 2-methylnaphthalene. naphthalene, benzo(a)anthracene, 1-methylnaphthalene and 2-methylnaphthalene were reported above the groundwater standards. The naphthalene concentrations detected in monitor wells MW-1, MW-4, MW-8, MW-9 and MW-10 were above the groundwater standards (Table 3. Appendix B). Benzo(a)anthracene was reported above the aroundwater standards only in the groundwater sample collected from the monitor well MW-1. 1-Methylnaphthalene and 2-methylnaphthalene, detected in the groundwater samples from monitor wells MW-1, MW-4, MW-8 and MW-9, were found to exceed the aroundwater standards.

Groundwater sample collected from monitor well MW-1 reported the TPH fractions of  $C_6$ - $C_{10}$  and  $C_{10}$ - $C_{28}$  at concentrations of 48.3 mg/L and 1,290 mg/L, respectively. The TPH concentrations from the remaining wells were reported below 30 mg/L. The PAH and TPH results are summarized on **Table 4**, **Appendix B**. TPH is not included in the New Mexico WQCC groundwater standards.

The depth to water level measurements collected from wells at the site during the second quarter of 2009 sampling event were used to construct the hydraulic gradient map included in **Figure 3-B**, **Appendix A**. The water level data collected on May 20, 2009 indicates a southeast groundwater flow across the site with an approximate gradient of 0.0019 feet/foot as measured between monitor wells MW-6 and MW-12.

During the second quarter of 2009, approximately 41 gallons of PSH and 590 gallons of groundwater with dissolved phase hydrocarbons were recovered from the wells with PSH or sheen. The individual well gauging data and the recovery volumes during each weekly site visit for 2009 are summarized in **Table 1**, **Appendix B**. A summary of the total fluids recovered each month from the wells with PSH or sheen, is presented in **Table 5**, **Appendix B**.

#### 2.4.3 3<sup>rd</sup> Quarter 2009 Groundwater Results

The groundwater sampling activities during the third quarter of 2009 were conducted on August 27, 2009 and included the collection of groundwater samples from monitor wells MW-5 through MW-7 and monitor wells MW-11 through MW-13.

Groundwater samples collected from wells without PSH or hydrocarbon sheen during the third quarter of 2009 reported benzene concentrations above the regulatory limits in monitor wells MW-12 and MW-13. Benzene concentration from monitor wells MW-5 and MW-7 were also reported above the laboratory RLs, but below the groundwater standards. The groundwater sample collected from monitor well MW-5 also reported



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the presence of ethylbenzene and total xylenes above the laboratory RLs. Total xylene was also reported above the laboratory RLs in the groundwater samples collected from monitor wells MW-5 and MW-13. These analytical results are presented in **Figure 4-C**, **Appendix A**.

The depth to water level measurements collected from wells at the site during the third quarter of 2009 sampling event were used to construct the hydraulic gradient map included in **Figure 3-C, Appendix A**. The water level data collected on August 27, 2009 indicates a southeast groundwater flow across the site with an approximate gradient of 0.0017 feet/foot as measured between monitor wells MW-6 and MW-12.

During the third Quarter of 2009, approximately 56 gallons of PSH and 519 gallons of groundwater with dissolved phase hydrocarbons were recovered from the wells with PSH or sheen. The individual well gauging data and the recovery volumes during each weekly site visit for 2009 are summarized in **Table 1**, **Appendix B**. A summary of the total fluids recovered each month from wells with PSH or sheen, is presented in **Table 5**, **Appendix B**.

#### 2.4.4 4<sup>th</sup> Quarter 2009 Groundwater Results

The groundwater sampling activities during the fourth quarter of 2009 were conducted on November 17, 2009 and included the collection of groundwater samples from monitor wells MW-5 through MW-7 and monitor wells MW-11 through MW-13.

Groundwater samples collected from the monitor wells without PSH or hydrocarbon sheen during the fourth quarter of 2009 reported benzene concentrations above the regulatory limits in monitor wells MW-12 and MW-13. Benzene concentration from monitor wells MW-5 and MW-7 were also reported above the laboratory RLs, but below the groundwater standards. The groundwater sample collected from monitor well MW-5 also reported concentration of toluene, ethylbenzene and total xylenes, above the laboratory RLs. Total xylene was reported above the laboratory RLs in the groundwater samples collected from monitor wells MW-7 and MW-13. These analytical results are presented in **Figure 4-D, Appendix A**.

The depth to water level measurements collected from wells at the site during the fourth quarter of 2009 sampling event were used to construct the hydraulic gradient map included in **Figure 3-D**, **Appendix A**. The water level data collected on November 17, 2009 indicates a southeast groundwater flow across the site with an approximate gradient of 0.0019 feet/foot as measured between monitor wells MW-6 and MW-12.

During the fourth quarter of 2009, approximately 50 gallons of PSH and 704 gallons of groundwater with dissolved phase hydrocarbons were recovered from the wells with



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PSH or sheen. The individual well gauging data and the recovery volumes during each weekly site visit for 2009 are summarized in **Table 1, Appendix B**. A summary of the total fluids recovered each month from the wells with PSH or sheen, is presented in **Table 5, Appendix B**.

#### 2.5 PSH Recovery

PSH gauging and recovery activities continued at the site in 2009 on a weekly basis. Recovery methods included using electric pumps, hand bailers and the use of absorbent socks to remove PSH observed in wells MW-1, MW-2, MW-4, MW-8 and MW-9. During 2009, the total volume of fluids recovered, including PSH and dissolved phase hydrocarbons, were increased. This assisted in allowing PSH in the affected area to flow into the recovery wells, thus enabling a greater recovery of fluids with hydrocarbons to reduce the mass of the hydrocarbon plume.

According to the EPI data, the total PSH recovery volume as of December 31, 2006, was approximately 1,222 gallons. In 2007, PSH recovery was limited to removal of fluids from monitor well MW-1. In 2007, approximately 28 gallons of PSH were recovered from a total recovered fluid volume of approximately 473 gallons. In 2008, approximately 135 gallons of PSH and 1,638 gallons of dissolved phase fluids were recovered.

Based on 2009 PSH gauging and recovery data, summarized in **Table 1** in **Appendix B**, approximately 2,437 gallons of dissolved phase hydrocarbons and 186 gallons of PSH were recovered from the wells with PSH and/or hydrocarbon sheen on site. Due to the low volume of PSH recovered using absorbent socks, PSH recovered through absorbent socks could not be quantified. The volume of PSH recovered on a monthly basis is presented in **Table 5 of Appendix B**.

#### 2.6 Plume Stability and Trend Analysis

Understanding plume stability is an important step in the remedial planning process for a site. For instance, an increasing plume could potentially migrate to human or environmental receptors, whereas a stable or decreasing plume may not pose an imminent threat to human health and the environment.

The size of a contaminant plume is influenced by a variety of physical, chemical, and biological processes. Groundwater contaminant plumes are typically limited in size due to a combination of these processes, as well as by other hydrologic and geologic features (streams, clay layers, etc.). When a plume has reached a point of dynamic equilibrium (i.e., steady state), the mass loading to the plume from a source is equal to the rate of the mass lost from the plume by physical, chemical, biological, or in some



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cases anthropogenic processes. This analysis was conducted in order to understand the overall stability of the benzene plume in terms of its area, average concentration, mass, and center of mass.

The plume stability analysis completed for the site includes the development of benzene concentration isopleth maps for the years 2008 and 2009 and evaluates data only from monitoring wells associated with the release that occurred on the east side of the NMSR 18. An average of the benzene concentrations reported in the four quarterly groundwater sampling events was used for all the wells with no PSH. Since the wells with PSH were sampled only during the second quarter groundwater sampling events in 2008 and 2009, the benzene concentrations reported during this sampling event were used in plume evaluation. The plume characteristics such as plume area, average concentration, plume mass, and plume centers of mass were calculated for each event using numerical methods and engineering principles.

A summary of the plume characteristics such as the plume mass, plume area and average concentration of benzene in the plume are calculated and are summarized in **Figure 5**, **Appendix B**. The plume centers of mass for the two years are presented in **Figure 6**, **Appendix B**. A slight shift in the plume center of mass in the downgradient groundwater flow direction was observed from 2008 to 2009. The two benzene isopleths maps for 2008 and 2009 are presented in **Figures 7 and 8**, **Appendix B**, respectively.

The current area affected by the benzene plume in 2009 is approximately 24 percent more than that of 2008. However, a decrease in the total mass of the benzene plume was observed. The calculated total mass of plume in 2009 is approximately 300 lbs less than the total mass computed in 2008 which is more than a 37 percent reduction in mass during the one year period. **Table 2.1** below provides a summary of plume characteristics.

**~**4 • • • • • • •

Characteristics									
Date	Area (Acres)	Average Conc. (µg/l)	Mass (lbs)						
2008	0.91	803	804						
2009	1.13	410	508						

The higher plume area was observed due to the detections in benzene concentrations during the second, third and fourth quarterly sampling events in the downgradient



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monitor well MW-12. However, the total benzene plume mass and the average benzene concentration of the plume is observed to decrease from 2008 to 2009.

The plume characteristic data coupled with the analytical and gauging data indicate that the mass and average concentration of the benzene plume is decreasing. The plume center however has shifted slightly to the southeast. The groundwater elevation at the site (represented by monitor well MW-6) was compared to the PSH thickness in MW-1 to evaluate the trends in PSH thickness with respect to groundwater fluctuations. This is displayed graphically on **Figure 9, Appendix B**. It can be inferred from the figure that PSH thicknesses are consistent.



During 2009, groundwater monitoring and remediation activities were predominantly completed on monitor wells associated with the release on the west side of NMSR 18. These groundwater monitoring and remediation activities included quarterly groundwater sampling, monthly gauging of all wells, and weekly PSH removal. The quarterly groundwater sampling results for monitor wells that did not contain PSH displayed benzene concentrations that were above the NMOCD regulatory limits in monitor wells MW-5, MW-12 and MW-13. The benzene concentrations in monitor well MW-5 decreased to below regulatory limits during fourth quarter of 2009. Toluene, ethylbenzene, and total xylenes were all below regulatory limits.

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Based on the field monitoring and analytical results of groundwater samples collected and analyzed during 2009, PSH was present during 2009 in monitor wells MW-1, MW-2, MW-3, MW-4, MW-8, MW-9, and MW-10. All these wells, except monitor well MW-1, only contained non-measurable hydrocarbon sheen. The PSH thickness in monitor well MW-1 ranged between 0.01 feet to 4.74 feet during 2009. In 2009, approximately 186 gallons of PSH and 2,437 gallons of dissolved phase fluids were recovered.

A plume stability analysis for the plume on the west side of NMSR 18 was conducted to establish baseline benzene plume characteristics using the 2008 and 2009 benzene data. The initial plume characteristics, plume mass and plume average concentrations both indicated a decreasing trend. However, no assertive trend analysis could be completed at this time as there are only two sampling events that include all the wells at the site. Additional sampling events will be necessary at this time to establish trends.

Groundwater samples were also collected from the monitor well associated with the release on the east side of NMSR 18, from monitor well MW-13. The groundwater analytical results revealed an average benzene concentration of 2 mg/L, and were above the regulatory limit throughout 2009. This indicates that the COCs in groundwater are not delineated on the east side of NMSR 18. Additional data from the east side of NMSR 18 is necessary at this time to evaluate the extent of benzene concentrations.



To delineate the extent of dissolved phase hydrocarbons in groundwater on the east side of NMSR,18, two additional wells consisting of one monitor well to the southeast and one monitor well directly east of monitor well MW-13, should be installed as defined in the *Groundwater Investigation and Delineation Work Plan* letter dated February 23, 2009. The new wells should be spaced approximately 75-100 feet from MW-13. Hydrologic gradient maps based on site data from the Hugh Gathering site located on the west side of NMSR 18, indicate a groundwater gradient to the south-southeast across the site. The location of the new wells will have to be placed with careful consideration of an oil well and its associated drilling pit located just southeast of the site.

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Premier proposes to continue weekly PSH recovery operations through removal of total fluids using bailers, electric pumps, and absorbent socks in wells with PSH and/or sheen, as necessary with quarterly groundwater sampling to monitor hydrocarbons in groundwater.

Plume stability analysis and data evaluation will be completed for the quarterly data obtained during the 2010 sampling events. A statistical trend analysis will be performed using Mann-Kendall Test on the calculated values to assess the benzene plume stability as more data becomes available. A summary of the plume stability study will also be presented in the 2010 Annual Report.



