AP-29

Plains
Kimrough Sweet 8” Line

Annual Report
2013

PLAINS
ALL AMERICAN

March 18, 2014

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

Re: Plains All American – 2013 Annual Monitoring Reports
6 Sites in Lea County, New Mexico

Dear Mr. Griswold:

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

8-inch Moore to Jal #1	AP-91 (1R-0380)	Section 16, T17S, R37E, Lea County
8-inch Moore to Jal #2	AP-92 (1R-0381)	Section 16, T17S, R37E, Lea County
C.S. Cayler	AP-052	Section 06, T17S, R37E, Lea County
Hobbs Junction Mainline	AP-054	Section 26, T18S, R37E, Lea County
Kimbrough Sweet 8-inch	AP-0029	Section 03, T18S, R37E, Lea County
Lovington Deep 6-inch	AP-037	Section 06, T17S, R36E, Lea County

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

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

Sincerely,

Camille Bryant
Remediation Coordinator
Plains All American

CC: Geoff Leking, NMOCD, Hobbs, NM

Enclosures

2013 ANNUAL GROUNDWATER MONITORING REPORT

KIMBROUGH SWEET 8"
LEA COUNTY, NEW MEXICO
SRS #2000 - 10757
NMOCD REF. # AP-0029

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HOUSTON, TEXAS

TALON/LPE PROJECT NO. 700376.050.01

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March 2014

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NMOCD - New Mexico Oil Conservation Division
NMSLO – New Mexico State Land Office

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION AND OBJECTIVES

1.1 Objectives and Site Background

The Kimbrough Sweet 8" (site) is located approximately seven (7) miles northwest of Hobbs, Lea County, New Mexico, on property owned by the State of New Mexico. There are no residences, groundwater wells, or surface water bodies within a 1,000-foot radius of the site. The initial release occurred from the 8" steel pipeline on October 25, 2000. At the time of the release, the pipeline was owned by EOTT Energy Pipeline. Subsequently, EOTT changed its name to Link Energy in October 2003, and Plains Marketing, L.P. (Plains) purchased the assets of Link Energy on April 1, 2004. Initial reports estimated that 60 barrels (bbls) of crude oil were released and impacted approximately 15,613 feet of surface area. Approximately 22 bbls of crude oil was recovered during initial remediation activities.

The site is situated within a physiographic region that is on the extreme south-western portion of the Southern High Plains as it grades into the Edwards Plateau to the south and southeast and the Chihuahuan Desert of the Trans-Pecos Region to the southwest.

The topography proximal to the site is typical of the Southern High Plains, essentially flat with shallow depressions, or playa lakes, dotting the landscape. The prominent surface features on the Southern High Plains are the approximately 19,250 ephemeral playa lakes; however the density of the playa lakes diminishes toward the southern extent of the Southern High Plains. During periods of rainfall, the playas accumulate sheet runoff from watershed areas ranging in size from less than one square mile to several square miles. Only a small portion of drainage from rainfall occurs by streams. Playa lakes that collect storm water runoff can act as a recharge mechanism for groundwater.

The average elevation of the site area is approximately 3,720-feet above mean sea level with a slight slope to the southeast. The regional slope of the land surface in the Southern High Plains is approximately 100 feet per mile in a southeasterly direction.

On February 5, 2007, Talon/LPE (Talon) was retained by Plains to assume remediation activities at the site that were previously conducted by Environmental Plus, Inc. (EPI).

1.2 Site Geology

The surface deposits in Lea County are composed of Blackwater Draw (Illinoian) sediments, Ogallala sediments and undivided Quaternary alluvium, which is also termed 'cover sands'. The soil in the upper two (2) feet at the site is composed of gravelly loam that contains abundant eroded gravel to cobble size caliche fragments. Below the top soil is predominately unconsolidated sand to weakly cemented sandstone which has undergone calichification of varying extent.

Below the Blackwater Draw Formation is the Ogallala Formation of Miocene to Pliocene age. The Ogallala Formation was deposited from sediments eroded from the Southern

Rockies and consists mostly of eolian sediments, silty to very fine sand or loess. During the middle to late Miocene, the Ogallala was deposited by fluvial mechanism as paleovalley fill composed of gravelly to sandy braided stream deposits that trended west to east across the Southern High Plains. During the late Miocene the west to east drainage was diverted (captured) by the Pecos River. Subsequently, the Pecos River basin has experienced deflation, which facilitated eolian deposition on the Southern High Plains during the Pliocene.

1.3 Previous Environmental Investigations

Currently, a total of nineteen (19) groundwater monitor wells have been installed in the vicinity of the release (see Figure 1). With New Mexico Oil Conservation Division (NMOCD) approval and landowner concurrence, groundwater monitor wells MW-1, MW-2, MW-3, and MW-4 were installed in January 2002. Groundwater monitor wells MW-5, MW-7, MW-8, and MW-9 were installed in July 2004, and monitor wells MW-6, MW-10, and MW-11 were installed in December 2004. Monitor wells MW-12 and MW-13 were installed on March 11, 2009 and monitor wells MW-14 and MW-15 were installed in January of 2011. Replacement monitor well MW-1A and new monitor wells MW-16, MW-17, and MW-18 were installed in November of 2013. Monitor Well MW-1 was plugged and abandoned.

PSH recovery operations have been performed at the site since January 2002, initially by hand bailing. Currently, there are five (5) total fluids pumps powered by an internal combustion engine (ICE) in monitor wells MW-5, MW-6, MW-7, MW-8, MW-11, and two (2) solar powered electric pumps in MW-2, and MW-9. Approximately 226 bbls of liquid and vapor phase-separated hydrocarbon (PSH) has been recovered to date.

1.4 Regulatory Framework

Groundwater analytical data from this site was evaluated to the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards.

New Mexico Water Quality Control Commission (NMWQCC) groundwater standards	
Compound	**mg/L**
Benzene	0.010
Toluene	0.750
Ethylbenzene	0.750
Total Xylenes	0.620
PAH (Naphthalene)	0.030
PAH (Benzo[a]-pyrene)	0.007

The following sections provide summaries of the groundwater monitoring activities conducted at the site as well as analytical results from each groundwater sampling event of 2013. Analytical results for the four (4) sampling events are summarized in Table 2 and Table 3 in Appendix B, and Figures 3a through 3d in Appendix A. Laboratory analytical data reports and chains of custody documentation are included in Appendix C.

2 SITE ACTIVITIES

The sections that follow summarize groundwater monitoring and PSH recovery activities conducted at the subject site during 2013. The primary function of groundwater monitoring is to measure the depths to fluids and to collect groundwater samples from monitor wells for laboratory analysis. The objective of groundwater monitoring is to evaluate the status of the dissolved-phase and PSH plumes in order to verify the effectiveness of the remediation system as to inhibiting plume migration, reducing the volume of PSH impacting the groundwater and determining if modifications to the remediation system would improve its performance and efficiency.

2.1 Groundwater Monitoring Activities

A total of four (4) groundwater monitoring events were conducted by Talon during the year 2013 on March 13, June 6, September 26, and December 3. During all of the groundwater monitoring events, the depths to fluids were measured in all of the monitoring wells using an oil/water interface probe.

During the four (4) sampling event, groundwater samples were collected from seven (7) monitor wells (MW-3, MW-4, MW-10, MW-12, MW-13, MW-14, and MW-15), and from the four (4) new monitor wells (MW-1A, MW-16, MW-17, and MW-18) in the December event. Samples were not collected from monitor wells MW-2, MW-5 through MW-9 and MW-11, due to the presence of PSH during all four (4) sampling events. Samples were not collected from monitor well MW-1 during the first three sampling events because groundwater was not detected during gauging activities, and the well was plugged and abandoned before the 4th quarter sampling activities.

Details of the gauging, purging, and sample collection activities are presented in Section 2.2 below.

2.2 Groundwater Gauging, Purging, and Sample Collection Procedures

During each groundwater monitoring event, all monitor wells were measured with an oil/water interface probe to determine static water levels and to determine the thickness of PSH accumulations if present. The data collected from measurements was used to construct groundwater gradient maps and PSH thickness maps. The results of the measured depths to fluids collected during the four (4) events are incorporated in Table 1 – Summary of Historical Fluid Level Measurements.

Subsequent to gauging, all monitor wells not impacted with PSH were purged a minimum of three (3) casing volumes using a down-hole pump equipped with vinyl tubing. The purge pump and tubing were decontaminated with Alconox® detergent and rinsed with distilled water after each use. Recovered purge water and water used in the decontamination process was contained in on-site 55-gallon drums. After the groundwater monitoring event, all retained water was removed with a vacuum truck. Approximately 530 gallons of purged

groundwater and decontamination water during the monitoring events of 2013.

Groundwater samples were collected from all monitor wells using dedicated disposable polyethylene bailers. Each groundwater sample was contained in laboratory supplied sample containers with the appropriate preservative required for the analysis requested. The groundwater samples were maintained on ice, in the custody of Talon personnel, until they were delivered to TraceAnalysis, Inc. or Xenco Laboritories in either Midland or Lubbock, Texas for analyses.

The groundwater samples collected during all four events were quantified for benzene, toluene, ethylbenzene, and xylene (BTEX) by EPA Method SW-846 8021B and during the third event, the groundwater samples collected from monitor well MW-3, MW-12, MW-14, and MW-15 were quantified for poly-nuclear aromatic hydrocarbons (PAH) by EPA Method S 8270D.

2.3 Phase Separated Hydrocarbon Recovery

PSH recovery has been conducted at the site since 2002, initially by hand bailing. In 2007, an automated skimmer recovery system was installed at the site. In March of 2011, solar panels were installed at the site and two 12V total fluid pumps were installed in monitor wells MW-5 and MW-6. In November of 2011, additional 12V powered total fluids pumps were installed in monitor wells MW-2 and MW-11. In October 2012 an Internal Combustion Engine (ICE) system for running pumps and vapor extraction was installed on site. The ICE utilizes the vapor phase of PSH and propane to run the engine, and the calculated volumes are included in recovery volumes listed from October 2012 on.

Currently, the system utilizes five (5) pneumatic total fluid pumps in monitor wells MW-5, MW-6, MW-7, MW-8, and MW-11 and two (2) 12V total fluids pumps in MW-2 and MW-9 to recover PSH and to inhibit migration of the PSH plume. The ICE assembly consists of pneumatic total fluid pumps combined with vapor suction. Since there is no electricity at the site; the ICE system is powered by propane and vapors from listed wells. The 12V total fluids pumps operate off 12V batteries, which are charged by solar panels.

Fluid, recovered by the pumps, is retained in two polyethylene tanks, a 3,000 gallon and a 2500 gallon that was added in 2011. The tanks are coupled together and are equipped with high level shut off switches to prevent overflow. In addition, the tanks are located within a secondary recovery compound that is equipped with a polyethylene liner. Periodically, recovered groundwater is removed from the tanks and transported to an NMOCD approved disposal facility. PSH is also periodically removed with a vacuum truck and is re-introduced to the Plains' pipeline system at the Scharb Station and/or 34 Junction South pipeline. Approximately 226 bbls of PSH have been recovered to date from the site to date.