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#### **APPENDIX A**

#### Figures

- Figure 1 Site Location Map
- Figure 2 Site Layout Map
- Figure 3-A 1<sup>st</sup> Quarter 2009 Groundwater Gradient Map
- Figure 3-B 2<sup>nd</sup> Quarter 2009 Groundwater Gradient Map
- Figure 3-C 3<sup>rd</sup> Quarter 2009 Groundwater Gradient Map
- Figure 3-D 4<sup>th</sup> Quarter 2009 Groundwater Gradient Map
- Figure 4-A 1<sup>st</sup> Quarter 2009 Groundwater Analytical Data Map
- Figure 4-B 2<sup>nd</sup> Quarter 2009 Groundwater Analytical Data Map
- Figure 4-C 3<sup>rd</sup> Quarter 2009 Groundwater Analytical Data Map
- Figure 4-D 4<sup>th</sup> Quarter 2009 Groundwater Analytical Data Map
- Figure 5 Benzene Plume Stability Analysis Summary
- Figure 6 Benzene Plume Center of Mass
- Figure 7 2008 Benzene Isopleth Map
- Figure 8 2009 Benzene Isopleth Map
- Figure 9 Water Elevation and PSH Thickness Data





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#### **APPENDIX B**

#### Tables

- Table 1 2009 Groundwater Elevation and PSH Recovery Data
- Table 2 Historical Groundwater Elevation and PSH Recovery Data (Available on CD attached to back cover)
- Table 3 Groundwater Sample Analytical Results
- Table 4 BTEX Groundwater Sample Analytical Results for Wells with PSH
- Table 5 Groundwater Analytical Results for PAHs
- Table 6 2009 PSH and Dissolved Phase Recovery Data

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		Top of	Total	Donth to	Donth to	DEU	, ray	Reco	very	Corrected
Well	Date	Casing	Donth	Depth to	Depth to	Thicknood	Recovery			Groundwater
Number	Measured	Elevation	Uepin (ff)	- 1000CL	vvaler (ft)	I MICKNESS	Method	PSH	Water	Elevation
		(ft) .	10	1994 <b>(19</b> 77)	(10)	(11)		(gallons)	(gallons)	(ft)
	01/02/09	3429.95	NG	57.08	60.39	3.31	Pumped	5	20	3372.37
·	01/02/09	3429.95	NG	58.24	58.25	0.01	ND	ND	ND	3371.71
	01/07/09	3429.95	69.59	57.07	59.97	2.90	Pump Broken Unable to recover			3372.45
	01/15/09	3429.95	69.59	56.98	60.82	3.84	Pump	5	20	3372.39
	01/15/09	3429.95	69.59	58.09	58.10	0.01	ND	ND	ND	3371.86
•	01/22/09	3429.95	69.59	57.05	60.19	3.14	Pump/No sock	5	20	3372.43
· · ·	01/22/09	3429.95	69.59	58.11	58.11	0.00	ND	ND	ND	3371.84
	01/28/09	3429.95	69.59	57.16	59.68	2.52	Pump	4	20	3372.41
	01/28/09	3429.95	69.59	59.97	59.98	0.01	ND	ND	ND	3369.98
· · · ·	02/04/09	3429.95	69.59	57.19	59.63	2.44	Pump	2.5	26.5	3372.39
· · · ·	02/04/09	3429.95	60.59	57.99	50.66	0.00	<u>ND</u>			3371.90
	02/11/09	3429.95	60.59	58.14	58.00	2.45			<u>23</u>	3371.37
	02/18/09	3429.95	69.59	57 21	59.48	2.27	Pump	1	24	3372.40
1	02/18/09	3429.95	69.59	58.56	58.56	0.00		ND	ND	3371.39
ζ.,	02/25/09	3429.95	69.59	57.21	59.38	2.17	Pump	1	19	3372.41
	02/25/09	3429.95	69.59	58.81	58.82	0.01	ND	ND	ND	3371.14
	03/04/09	3429.95	69.59	57.18	59.43	2.25	Pump	1	26	3372.43
	03/04/09	3429.95	69.59	59.28	59.28	0.00	ND	ND	ND	3370.67
· .	03/11/09	3429.95	69.59	57.25	59.48	2.23	Pump	0.75	19.75	3372.37
	03/11/09	3429.95	69.59	59.02	59.03	0.01	ND	ND	ND	3370.93
	03/18/09	3429.95	69.59	57.20	59.41	2.21	Pump	0.75	19.25	3372.42
	03/18/09	3429.95	69.59	59.81	59.82	0.01	ND	ND	ND	3370.14
	03/25/09	3429.95	69.59	57.16	59.47	2.31	Pump	4.5	20.5	3372.44
	03/25/09	3429.95	69.59	59.99	59.99	0.00	ND Duran	ND 4.5	ND	3369.96
	04/01/09	3429.95	60.59	57.17	60.12	2.25		4.5	21.5 ND	3372.44
	04/09/09	3429.95	69.59	57 12	59 39	2.27	Pump	3	21	3372 40
	04/09/09	3429.95	69.59	60.20	60.21	0.01	ND		ND	3369 75
MW-1	04/15/09	3429.95	69.59	57.22	59.34	2.12	ND	ND	ND	3372.41
	04/22/09	3429.95	69.59	56.96	60.65	3.69	ND	ND	ND	3372.44
	04/29/09	3429.95	69.59	56.87	61.00	4.13	ND	ND	ND	3372.46
2	05/06/09	3429.95	69.59	56.79	61.31	4.52	ND	ND	ND	3372.48
-	05/14/09	3429.95	69.59	56.87	61.46	4.59	ND	ND	ND	3372.39
	05/20/09	3429.95	69.59	56.81	61.43	4.62	ND	ND	ND	3372.45
• •	05/27/09	3429.95	69.59	56.83	61.57	4.74	Pump	17	40	3372.41
1	05/27/09	3429.95	69.59	60.51	60.51	0.00	ND	ND	ND	3369.44
	05/28/09	3429.95	69.59	57.52	57.93	0.41	Pump	1	25	3372.37
	06/03/09	3429.90	69.59	60.03	60.33	0.00		∠ ND	23 ND	3360 02
	06/11/09	3429.95	69.59	58 10	61 40	3.30	Pumn	2	19	3371 36
•••	06/11/09	3429.95	69.59	60.59	60.59	0.00	ND	ND	ND	3369.36
	06/17/09	3429.95	69.59	56.94	61.32	4.38	Pump	4	16	3372.35
	06/17/09	3429.95	69.59	59.00	59.00	0.00	ND	ND	ND	3370.95
· · ·	06/23/09	3429.95	69.59	57.15	60.43	3.28	Pump	2	18	3372.31
	06/23/09	3429.95	69.59	59.20	59.20	0.00	ND	ND	ND	3370.75
	07/01/09	3429.95	69.59	57.07	60.81	3.74	Pump	3	22	3372.32
	07/01/09	3429.95	69.59	60.02	60.02	0.00	ND	ND	ND	3369.93
	07/07/09	3429.95	69.59	57.12	60.50	3.38	Pump	3	17	3372.32
	07/07/09	3429.95	69.59	61.32	61.32	0.00	ND	ND	ND	3368.63
	07/15/09	3429.95	60.59	57.04	61.30	4.26	Pump	3	27	3372.27
	07/10/09	3429.90	60 50	57 11	60.95	0.00	NU Dumo			3368.60
	07/20/00	3429.90	60 50	57.11	60.00	3.74		4.5 ND	10.0	3312.28
	07/29/09	3429.95	69.59	61.20	61 46	0.00	Pumn	2	22	3368 40
	08/05/09	3429.95	69.59	57 13	60.57	3.44	Pump	4	16	3372 30
	08/05/09	3429.95	69.59	61.29	61.29	0.00	ND	ND	ND	3368 66
	08/12/09	3429.95	69.59	57.14	60.54	3.40	Pump	4.5	15.5	3372.30

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		Top of	Total	Depth to	Depth to	рен		Reco	very	Corrected
Well	Date	Casing	Denth	Product	Water	Thickness	Recovery			Groundwater
Number	Measured	Elevation	(ff)	(ft)	(ft)	(ft)	Method	PSH	Water	Elevation
		(ft)	<b></b>			1. A A A A A A A A A A A A A A A A A A A		(galions)	(galions)	(ft)
	08/12/09	3429.95	69.59	58.97	58.97	0.00	ND	ND	ND	3370.98
	08/19/09	3429.95	69.59	57.17	60.37	3.20	Pump	4	16	3372.30
	08/19/09	3429.95	69.59	60.50	60.50	0.00	ND	ND	ND	3369.45
	08/27/09	3429.95	69.59	57.14	60.66	3.52	Pump	3	23	3372.28
	08/27/09	3429.95	69.59	58.37	58.37	0.00	ND Dump	ND 4.5	15.5	3371.58
	09/02/09	3429.95	69.59	58.91	58.91	0.00		4.5 ND	15.5 ND	3371.04
	09/09/09	3429.95	69.59	57.17	60.46	3.29	Pump	4.5	15.5	3372 29
	09/09/09	3429.95	69.59	58.60	58.60	0.00	ND	ND	ND	3371.35
· · ·	09/16/09	3429.95	69.59	57.26	60.51	3.25	Pump	4.5	15.5	3372.20
	09/16/09	3429.95	69.59	58.21	58.21	0.00	ND	ND	ND	3371.74
	09/23/09	3429.95	69.59	57.31	60.47	3.16	Pump	4	21	3372.17
	09/23/09	3429.95	69.59	58.07	58.07	0.00	ND	ND	ND	3371.88
	09/30/09	3429.95	69.59	57.24	60.47	3.23	Pump	2	18	3372.23
	09/30/09	3429.95	69.59	62.10 57.73	57.80	0.00		0.25	ND 0.75	3307.85
	09/30/09	3429.95	69.59	61.80	61.80	0.07	PM	0.25 ND	9.75 ND	3368 15
	10/07/09	3429.95	69.59	57.33	60.43	3.10	Pump	2	18	3372.16
	10/07/09	3429.95	69.59	58.31	58.31	0.00	AM	ND	ND	3371.64
	10/07/09	3429.95	69.59	57.76	57.82	0.06	Pump	0.25	9.75	3372.18
	10/07/09	3429.95	69.59	58.23	58.23	0.00	PM	ND	ND	3371.72
	10/14/09	3429.95	69.59	57.30	60.45	3.15	Pump	2	18	3372.18
	10/14/09	3429.95	69.59	58.28	58.28	0.00	AM	ND	ND	3371.67
MW-1	10/14/09	3429.95	69.59	57.76	57.83	0.07	Pump	0.25	9.75	3372.18
	10/14/09	3429.95	60.59	57.25	58.57	0.00	PIVI Pump Brakes Lingship to resource	ND	ND	3371.38
	10/29/09	3429.95	69.59	57.33	61.02	2.90	Pump Broken Unable to recover			3372.10
	11/04/09	3429.95	69.59	57.23	61.12	3.89	Pump Broken Unable to recover			3372.10
	11/11/09	3429.95	69.59	57.12	61.04	3.92	Pump	2	18	3372.24
	11/11/09	3429.95	69.59	58.33	58.33	0.00	AM	ND	ND	3371.62
	11/11/09	3429.95	69.59	57.20	61.02	3.82	Pump	0.25	9.75	3372.18
	11/11/09	3429.95	69.59	57.23	61.12	3.89	pm	ND	ND	3372.14
	11/1//09	3429.95	69.59	57.41	60.53	3.12	Pump	2.5	17.5	3372.07
·.	11/17/09	3429.95	69.59	58.43	58.43	0.00	ND Dump	ND 5.25	ND 10.75	3371.52
	11/25/09	3429.95	69.59	59.44	59.44	0.00		5.25 ND	19.75 ND	3370.51
	12/02/09	3429.95	69.59	57.30	60.76	3.46	Pump	5	35	3372 13
	12/02/09	3429.95	69.59	60.61	60.61	0.00	ND	ND	ND	3369.34
	12/09/09	3429.95	69.59	57.29	60.65	3.36	Pump	5	35	3372.16
	12/09/09	3429.95	69.59	59.21	59.21	0.00	ND	ND	ND	3370.74
	12/16/09	3429.95	69.59	57.31	60.55	3.24	Pump	5	20	3372.15
	12/16/09	3429.95	69.59	59.83	59.83	0.00	ND	ND 4.5	ND 15.5	3370.12
	12/23/09	3429.95	69.59	57.20	59.85	3.27	Pump ND	4.5 ND		3372.20
	12/30/09	3429.95	69.59	57.31	60.58	3.27	Pump	5	15	3372 15
	12/30/09	3429.95	69.59	59.15	59.15	0.00	ND	ND	ND	3370.80
	2									
1.4	01/02/09	3429.97	71.75	57.76	57.76	0.00	Sock	ND	ND	3372.21
ана 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 - 1940 -	01/07/09	3429.97	71.79	57.73	57.73	0.00	Sock	ND	ND	3372.24
	01/15/09	3429.97	71.79	57.79	57.79	0.00	Sock	ND	ND	3372.18
	01/22/09	3429.97	71.79	57.69	57.69	0.00	New Sock	ND	ND	3372.28
MW-2	01/28/09	3429.97	71 71	57.60	57.60	0.00	SOCK			3372.21
at e	02/04/09	3429.97	71 71	57 72	57.09	0.00	Sock			3372.28
	02/18/09	3429.97	71.71	57.69	57.69	0.00	Pump/Sock	0.00	18.00	3372.25
	02/18/09	3429.97	71.71	58.07	58.07	0.00	ND	ND	ND	3371.90
	02/25/09	3429.97	71.71	57.66	57.66	0.00	Sock	ND	ND	3372.31

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		Top of	Total	Donth to	Dopth to	DSH		Reco	very	Corrected
Well	Date	Casing	Denth	Product	Water	Thickness	Recovery	DCU	Matan	Groundwater
Number	Measured	Elevation	(ft)	(ft)	(ft)	(ft)	Method	PSH (aallone)	(gellene)	Elevation
		(ft)	5 5 See		(			(gaijons)	(galions)	(ft)
ą	03/04/09	3429.97	71.55	57.69	57.69	0.00	Sock	ND	ND	3372.28
	03/11/09	3429.97	71.55	57.73	57.73	0.00	Flip Sock/Pump	0.00	20.00	3372.24
	03/11/09	3429.97	71.55	58.27	58.27	0.00	ND	ND	ND	3371.70
	03/18/09	3429.97	71.55	57.65	57.65	0.00	Sock	ND	ND	3372.32
	03/25/09	3429.97	71.55	58.33	58.33	0.00			15.00	3372.30
	03/23/09	3429.97	71.55	57.63	57.63	0.00	Sock	ND	ND	3372 34
	04/08/09	3429.97	71.55	57.68	57.68	0.00	Sock	ND	ND	3372.29
14 1 A	04/15/09	3429.97	71.55	57.68	57.68	0.00	Sock	ND	ND	3372.29
, , , , , , ,	04/22/09	3429.97	71.55	57.68	57.68	0.00	Sock	ND	ND	3372.29
	04/29/09	3429.97	71.55	57.64	57.64	0.00	Sock	ND	ND	3372.33
	05/06/09	3429.97	71.55	57.64	57.64	0.00	Sock	ND	ND	3372.33
	05/06/09	3429.97	71.55	58.28	58.28	0.00	Sock	0.00	15.00	3371.69
	05/14/09	3429.97	71.55	57.66	57.70	0.00	SOCK			3372.21
	05/27/09	3429.97	71.55	57.00	57.00	0.00	Sock	0.00	28.00	3372.20
	05/27/09	3429.97	71.55	58.04	58.04	0.00	Sock	ND	ND	3371.93
	06/03/09	3429.97	71.55	57.70	57.70	0.00	Sock	ND	ND	3372.27
· · ·	06/11/09	3429.97	71.55	57.73	57.73	0.00	Sock	ND	ND	3372.24
· · · ·	06/17/09	3429.97	71.55	57.83	57.83	0.00	Sock	ND	ND	3372.14
	06/23/09	3429.97	71.55	57.80	57.80	0.00	Sock	0.00	10.00	3372.17
	07/01/09	3429.97	71.55	57.80	57.80	0.00	Sock	ND 0.00	ND	3372.17
	07/07/09	3429.97	71.00	57.79	51.79	0.00	SOCK	0.00	10.00	3372.18
	07/07/09	3429.97	71.75	57.84	57.84	0.00	Sock			3372 13
	07/22/09	3429.97	71.75	57.92	57.92	0.00	ND	0.00	10.00	3372.05
	07/22/09	3429.97	71.75	58.37	58.37	0.00	ND	ND	ND	3371.60
	07/29/09	3429.97	71.75	57.87	57.87	0.00	ND	ND	ND	3372.10
MW-2	08/05/09	3429.97	71.75	57.87	57.87	0.00	new sock	ND	ND	3372.10
· . •	08/12/09	3429.97	71.75	57.89	57.89	0.00	Pump	0.00	10.00	3372.08
	08/12/09	3429.97	71.75	61.54	61.54 57.00	0.00	ND	ND		3368.43
	08/27/09	3429.97	71.75	57.90	57.90	0.00				3372.07
$  _{\mathcal{L}_{1}} = \sum_{i=1}^{n}   _{\mathcal{L}_{2}}$	09/02/09	3429.97	71.75	57.92	57.92	0.00	ND	ND	ND	3372.05
	09/08/09	3429.97	71.75	57.93	57.93	0.00	Pump	Sheen	10.00	3372.04
•	09/08/09	3429.97	71.75	61.22	61.22	0.00	ND	ND	ND ·	3368.75
	09/16/09	3429.97	71.75	58.02	58.02	0.00	ND	ND	ND	3371.95
	09/23/09	3429.97	71.75	58.05	58.05	0.00	Pump	0.00	10.00	3371.92
	09/23/09	3429.97	71.75	57.05	57.05	0.00	- ND Pump		10.00	3371.92
	09/30/09	3429.97	71.75	59.95	59.95	0.00	ND	0.00 ND	10.00 ND	3370.02
	10/07/09	3429.97	71.75	57.99	57.99	0.00	Pump	0.00	10.00	3371.98
	10/07/09	3429.97	71.75	59.90	59.90	0.00	ND	ND	ND	3370.07
	10/14/09	3429.97	71.75	58.01	58.01	0.00	ND	ND	ND	3371.96
· .	10/21/09	3429.97	71.75	58.01	58.01	0.00	Hand bail	0.00	10.00	3371.96
	10/21/09	3429.97	71.75	58.45	58.45	0.00	ND Duma	ND	ND	3371.52
	10/29/09	3429.97	71.75	57.90	50 17	0.00		0.00	15.00	3371.99
	11/04/09	3429.97	71.75	57.95	57.95	0.00		ND		3372.02
	11/11/09	3429.97	71.75	58.02	58.02	0.00	Pump	0.00	15,00	3371.95
	11/11/09	3429.97	71.75	59.35	59.35	0.00	ND	ND	ND	3370.62
1 S. 1 S.	11/17/09	3429.97	71.75	58.01	58.01	0.00	Pump	0.00	10.00	3371.96
	11/17/09	3429.97	71.75	59.49	59.49	0.00	Flip sock	ND	ND	3370.48
	11/25/09	3429.97	71.75	57.97	57.97	0.00	Pump	0.00	15.00	3372.00
	11/25/09	3429.97	/1.75	59.33	59.33	0.00	ND	ND	ND	3370.64
• • •	12/02/09	3429.97	71 75	51.18	51.10 60.65	0.00		Sneen	15.00	3372.19
· .	12/02/09	5723.31	11.15	00.00	00.00	.00		טא		JJU9.32

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		Top of	Total	Denth to	Depth to	PSH		Reco	very	Corrected
Well	Date	Casing	Depth	Product	Water	Thickness	Recovery	Deu	Motor	Groundwater
Number	Measured	Elevation	(ft)	(ff)	(ft)	(ft)	Method	(aellone)	(gallone)	Elevation
		(ft)			*			(galions)	(yanons)	(ft)
	12/09/09	3429.97	71.75	57.98	57.98	0.00	Pump	0.00	15.00	<u>3371.9</u> 9
a to the second	12/09/09	3429.97	71.75	59.69	59.69	0.00	ND	ND	ND	3370.28
	12/16/09	3429.97	71.75	57.98	57.98	0.00	Pump	0.00	15.00	<u>3371.99</u>
	12/16/09	3429.97	71.75	60.24	60.24	0.00	ND	ND	ND	3369.73
WW-2	12/23/09	3429.97	/1./5	58.60	58.60	0.00	Pump	0.00	10.00	3371.37
an a	12/23/09	3429.97	71.75	59.20	59.20	0.00	ND Bump	Shoon	25.00	3370.71
	12/30/09	3429.97	71 75	60.27	60.27	0.00		ND	23.00 ND	3369.70
	12/00/00	0120.01	*	00.2.	00.21	0.00				
	01/02/09	3429.89	65.55	57.82	57.82	0.00	No Sock	ND	ND	3372.07
	01/07/09	3429.89	66.42	57.76	57.76	0.00	No Sock	ND	ND	3372.13
	01/15/09	3429.89	66.42	57.82	57.82	0.00	No Sock	ND	ND	3372.07
i	01/22/09	3429.89	66.42	57.81	57.81	0.00	No Sock	ND	ND	3372.08
	01/28/09	3429.89	66.42	57.82	57.82	0.00	No Sock	ND	ND	3372.07
	02/04/09	3429.89	66.30	57.78	57.78	0.00	No Sock	ND	ND	3372.11
	02/04/09	3429.89	66.30	57.76	57.76	0.00	No Sock	ND	ND	3372.13
	02/18/09	3429.89	66.30	57.79	57.79	0.00	No Sock	ND ND	ND	3372.10
	02/25/09	3429.09	66 35	57.79	57.79	0.00	No Sock			3372.10
· · ·	03/11/09	3429.89	66.35	57.72	57.72	0.00	No Sock		ND	3372.12
	03/18/09	3429.89	66.35	57.77	57.77	0.00	No Sock	ND	ND	3372.12
	03/25/09	3429.89	66.35	57.74	57.74	0.00	No Sock	ND	ND	3372.15
	04/01/09	3429.89	66.35	57.76	57.76	0.00	No Sock	ND	ND	3372.13
e de la composición d	04/08/09	3429.89	66.35	57.77	57.77	0.00	No Sock	ND	ND	3372.12
	04/15/09	3429.89	66.35	57.75	57.75	0.00	No Sock	ND	ND	3372.14
	04/22/09	3429.89	66.35	57.76	57.76	0.00	No Sock	ND	ND	3372.13
· ·	04/22/09	3429.89	66.35	65.15	65.15	0.00	Pump	0.00	5.00	3364.74
	04/29/09	3429.89	66.35	57.80	57.80	0.00	NO SOCK			3372.09
	05/14/09	3429.09	66 35	57.75	57.75	0.00	No Sock		ND	3372.14
	05/20/09	3429.89	66.35	57.83	57.83	0.00	No Sock		ND	3372.06
	05/27/09	3429.89	66.35	57.76	57.76	0.00	No Sock/Bailed Dry	0.00	7.00	3372.13
11114-3	05/27/09	3429.89	66.35	65.89	65.89	0.00	No Sock	ND	ND	3364.00
4 1	06/03/09	3429.89	66.35	57.86	57.86	0.00	No Sock	ND	ND	3372.03
• .	06/11/09	3429.89	66.35	57.84	57.84	0.00	No Sock	ND	ND	3372.05
	06/17/09	3429.89	66.35	57.86	57.86	0.00	No Sock	ND	ND	3372.03
• . • · · ·	05/23/09	3429.89	66.35	57.65	57.05	0.00	NO SOCK	ND	ND	3372.24
	07/07/09	3429.89	66 35	56.95	56.95	0.00	No Sock			3372.01
. :	07/15/09	3429.89	66.35	57.83	57.83	0.00	No Sock	ND	ND	3372.06
	07/22/09	3429.89	66.35	57.90	57.90	0.00	No Sock	ND	ND	3371.99
	07/29/09	3429.89	66.35	56.97	56.97	0.00	No Sock	ND	ND	3372.92
	08/05/09	3429.89	66.35	57.81	57.81	0.00	No Sock	ND	ND	3372.08
·	08/12/09	3429.89	66.35	57.90	57.90	0.00	ND	ND	ND	3371.99
	08/19/09	3429.89	66.35	57.91	57.91	0.00	<u>ND</u>	ND	ND	3371.98
	08/27/09	3429.89	66.35	57.92	57.92	0.00				33/1.9/
	09/02/09	3429.09	66 35	57.92	57.92	0.00	No Sock			3371.97
	09/16/09	3429.89	66.35	58.00	58.00	0.00	No Sock	ND	ND	3371.80
	09/23/09	3429.89	65.55	58.02	58.02	0.00	No Sock	ND	ND	3371 87
	09/23/09	3429.89	65.55	65.70	65.70	0.00	Pump/Bailed dry	0.00	5.00	3364.19
	09/30/09	3429.89	65.55	58.22	58.22	0.00	No Sock	ND	ND	3371.67
	10/07/09	3429.89	65.55	58.05	58.05	0.00	No Sock	ND	ND	3371.84
	10/14/09	3429.89	65.55	58.04	58.04	0.00	No Sock	ND	ND	3371.85
	10/21/09	3429.89	65.55	58.04	58.04	0.00	Hand bail/bailed dry	0.00	6.00	3371.85