2.4 Groundwater Monitor Well Installation Activities

Due to the presence of dissolved-phase petroleum hydrocarbon concentrations above NMWQCC groundwater standards from samples collected from groundwater monitoring wells MW-14 and dry well conditions in Monitor well MW-1, four (4) additional groundwater monitoring wells (MW-1A, MW-16, MW-17, and MW-18) were installed in

November of 2013.
Talon conducted the advancement, installation, and sampling of four (4), 2-inch diameter groundwater monitoring wells, designated as MW-1A, MW-16, MW-17, and MW-18. The wells were advanced and installed utilizing air rotary techniques. The wells were installed and sampled to determine the horizontal extent of hydrocarbon impact to groundwater in the vicinity of the release area. The location of each groundwater monitoring well is presented on Figures 2d, and 3d. The monitoring wells were installed under the direction of a licensed State of New Mexico well driller.
The placement of the monitoring wells was based upon historical groundwater analytical and historical fluid level measurement data collected from all monitor wells at the site. During boring advancement, soils samples were collected on ten (10) foot intervals utilizing a grab method, and were visually and texturally classified by the supervising project geologist. All monitoring wells were constructed using flush-joint schedule 40, polyvinyl chloride (PVC) casing and factory slotted 0.010-inch screen. A sorted sand filter pack was placed around the screen from the bottom of the boring to approximately one (1) foot above the screened interval. Above the sand pack, a two (2) foot thick bentonite seal was set to prevent the migration of contaminants to the sampling zone from the surface, and the remainder of the well annulus was filled with cement. A steel protective vault was concreted in place to protect the well from damage and surface percolation. Well development was conducted prior to setting the bentonite seal, in order to settle the sand filter pack and to maximize the flow of groundwater into the well. Approximately 240 gallons of water were generated during monitoring well development activities.
The elevations of the monitoring wells are to be determined by a level survey referenced to the previously existing monitoring wells.

2.4.1 Well Boring Soil Sample Collection

Soil samples were collected on November 20 and 21, 2013 at 60 feet bgs, and 85 feet bgs from the soil boring for groundwater monitoring well MW-1A, MW-16, MW-17, and MW-18. Soil samples were collected by Talon personnel wearing clean nitrile gloves with disposal sampling tools.
The soil samples were containerized in laboratory provided sample containers, immediately placed on ice, and transported to Xenco Laboratories in Midland, Texas for BTEX analysis using EPA SW-846 Method 8021B and TPH analysis using the standard metods. All analytical testing was performed on a standard turn-around basis.

2.4.2 Analytical Results

Analytical results indicate BTEX concentrations in soil samples collected from the soil borings for groundwater monitoring wells MW-1A, MW-16, MW-17, and MW-18 to be below the respective NMWQCC groundwater standards. A summary of the groundwater monitoring well soil sample analytical results is presented on Table 4.

3 GROUNDWATER MONITORING RESULTS

The results of the laboratory analyses are summarized in Table 2 – Summary of Groundwater Analytical Data in Appendix B. Laboratory analytical data reports and chains of custody documentation are provided in Appendix C.

3.3 Groundwater Monitoring Results

The following sections present the results from the four groundwater monitoring events conducted on the first water-bearing zone underlying the site.

3.3.1 Physical Characteristics of the First Water-Bearing Zone

The primary groundwater resource under the Southern High Plains, including the site, is referred to as the Ogallala Aquifer or High Plains Aquifer. The Southern portion of the Ogallala aquifer underlies an area of about 29,000 square miles (mi^2) in western Texas and eastern New Mexico, encompassing all or part of 31 counties in Texas and six (6) counties in New Mexico.

The Ogallala Aquifer has experienced acute depletion from extensive irrigation and urban demand, which have exceeded the average annual recharge rate. Recharge of the Ogallala Aquifer on the Southern High Plains occurs predominately from rainfall runoff that accumulates in ephemeral streams and playa lakes as well as direct recharge in areas that contain permeable soils such as sand hills. Recharge rates vary depending on mechanism, but averages from 0 to 1.6 inches per year.

The Ogallala Aquifer is generally unconfined and the poteniometric surface generally mirrors the land surface elevation with the regional flow direction from the northwest to the southeast. The mean regional gradient is 15 feet per mile and the typical groundwater velocity averages seven inches per day. The regional hydraulic conductivity averages 17 gallons per day per square-foot with a specific yield averaging 16%. The depth to groundwater at the site ranged from 55 to 65 feet below ground surface (bgs) and the groundwater flow direction ranged from the east southeast to the east northeast. The saturated thickness of the Ogallala formation on the High Plains ranges from 25 feet to 175 feet. The variable thickness is due to the irregularly eroded Triassic surface that underlies it.

The composition of Ogallala groundwater is defined as mixed-cation-HCO_3, therefore, Ogallala groundwater is considered hard. Problems with scale have occurred with residential and commercial water systems that use Ogallala groundwater and often treatment strategies are employed to reduce the effects of scale. The typical total dissolved solids of Ogallala groundwater in the Hobbs-Lovington area is generally less than 1,000 mg/L (ppm) in areas not impacted by oil-field brines. The pH of Ogallala water averages 7.3.

3.1.2 Groundwater Gradient and Flow Direction

The depth to fluid measurements was collected during each of the four (4) groundwater monitoring events during the year 2013. The results of the fluid level measurements are summarized in Table 1, Appendix B - Summary of Historical Fluid Level Measurements.

The collected data was used to construct potentiometric surface maps in order to interpret the groundwater gradient and flow direction. The maps, designated Figures 2a through 2d, are presented in Appendix A.

The potentiometric surface maps constructed for each of the four (4) groundwater monitoring events in 2013 indicates that the groundwater flow direction ranges from east southeast to east northeast with average gradient of 0.0047 feet per foot or approximately 25 feet per mile. Groundwater levels at the subject site have exhibited a steady decline of an average of 0.77 feet for the year 2013 that appears to be associated with a regional trend of declining groundwater levels for the Ogallala Aquifer.

3.1.3 Phase Separated Hydrocarbon (PSH)

An oil/water interface probe was used to determine the thicknesses of PSH during the four (4) groundwater monitoring events. Generally, PSH thicknesses have fluctuated from quarter to quarter during the year 2013 but have remained relatively stable throughout the year.

In addition to potentiometric surface maps, isopleth maps were prepared depicting the measured PSH thicknesses and PSH plume geometry. PSH plume delineation and thickness maps are presented in Appendix A as Figures 3a through 3d. Currently, the PSH plume is delineated.

- In March of 2013, PSH was observed in monitor wells MW-2, MW-5 through MW-9, and MW-11. PSH thickness ranged from 0.13 feet to 3.43 feet.
- In June of 2013, PSH was observed in monitor wells MW-2, MW-5 through MW-9, and MW-11. PSH thickness ranged from 1.65 feet to 4.34 feet.
- In September of 2013, PSH was observed in monitor wells MW-2, MW-5 through MW-9, and MW-11. PSH thickness ranged from 0.20 feet to 5.35 feet.
- In December of 2013, PSH was observed in monitor wells MW-2, MW-5 through MW-9, and MW-11. PSH thickness ranged from 0.24 feet to 5.32 feet.

PSH recovery operations have been performed at the site since 2002. A summary of the historical groundwater and PSH gauging is provided in Table 1 in Appendix B. Approximately 226 bbls of PSH have been recovered to date.

3.1.4 Groundwater Sampling Results

During the first quarter, March 2013, laboratory analytical results of the groundwater samples exhibited the following findings:

- Benzene concentrations ranged from <0.00100 mg/L to 2.15 mg/L. Benzene

concentrations exceeded the NMWQCC groundwater standard of 0.010 mg/L in the groundwater samples collected from monitor wells MW-3, MW-12, and MW-14.

- Toluene concentrations ranged from <0.00100 mg/L to <0.050 mg/L. The toluene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any of the groundwater samples collected.
- Ethylbenzene concentrations ranged from <0.00100 mg/L to <0.0500 mg/L. The ethylbenzene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any of the groundwater samples collected.
- Xylene concentrations ranged from <0.00100 mg/L to <0.0500 mg/L. Xylene concentrations did not exceed the NMWQCC groundwater standard of 0.620 mg/L in any groundwater sample collected.

During the second quarter, June 2013, sampling event, laboratory analytical results of the groundwater samples exhibited the following findings:

- Benzene concentrations ranged from <0.00100 mg/L to 3.01 mg/L. Benzene concentrations exceeded the NMWQCC groundwater standard of 0.010 mg/L in the groundwater samples collected from monitor wells MW-3, MW-12, and MW-14.
- Toluene concentrations ranged from <0.00100 mg/L to <0.020 mg/L. Toluene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any of the groundwater samples collected.
- Ethylbenzene concentrations ranged from <0.00070 mg/L to 0.107 mg/L. The ethylbenzene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any of the groundwater samples collected.
- Xylene concentrations ranged from <0.00100 mg/L to <0.0200 mg/L. The xylene concentrations did not exceed the NMWQCC groundwater standard of 0.620 mg/L in the samples collected.

During the third quarter, September 2013, laboratory analytical results of the groundwater samples exhibited the following findings:

- Benzene concentrations ranged from <0.000567 mg/L to 3.63 mg/L. Benzene concentrations exceeded the NMWQCC groundwater standard of 0.010 mg/L in groundwater samples collected from monitor well MW-3 and MW-12.
- Toluene concentrations ranged from <0.000518 mg/L to <0.0259 mg/L. The toluene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any of the groundwater samples collected.
- Ethylbenzene concentrations ranged from <0.000518 mg/L to 0.0526 mg/L. Ethylbenzene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any groundwater sample collected.
- Xylene concentrations ranged from <0.00100 mg/L to <0.0500 mg/L. Xylene concentrations did not exceed the NMWQCC groundwater standard of 0.620 mg/L in any groundwater sample collected.

- Poly-nuclear aromatic hydrocarbon analysis was performed on samples collected from monitor wells MW-3, MW-12, MW-14 and MW-15. No constituent concentrations, including the total combined methylnaphthalene and naphthalene concentrations exceeded the NMWQCC groundwater standards.

During the fourth quarter, December 2013, laboratory analytical results of the groundwater samples exhibited the following findings:

- Benzene concentrations ranged from <0.000387 mg/L to 3.27 mg/L. Benzene concentrations exceeded the NMWQCC groundwater standard of 0.010 mg/L in the groundwater samples collected from monitor wells MW-3, MW-12, and MW-14.
- Toluene concentrations ranged from <0.000465 mg/L to <0.0239 mg/L. Toluene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any of the groundwater samples collected.
- Ethylbenzene concentrations ranged from <0.000442 mg/L to 0.109 mg/L. Ethylbenzene concentrations did not exceed the NMWQCC groundwater standard of 0.750 mg/L in any groundwater sample collected.
- Xylene concentrations ranged from <0.00100 mg/L to <0.0500 mg/L. Xylene concentrations did not exceed the NMWQCC groundwater standard of 0.620 mg/L in any groundwater sample collected.

The dissolved-phase plume is currently delineated to NMWQCC groundwater standards as depicted on the groundwater concentration maps 3a through 3d in Appendix A. The results of the laboratory analyses are summarized in Table 2 – Summary of Groundwater Analytical Results in Appendix B. Laboratory analytical data reports and chains of custody documentation are provided in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following section presents a summary of the four groundwater monitoring events conducted at the Kimbrough Sweet 8" site and Section 4.2 provides recommendations for future corrective action.