		Top of	Total	Donth to	Donth to	рец		Reco	very	Corrected
Well	Date	Casing	Donth	Product	Wator	Thickness	Recovery	- DOLL		Groundwater
Number	Measured	Elevation	Deptil	FIGUUCE (#4)	(ff)	1111CK11655	Method	PSH	Water	Elevation
. <b>.</b> .		(ft) (	(n) <sub>(13</sub>	234 (U) 1 234 - 234		(14)		(gallons)	(gallons)	(ft) .,
	10/21/09	3429.89	65.55	66.67	66.67	0.00	No Sock	ND	ND	3363.22
	10/29/09	3429.89	65.55	58.15	58.15	0.00	Pump/Bailed dry	0.00	4.00	3371.74
· .	10/29/09	3429.89	65.55	62.22	62.22	0.00	No Sock	ND	ND	<u>3</u> 367.67
· •	11/04/09	3429.89	65.55	58.25	58.25	0.00	No Sock	ND	ND	3371.64
· · ·	11/11/09	3429.89	65.55	58.07	58.07	0.00	No Sock	ND	ND	3371.82
·	11/17/09	3429.89	65.55	58.08	58.08	0.00	No Sock/Hand bailed (dry)	0.00	3.50	3371.81
	11/17/09	3429.89	65.55	63.12	63.12	0.00	No Sock	ND	ND	3366.77
MW-3	11/25/09	3429.89	65.55	58.15	58.15	0.00	No Sock	ND	ND	3371.74
	12/02/09	3429.89	65.55	58.05	58.05	0.00	No Sock/Hand bailed (dry)	0.00	3.50	3371.84
	12/02/09	3429.89	65.55	63.91	63.91	0.00	No Sock	ND	ND	3365.98
	12/09/09	3429.89	65.55	58.21	58.21	0.00 .	No Sock	ND	ND	3371.68
1. A.	12/09/09	3429.89	65.55	58.21	58.21	0.00	No Sock		ND	33/1.68
	12/16/09	3429.89	65.55	58.09	58.09	0.00	NO SOCK			3371.80
	12/23/09	3429.89	00.00	58.05	58.05	0.00	NO SOCK			3371.84
	12/30/09	3429.69	05.55	50.00	50.00	0.00	INU SOCK			33/1.01
	01/02/09	3430.36	71.90	58 34	58.34	0.00	New Sock	ND	ND .	3372.02
1	01/07/09	3430.36	74 92	58 21	58.21	0.00	New Sock	ND	ND	3372.15
•	01/15/09	3430.36	74.92	58.21	58.21	0.00	New Sock	ND	ND	3372.15
•	01/22/09	3430.36	74.92	58.16	58.16	0.00	Flip Sock	ND	ND	3372.20
	01/28/09	3430.36	74.92	58.17	58.17	0.00	New Sock	ND	ND	3372.19
	02/04/09	3430.36	74.97	58.14	58.14	0.00	Sock	ND	ND	3372.22
	02/04/09	3430.36	74.97	58.21	58.21	0.00	Sock	ND	ND	3372.15
	02/18/09	3430.36	74,97	58.13	58.13	0.00	Sock	ND	ND	3372.23
	02/25/09	3430.36	74.97	58.14	58.14	0.00	Sock	ND	ND	3372.22
	03/04/09	3430.36	72.82	58.13	58.13	0.00	New Sock	ND	ND	3372.23
	03/11/09	3430.36	72.82	58.18	58.18	0.00	Flip Sock	ND	ND	3372.18
	03/18/09	3430.36	72.82	58.11	58.11	0.00	Sock	ND	ND	<u>3372.25</u>
	03/25/09	3430.36	72.82	58.10	58.10	0.00	New Sock	ND	ND	3372.26
	04/01/09	3430.36	72.82	58.11	58.11	0.00	Sock	ND	ND	3372.25
	04/08/09	3430.36	72.82	58.13	58.13	0.00	Sock	ND	ND	3372.23
	04/15/09	3430.36	72.82	58.10	58.16	0.00	SOCK		ND	3372.20
, · ·	04/22/09	3430.30	72.02	50.14	50.14	0.00	Sock			3372.22
· · ·	05/06/09	3430.30	72.82	58.10	58.10	0.00	Sock		ND	3372.20
MW-4	05/14/09	3430.36	72.82	58.18	58.13	0.00	Sock		ND	3372.23
	05/20/09	3430.36	72.82	58 13	58 13	0.00	Sock	ND	ND	3372.10
	05/27/09	3430.36	72.82	58.22	58.22	0.00	Sock	0.00	27.00	3372.14
-	05/27/09	3430.36	72.82	68.07	68.07	0.00	Sock	ND	ND	3362.29
1. A. A.	06/03/09	3430.36	72.82	58.26	58.26	0.00	Sock	ND	ND	3372.10
	06/11/09	3430.36	72.82	58.21	58.21	0.00	Sock	ND	ND	3372.15
	06/17/09	3430.36	72.82	58.40	58.40	0.00	Sock	ND	ND	3371.96
	06/23/09	3430.36	72.82	58.34	58.34	0.00	Sock	ND	ND	3372.02
1.	07/01/09	3430.36	72.82	58.36	58.36	0.00	Sock	ND	ND	3372.00
	07/07/09	3430.36	72.82	58.33	58.33	0.00	Sock	ND	ND	3372.03
· · ·	07/15/09	3430.36	12.82	58.44	58.44	0.00	SOCK			33/1.92
	07/22/09	3430.30	12.82	50.40	50.48	0.00	INEW SOCK			33/1.88
· · · ·	01/29/09	3430.30	72.02	50.31	50.31	0.00	SUCK			3371.99
	08/12/09	3430.30	72.02	58 22	58 22	0.00				3372.01
	08/10/00	3430.30	72.02	58 33	58 33	0.00				3372.03
	08/27/09	3430.30	72.02	58 38	58 38	0.00			ND,	3371 02
4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	09/02/09	3430.36	72.02	58 39	58.30	0.00			ND	3371.07
	09/09/09	3430.36	72.82	58.36	58.36	0.00	Elip Sock		ND	3372.00
	09/16/09	3430.36	72.82	58.45	58.45	0.00	ND	ND	ND	3371.91
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	5.1	Top of						Reco	very	Corrected
Well	Date	Casing	lotal	Depth to	Depth to	PSH	Recovery			Groundwater
Number	Measured	Elevation	Deptn	Product	vvater	Inickness	Method	PSH	Water	Elevation
* · · ·		(ft)	(π)	(π)	(π)	(π)	in a second s	(gallons)	(gallons)	(ft)
••	09/23/09	3430.36	72.82	58.42	58.42	0.00	ND	ND	ND	3371.94
1 - A	09/30/09	3430.36	71.90	58.40	58.40	0.00	ND	Sheen	13.00	3371.96
	09/30/09	3430.36	71.90	66.89	66.89	0.00	ND	ND	ND	3363.47
,	10/07/09	3430.36	71.90	58.47	58.47	0.00	ND	ND	10.00	3371.89
1	10/07/09	3430.36	71.90	66.79	66.79	0.00	ND	ND	ND	3363.57
, i	10/14/09	3430.36	71.90	58.47	58.47	0.00	ND	ND	10.00	3371.89
	10/14/09	3430.36	71.90	63.10	63.10	0.00	ND	ND		3367.26
· · ·	10/21/09	3430.36	71.90	58.58	58.58	0.00	Hand bail/new sock	0.25	9.75	3371.78
	10/21/09	3430.36	71.90	63.90 59.47	<u> </u>	0.00				3300.40
	11/04/00	3430.30	71.90	59.47	59.57	0.00		ND		2271.09
	11/11/09	3430.30	71.90	58.46	58.46	0.00		Sheen	10.00	3371.02
MW-4	11/11/09	3430.36	71.90	61 75	61 75	0.00	ND	ND	ND	3368.61
	11/17/09	3430.36	71.90	58.42	58.42	0.00	New Sock	ND	ND	3371.94
	11/25/09	3430.36	71.90	58.49	58.49	0.00	ND	ND	ND	3371.87
-	12/02/09	3430.36	71.90	58.61	58.61	0.00	ND	0.00	10.00	3371.75
	12/02/09	3430.36	71.90	62.51	62.51	0.00	ND	ND	ND	3367.85
	12/09/09	3430.36	71.90	58.81	58.81	0.00	ND	0.00	10.00	3371.55
	12/09/09	3430.36	71.90	62.11	62.11	0.00	ND	ND	ND	3368.25
· ·	12/16/09	3430.36	71.90	58.48	58.48	0.00	ND	ND	ND	3371.88
	12/23/09	3430.36	71.90	58.55	58.55	0.00	ND	ND	15.00	3371.81
	12/23/09	3430.36	71.90	62.63	62.63	0.00	ND ND	ND		3367.73
	12/30/09	3430.36	/1.90	58.69	58.69	0.00				33/1.67
	01/07/00	2429.02	72.25	ND	56 53		ND	NID	<u>, ND</u>	2272.40
	01/01/09	3420.93	72.35		56.61					3372.40
	02/18/09	3428.93	72.39	ND	56.58	ND	ND	ND	ND	3372.35
	02/18/09	3428.93	72.39	ND	56.58	ND	ND	ND	ND	3372.35
	03/04/09	3428.93	72.26	ND	56.57	ND	ND	ND	ND	3372.36
	04/08/09	3428.93	72.26	ND	56.49	ND	ND	ND	ND	3372.44
	05/06/09	3428.93	72.26	ND	56.50	ND	ND	ND	ND	3372.43
	05/20/09	3428.93	72.26	ND	56.55	ND	ND	ND	ND	3372.38
MW-5	06/03/09	3428.93	72.26	ND	56.59	ND	ND	ND	ND	3372.34
·	07/15/09	3428.93	72.26		56.82	ND		ND	ND	3372.11
	08/05/09	3428.93	72.26		56.75	ND		ND		3372.18
	08/27/09	3428.93	72.20		56.68					3372.17
· · · · ·	10/07/09	3428.93	72.20		56.89	ND	ND	ND		3372.23
	11/04/09	3428.93	72.20	ND	56.79	ND	ND	ND	ND	3372.14
	11/17/09	3428.93	72.20	ND	56.78	ND	ND	ND	ND	3372.15
	12/02/09	3428.93	72.20	ND	56.82	ND	ND	ND	ND	3372.11
· · · ·				1	на мар 1971 г. – 1972 1972 г. – 1972		стана) — g. с. 16 е. —			· · · · · · · · · · · · · · · · · · ·
	01/07/09	3429.24	76.50	ND	56.67	ND	ND	ND	ND	3372.57
	02/04/09	3429.24	76.51		56.73	ND				3372.51
	02/18/09	3429.24	76.40		56.71	ND	ND ND	ND ND		3372.53
	03/04/09	3429.24	76.64		56.69					3372.55
	04/00/09	3429.24	76.64		56 50					3372.65
	05/20/09	3420.24	76.64		56.63					3372.00
MW-6	06/03/09	3429.24	76.64		56 68	ND	ND			3372.56
"	07/15/09	3429.24	76.64	ND	56.87	ND	ND	ND	ND	3372.37
	08/05/09	3429.24	76.64	ND	56.84	ND	ND	ND	ND	3372.40
	08/27/09	3429.24	76.58	ND	56.89	ND	ND	ND	ND	3372.35
	09/02/09	3429.24	76.58	ND .	56.90	ND	ND	ND	ND	3372.34
	10/07/09	3429.24	76.58	ND	56.89	ND	ND	ND	ND	3372.35
	11/04/09	3429.24	76.58	ND	56.92	ND	ND	ND	ND	3372.32

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		Top of	Total	Donth to	Dopth to	DELL		Reco	very	Corrected
Well	Date	Casing	Denth	Product	Water	РЭП Thickness	Recovery	2011		Groundwater
Number	Measured	Elevation	(ft)	(fft)	(ff)	(ff)	Method	(Tollene)	Water	Elevation
.•		(ft)						(gallons)	(galions)	(ft)
	11/17/09	3429.24	76.58	ND	56.87	ND	ND	ND	ND	3372.37
MW-6	12/02/09	3429.24	76.58	ND	56.92	ND	ND	ND	ND	3372.32
· · · · ·	00/04/00	2400.0	71.00	Ne	E7 77	Nia	ND		ND	2272.02
•	02/04/09	3429.8	71.68		57.75		ND ND			3372.03
	02/18/09	3429.8	71.03		57.78		ND		ND	3372.00
· .	04/08/09	3429.8	71.71	ND	57.67	ND	ND	ND	ND	3372.13
· · ·	05/06/09	3429.8	71.71	ND	57.70	ND	ND	ND	ND	3372.10
· •	05/20/09	3429.8	71.71	ND	57.73	ND	ND	ND	ND	3372.07
4	06/03/09	3429.8	71.71	ND	57.75	ND	ND	ND	ND	3372.05
MW-7	07/15/09	3429.8	71.71	ND	57.95	ND	ND	ND	ND	3371.85
	08/05/09	3429.8	71.71	ND	57.91	ND	ND	ND	ND	3371.89
	08/27/09	3429.8	71.59	ND	57.96	ND	ND	ND	ND	3371.84
1. 1 A	09/02/09	3429.8	71.59	ND	57.94	ND	ND	ND	ND	3371.86
•	11/07/09	3429.8	71.59		57.90		ND			3371.84
s.	11/17/09	3429.8	71.59	ND	57.96					3371.82
· · · ·	12/02/09	3429.8	71.59	ND	57.97	ND	ND	ND	ND	3371.83
										0011.00
	01/02/09	3430.21	62.28	58.05	58.05	0.00	Sock	ND	ND	3372.16
	01/07/09	3430.21	64.42	57.99	57.99	0.00	Sock	NĎ	ND	3372.22
	01/15/09	3430.21	64.42	58.03	58.03	0.00	Sock	ND	ND	3372.18
	01/22/09	3430.21	64.42	57.99	57.99	0.00	New Sock	ND	ND	3372.22
	01/28/09	3430.21	64.42	57.98	57.98	0.00	Flip sock	ND	ND	3372.23
	02/04/09	3430.21	64.47	58.00	58.00	0.00	Sock	ND	ND	3372.21
	02/04/09	3430.21	64.47	57.02	57.0Z	0.00	SOCK	ND		3372.19
	02/16/09	3430.21	64 47	57.97	57.97	0.00	Sock	ND		3372.24
	03/04/09	3430.21	64 46	57.95	57.95	0.00	Elip sock	ND	ND	3372.26
	03/11/09	3430.21	64.46	58.02	58.02	0.00	Sock	ND	ND	3372.19
	03/18/09	3430.21	64.46	57.96	57.96	0.00	Pump	0.00	20.00	3372.25
	03/18/09	3430.21	64.46	59.29	59.29	0.00	ND	ND	ND	3370.92
	03/25/09	3430.21	64.46	57.96	57.96	0.00	Pump	0.00	20.00	3372.25
	03/25/09	3430.21	64.46	59.51	59.51	0.00	ND	ND	ND	3370.70
г.	04/01/09	3430.21	64.46	57.93	57.93	0.00	Pump	0.10	19.90	3372.28
1990 - A.	04/01/09	3430.21	64.40	57.03	57.03	0.00	Bump		12.00	3371.40
	04/08/09	3430.21	64 46	58.05	58.05	0.00	ND	0.00 ND	ND	3372.20
MW-8	04/15/09	3430.21	64.46	58.10	58.10	0.00	Pump	0.00	10.00	3372.10
	04/15/09	3430.21	64.46	58.13	58.13	0.00	ND	ND	ND	3372.08
	04/22/09	3430.21	64.46	57.98	57.98	0.00	Pump	0.00	20.00	3372.23
	04/22/09	3430.21	64.46	58.93	58.93	0.00	ND	ND	ND	3371.28
2	04/29/09	3430.21	64.46	57.95	57.95	0.00	Pump	0.00	20.00	3372.26
	04/29/09	3430.21	64.46	59.48	59.48	0.00	ND	ND	ND	3370.73
1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -	05/06/09	3430.21	64.46	57.96	57.90	0.00	ND		ND	3372.25
	05/14/09	3430.21	64.40	59.34	59.34	0.00	Pump		20.00	3372.20
	05/20/09	3430.21	64 46	57.91	57.91	0.00		0.00 ND	20.00 ND	3372 30
	05/27/09	3430.21	64.46	58.01	58.01	0.00	Pump	0,00	10.00	3372.20
	05/27/09	3430.21	64.46	58.99	58.99	0.00	ND	ND	ND	3371.22
5 A.A.	06/03/09	3430.21	64.46	58.01	58.01	0.00	ND	ND	ND	3372.20
	06/11/09	3430.21	64.46	58.09	58.09	0.00	ND	ND	ND	3372.12
	06/17/09	3430.21	64.46	58.38	58.38	0.00	ND	ND	ND	3371.83
	06/17/09	3430.21	64.46	59.30	59.30	0.00	Pump	0.00	10.00	3370.91
	06/23/09	3430.21	64.46	58.09	58.09	0.00	ND	ND	ND	3372.12
	07/01/09	3430.21	64.40	58.10	58.10	0.00				3372.11
	01101109	0400.21	04.40	00.07	00.07	0.00	IND	1ND	UVI	3312.14

		Top of	Total	Dooth to	Depth to	DCU	مراجع المحمد المراجع	Reco	very	Corrected
Well	Date	Casing	Donth	Product	Wator	Thickness	Recovery	- DOLL	Watan	Groundwater
Number	Measured	Elevation	(ff)	/ft)	/ft\	(ft)	Method	(nollene)	water	Elevation
		(ft)	. <b></b>	<b>N</b> . <b>N</b> . <b>N</b> .				(galions)	(gailons)	(ft)
	07/15/09	3430.21	64.46	58.14	58.14	0.00	Flip sock	0.00	10.00	3372.07
	07/22/09	3430.21	64.46	58.22	58.22	0.00	ND	ND	ND	3371.99
1.	07/29/09	3430.21	64.46	58.16	58.16	0.00	ND	ND	ND	3372.05
	08/05/09	3430.21	64.46	58.13	58.13	0.00	New Sock	ND	ND	3372.08
1	08/12/09	3430.21	64.46	58.12	58.12	0.00	ND	ND	ND	3372.09
•	08/19/09	3430.21	64.46	58.10	58.10	0.00	New Sock	ND	ND	3372.11
	08/27/09	3430.21	64.40	59.16	59.10	0.00				3372.03
	09/02/09	3430.21	64.40	58.13	58 17	0.00	New Sock	Sheen	10.00	3372.00
	09/09/09	3430.21	64 46	59.43	59.43	0.00	ND	ND	ND	3370.78
	09/16/09	3430.21	64.46	58.24	58.24	0.00	ND	ND	ND	3371.97
	09/23/09	3430.21	64.46	58.24	58.24	0.00	ND	0.00	10.00	3371.97
1	09/23/09	3430.21	64.46	59.71	59.71	0.00	ND	ND	ND	3370.50
	09/30/09	3430.21	64.46	58.21	58.21	0.00	ND	0.00	10.00	3372.00
	09/30/09	3430.21	64.46	59.58	59.58	0.00	ND	ND	ND	3370.63
	10/07/09	3430.21	64.46	58.24	58.24	0.00	ND	ND	ND	3371.97
	10/14/09	3430.21	64.46	58.23	58.23	0.00	Pump	0.00	10.00	3371.98
MW-8.	10/14/09	3430.21	64.46	59.69	59.69	0.00	ND	ND		3370.52
	10/21/09	3430.21	64.46	58.25	58.25	0.00	ND Dumo	ND Shoop	ND	3371.96
	10/29/09	3430.21	64.46	58.20	50.20	0.00		Sheen	15.00 ND	3371.95
	11/04/09	3430.21	64.40	58.79	58.79	0.00				3371.95
14 J. 14	11/11/09	3430.21	64 46	58.26	58.26	0.00	Pump	0.00	10.00	3371.95
	11/11/09	3430.21	64.46	59.54	59.54	0.00	ND	ND	ND	3370.67
	11/17/09	3430.21	64.46	58.23	58.24	0.01	Pump	Sheen	10.00	3371.98
	11/17/09	3430.21	64.46	58.23	58.24	0.01	ND	ND	ND	3371.98
	11/25/09	3430.21	64.46	58.23	58.24	0.01	ND	ND	ND	3371.98
	11/25/09	3430.21	64.46	59.26	59.26	0.00	ND	Sheen	10.00	3370.95
	12/02/09	3430.21	64.46	58.25	58.25	0.00	Pump	0.00	10.00	3371.96
	12/02/09	3430.21	64.46	59.62	59.62	0.00	ND	ND	ND	3370.59
•	12/09/09	3430.21	64.46	58.26	58.26	0.00	Pump	0.00	10.00	3371.95
· . ·	12/09/09	3430.21	64.46	58.95	58.95	0.00			ND	33/1.26
· · ·	12/10/09	3430.21	64.40	59.27	59.27	0.00				3371.94
4	12/20/09	3430.21	64.40	58.26	58.27	0.00		ND	ND	3371.94
	12/00/00	0400.21	01.10	00.20	00.21	0.01				0071.00
	01/02/09	3429.88	67.15	57.70	57.70	0.00	Flip Sock	0.5	19.5	3372.18
	01/02/09	3429.88	67.15	58.07	58.07	0.00	ND	ND	ND	3371.81
•	01/07/09	3429.88	68.84	57.74	57.74	0.00	New sock	0.5	9.5	3372.14
	01/07/09	3429.88	67.15	57.73	57.74	0.01		ND	ND	3372.15
	01/15/09	3429.88	67.15	57.73	57.73	0.00	Pump	0.5	9.5	3372.15
· · · ·	01/15/09	3429.88	67.15	58.01	58.01	0.00	ND Dump (Navy Cook	ND 0.05	ND	33/1.8/
· ·	01/22/09	3429.88	67.15	58.07	58.07	0.00		0.25	9.75 ND	3372.20
	01/28/09	3429.00	67.15	57.66	57.66	0.00	Pump		20	3372.22
	01/28/09	3429.88	67.15	58.88	58.88	0.00		ND	ND	3371.00
MW-9	02/04/09	3429.88	67.52	57.64	57.64	0.00	Pump/Flip sock	1	19	3372.24
	02/04/09	3429.88	67.52	57.84	57.84	0.00	ND	ND	ND	3372.04
	02/11/09	3429.88	67.52	57.66	57.66	0.00	Pump/ sock	0.25	19.75	3372.22
	02/11/09	3429.88	67.52	57.84	57.84	0.00	ND	ND	ND	3372.04
	02/18/09	3429.88	67.52	57.61	57.61	0.00	Pump/Flip sock	0.25	19.75	3372.27
	02/18/09	3429.88	67.52	58.56	58.56	0.00	ND	ND	ND	3371.32
	02/25/09	3429.88	67.52	57.60	57.60	0.00	Pump/Sock	0.25	19.75	3372.28
	02/25/09	3429.88	67.52	58.55	58.55	0.00	ND	ND	ND	3371.33
	03/04/09	3429.88	/1.61	57.61	57.61	0.00	Pump/Flip sock	0.25	14.75	3372.27
	03/04/09	3429.88	67.52	58.25	58.25	0.00		ND	ND	3371.63

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		Top of	Total	Denth to	Depth to	PSH.		Reco	very	Corrected
Well	Date	Casing	Depth	Product	Water	Thickness	Recovery	nôu	14/-1	Groundwater
Number	Measured	Elevation	Jepun (ft)	/ft)	(ff)	/ft)	Method	PSH	Water	Elevation
1. · ·		(ft)			(11)	(14)		(gallons)	(gallons)	(ft)
·	03/11/09	3429.88	67.52	57.67	57.67	0.00	New sock	0.25	19.75	3372.21
	03/11/09	3429.88	67.52	58.15	58.15	0.00	ND	ND	ND	3371.73
· • •	03/18/09	3429.88	67.52	57.59	57.59	0.00	Pump	0.25	14.75	3372.29
	03/18/09	3429.88	67.52	58.41	58.41	0.00	ND	ND	ND	3371.47
	03/25/09	3429.88	67.52	57.58	57.58	0.00	Flip Sock	ND	ND	3372.30
	04/01/09	3429.88	67.52	57.56	57.56	0.00	Sock/Pump	1.5	18.5	3372.32
·	04/01/09	3429.88	67.52	58.18	58.18	0.00	ND	ND	ND	3371.70
	04/08/09	3429.88	67.52	57.66	57.66	0.00	Sock/Pump	0.5	17.5	3372.22
. "	04/08/09	3429.88	67.52	59.39	59.39	0.00	ND	ND	ND	3370.49
· .	04/15/09	3429.88	67.52	57.62	57.62	0.00		0.5 ND	19.5 ND	3372.26
	04/15/09	3429.88	67.52	57.62	60.00	0.00	ND Sock/Pump		<u>ND</u>	3309.82
· · ·	04/22/09	3429.00	67.52	50.26	50.36	0.00				3370.52
	04/22/09	3429.00	67.52	57.58	57.58	0.00	Sock/Pump	0.1	14.9	3372 30
	04/29/09	3429.88	67.52	60.12	60.12	0.00		ND	ND	3369.76
2	05/06/09	3429.88	67.52	57 63	57.63	0.00	ND	ND	ND	3372 25
•	05/06/09	3429.88	67.52	59.87	59.87	0.00	Sock/Pump	0.25	14.75	3370.01
0	05/14/09	3429.88	67.52	59.81	59.81	0.00	ND	ND	ND	3370.07
	05/14/09	3429.88	67.52	60.47	60.47	0.00	Sock/Pump	0.5	14.5	3369.41
	05/20/09	3429.88	67.52	57.69	57.69	0.00	ND	ND	ND	3372.19
,	05/27/09	3429.88	67.52	57.80	57.80	0.00	ND	ND	ND	3372.08
	05/27/09	3429.88	67.52	58.20	58.20	0.00	Sock/Pump	0.5	29.5	3371.68
	06/03/09	3429.88	67.52	57.66	57.66	0.00	ND	ND	ND	3372.22
	06/03/09	3429.88	67.52	58.08	58.08	0.00	Sock/Pump	0.5	<u>15</u>	3371.80
•	06/11/09	3429.88	67.52	57.70	57.70	0.00	Sock/Pump	ND 0.5	14.5	2271 75
	06/17/09	3429.88	67 52	57.82	57.90	0.00	ND	0.5 ND	<u>14.5</u> ND	3372.05
	06/17/09	3429.88	67.52	58.18	58.18	0.00	Sock/Pump	0.75	14.25	3371 70
MW-9	06/23/09	3429.88	67.52	57.80	57.80	0.00	Sock/Pump	0.25	14.75	3372.08
	07/01/09	3429.88	67.52	57.76	57.80	0.04	Sock/Pump	ND	10	3372.11
	07/07/09	3429.88	67.52	57.74	57.76	0.02	Sock/Pump	0.5	14.5	3372.14
	07/07/09	3429.88	67.52	58.84	58.84	0.00	<u>ND</u>	ND	ND	3371.04
	07/15/09	3429.88	67.52	57.79	57.90	0.11	Flip sock/Pump	0.25	9.75	3372.07
	07/15/09	3429.88	67.52	59.95	59.95	0.00	ND	ND	ND	3369.93
	07/22/09	3429.88	67.52	57.98	58.00	0.02	Pump/New Sock	0.5	9.5	3371.90
•.	07/22/09	3429.88	67.52	59.27	59.27	0.00	Pump			3370.01
1, -	07/29/09	3429.88	67.52	59.00	59.88	0.00	ND	ND	<u>9.5</u>	3360.80
	08/05/09	3429.88	67.52	57.87	57.89	0.02	Pump/Flip sock	0.25	9.75	3372.01
	08/05/09	3429.88	67.52	59.80	59.80	0.00	ND	ND	ND	3370.08
•	08/12/09	3429.88	67.52	57.85	57.85	0.00	ND	ND	ND	3372.03
	08/19/09	3429.88	67.52	57.81	57.83	0.02	ND	0.25	9.75	3372.07
	08/19/09	3429.88	67.52	58.99	58.99	0.00	ND	ND	ND	3370.89
· . · ·	08/27/09	3429.88	67.52	57.90	57.90	0.00	ND	Sheen	15	3371.98
	08/27/09	3429.88	67.52	57.95	57.95	0.00		ND 0.25	ND 14.75	3371.93
	09/02/09	3429.88	67.52	57.93	57.93	0.00		0.25 ND	14.75 ND	3371.95
	09/02/09	3429.00	67.52	57 01	57 01	0.00		ND		3371 07
	09/16/09	3429.88	67.52	57.98	58.00	0.00		ND		3371.97
	09/16/09	3429.88	67.52	59.69	59.69	0.00	ND	ND	ND	3370 19
	09/23/09	3429.88	67.52	58.03	58.05	0.02	new sock/Pump	1	19	3371.85
	09/23/09	3429.88	67.52	61.57	61.57	0.00	ND	ND	ND	3368.31
	09/30/09	3429.88	67.52	57.92	57.92	0.00	Pump	0.25	9.75	3371.96
	09/30/09	3429.88	67.52	59.86	59.86	0.00	ND	ND	ND	3370.02
	10/07/09	3429.88	67.52	57.94	57.94	0.00	Pump	0.25	9.75	3371.94
	10/07/09	3429.88	67,52	60.02	60.02	0.00	ND	ND	ND	3369.86

,		Top of	Total	Depth to	Depth to	PSH		Reco	very	Corrected
Well	Date	Casing	Depth	Product	Water	Thickness	Recovery	PSH	Water	Groundwater
Number	Measured	Elevation	(ft)	(ft)	(ft)	(ft)	Method	(gallons)	(gallons)	Elevation
		(ft). : - '						(94.101.0)	(guilerio)	(π)
	10/14/09	3429.88	67.52	57.95	57.95	0.00	Pump	1	9	3371.93
	10/14/09	3429.88	67.52	61.05	61.05	0.00	ND		ND	3368.83
• •	10/21/09	3429.88	67.52	57.90	57.90	0.00		0.5	9.5 ND	3371.98
	10/21/09	3429.88	67.52	57.00	57.00	0.00	Pump	1.5	20	3371.80
	10/29/09	3429.00	67.52	58.82	58.82	0.00	ND	ND	ND	3371.06
	11/04/09	3429.88	67.52	57.91	57.91	0.00	ND	ND	ND	3371.97
	11/11/09	3429.88	67.52	57.97	58.00	0.03	Pump	1	9	3371.91
	11/11/09	3429.88	67.52	59.25	59.25	0.00	ND	ND	ND	3370.63
e e di se di se	11/17/09	3429.88	67.52	57.96	57.96	0.00	Pump	1	9	3371.92
	11/17/09	3429.88	67.52	59.63	59.63	0.00	ND	ND	ND	3370.25
MW-9	11/25/09	3429.88	67.52	57.92	57.94	0.02	Pump	1	9	3371.96
	11/25/09	3429.88	67.52	59.35	59.35	0.00	ND	ND	ND	3370.53
· '	12/02/09	3429.88	67.52	57.91	57.93	0.02				3371.97
-1	12/02/09	3429.00	67.52	57.98	58.00	0.08	Pump	1	14	3371.90
	12/09/09	3429.88	67.52	60.57	60.57	0.02		ND	ND	3369.31
	12/15/09	3429.88	67.52	57.93	57.93	0.00	Pump	1	14	3371.95
	12/15/09	3429.88	67.52	60.83	60.83	0.00	ND	ND	ND	3369.05
	12/23/09	3429.88	67.52	57.97	57.97	0.00	Pump	0.75	9.25	3371.91
	12/23/09	3429.88	67.52	59.43	59.43	0.00	ND	ND	ND	3370.45
	12/30/09	3429.88	67.52	58.00	58.00	0.00	Pump	0.75	9.25	3371.88
	12/30/09	3429.88	67.52	59.83	59.83	0.00	ND	ND	<u>ND</u>	3370.05
	04/00/00	0.400.05	50.00	50.45	50.45	0.00	<u> </u>	ND		2272.20
	01/02/09	3430.65	59.90	58.45	58.45	0.00	Sock			3372.20
	01/15/09	3430.05	63 38	58.42	58.42	0.00	Sock		ND	3372.24
	01/22/09	3430.65	63.38	58.34	58.34	0.00	Flip Sock	ND	ND	3372.31
	02/04/09	3430.65	63.21	58.31	58.31	0.00	Sock	ND	ND	3372.34
	02/11/09	3430.65	63.21	58.38	58.38	0.00	Sock	ND	ND	3372.27
	02/18/09	3430.65	63.21	58.33	58.33	0.00	Sock	ND	ND	3372.32
	02/25/09	3430.65	63.21	58.30	58.30	0.00	New sock	ND	ND	3372.35
	03/04/09	3430.65	63.14	58.30	58.30	0.00	Sock	ND	ND	3372.35
	03/11/09	3430.65	63.14	58.34	58.34	0.00	Sock	ND	ND	3372.31
	03/18/09	3430.65	63.14	58.28	58.28	0.00	Sock			3372.37
	03/25/09	3430.05	63.14	58.30	58 30	0.00	Sock			3372.32
	04/08/09	3430.65	63 14	57.31	57 31	0.00	Sock	ND	ND	3373.34
	04/15/09	3430.65	63.14	58.89	58.89	0.00	Sock	ND	ND	3371.76
	04/22/09	3430.65	63.14	58.30	58.30	0.00	Sock	ND	ND	3372.35
MW-10	05/06/09	3430.65	63.14	58.29	58.29	0.00	Sock	ND	ND	3372.36
	05/14/09	3430.65	63.14	58.38	58.38	0.00	Sock	ND	ND	3372.27
	05/20/09	3430.65	63.14	58.29	58.29	0.00	Sock	ND		3372.36
	05/27/09	3430.05	63.14	58.31	58.31	0.00	Sock			3372.20
	06/11/09	3430.65	63 14	58.35	58.35	0.00	Sock	ND	ND	3372.30
	06/17/09	3430.65	63.14	58.43	58.43	0.00	Sock	ND	ND	3372.22
:	06/23/09	3430.65	63.14	58.43	58.43	0.00	Sock	ND	ND	3372.22
	07/01/09	3430.65	63.14	58.44	58.44	0.00	Sock	ND	ND	3372.21
1	07/07/09	3430.65	63.14	58.42	58.42	0.00	Sock	ND	ND	3372.23
· · · · · ·	07/15/09	3430.65	63.14	58.46	58.46	0.00	Sock	ND	ND	3372.19
	07/22/09	3430.65	63.14	58.44	58.44	0.00	Sock	ND	ND	3372.21
	07/29/09	3430.65	63.14	58.54	58.54	0.00	Sock	ND	ND	3372.11
	08/05/09	3430.65	63.14	58.53	58.53	0.00	Sock			3372.12
	08/12/09	3430.05	63.14	58.03	59.03	0.00	SOCK			33/2.12
	08/27/00	3430.03	63.14	58.54	58.549	0.00	Sock			3372.10
L	1 00/21/09	1 3430.03	05.14	00.04	1 00.04	0.00				1 3372.11