4.1 Summary of Findings

- The groundwater flow direction ranged from east southeast to east northeast with an average gradient of 0.0047 ft/ft or approximately 25 feet per mile based on the water level measurement data collected in 2013.
- Groundwater levels at the subject site have exhibited a steady decline averaging 0.77 feet for the year 2013 that appears to be associated with a regional trend of declining groundwater levels for the Ogallala Aquifer.
- PSH is impacting monitor wells MW-2, MW-5 through MW-9, and MW-11. Total fluids pumps are installed in those wells.
- PSH thicknesses have fluctuated over the year 2013 but have continued to decline over the years. Approximately 14 bbls of PSH was recovered during the year 2013 indicating that the PSH recovery system is performing its function.
- Dissolved-phase concentrations were stable over the year 2013. Down-gradient monitor wells MW-3 and MW-12 continue to show a declining trend in dissolved-phase concentrations.
- Monitor wells MW-1A, MW-16, MW-17, and MW-18 were installed in November of 2013 in order to delineate the dissolved-phase plume. Monitor Well MW-1 was plugged and abandoned, also in November.

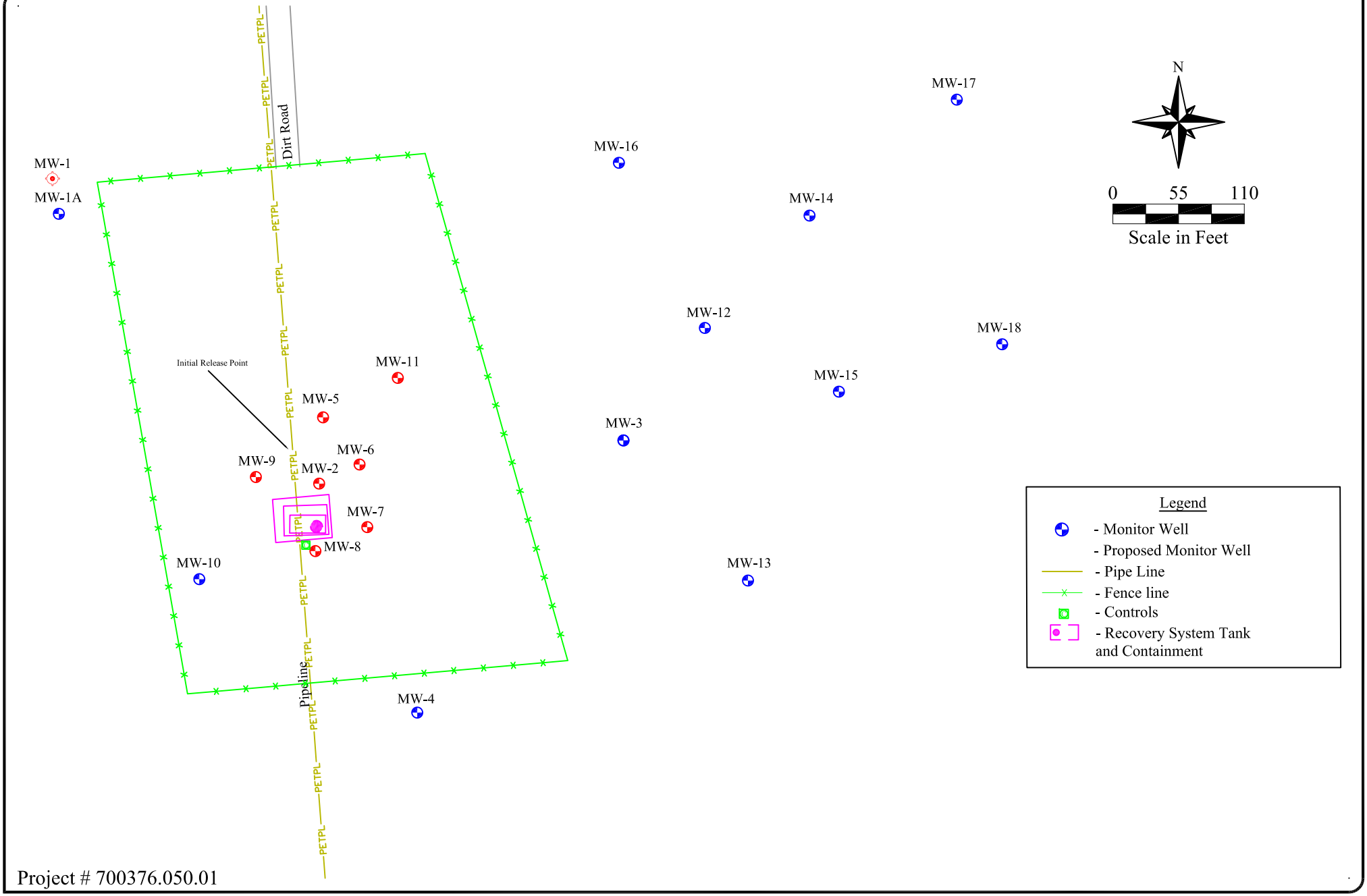
4.2 Recommendations

Based upon the results of the quarterly groundwater monitoring and PSH recovery efforts, Talon proposes the following actions:

- Continue operation and maintenance of the PSH recovery systems. Monitor the systems on a weekly basis to optimize PSH recovery efficiency.
- Add or reposition pumps as necessary to optimize PSH recovery and inhibit plume migration.
- Perform quarterly groundwater monitoring events in accordance with NMOCD directives.
- Since up-gradient monitor well MW-10 and cross-gradient monitor well MW-4 have predominately not detected BTEX analytes, Talon LPE recommends that those wells be sampled and analyzed for BTEX annually.

APPENDIX A

Figures



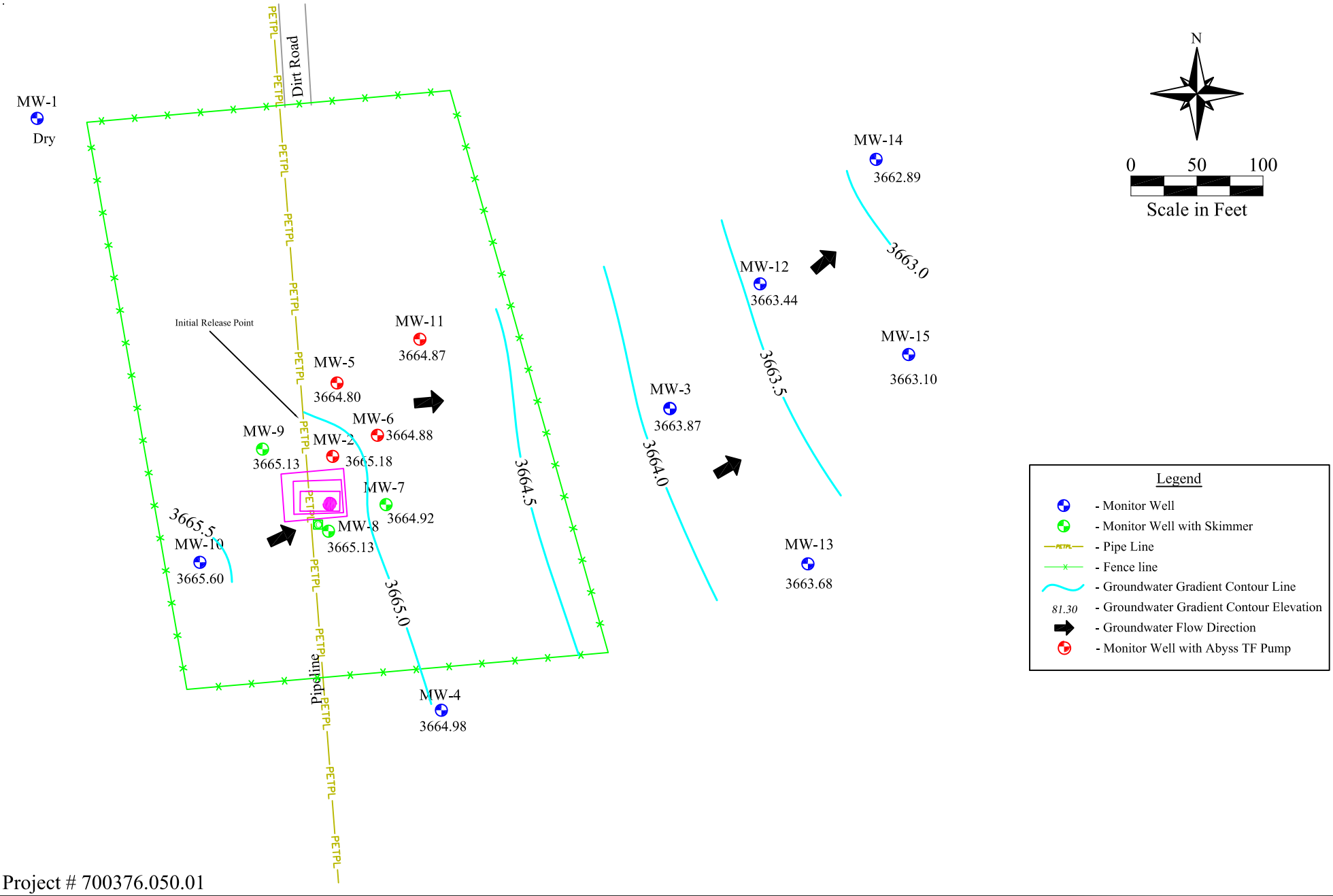
Project # 700376.050.01

TALON LPE

Date: 03/06/2013
Scale: 1" = 110'
Drawn By: TJS

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029
SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico
Figure 1 - Site Plan (12/30/13)



Project # 700376.050.01

TALON LPE

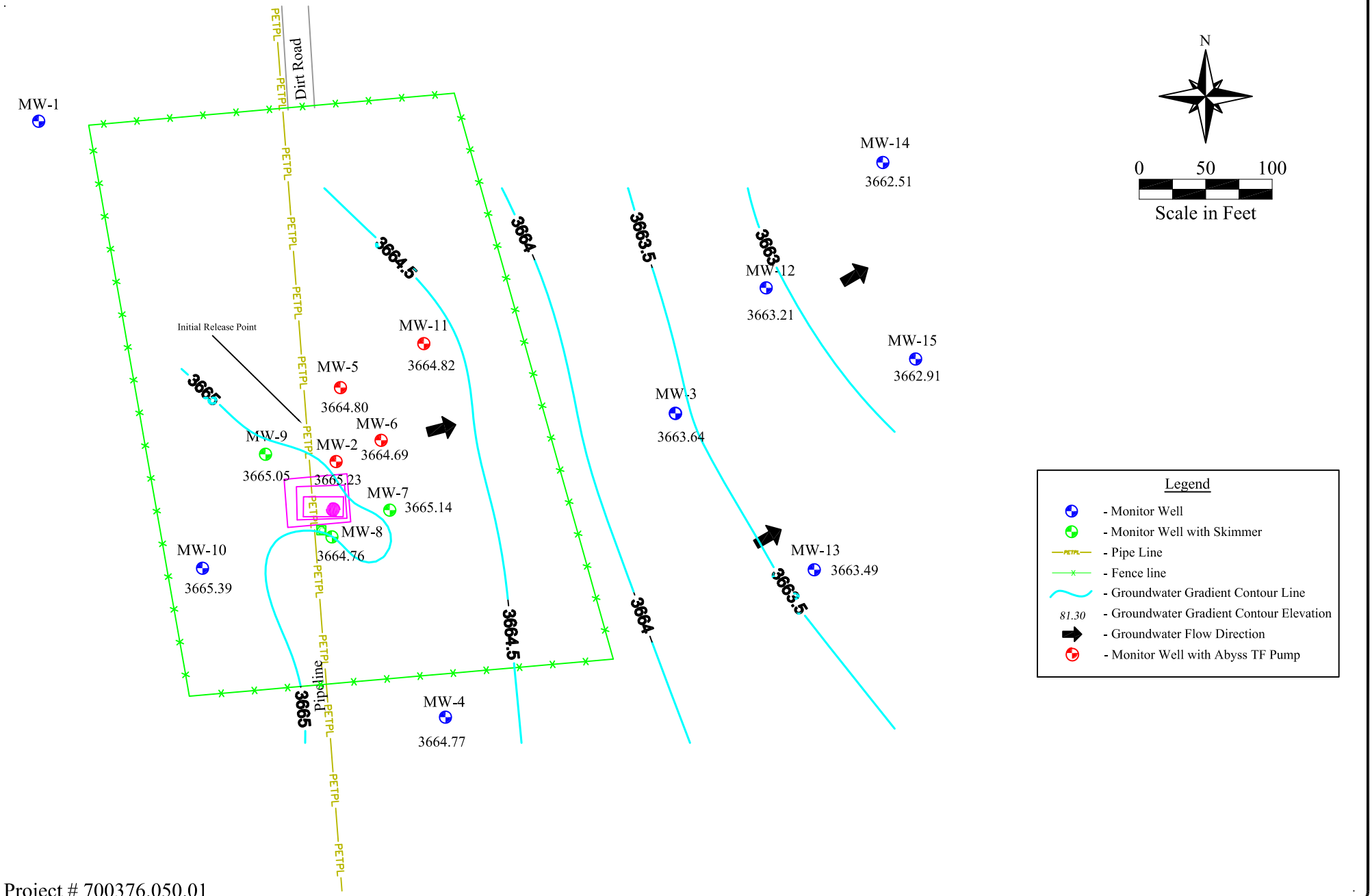
Date:	04/17/2013
Scale:	1" = 100'
Drawn By:	TJS