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### TABLE 12009 GROUNDWATER ELEVATION DATAPlains Pipeline, L.P.SRS #2002-10235Hugh Gathering

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Lea County, New Mexico

		Top of	Total	Donth to	Depth to	DSH		Reco	very	Corrected
Well	Date	Casing	Donth	Product	Water	' Thickness	Recovery	DOLL		Groundwater
Number	Measured	Elevation	/ff)	(ft)	(fft)	(ff)	Method	· PSH	water	Elevation
		(ft)	4 . <b>VV</b> 	(14)		(14)		(galions)	(galions)	(ft)
	09/02/09	3430.65	63.14	58.51	58.51	0.00	Sock	ND	ND	3372.14
· ·	09/09/09	3430.65	63.14	58.54	58.54	0.00	Sock	ND	ND	3372.11
	09/16/09	3430.65	63.14	58.61	58.61	0.00	Sock	ND	ND	3372.04
	09/23/09	3430.65	63.14	58.61	58.61	0.00	Sock	ND	ND	3372.04
1.1	09/30/09	3430.65	<u>    59.90    </u>	58.60	58.60	0.00	Sock	ND	ND	3372.05
- 4 <sup>-</sup>	10/07/09	3430.65	<u>    59.90    </u>	58.62	58.62	0.00	Sock		ND	3372.03
	10/14/09	3430.65	59.90	58.63	58.63	0.00	SOCK			3372.02
	10/21/09	3430.05	<u> </u>	58.60	58.60	0.00	Sock			3372.05
	11/04/09	3430.05	59.90	58.60	58.63	0.00	Sock			3372.05
MW-10	11/11/09	3430.65	59.90	58.65	58.65	0.00	Sock	ND	ND	3372.00
	11/17/09	3430.65	59.90	58.56	58.56	0.00	Flip Sock	ND	ND	3372.09
	11/25/09	3430.65	59.90	58.62	58.62	0.00	Sock	ND	ND	3372.03
с. н. 	12/02/09	3430.65	59.90	58.59	58.59	0.00	Sock	ND	ND	3372.06
	12/09/09	3430.65	59.90	58.69	58.69	0.00	Sock	ND	ND	3371.96
	12/16/09	3430.65	59.90	58.62	58.62	0.00	Sock	ND	ND	3372.03
		3430.65	59.90	58.25	58.25	0.00	Sock	ND	ND	3372.40
1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	12/30/09	3430.65		58.64	58.64	0.00	Pump	Sheen	5.00	3372.01
	12/30/09	3430.65	59.90	59.77	59.77	0.00	ND	ND	ND	3370.88
	04/07/00	2420.04	70.05	ND	<b>E0 E2</b>	ND	ND		ND	2272.41
1.1.1	01/07/09	3430.94	72.65		59.55					2272.25
	02/04/09	3430.94	73.68		58.59					3372.33
	03/04/09	3430.94	73.45	ND	58.57	ND	ND	ND	ND	3372.37
$   _{\mathcal{H}_{2}} =    _{\mathcal{H}_{2}}$	04/08/09	3430.94	73.45	ND	58.56	ND	ND	ND	ND	3372.38
	05/06/09	3430.94	73.45	ND	58.52	ND	ND	ND	ND	3372.42
	05/20/09	3430.94	73.45	ND	58.52	ND	ND	ND	ND	3372.42
<i>1</i> 4	06/03/09	3430.94	73.45	ND	58.55	ND	ND	ND	ND	3372.39
MW-11 -	07/15/09	3430.94	73.45	ND	58.73	ND	ND	ND	ND	3372.21
,	08/05/09	3430.94	73.45	ND	58.28	ND		ND	ND	3372.66
	08/27/09	3430.94			58.75	ND			ND	3372.19
	10/02/09	3430.94	74.81		58.74					3372.20
· .	11/04/09	3430.94	74.01		58.76	ND		ND		3372.20
1. 1. A.	11/17/09	3430.94	74.81		58.78	ND		ND	ND	3372.16
·	12/02/09	3430.94	74.81	ND	58.76	ND	ND	ND	ND	3372.18
					4		and the states of the			
	01/07/09	3426.47	64.34	ND	54.64	ND	ND	ND	ND	3371.83
	02/04/09	3426.47	64.30	ND	54.63	ND	ND	ND	ND	3371.84
	02/18/09	3426.47	64.32	ND	54.61	ND	ND	ND	ND	3371.86
	03/04/09	3426.47	64.33	ND	54.62	ND	ND ND	ND	ND	3371.85
	04/08/09	3426.47	64.33		54.51					3371.96
	05/20/09	3426.47	64 33		54.52				ND	3371.95
	06/03/09	3426.47	64.33	ND	54.61	ND	ND	ND	ND	3371.86
MW-12	07/15/09	3426.47	64.33	ND	54.75	ND	ND	ND	ND	3371.72
	08/05/09	3426.47	64.33	ND	54.70	ND	ND	ND	ND	3371.77
	08/27/09	3426.47	64.18	ND	54.75	ND	ND	ND	ND	3371.72
	09/02/09	3426.47	64.18	ND	54.79	ND	ND	ND	ND	3371.68
с.	10/07/09	3426.47	64.18	ND	54.78	ND	ND	ND	ND	3371.69
		3426.47	64.18	ND	54.80	ND	ND	ND	ND	3371.67
	11/17/09	3426.47	64.18	ND	54.81	ND	<u>ND</u>		ND	3371.66
	12/02/09	3426.47	64.18	ND	54.80	ND	ND	ND	ND	3371.67
	01/07/00	2424 42	74.00		50.24		ND	ND		2274.00
MW-13	02/04/09	3431.13	74.00		59.31					3371.82
	02/18/09	3431.13	74.60	ND	59.26	ND	ND	ND	ND	3371.87

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		Top of	Total	-Denth to	Depth to	PSH		Reco	very	Corrected
Well Number	Date Measured	Casing Elevation (ft)	Depth (ft)	Product (ft)	Water (ft)	Thickness (ft)	Recovery Method	PSH (gallons)	Water (gallons)	Groundwater Elevation (ft)
	03/04/09	3431.13	74.71	ND	59.32	ND	ND	ND	ND	3371.81
	04/08/09	3431.13	74.71	ND	59.02	ND	ND	ND	ND	3372.11
4	05/06/09	3431.13	74,71	ND	59.20	ND	ND	ND	ND	3371.93
	05/20/09	3431.13	74.71	ND	59.25	ND	ND	ND	ND	3371.88
	06/03/09	3431.13	74.71	ND	59.28	ND	ND	ND	ND	3371.85
	07/15/09	3431.13	74.71	ND	59.39	ND	ND	ND	ND	3371.74
MW.13	08/05/09	3431.13	74.71	ND	59.40	ND	ND	ND	ND	3371.73
	08/27/09	3431.13	74.60	ND	59.36	ND	ND	ND	ND	3371.77
1.12	09/02/09	3431.13	74.60	ND	59.39	ND	ND	ND	ND	3371.74
$(-1)^{-1} = (-1)^{-1}$	10/07/09	3431.13	74.60	ND	59.41	ND	ND	ND	ND	3371.72
- 1. 1	11/04/09	3431.13	74.60	ND	59.45	ND	ND	ND	ND	3371.68
	11/17/09	3431.13	74.60	ND	59.44	ND	ND	ND	ND	3371.69
	12/02/09	3431.13	74.60	ND	59.43	ND	ND	ND	ND	3371.70
1. A.										

ND: Not Applicable

NG: Not Gauged

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#### TABLE 2

Historical Groundwater Elevation Data

(Available on CD attached to back cover)

![](_page_55_Picture_5.jpeg)

#### TABLE 3

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**GROUNDWATER SAMPLE ANALYTICAL RESULTS** 

Plains Pipeline, L.P. SRS No. 2002-10235 Hugh Gathering

Lea County, New Mexico

		1. S.		SW 846-	8021B	
Well	Sample		Benzene	Toluene	Ethylbenzene	<b>Total Xylenes</b>
Number	Date	Sample ID	(mg/L)	(mg/L)	(mg/L)	(mg/L)
	ه أم الم أم الم الم الم الم أم الم			NMOCD Reme	diation Criteria	·
			0.010	0.750	0.750	0.620
MW 5	03/01/07	T16511-1	0.172 <sup>ª</sup>	0.0062	0.1380	0.0900
MW 5	06/01/07	T17665-2	0.1210	0.0101	0.1030	0.0608
MW 5	09/06/07	T18805-1	0.0477	0.0113	0.0523	0.0335
MW 5	11/13/07	T19776-1	0.0775	0.0285	0.0906	0.0531
MW 5	02/26/08	T21030-1	0.00097 J	<0.00023	0.0031	<0.00055
MW 5	05/29/08	T22388-5	0.05730	0.0134	0.0804	0.0625
MW 5	08/18/08	T23521-1	0.01010	0.0039	0.0349	0.0194
MW 5	11/20/08	180223	0.0290	0.00670	0.0827	0.0307
MW 5	02/18/09	187826	0.0256	0.00220	0.1090	0.0403
MW 5	05/20/09	9052219	0.0131	0.00150	0.0589	0.0243
MW 5	08/27/09	9083115	0.0073	<0.000188	0.0452	0.01360
MW 5	11/17/09	215407	0.00600	0.000500 J	0.0408	0.0157
		1		6		· ·
MW 6	03/01/07	T16511-2	< 0.00035	<0.00020	< 0.00033	< 0.00036
MW 6	06/01/07	T17665-1	<0.00021	<0.00023	<0.00035	<0.00055
MW 6	09/06/07	T18805-2	<0.00021	<0.00023	<0.00035	<0.00055
MW 6	11/13/07	T19776-2	<0.0005	<0.0005	<0.0005	<0.001
MW 6	02/26/08	T21030-2	<0.00021	<0.00023	<0.00035	<0.00055
MW 6	05/29/08	122388-6	<0.00021	<0.00023	<0.00035	<0.00055
MW 6	08/18/08	123521-2	<0.0005	<0.0005	<0.0005	<0.001
MW 6	11/20/08	180224	<0.00100	<0.00100	<0.00100	<0.00100
MW 6	02/18/09	187827	<0.00100	<0.00100	0.0019	<0.00100
MW 6	05/20/09	9052219	<0.000149	<0.000188	<0.000178	<0.000163
MW 6	08/27/09	9083115	<0.000149	<0.000188	<0.000178	<0.000163
		215408	<0.000133	[<0.000281		<u>  &lt;0.000960</u>
ANAL 7	02/01/07	T16511 2	<0.00025		<0.00022	<0.00026
	05/01/07	T17665 2	<0.00035	<0.00020	<0.00035	<0.00055
	00/01/07	T19905 3	<0.00021	<0.00023	<0.00035	<0.00055
	11/13/07	T10776-3	<0.00021	<0.00023	<0.00055	<0.00033
	02/26/08	T21030-3		<0.0003	<0.0003	<0.001
MW 7	05/29/08	T22388-7	<0.00021	<0.00023	<0.00035	<0.00055
MW 7	08/18/08	T23521-3	<0.0005	<0.0005	<0.0005	<0.00000
MW 7	11/20/08	180225	<0.00100	<0.00100	<0.00100	<0.00100
MW 7	02/18/09	187828	<0.00100	< 0.00100	< 0.00100	< 0.00100
MW 7	05/20/09	9052219	< 0.000149	<0.000188	<0.000178	< 0.000163
MW 7	08/27/09	9083115	0.0008 J	< 0.000188	< 0.000178	0.0014
MW 7	11/17/09	215409	0.0031	<0.000281	< 0.000535	0.0039
1		5 <sup>4</sup> 1, <sup>16</sup>	4			
MW 11	03/01/07	T16511-4	<0.00035	<0.00020	< 0.00033	< 0.00036
MW 11	06/01/07	T17665-4	<0.00021	<0.00023	<0.00035	<0.00055
MW 11	09/06/07	T18805-4	<0.00021	<0.00023	< 0.00035	<0.00055
MW 11	11/13/07	T19776-4	<0.0005	<0.0005	<0.0005	<0.001
MW 11	02/26/08	T21030-4	<0.00021	<0.00023	< 0.00035	<0.00055
MW 11	05/29/08	T22388-11	<0.00021	0.0003 J	<0.00035	< 0.00055
MW 11	08/18/08	T23521-4	<0.0005	<0.0005	<0.0005	<0.001
MW 11	11/20/08	180226	<0.00100	<0.00100	<0.00100	<0.00100
MW 11	02/18/09	187829	<0.00100	<0.00100	<0.00100	<0.00100
MW 11	05/20/09	9052219	<0.000149	<0.000188	<0.000178	< 0.000163
MW 11	08/27/09	9083115	<0.000149	<0.000188	< 0.000178	< 0.000163
MW 11	11/17/09	215410	< 0.000133	<0.000281	< 0.000535	< 0.000960