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029

SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico

Figure 2a - Groundwater Gradient Map, (03/11/2013)



Project # 700376.050.01

TALON LPE

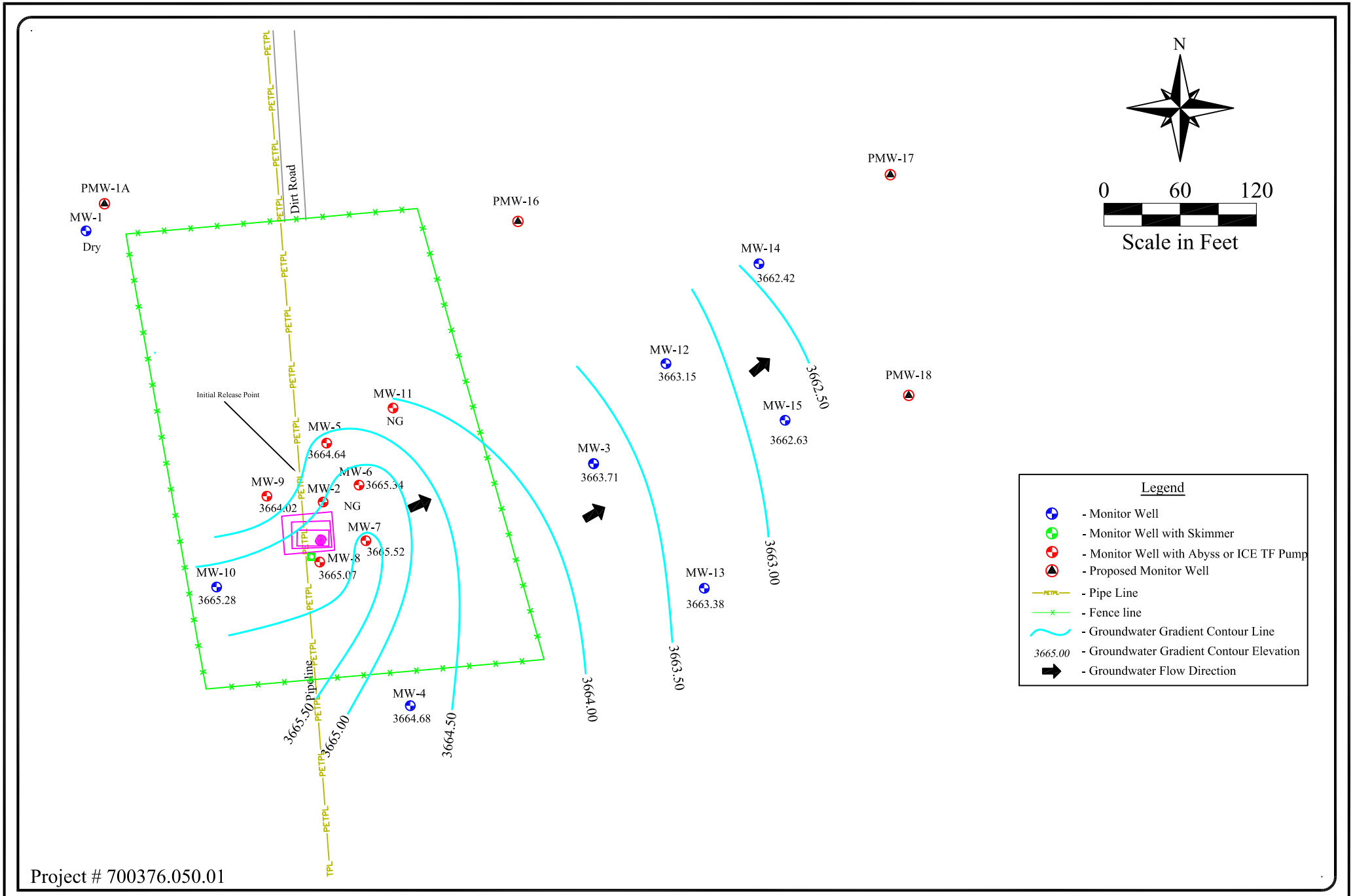
Date: 07/02/2013
Scale: 1" = 100'
Drawn By: BCI

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029

SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico

Figure 2b - Groundwater Gradient Map, (06/06/2013)



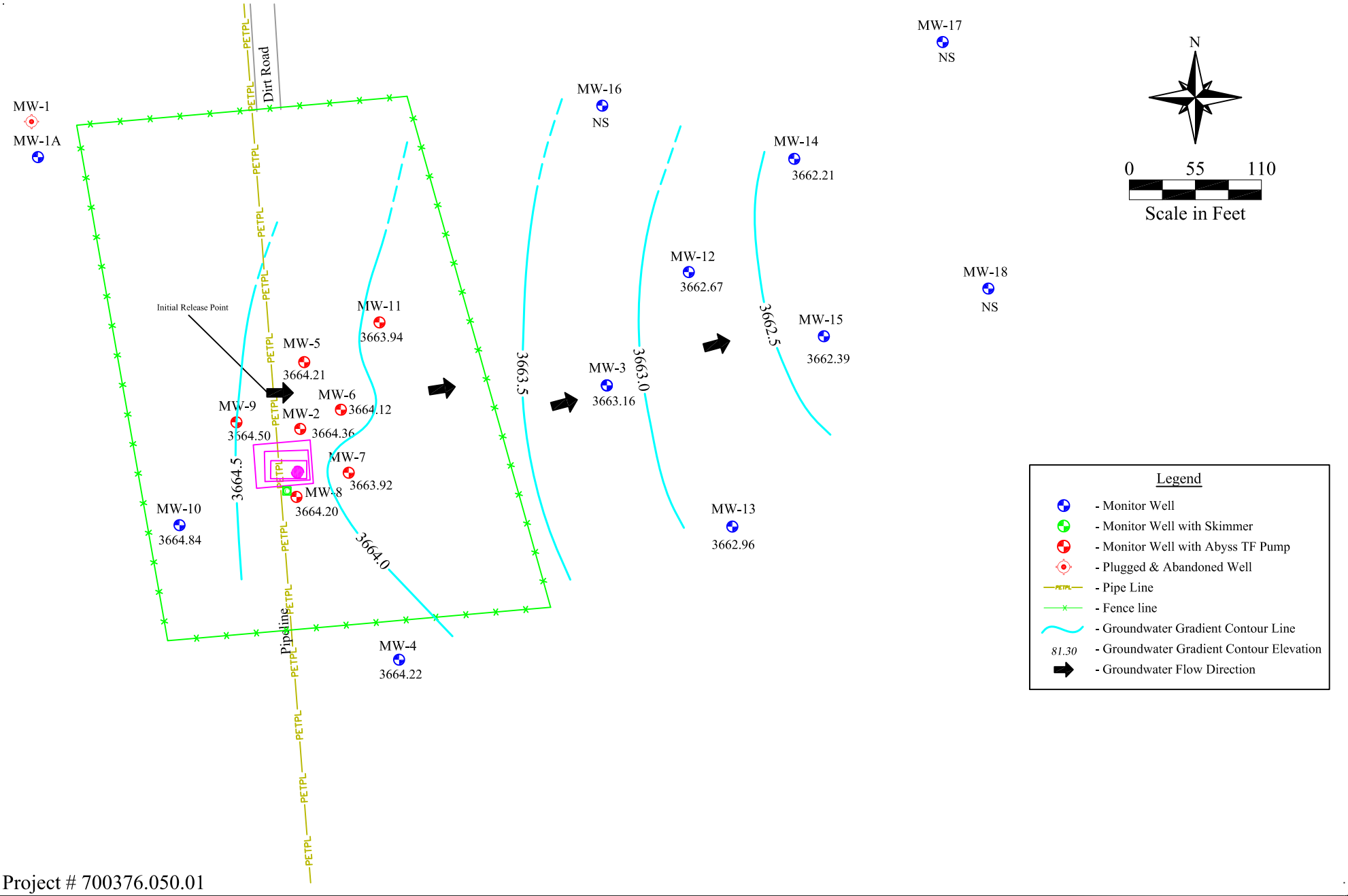
Project # 700376.050.01

TALON LPE

Date: 10/17/2013
Scale: 1" = 100'
Drawn By: SMM

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029
SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico
Figure 2c - Groundwater Gradient Map, (09/26/2013)



Project # 700376.050.01

TALON LPE

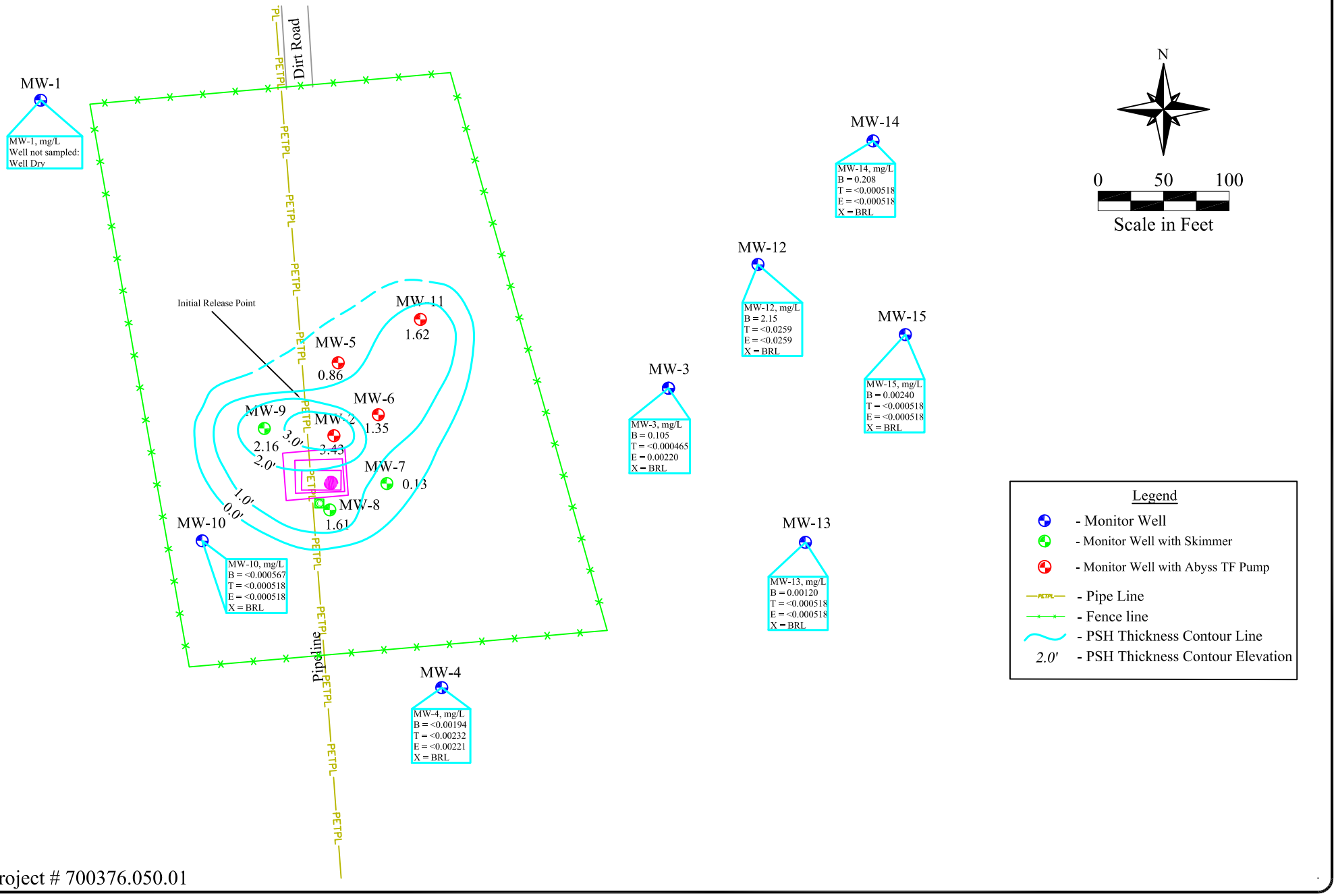
Date:	01/16/2014
Scale:	1" = 100'
Drawn By:	TJS

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029

SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico

Figure 2d - Groundwater Gradient Map, (12/03/2013)



Project # 700376.050.01

TALON LPE

Date: 04/17/2013

Scale: 1" = 100'

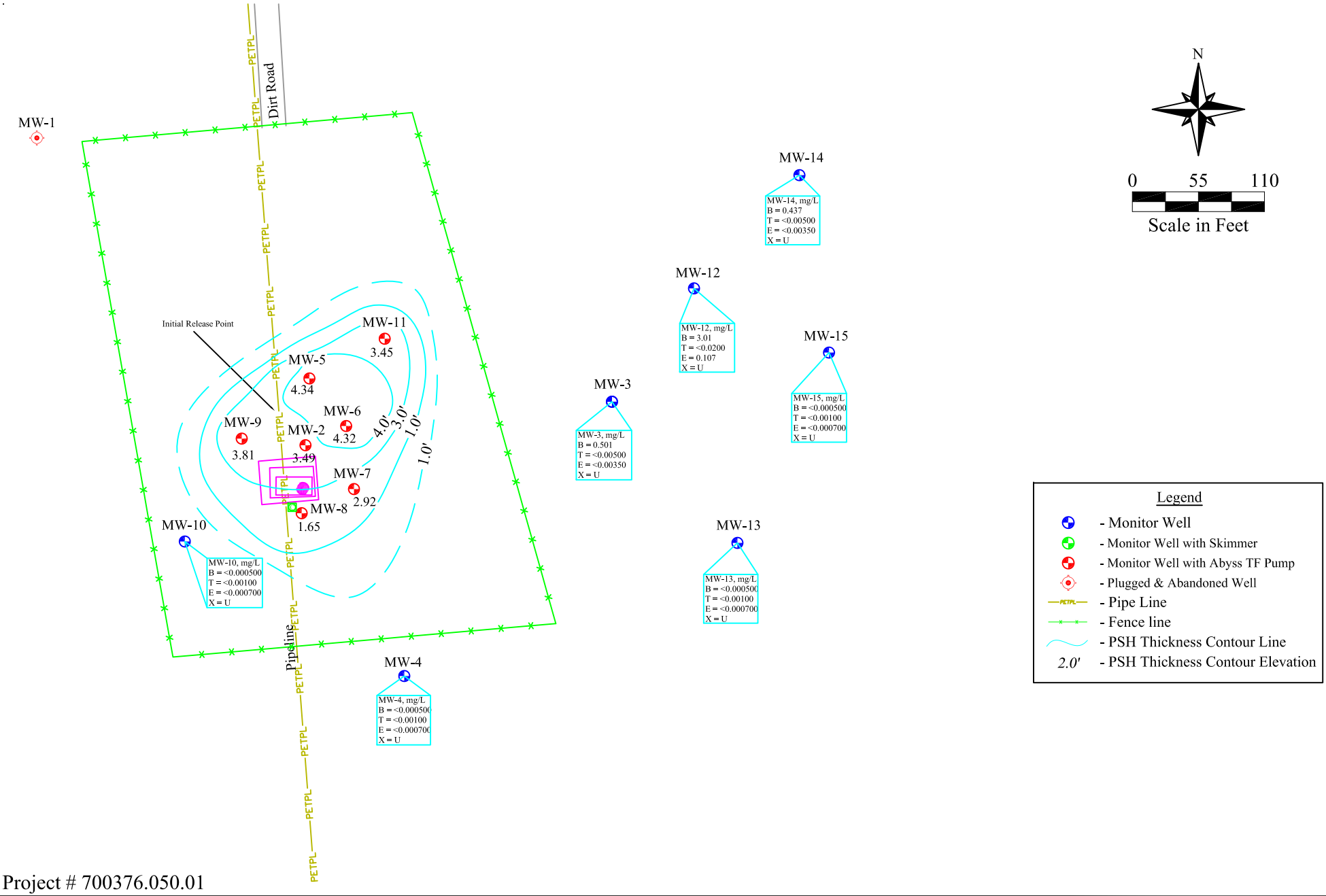
Drawn By: TJS

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029

SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico

Figure 3a - PSH Thickness & Groundwater Concentration Map, (03/13 & 19/2013)



Project # 700376.050.01

TALON LPE

Date: 01/16/2014

Scale: 1" = 110'

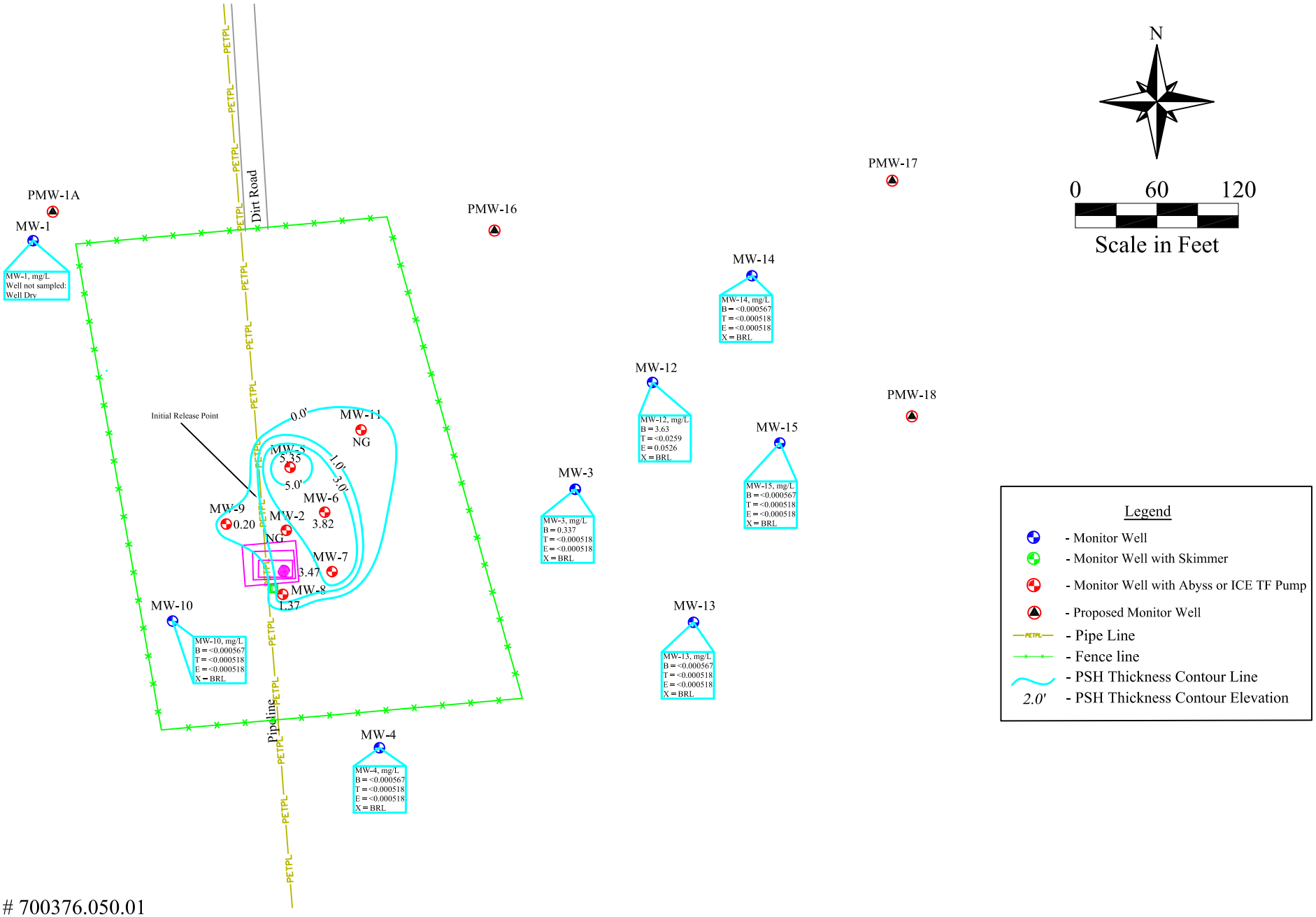
Drawn By: TJS

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029

SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico

Figure 3b - PSH Thickness & Groundwater Concentration Map, (06/06/2013)