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### TABLE 3 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Plains Pipeline, L.P. SRS No. 2002-10235 Hugh Gathering Lea County, New Mexico

				SW 846-	8021B	
Well	Sample		Benzene	Toluene	Ethylbenzene	<b>Total Xylenes</b>
Number	Date	Sample ID	(mg/L)	(mg/L)	(mg/L)	(mg/L)
a mila		e di terre di j		NMOCD Reme	diation Criteria	
			0.010	0.750	0.750	0.620
•			ta da ser esta de la composición de la c			1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
MW 12	03/01/07	T16511-5	<0.00035	<0.00020	<0.00033	<0.00036
MW 12	06/01/07	T17665-5	<0.00021	<0.00023	<0.00035	<0.00055
MW 12	09/06/07	T18805-5	<0.00021	<0.00023	<0.00035	<0.00055
MW 12	11/13/07	T19776-5	<0.0005	< 0.0005	<0.0005	<0.001
MW 12	02/26/08	T21030-5	<0.00021	<0.00023	<0.00035	<0.00055
MW 12	05/29/08	T22388-12	<0.00021	<0.00023	<0.00035	<0.00055
MW 12	08/18/08	T23521-5	<0.0005	< 0.0005	<0.0005	<0.001
MW 12	11/20/08	180227	<0.00100	<0.00100	<0.00100	<0.00100
MW 12	02/18/09	187830	<0.00100	<0.00100	<0.00100	<0.00100
MW 12	05/20/09	9052219	0.0171	<0.000188	<0.000178	0.0019
MW 12	08/27/09	9083115	0.0281	<0.00094	<0.00089	<0.000815
MW 12	11/17/09	215411	0.0359	<0.000281	<0.000535	<0.000960
					and the state of the	
MW 13	11/20/08	180228	1.51	<0.0100	<0.0100	0.126
MW 13	02/18/09	187831	0.923	<0.00100	<0.00100	0.0456
MW 13	05/20/09	9052219	1.56	<0.00562	<0.0107	0.1190
MW 13	08/27/09	9083115	2.73	<0.0166	<0.0115	0.1770
MW 13	11/17/09	215412	2.52	< 0.00664	<0.00460	0.112
	a a start a			••••	çaran, bunkur	

<sup>a</sup> Result is from Run #2.

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<sup>b</sup> Laboratory control spike recovery outside control limits. All reportable hits are considered to be an Concentration in **Bold** = above NMOCD Criteria

### TABLE 4 BTEX GROUNDWATER SAMPLE ANALYTICAL RESULTS for Wells with PSH Plains Pipeline, L.P. SRS No. 2002-10235

Hugh Gathering

Lea County, New Mexico

				SW 846-8	3021B	
Well Number	Sample Date	Sample ID	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/Ľ)	Total Xylenes (mg/L)
			N	MOCD Reme	diation Criteria	
	*		0.010	0.750	0.750	0.620
MW-1	25-May-08	T22388-1	10.90	6.34	1.66	3.78
MW-1	28-May-09	197472	5.34	3.52	1.07	2.32
MW-2	25-May-08	T22388-2	2.18	0.0439 J	0.462	0.527
MW-2	27-May-09	197473	1.53	<0.0166 U	0.237	0.21
						· · · · · · · · · · · · · · · · · · ·
MW-3	25-May-08	T22388-3	5.48	0.215	0.0347 J	0.328
MW-3	28-May-09	197474	0.428	<0.00332 U	0.0071 J	0.0257
	an Kest of	Roman Carlos Marco Articidade Status	في الجامع ال			
MW-4	25-May-08	T22388-4	0.947	0.0343	0.311	0.527
MW-4	27-May-09	197475	0.551	<0.0166 U	0.261	0.324
· · ·	and the second secon Second second					
MW-8	25-May-08	T22388-8	6.12	0.33	0.96	1.59
MW-8	27-May-09	197476	4.270	0.0745	0.642	0.546
		والمرجع الحرك الت	i i treti i			· · · · · · · · · · · · · · · · · · ·
MW-9	25-May-08	T22388-9	3.48	2.04	0.72	1.40
MW-9	27-May-09	197477	0.479	0.209	0.115	0.232
			20 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -		N	
MW-10	25-May-08	T22388-10	0.40	0.0341	0.0892	0.0932
MW-10	27-May-09	197478	0.361	0.0104	0.0827	0.0948
			ار الحقي التي التي التي الم المراجعة المراجعة التي التي التي التي التي التي التي التي		is the territor	

<sup>a</sup> Result is from Run #2.

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Concentration in **Bold** = above NMOCD Criteria

### TABLE 5 GROUNDWATER ANALYTICAL RESULTS for POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) Plains Pipeline, L.P. SRS No. 2002-10235 Hugh Gathering Lea County, New Mexico

Monitoring Well	Sample Date	Lab ID	analyhtqanacA	Acenapthene	Flourene	Phenanthrene	Апŧħracene	Fluoranthene	Ругепе	Benzo[a]-anthracene	anasynd	Benzo[],k]- Benzo[],k]-	Benzo[a]-pyrene	-[bɔ-ɛ,2,t]onebnl	Dibenzofuran	Dibenz[a,h]-anthracene	Benzo[g,h.i]-perylene	ənəlsritiqsniyrisM-r	ənəlsritingsriyriəM-S	ənəlsritqsN	zənəlsritiqsN lstoT	ТРН-GRO (С6-С10)	(820-010) Hal
NMOCI	<b>)</b> Target Level	30 µg/L	(hg/L)	(hg/L)	(hg/L)	(hg/L)	(hg/L)	(1/6rl)	1) (h	<u>д/L) (µ</u>	6/L) (µ(	3/L) (J/E	1/6rl) (1/t	L) (µg/l	.) (µg/L)	(hg/L)	(hg/L)	(hg/L)	(hg/L)	(hg/L)	(hg/L) (n	ig/L) (mg	ig/L)
Other regulat	ory limits (Tap	Water)*		365	243	1100	1830	1460	183 (	.91 2	9.1 0.	91 9	1.1 0.7*	++ 0.91		0.091					30**	_	
MW-1	2-Mar-06	AN																					Τ
1-WM	75-Mav-08	NA T22388-1	<81	<73	<100	862	<89	<81	<u>57 T &lt;</u>	71 1	65 1 <	74 <	30   <7	8 <12		<63	<120		3830	2.920	6.750	85.3 157	ر <sup>رع)</sup> ا
MW-1	28-May-09	9060112	<0.353	<0.654	5.72	9.45	<0.404	2.76 2	.43 2	. <b>13</b> 3.	12 <0.	315 <0.	382 <0.2	53 <0.4	00 6.39	<0.275	9 <0.314	63	63.7	59.2	186	48.3 129	<sub>(م)</sub> 06
																				Ŀ			
MW-2	2-Mar-06	AN																:					
	75 May 08	100 T77788 7	3 11	14 6	• • • •		0 1 1	4 6	\ + •	\     	\ • • •	1	1	<u>د</u> ا		× 1 2	<0 F		10 1	24 5	43.6	1161 8	8 43
MW-2	27-Mav-09	9060112	<0.1.0	<0.130 40.130	0.713	2.15 <	0.0803 <	0.12	0456 <0.	0301 <0.(	).0> 806C	)627 <0.0	)761 <0.05	503 <0.07	97 2.11	<0.055;	5 <0.0624	23.6	21	25.4	46.4 7	74 J <0.8	876
			122 122	222122	2		22222		2 22 2														
MW-3	2-Mar-06	NA																					
MW-3	1-Jun-07	NA																					
MW-3	25-May-08	T22388-3	<1.6	<1.5	<2.1	<1.6	<1.8	<1.6 <	:1.1 <	1.4 <	1.3	1.5	1.6 <1.	6 <2.	+	<1.3	<2.5		7.5	17.3	24.8	18.2 0.	.392
MW-3	28-May-09	9060112	<0.0710	<0.131 <	<0.0527 <	:0.0511	:0.0811 <	<u>).0883 &lt;0</u>	.0460 <0.	0304 <0.1	0917 <0.1	<u> 0633 &lt;0.(</u>	<u> 0.05 &lt;0.05</u>	508 <0.05	05 0.19	/ <0.056	0 <0.0631	<0.0693	<0.0471	<0.0676 <	0.004711.	73 J <0.8	876
																		,					
MW-4	2-Mar-06	AN																					
MW-4	1-Jun-U/	NA T77760 4				-	- - -	-					· · ·			C 11	2 (1		20 6	3.05	103	7 6.2	<b>75 1</b>
MW -4	22-May-00	122388-4	<pre>&lt;1.6</pre>	<1.5	<2.1	4.1 J	× 1 ×	- 1.0 - 1.0	× •	4. 	v. - -	v   4			4 2 2 1 2	0.1 V	×2.0	(C)	0.62	0.20	170 7 E	20.1	0
MW -4	21-Way-09	3000.17	<0.352	<1100.0>	<0.261	12	<0.402	0.438	1-228		N> +04	314 0	381 \$0.2	2.02 20.3	99 9.33	12.05	0 50.312	<u>1 103 1</u>	+-20	03.0	1.0.1		<del>1</del>
MW-5	2-Mar-06	177440	<0.05	<0.05	0.060	<0.05	<0.05	÷0.05 <	0.05 <(	0.05 <0	).05 <0	.05 <0	.05 <0.(	<u>)5   &lt;0.0</u>	5	<0.05	<0.05			7.08	7.1	-	
MW-5	1-Jun-07	T17665	<2.4	<2.3	<2.3	<2.7	<2.7	<2.9	:3.6 ×	3.6 <	3.2 <:	2.8	3.0 <3.	0 <2	2	<2.9	<2.7			2.7 J	2.7 J	_	
			0.05			10.0				- 10 X		, - , - , - , - , - , - , - , - , - , -				10.05	10.05			0 574		-	
9- MM	1-Jun-07	T17665	c0.0>	0.02 ~ ~ ~	c0.0 2 3 3	\$0.0 20.0 2	cn.0>		0.00 9 6 1 0	2 9 V	32 4		20.02 2.02 2.02		210	<2.9	<2.7			<1.6	<1.6		
				2																			
MW-7	2-Mar-06	177442	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05   <	0.05 <	).05 <c< th=""><th>).05 &lt;0</th><th>0.05 &lt;0</th><th>0.05 &lt;0.(</th><th><u> 35 &lt;0.(</u></th><th>15</th><th>&lt;0.05</th><th>&lt;0.05</th><th></th><th></th><th>0.649</th><th>0.6</th><th></th><th></th></c<>	).05 <0	0.05 <0	0.05 <0.(	<u> 35 &lt;0.(</u>	15	<0.05	<0.05			0.649	0.6		
MW-7	1-Jun-07	T17665	<2.4	<2.3	<2.3	<2.7	<2.7	<2.9	<3.6 <	3.6 <	3.2	2.8	3.0 <3.	0 <2.	2	<2.9	<2.7			<1.6	<1.6		
MW-8	2-Mar-06	NA																	•				
MW/-8	1- lin-07	NA																					
	25_Mav_08	T77288 8	1001	1150	0 101	000	10.0	160	1 0 11		100	201/1	8.0 1.7B	1 21		130	<25.0		512	273	785.0	26 1	157
MW-8	27-May-09	9060112	<0.353	<0.654	<0.262	7.05	<0.404 <	0.440 <(	).229 <0	151 <0	.456 <0.	315 <0.	382 <0.2	53 <0.4	<u></u> <u>30</u> 5.05	<0.275	9 <0.314	57.5	59.6	68.5	185.6	18.9 < 0.8	876
0- WW	2-Mar-06	NA																					
MW-9	1-Jun-07	AN												F					0.01		-		ļ
MW-9	25-May-08	T22388-9	<1.6	<1.5	<2.1	2.1 J	<1.8	<1.6	× 1.1	1.4	1.3	1.5	1.6	0 0	4	√ 1.3	<2.5		18.3	29	47.3	20.3	24.8
0- MM	27-May-09	9060112	<0.353	<0.654	<0.262	5.09	<0.404	0.440 <(	<u>).229 &lt;(</u>	.151 <0	.456 <0.	315 <0.	382 <0.2	53 <0.4	00 3.50	<0.275	9 < 0.314	36.5	34.4	31	101.9	3.73]3.40	ГO

# POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) TABLE 5 GROUNDWATER ANALYTICAL RESULTS for Plains Pipeline, L.P. SRS No. 2002-10235 Hugh Gathering Lea County, New Mexico