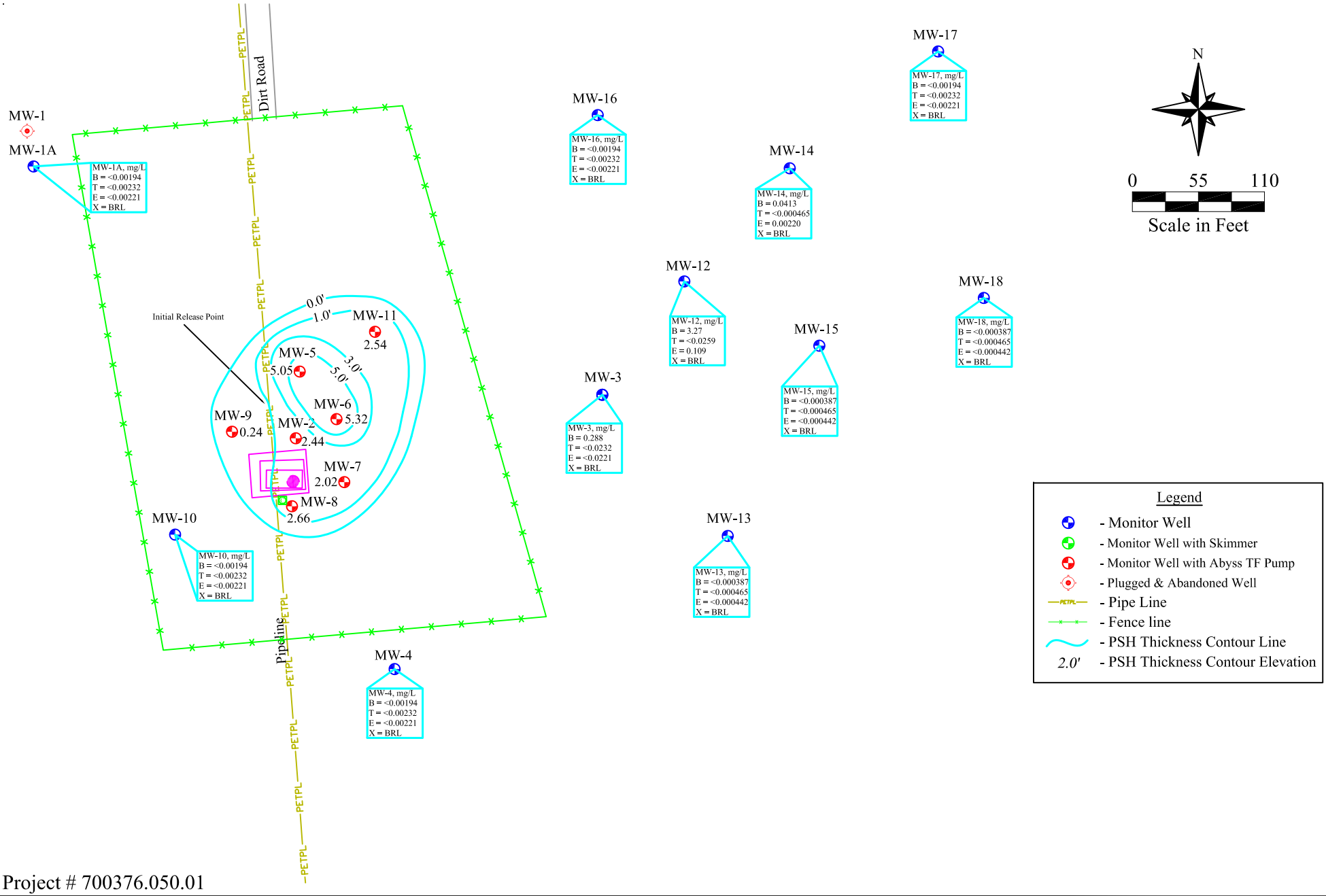
Project # 700376.050.01

TALON LPE

Date: 10/17/2013
Scale: 1" = 100'
Drawn By: SMM

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029
SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico
Figure 3c - PSH Thickness & Groundwater Concentration Map, (09/26/2013)



Project # 700376.050.01

TALON LPE

Date: 01/16/2014

Scale: 1" = 110'

Drawn By: TJS

Kimbrough Sweet 8"

SRS # 2000-10757, NMOCD REF. # AP-0029

SW 1/4 of the NE 1/4, Sec. 3, T18S, R37E, Lea County, New Mexico

Figure 3d - PSH Thickness & Groundwater Concentration Map, (12/03/2013)

APPENDIX B

Tables

Summary of Historical Fluid Level Measurements
Kimbrough Sweet 8"
SRS#: 2000-10757

Well	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Depth to PSH (ft)	PSH Thickness (ft)	Corrected Groundwater Elevation (ft)
MW-1			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 56 ft.
	06/20/12	3724.09	Dry	-	-	Dry
	09/11/12	3724.09	Dry	-	-	Dry
	12/06/12	3724.09	Dry	-	-	Dry
	03/11/13	3724.09	Dry	-	-	Dry
	06/06/13	3724.09	Dry	-	-	Dry
	09/26/13	3724.09	Dry	-	-	Dry
	12/03/13	3724.09	P&A	-	-	P&A
MW-1A			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 85.7 ft.
	12/03/13		58.85	-	-	
MW-2			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 61 ft.
	06/20/12	3723.32	61.00	57.35	3.65	3665.37
	09/11/12	3723.32	61.15	56.96	4.19	3665.67
	12/06/12	3723.32	61.15	58.21	2.94	3664.62
	03/11/13	3723.32	61.00	57.57	3.43	3665.18
	06/06/13	3723.32	61.00	57.51	3.49	3665.23
	09/26/13	3723.32	NG	-	-	NG
	12/03/13	3723.32	61.00	58.56	2.44	3664.36
MW-3			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 63.4 ft.
	06/20/12	3721.52	57.16	-	-	3664.36
	09/11/12	3721.52	57.39	-	-	3664.13
	12/06/12	3721.52	57.64	-	-	3663.88
	03/11/13	3721.52	57.65	-	-	3663.87
	06/06/13	3721.52	57.88	-	-	3663.64
	09/26/13	3721.52	57.81	-	-	3663.71
	12/03/13	3721.52	58.36	-	-	3663.16
MW-4			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 59.7 ft.
	06/20/12	3721.94	56.56	-	-	3665.38
	09/11/12	3721.94	56.72	-	-	3665.22
	12/06/12	3721.94	56.98	-	-	3664.96
	03/11/13	3721.94	56.96	-	-	3664.98
	06/06/13	3721.94	57.17	-	-	3664.77
	09/26/13	3721.94	57.26	-	-	3664.68
	12/03/13	3721.94	57.72	-	-	3664.22
MW-5			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 65 ft.
	06/20/12	3724.08	62.94	57.94	5.00	3665.31
	09/11/12	3724.08	63.85	58.03	5.82	3665.09
	12/06/12	3724.08	60.29	58.90	1.39	3664.95
	03/11/13	3724.08	60.00	59.14	0.86	3664.80
	06/06/13	3724.08	62.90	58.56	4.34	3664.80
	09/26/13	3724.08	63.91	58.56	5.35	3664.64
	12/03/13	3724.08	64.09	59.04	5.05	3664.21
MW-6			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 64 ft.
	06/20/12	3722.16	61.60	55.95	5.65	3665.28
	09/11/12	3722.16	61.84	56.12	5.72	3665.10
	12/06/12	3722.16	59.55	56.80	2.75	3664.91
	03/11/13	3722.16	58.41	57.06	1.35	3664.88
	06/06/13	3722.16	61.08	56.76	4.32	3664.69
	09/26/13	3722.16	60.01	56.19	3.82	3665.34
	12/03/13	3722.16	62.48	57.16	5.32	3664.12

Summary of Historical Fluid Level Measurements
Kimbrough Sweet 8"
SRS#: 2000-10757

Well	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Depth to PSH (ft)	PSH Thickness (ft)	Corrected Groundwater Elevation (ft)
MW-7			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 64 ft.
	06/20/12	3723.23	58.12	57.38	0.74	3665.73
	09/11/12	3723.23	60.08	57.65	2.43	3665.18
	12/06/12	3723.23	58.57	58.21	0.36	3664.96
	03/11/13	3723.23	58.42	58.29	0.13	3664.92
	06/06/13	3723.23	60.53	57.61	2.92	3665.14
	09/26/13	3723.23	60.61	57.14	3.47	3665.52
	12/03/13	3723.23	61.00	58.98	2.02	3663.92
MW-8			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 61 ft.
	06/20/12	3723.41	60.90	57.40	3.50	3665.43
	09/11/12	3723.41	59.35	58.03	1.32	3665.16
	12/06/12	3723.41	60.58	57.77	2.81	3665.18
	03/11/13	3723.41	59.62	58.01	1.61	3665.13
	06/06/13	3723.41	60.03	58.38	1.65	3664.76
	09/26/13	3723.41	59.48	58.11	1.37	3665.07
	12/03/13	3723.41	61.43	58.77	2.66	3664.20
MW-9			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 63 ft.
	06/20/12	3723.25	60.26	57.57	2.69	3665.24
	09/11/12	3723.25	58.45	57.77	0.68	3665.37
	12/06/12	3723.25	58.80	57.58	1.22	3665.47
	03/11/13	3723.25	59.92	57.76	2.16	3665.13
	06/06/13	3723.25	61.38	57.57	3.81	3665.05
	09/26/13	3723.25	59.40	59.20	0.20	3664.02
	12/03/13	3723.25	58.95	58.71	0.24	3664.50
MW-10			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 60.1 ft.
	06/20/12	3724.14	58.11	-	-	3666.03
	09/11/12	3724.14	58.30	-	-	3665.84
	12/06/12	3724.14	58.54	-	-	3665.60
	03/11/13	3724.14	58.54	-	-	3665.60
	06/06/13	3724.14	58.75	-	-	3665.39
	09/26/13	3724.14	58.86	-	-	3665.28
	12/03/13	3724.14	59.30	-	-	3664.84
MW-11			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 60.7 ft.
	06/20/12	3722.55	60.00	56.40	3.60	3665.56
	09/11/12	3722.55	60.00	56.62	3.38	3665.37
	12/06/12	3722.55	60.00	56.86	3.14	3665.17
	03/11/13	3722.55	59.03	57.41	1.62	3664.87
	06/06/13	3722.55	60.61	57.16	3.45	3664.82
	09/26/13	3722.55	NG	-	-	NG
	12/03/13	3722.55	60.73	58.19	2.54	3663.94
MW-12			Diameter: 2 in.	Screened Interval: 43 ft. to 73 ft.		TD: 73 ft.
	06/20/12	3724.11	60.18	-	-	3663.93
	09/11/12	3724.11	60.40	-	-	3663.71
	12/06/12	3724.11	60.64	-	-	3663.47
	03/11/13	3724.11	60.67	-	-	3663.44
	06/06/13	3724.11	60.90	-	-	3663.21
	09/26/13	3724.11	60.96	-	-	3663.15
	12/03/13	3724.11	61.44	-	-	3662.67
MW-13			Diameter: 2 in.	Screened Interval: 43 ft. to 73 ft.		TD: 73 ft.
	06/20/12	3723.19	59.02	-	-	3664.17
	09/11/12	3723.19	59.24	-	-	3663.95
	12/06/12	3723.19	59.50	-	-	3663.69
	03/11/13	3723.19	59.51	-	-	3663.68
	06/06/13	3723.19	59.70	-	-	3663.49
	09/26/13	3723.19	59.81	-	-	3663.38
	12/03/13	3723.19	60.23	-	-	3662.96

Summary of Historical Fluid Level Measurements
Kimbrough Sweet 8"
SRS#: 2000-10757

Well	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Depth to PSH (ft)	PSH Thickness (ft)	Corrected Groundwater Elevation (ft)
MW-14			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 82.3 ft.
	06/20/12	3725.10	61.74	-	-	3663.36
	09/11/12	3725.10	61.14	-	-	3663.96
	12/06/12	3725.10	62.18	-	-	3662.92
	03/11/13	3725.10	62.21	-	-	3662.89
	06/06/13	3725.10	62.59	-	-	3662.51
	09/26/13	3725.10	62.68	-	-	3662.42
	12/03/13	3725.10	62.89	-	-	3662.21
MW-15			Diameter: 4 in.	Screened Interval: ____ ft. to ____ ft.		TD: 79.2 ft.
	06/20/12	3726.06	62.47	-	-	3663.59
	09/11/12	3726.06	62.68	-	-	3663.38
	12/06/12	3726.06	62.93	-	-	3663.13
	03/11/13	3726.06	62.96	-	-	3663.10
	06/06/13	3726.06	63.15	-	-	3662.91
	09/26/13	3726.06	63.43	-	-	3662.63
	12/03/13	3726.06	63.67	-	-	3662.39
MW-16			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 82.7 ft.
	12/03/13		59.53	-	-	
MW-17			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 86.6 ft.
	12/03/13		63.93	-	-	
MW-18			Diameter: 2 in.	Screened Interval: ____ ft. to ____ ft.		TD: 85.8 ft.
	12/03/13		63.03	-	-	

Specific Gravity: 0.835

NG - Not Gauged
NSch - Not scheduled to be gauged
Block - Well blocked/obstructed
Locate - Can not locate/find well
Dry - Well is dry
P&A - Plug and Abandon
WD - Well Destroyed

Summary of Historical Groundwater Analytical Data
Kimbrough Sweet 8"
SRS#: 2000-10757

Sample Designation	Date Sampled	Concentration (mg/L)				
		Benzene	Toluene	Ethylbenzene	Total Xylenes	BTEX
MW-1A	12/03/13	<0.00194	<0.00232	<0.00221	BRL	-
MW-3	06/20/12	8.44	<0.0259	0.455	0.194	-
	09/12/12	8.89	<0.0174	0.302	BRL	-
	12/06/12	1.86	<0.00347	0.0303	BRL	-
	03/13/13	0.105	<0.000465	0.00220	BRL	-
	06/06/13	0.501	<0.00500	<0.00350	U	0.501
	09/26/13	0.337	<0.000518	<0.000518	BRL	-
	12/03/13	0.288	<0.0232	<0.0221	BRL	-
MW-4	06/21/12	<0.000310	<0.000259	<0.000291	BRL	-
	09/12/12	<0.00186	<0.00174	<0.00163	BRL	-
	12/06/12	<0.00155	<0.00130	<0.00146	BRL	-
	03/13/13	<0.00194	<0.00232	<0.00221	BRL	-
	06/06/13	<0.000500	<0.00100	<0.000700	U	U
	09/26/13	<0.000567	<0.000518	<0.000518	BRL	-
	12/03/13	<0.00194	<0.00232	<0.00221	BRL	-
MW-10	06/21/12	<0.00155	<0.00130	<0.00146	BRL	-
	09/12/12	0.142	<0.00174	<0.00163	BRL	-
	12/06/12	<0.00155	<0.00130	<0.00146	BRL	-
	03/13/13	<0.000567	<0.000518	<0.000518	BRL	-
	06/06/13	<0.000500	<0.00100	<0.000700	U	U
	09/26/13	<0.000567	<0.000518	<0.000518	BRL	-
	12/03/13	<0.00194	<0.00232	<0.00221	BRL	-
MW-12	06/20/12	3.49	<0.0130	<0.0146	BRL	-
	09/12/12	9.04	<0.0174	<0.0163	BRL	-
	12/06/12	2.62	<0.00259	0.0137	0.0210	-
	03/13/13	2.15	<0.0259	<0.0259	BRL	-
	06/06/13	3.01	<0.0200	0.107	U	3.12
	09/26/13	3.63	<0.0259	0.0526	BRL	-
	12/03/13	3.27	<0.0259	0.109	BRL	-

Summary of Historical Groundwater Analytical Data
Kimbrough Sweet 8"
SRS#: 2000-10757

Sample Designation	Date Sampled	Concentration (mg/L)				
		Benzene	Toluene	Ethylbenzene	Total Xylenes	BTEX
MW-13	06/20/12	<0.000310	<0.000259	<0.000291	BRL	-
	09/12/12	<0.000310	<0.000259	<0.000291	BRL	-
	12/06/12	<0.000310	<0.000259	<0.000291	BRL	-
	03/13/13	0.00120	<0.000518	<0.000518	BRL	-
	06/06/13	<0.000500	<0.00100	<0.000700	U	U
	09/26/13	<0.000567	<0.000518	<0.000518	BRL	-
	12/03/13	<0.000387	<0.000465	<0.000442	BRL	-
MW-14	06/20/12	0.789	<0.0130	<0.0146	BRL	-
	09/12/12	0.375	<0.00174	<0.00163	0.00640	-
	12/06/12	0.524	<0.00130	<0.00146	0.00520	-
	03/19/13	0.208	<0.000518	<0.000518	BRL	-
	06/06/13	0.437	<0.00500	<0.00350	U	0.437
	09/26/13	<0.000567	<0.000518	<0.000518	BRL	-
	12/03/13	0.0413	<0.000465	0.00220	BRL	-
MW-15	06/20/12	0.00130	<0.000259	<0.000291	0.00110	-
	09/12/12	0.00300	<0.000347	<0.000326	BRL	-
	12/06/12	0.0169	<0.000259	<0.000291	BRL	-
	03/19/13	0.00240	<0.000518	<0.000518	BRL	-
	06/06/13	<0.000500	<0.00100	<0.000700	U	U
	09/26/13	<0.000567	<0.000518	<0.000518	BRL	-
	12/03/13	<0.000387	<0.000465	<0.000442	BRL	-
MW-16	12/03/13	<0.00194	<0.00232	<0.00221	BRL	-
MW-17	12/03/13	<0.00194	<0.00232	<0.00221	BRL	-
MW-18	12/03/13	<0.000387	<0.000465	<0.000442	BRL	-

Summary of Historical Groundwater Analytical Data - PAH Supplement
Kimbrough Sweet 8"
SRS#: 2000-10757

Sample Designation	Date Sampled	Concentration (mg/L)																		
		1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MW-3	01/03/11	0.0203	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	0.00132	BRL	0.00412	BRL	0.0225	0.00124	BRL
	12/20/11	0.00390	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	0.00126	0.000355	0.00143	BRL	0.00437	0.00118	0.000262
	12/06/12	<0.000103	<0.0000861	<0.000115	<0.0000943	<0.0000746	<0.0000952	<0.0000661	<0.0000767	<0.0000752	<0.0000745	<0.0000725	<0.0000802	0.00171	<0.000117	<0.0000943	<0.0000726	<0.000114	0.00144	<0.0000652
	09/26/13	<0.000105	<0.0000882	<0.000118	<0.0000966	<0.0000764	<0.0000976	<0.0000677	<0.0000785	<0.0000771	<0.0000763	<0.0000743	<0.0000822	<0.000104	<0.000120	<0.0000966	<0.0000744	<0.000117	<0.0000796	<0.0000668
MW-12	12/06/12	<0.000103	<0.0000866	<0.000116	<0.0000948	<0.0000750	<0.0000957	<0.0000664	<0.0000771	<0.0000756	<0.0000749	<0.0000729	<0.0000807	0.00319	<0.000118	<0.0000948	<0.0000730	<0.000115	0.00214	<0.0000655
	09/26/13	<0.000100	<0.0000842	<0.000112	<0.0000922	<0.0000729	<0.0000931	<0.0000646	<0.0000750	<0.0000736	<0.0000728	<0.0000709	<0.0000785	0.00107	<0.000114	<0.0000922	<0.0000710	<0.000112	0.000924	<0.0000637
MW-14	12/16/11	0.00354	0.00269	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	0.00446	BRL	BRL
	12/06/12	0.000796	<0.0000869	<0.000116	<0.0000952	<0.0000753	<0.0000962	<0.0000667	<0.0000774	<0.0000760	<0.0000752	<0.0000732	<0.0000810	<0.000103	<0.000118	<0.0000952	<0.0000733	<0.000115	<0.0000784	<0.0000658
	09/26/13	<0.000100	<0.0000837	<0.000112	<0.0000917	<0.0000725	<0.0000926	<0.0000643	<0.0000746	<0.0000732	<0.0000724	<0.0000705	<0.0000780	<0.0000990	<0.000114	<0.0000917	<0.0000706	<0.000111	<0.0000756	<0.0000634
MW-15	12/16/11	0.00910	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	0.000447	BRL	0.000365	BRL	0.00620	0.000281	BRL
	12/06/12	<0.000104	<0.0000869	<0.000116	<0.0000952	<0.0000753	<0.0000962	<0.0000667	<0.0000774	<0.0000760	<0.0000752	<0.0000732	<0.0000810	<0.000103	<0.000118	<0.0000952	<0.0000733	<0.000115	<0.0000784	<0.0000658
	09/26/13	<0.000105	<0.0000882	<0.000118	<0.0000966	<0.0000764	<0.0000976	<0.0000677	<0.0000785	<0.0000771	<0.0000763	<0.0000743	<0.0000822	<0.000104	<0.000120	<0.0000966	<0.0000744	<0.000117	<0.0000796	<0.0000668

Summary of Historical Soil Analytical Data
Kimbrough Sweet 8"
SRS#: 2000-10757

Sample Designation	Date Sampled	Top	Bottom	Concentration (mg/kg)													
				Benzene	Toluene	Ethylbenzene	Xylene (p/m)	Xylene (o)	Total Xylenes	BTEX	TPH C6-C12	C6-C12	TPH >C12-C28	>C12-C28	>C28-C35	Carbon Ranges C28-C35	Total TPH
BC-1 2'	05/22/07			ND *	ND *	ND *	ND *	ND *	-	-	2.86 *	-	343 *	-	-	105 *	-
BC-1 5'	05/22/07			0.297 *	0.956 *	1.11 *	3.94 *	2.56 *	-	-	728 *	-	2240 *	-	-	247 *	-
BC-1 10'	05/22/07			0.852 *	1.67 *	1.47 *	8.71 *	5.38 *	-	-	877 *	-	2760 *	-	-	350 *	-
BC-1 15'	05/22/07			0.142 *	0.140 *	0.106 *	0.437 *	0.267 *	-	-	507 *	-	1240 *	-	-	169 *	-
BC-2 2'	05/22/07			ND *	ND *	ND *	ND *	ND *	-	-	7.91 *	-	303 *	-	-	105 *	-
BC-2 5'	05/22/07			0.200 *	0.947 *	1.59 *	8.66 *	3.59 *	-	-	915 *	-	2220 *	-	-	291 *	-
BC-2 10'	05/22/07			1.24 *	1.81 *	3.42 *	20.7 *	7.71 *	-	-	1260 *	-	2870 *	-	-	302 *	-
BC-2 15'	05/22/07			0.914 *	0.918 *	1.08 *	6.60 *	1.72 *	-	-	591 *	-	3010 *	-	-	368 *	-
BC-3 2'	05/22/07			ND *	ND *	ND *	ND *	ND *	-	-	10.7 *	-	323 *	-	-	102 *	-
BC-3 5'	05/22/07			0.302 *	1.53 *	3.80 *	15.9 *	6.70 *	-	-	2300 *	-	5550 *	-	-	222 *	-
BC-3 10'	05/22/07			0.0977 *	0.576 *	0.987 *	3.85 *	1.89 *	-	-	551 *	-	1800 *	-	-	196 *	-
BC-3 15'	05/22/07			0.00238 *	0.0166 *	0.0151 *	0.0614 *	0.0138 *	-	-	253 *	-	1200 *	-	-	140 *	-
BC-4 2'	05/22/07			ND *	0.0705 *	0.247 *	0.719 *	0.292 *	-	-	414 *	-	1590 *	-	-	182 *	-
BC-4 5'	05/22/07			0.177 *	1.08 *	1.03 *	4.54 *	3.09 *	-	-	1290 *	-	3310 *	-	-	219 *	-
BC-4 10'	05/22/07			0.0419 *	0.371 *	0.467 *	2.78 *	1.66 *	-	-	1080 *	-	3180 *	-	-	208 *	-
BC-4 15'	05/22/07			ND *	0.0206 *	0.0404 *	0.0567 *	0.0305 *	-	-	47.9 *	-	524 *	-	-	142 *	-