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трн (с10-с28)	(mg/L)				7.62	<0.876							
трн-еко (се-с10)	(mg/L)				2.17	2.12							
sənəlsritiqsN istoT	(חמ/ך)	30**			11.5	23.8		0.6	<1.6		0.5	<1.6	
ənəlsritqsN	(na/L)				5.3	7.63	,	0.577	<1.6		0.548	<1.6	
S-Methylnaphthalene	(ng/L)				6.2	7.67							
1-Methylnaphthalene	(na/L)					8.49							
Benzo[g,h.i]-perylene	(חמ/ך)				<2.5	<0.0631		<0.05	<2.7		<0.05	<2.7	
Dibenz[a,h]-anthracene	(ha/L)	0.091			<1.3	<0.0560		<0.05	<2.9		<0.05	<2.9	
Dibenzofuran	(ng/L)					1.14							
pyrene pyrene	(hg/L)	0.91			<2.4	<0.0805		<0.05	<2.5		<0.05	<2.5	
Benzo[a]-pyrene	(hg/L)	0.7**			<1.6	<0.0508		<0.05	<3.0		<0.05	<3.0	
Benzo[j,k]- fluoranthene	(hg/L)	9.1			<1.6	<0.0768		<0.05	<3.0		<0.05	<3.0	
anəhînsıouli-[d]oznaB	(hg/L)	0.91			<1.5	<0.0633	۰ ۱۰	<0.05	<2.8		<0.05	<2.8	
Chrysene	(ng/L)	29.1			<1.3	<0.0917	-	<0.05	<3.2	ı.	<0.05	<3.2	
Benzo[a]-anthracene	(hg/L)	0.91			<1.4	<0.0304		<0.05	<3.6		<0.05	<3.6	
Pyrene	(hg/L)	183			<1.1	3 <0.0460		<0.05	<3.6	-	<0.05	<3.6	
Fluoranthene	(hg/L)	1460			<1.6	1 <0.088		<0.05	<2.9	•	<0.05	<2.9	
Anthracene	(hg/L)	1830			<1.8	<0.081		<0.05	<2.7		<0.05	<2.7	
Phenanthrene	(hg/L)	1100			1.9 J	7 1.51		<0.05	<2.7		<0.05	<2.7	
Flourene	(hg/L)	243			<2.1	<0.0527		<0.05	<2.3	•	<0.05	<2.3	
ənəritqsnəɔA	(hg/L)	365			<1.5	<0.131	•	<0.05	<2.3		<0.05	<2.3	
ənəlγdiqqanəวA	(hg/L)				<1.6	<0.071(	•	<0.05	<2.4		<0.05	<2.4	
Lab ID	30 µg/L	Water)*	NA	NA	T22388-10	9060112		177443	T17665	,	177461	T17665	
Sample Date	Target Level	ory limits (Tap	2-Mar-06	1-Jun-07	25-May-08	27-May-09		2-Mar-06	1-Jun-07	• .	2-Mar-06	1-Jun-07	
Monitoring Well	NMOCD	Other regulatc	MW-10	MW-10	MW-10	MW-10		MW-11	MW-11		MW-12	MW-12	

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	<0.876				
i	2.12				
2	23.8	0.6	<1.6	0.5	
2	7.63	 0.577	<1.6	0.548	
1	7.67				
	8.49				
2	<0.0631	<0.05	<2.7	 <0.05	
<u>,</u>	<0.0560	<0.05	<2.9	<0.05	(
	1.14				
	<0.0805	<0.05	<2.5	<0.05	1
>	<0.0508	<0.05	<3.0	<0.05	4
2	<0.0768	<0.05	<3.0	<0.05	0
2	<0.0633	<0.05	<2.8	<0.05	0
2	<0.0917	<0.05	<3.2	<0.05	
	<0.0304	<0.05	<3.6	<0.05	ļ
-	<0.0460	<0.05	<3.6	<0.05	ļ
>	<0.0883	 <0.05	<2.9	<0.05	ç
	<0.0811	<0.05	<2.7	<0.05	r ç
	1.51	<0.05	<2.7	<0.05	r Ç
	<0.0527	<0.05	<2.3	<0.05	
	<0.131	<0.05	<2.3	<0.05	ç
	0				

Bold values exceed NMWQCC groundwater standards

All data prior to 2007 collected by EPI Tap Water\* = NMED Tap Water Soil screening levels for residential scenarios. \*\* = NM Water Quality Standard

NA - Not Available (a) Surrogate recovery outside control limits due to dilution. (b) Surrogate recovery outside control limits due to peak interference (Well MW-1 contains measurable product thickness, the result may possibly be estimated concentration with a high bias) (c) Estimated concentration value greater than the standard range

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### TABLE 62009 MONTHLY PSH AND DISSOLVED PHASEGROUNDWATER RECOVERY DATA

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Plains Pipeline, L.P. SRS #2002-10235 Hugh Gathering Lea County, New Mexico

Month	Volume of PSH recovered in gallons	Volume of dissolved phase groundwater recovered in gallons
January	20.75	148.25
February	8.25	188.75
March	9.70	287.80
April	10.20	214.80
Мау	19.25	230.75
June	12.00	144.50
July	18.25	186.75
August	16.00	115.00
September	21.25	216.75
October	8.00	203.50
November	13.00	175.50
December	29.00	324.50
Total	185.65	2436.85

#### **APPENDIX C**

#### 2009 Analytical Laboratory Reports

(Available on CD attached to back cover)

1<sup>st</sup> Quarter 2009 Analytical Reports- 9021906

2<sup>nd</sup> Quarter 2009 Analytical Reports- 9052219, 9060112

3<sup>rd</sup> Quarter 2009 Analytical Reports- 9083115

4<sup>th</sup> Quarter 2009 Analytical Reports- 9112011

![](_page_62_Picture_9.jpeg)

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#### APPENDIX D

#### C-141 NMOCD Release Notification Form

![](_page_63_Picture_4.jpeg)

1. Sec. 1.											
	District I 1625 N. F District II 1301 W. ( District II	French Dr., F Grand Avenu Brazos Road	Hobbs, NM 8824 ue, Artesia, NM d. Aztec. NM 87	40 88210 7410	Energy N Oi	State Minera l Con	of New Mo als and Natu servation I	exico Iral Resources Division		Su	Form C-141 Revised March 17, 1999 Ibmit 2 Copies to appropriate District Office in accordance
19 19 19	<u>District I</u> 1220 S. S	$\underline{V}$	r, Santa Fe. NM	87505	122	20 So	uth St. Fra	ncis Dr.			with Rule 116 on back side of form
	1220 3. 5		r., Santa i C, Niv	<b>D</b>		Santa	1 Fe, NM 8	7505	. •	an a	
A	ODED		INFODM	Rele	ase Notific N ONL V NC	atio	n and Co	$\begin{array}{c} \mathbf{P} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} F$	ction	Donort	Final Papart
<b>3</b> [	Name of Co	mpany					Contact			Ceport	
9		<u> </u>	EOTT Energ	y Pipelin	e			Frank Hernand	dez		
	Address 5805 East	Highway	80 / P O Bo	x 1660	Midland TX 79	703	Telephone 1	No. 915 638	3799		
-	Facility Nar	ne	0071.0.00	<u>x 1000, 1</u>	manana, 17(7)	105	Facility Typ	be	.5777		
		Linma	n Line #2002	2-10235				6" Crude O	il Pipel	ine	
	Surface Ow Sec 12: W.	ner McNeill S	Sec 11: J.A. 1	Bryant	Mineral (	Owner		<del></del>		Lease N	No.
		·			LOCA	TIO	N OF REI	EASE			
	Unit Letter M	Section 12	Township	Range	Feet from the	Nort	h/South Line	Feet from the	East/V	West Line	County: Lea Lat.: 32°29'11"N
	r			37 <u>E</u>	L				I		
i [	Type of Rele	ase			NAT	URE	OF RELI	EASE		Volume I	Recovered
		Crud	le Oil				volume of	50 bl	bls		0 bbls
	Source of Re	lease 6" S	Steel Pipeline				Date and F Sometime	Hour of Occurrence before 9-4-02	ce	Date and 9-4-02	Hour of Discovery 1:00 PM
	Was Immedia	ate Notice (	Given? Not Required	1			If YES, To Paul S	Whom? heeley, Hobbs NM	MOCD	(9-12-02)	
_	By Whom?	Pot McCo	sland (Enviro	omental D	lue Inc.)		Date and H	Hour: Initially con	sidered	to be $<1$ bl	bl. Revised to 50 bbl on
	Was a Water	course Read	ched?  Y	es 🛛 N	lo		If YES, Vo	olume Impacting	the Wate	ercourse.	
-	If a Watercou	irse was Im	pacted, Descr	ibe Fully.	*		· I				
	Describe Cau The cause of remediation.	se of Probl the release	em and Reme was internal/e	dial Actio external co	n Taken.* prrosion. The line	e has be	en replaced.	Contaminated soil	is stock	piled on a	plastic barrier on site awaiting
	Describe Are Oily spots les activities, the west side Sec	a Affected ss than 3' ir soil in the 11 Spill A	and Cleanup A diameter wer ditch line and rea = $\sim$ 936 ft <sup>2</sup>	Action Tal e initially around th 98'X 12'	ken.* observed around e conduit ends we Near surface soi	the ver ere obset will b	nts of the pipel erved to impac	ine conduit that p ted. The east side	e Sec 12	ider NMSR Spill Area	.18. During replacement $r = -326 \text{ ft}^2 55^{\circ} X 10^{\circ}$ . The
	disposed of in subsurface.	1 a NMOCI	D approved fa	cility. Th	e site will be deli	neated a	and remediated	d. Soil within the	NMSR	18 may also	b be contaminated in the
	I hereby certi regulations al public health should their o	fy that the i l operators or the envi operations h	information gi are required to ronment. The nave failed to a	ven above o report an acceptane adequately	e is true and comp nd/or file certain i ce of a C-141 rep investigate and i	olete to release ort by t remedia	the best of my notifications a he NMOCD m ate contaminati	knowledge and und perform correct narked as "Final R ion that pose a thr	inderstar ctive act ceport" d reat to gr	nd that purs ions for rel loes not rel round wate	suant to NMOCD rules and eases which may endanger ieve the operator of liability r, surface water, human health
	or the enviror	ment. In a	addition, NMC	CD accep	otance of a C-141	report	does not reliev	e the operator of	responsi	ibility for c	ompliance with any other
	Signature:	Sta	m/ 1/200	unste				OIL CONS	SERV	ATION	DIVISION
	Printed Name	: Frank He	ernandez				Approved by	District Supervis	sor:		
	T'd. D' . '	( Davi						, .			·····
	Date: Sent	ember 12	iental Supervis 2002	sor Phone	: 915.638.3799		Approval Da Conditions of	te: 1 f Approval:	Expiration	on Date:	
L	* Attach	Additional 9	Sheets If Nece	ssarv			Conditions 0		1 maci		

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And the

District I 1625 N. French Dr., Hobbs, NM 88240 District II		State of New Mexico Energy Minerals and Natural Resources				Form C-141 Revised October 10, 2003			
1301 W. Grand Avenue, Artesia, NM 88210		Oil Consom	ration Div	vision		Submit 2 Co	pies to appro	priate	
1000 Rio Brazos Road, Aztec, NM 87410 District IV	1220 South St. Francis Dr				District Office in accordance with Rule 116 on back				
1220 S. St. Francis Dr., Santa Fe, NM 87505 Santa			e, NM 87505 side of for				form		
Release	Notifica	tion and Corr	ective A	ction - Info	ormatio	nal		in a subscription of the s	
OPERATO	ર			Initial Report	🔲 Fin	al Report			
Name of Company: Plains Pipeline, L.P.				Contact: Camille Reynolds					
PO Box 1660 5805 East Highway 80 Midland, Texas 79702				505.393.5611					
Facility Name			Facility	у Туре					
Hugh Gathering 090402 # 2002-10235				6" Steel Pipeline					
Surface Owner: Dryant	<u> </u>		Nune			Lease INO.			
This I was a formation of the second se	D	LOCATION C	DF RELE	ASE Fast from the	E act /W/a	- Lina	Country Lo		
P 11 T21S	Range R37E	reet nom the north	1/ South Line	reet from the	East/ wes	St Luic	County: Le	્ય	
	Latitude:	3229'11.007"N NATURE OF		ongitude: <u>103</u> SF	07'33.864"	W			
Type of Release			Volume of	Volume of Release			Volume Recovered		
Crude Oil			50 bbls I	50 bbls barrels		0 bbls barrels			
6" Steel Pipeline			9-4-02@	9-4-02 @ 1:20 PM			9-4-02 @ 1:30 PM		
Was Immediate Notice Given?				If YES, To Whom?					
By Whom?			Date and I	Hour					
Camille Reynolds			9-4-02@	9-4-02 @ 3:30 PM					
was a watercourse Reached? [] Yes [] No				NA					
If a Watercourse was Impacted, Descri	e Fully.*		1				<u></u>		
Describe Cause of Problem and Remed 6" Steel Pipeline The leak was due t landfarm.	ial Action Tak o internal/ex	en.* ternal corrosion. Nea	ar surface im	npacted soil was c	lisposed of	in an NMOCD	approved		
Describe Area Affected and Cleanup A 100 sqft 10' X 10': Site delineated. Benzene, Ethyl Benzenc, Toluenc, a	tion Taken.* <b>Remedial Go</b> nd Xylenes =	als: TPH 8015m = 100 50 mg/Kg.	00 & 100 mg/	Kg, Benzene = 1	10 mg/Kg,	and BTEX, i.e.,	the mass sur	m of	
I hereby certify that the information giv regulations all operators are required to health or the environment. The accepta their operations have failed to adequate environment. In addition, NMOCD ac state, or local laws and/or regulations.	en above is tru report and/or nce of a C 14 y investigate a ceptance of a C	e and complete to the l file certain release notif l report by the NMOCI nd remediate contaminz C 141 report does not re	pest of my known ications and p D marked as ution that pos elieve the ope	owledge and under perform corrective "Final Report" doe e a threat to groun erator of responsib	rstand that p actions for s not relieve dwater, surf ility for corr	pursuant to NMC releases which m e the operator of face water, humar upliance with any	OCD rules and ay endanger p liability should 1 health or the other federal,	nublic 1	
Signature:				OIL CONSERVATION DIVISION					
Printed Name: Camille Reynolds			Appro	Approved by District Supervisor:					
E-mail Address: CJReynolds@PAALP.com			Appro	Approval Date:		Expiration	Expiration Date:		
Title: District Environmental Supervisor			Cond	Conditions of Approval:		Attached 🔲			
Date: $9/6/2002$ DL	ne 505 302 5	611							

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