TALON LPE "All the Pieces"

Summary of Historical Soil Analytical Data
Kimbrough Sweet 8"
SRS#: 2000-10757

Sample Designation	Date Sampled	Top	Bottom	Concentration (mg/kg)														
				Benzene	Toluene	Ethylbenzene	Xylene (p/m)	Xylene (o)	Total Xylenes	BTEX	TPH C6-C12	C6-C12	TPH >C12-C28	>C12-C28	>C28-C35	Carbon Ranges C28-C35	Total TPH
BC-4 10'	08/05/08			0.116	0.250	0.476	-	-	2.97	-	-	-	-	-	-	-	-
BC-3 2'	08/05/08			BRL	BRL	0.0109	-	-	0.0245	-	-	-	-	-	-	-	-
BC-3 5'	08/05/08			BRL	BRL	0.0778	-	-	0.195	-	-	-	-	-	-	-	-
BC-1 10'	08/05/08			0.197	BRL	0.480	-	-	3.78	-	-	-	-	-	-	-	-
BC-2 2'	08/05/08			BRL	BRL	0.0272	-	-	0.0595	-	-	-	-	-	-	-	-
BC-2 15'	08/05/08			0.330	BRL	0.478	-	-	1.43	-	-	-	-	-	-	-	-
BC-2 10'	08/05/08			0.374	BRL	0.821	-	-	3.19	-	-	-	-	-	-	-	-
BC-2 5'	08/05/08			BRL	0.0524	0.312	-	-	1.58	-	-	-	-	-	-	-	-
BC-3 15'	08/05/08			0.0729	BRL	0.168	-	-	0.323	-	-	-	-	-	-	-	-
BC-3 10'	08/05/08			BRL	BRL	0.193	-	-	0.667	-	-	-	-	-	-	-	-
BC-4 15'	08/05/08			BRL	BRL	0.0314	-	-	0.0552	-	-	-	-	-	-	-	-
BC-4 2'	08/05/08			BRL	BRL	BRL	-	-	0.0636	-	-	-	-	-	-	-	-
BC-4 5'	08/05/08			BRL	0.0582	0.228	-	-	1.33	-	-	-	-	-	-	-	-
BC-1 5'	08/05/08			0.0869	0.0760	0.362	-	-	2.97	-	-	-	-	-	-	-	-
BC-1 2'	08/05/08			BRL	BRL	BRL	-	-	BRL	-	-	-	-	-	-	-	-
BC-1 15'	08/05/08			0.384	BRL	0.477	-	-	2.36	-	-	-	-	-	-	-	-
BC-1 15'	07/09/09			0.346	0.309	0.530	-	-	0.989	-	-	-	-	-	-	-	-
BC-2 10'	07/09/09			0.598	0.656	0.726	-	-	5.84	-	-	-	-	-	-	-	-
BC-2 15'	07/09/09			1.28	1.26	1.26	-	-	8.09	-	-	-	-	-	-	-	-
BC-1 2'	07/09/09			BRL	BRL	0.142	-	-	1.15	-	-	-	-	-	-	-	-
BC-1 10'	07/09/09			0.461	0.774	1.02	-	-	5.52	-	-	-	-	-	-	-	-
BC-1 5'	07/09/09			0.171	0.355	0.414	-	-	4.78	-	-	-	-	-	-	-	-
BC-3 2'	07/09/09			BRL	BRL	BRL	-	-	BRL	-	-	-	-	-	-	-	-
BC-2 2'	07/09/09			BRL	BRL	BRL	-	-	0.319	-	-	-	-	-	-	-	-
BC-4 2'	07/09/09			BRL	BRL	0.387	-	-	1.84	-	-	-	-	-	-	-	-
BC-3 10'	07/09/09			0.623	1.10	1.03	-	-	9.53	-	-	-	-	-	-	-	-
BC-4 15'	07/09/09			BRL	BRL	BRL	-	-	BRL	-	-	-	-	-	-	-	-
BC-2 5'	07/09/09			0.492	BRL	1.32	-	-	9.33	-	-	-	-	-	-	-	-
BC-4 10'	07/09/09			BRL	0.167	0.176	-	-	0.690	-	-	-	-	-	-	-	-
BC-3 5'	07/09/09			0.243	0.489	0.542	-	-	3.66	-	-	-	-	-	-	-	-
BC-3 15'	07/09/09			2.94	1.70	1.17	-	-	8.44	-	-	-	-	-	-	-	-
BC-4 5'	07/09/09			BRL	BRL	0.701	-	-	2.43	-	-	-	-	-	-	-	-

Summary of Historical Soil Analytical Data
Kimbrough Sweet 8"
SRS#: 2000-10757

Sample Designation	Date Sampled	Top	Bottom	Concentration (mg/kg)														
				Benzene	Toluene	Ethylbenzene	Xylene (p/m)	Xylene (o)	Total Xylenes	BTEX	TPH C6-C12	C6-C12	TPH >C12-C28	>C12-C28	>C28-C35	Carbon Ranges C28-C35	Total TPH
SP-1	01/27/11			BRL	BRL	BRL	-	-	BRL	-	-	-	-	-	-	-	-
MW-14 (60-70)	01/27/11			BRL	BRL	BRL	-	-	BRL	-	-	-	-	-	-	-	-
MW-15 (60-70)	01/27/11			BRL	BRL	BRL	-	-	BRL	-	-	-	-	-	-	-	-
MW-1A	11/20/13		60	<0.000636	<0.00127	<0.000636	-	-	U	U	-	<12.6	-	<12.6	<12.6	-	<12.6
	11/20/13		85	<0.000511	<0.00102	<0.000511	-	-	U	U	-	<10.1	-	<10.1	<10.1	-	<10.1
MW-16	11/20/13		60	<0.000528	<0.00106	<0.000528	-	-	U	U	-	<10.5	-	<10.5	<10.5	-	<10.5
	11/20/13		85	<0.000635	<0.00127	<0.000635	-	-	U	U	-	<12.6	-	<12.6	<12.6	-	<12.6
MW-17	11/21/13		60	<0.000517	<0.00103	<0.000517	-	-	U	U	-	<10.3	-	<10.3	<10.3	-	<10.3
	11/21/13		85	<0.000514	<0.00103	<0.000514	-	-	U	U	-	<10.2	-	<10.2	<10.2	-	<10.2
MW-18	11/21/13		60	<0.000635	<0.00127	<0.000635	-	-	U	U	-	<12.6	-	<12.6	<12.6	-	<12.6
	11/21/13		85	<0.000637	<0.00127	<0.000637	-	-	U	U	-	<12.6	-	<12.6	<12.6	-	<12.6

APPENDIX C

Laboratory Analytical Data Reports and Chain of Custody Documentation

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Brad Ivy
Talon LPE-Midland
2901 State Highway 349
Midland, TX, 79706

Report Date: March 20, 2013

Work Order: 13031503

Project Location: Hobbs, NM
Project Name: Kimbrough Sweet 8”
Project Number: 700376.050.01
SRS #: 2000-10757

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
323459	MW-3	water	2013-03-13	12:50	2013-03-14
323460	MW-4	water	2013-03-13	13:30	2013-03-14
323461	MW-10	water	2013-03-13	13:30	2013-03-14
323462	MW-12	water	2013-03-13	12:40	2013-03-14
323463	MW-13	water	2013-03-13	12:20	2013-03-14

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

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

Report Contents

Case Narrative

Samples for project Kimbrough Sweet 8" were received by TraceAnalysis, Inc. on 2013-03-14 and assigned to work order 13031503. Samples for work order 13031503 were received intact without headspace and at a temperature of 2.3 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	84510	2013-03-15 at 13:26	99752	2013-03-15 at 13:26
BTEX	S 8021B	84552	2013-03-18 at 13:19	99803	2013-03-18 at 13:19

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13031503 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 323459 - MW-3

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	99803	Date Analyzed:	2013-03-18	Analyzed By:	MT
Prep Batch:	84552	Sample Preparation:	2013-03-18	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	Qs	1	**0.105**	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene		1	**0.00220**	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0891	mg/L	1	0.100	89	69.8 - 120
4-Bromofluorobenzene (4-BFB)			0.0881	mg/L	1	0.100	88	67.3 - 120

Sample: 323460 - MW-4

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	99803	Date Analyzed:	2013-03-18	Analyzed By:	MT
Prep Batch:	84552	Sample Preparation:	2013-03-18	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [1]	Qs,U	1	<0.00500	mg/L	5	0.00100
Toluene	U	1	<0.00500	mg/L	5	0.00100
Ethylbenzene	U	1	<0.00500	mg/L	5	0.00100
Xylene	U	1	<0.00500	mg/L	5	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.419	mg/L	5	0.500	84	69.8 - 120
4-Bromofluorobenzene (4-BFB)			0.437	mg/L	5	0.500	87	67.3 - 120

Sample: 323461 - MW-10

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	99752	Date Analyzed:	2013-03-15	Analyzed By:	MT
Prep Batch:	84510	Sample Preparation:	2013-03-15	Prepared By:	MT

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0836	mg/L	1	0.100	84	80 - 120
4-Bromofluorobenzene (4-BFB)			0.0814	mg/L	1	0.100	81	80 - 120

Sample: 323462 - MW-12

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	99752	Date Analyzed:	2013-03-15	Analyzed By:	MT
Prep Batch:	84510	Sample Preparation:	2013-03-15	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**2.15**	mg/L	50	0.00100
Toluene	U	1	<0.0500	mg/L	50	0.00100
Ethylbenzene	U	1	<0.0500	mg/L	50	0.00100
Xylene	U	1	<0.0500	mg/L	50	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			4.15	mg/L	50	5.00	83	80 - 120
4-Bromofluorobenzene (4-BFB)			4.08	mg/L	50	5.00	82	80 - 120

Sample: 323463 - MW-13

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	99752	Date Analyzed:	2013-03-15	Analyzed By:	MT
Prep Batch:	84510	Sample Preparation:	2013-03-15	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**0.00120**	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0842	mg/L	1	0.100	84	80 - 120
4-Bromofluorobenzene (4-BFB)			0.0828	mg/L	1	0.100	83	80 - 120

Method Blanks

Method Blank (1) QC Batch: 99752

QC Batch:	99752	Date Analyzed:	2013-03-15	Analyzed By:	MT
Prep Batch:	84510	QC Preparation:	2013-03-15	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000567	mg/L	0.001
Toluene		1	<0.000518	mg/L	0.001
Ethylbenzene		1	<0.000518	mg/L	0.001
Xylene		1	<0.000548	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0887	mg/L	1	0.100	89	80 - 120
4-Bromofluorobenzene (4-BFB)			0.0910	mg/L	1	0.100	91	80 - 120

Method Blank (1) QC Batch: 99803

QC Batch:	99803	Date Analyzed:	2013-03-18	Analyzed By:	MT
Prep Batch:	84552	QC Preparation:	2013-03-18	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000387	mg/L	0.001
Toluene		1	<0.000465	mg/L	0.001
Ethylbenzene		1	<0.000442	mg/L	0.001
Xylene		1	<0.000413	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0903	mg/L	1	0.100	90	69.8 - 120
4-Bromofluorobenzene (4-BFB)			0.0874	mg/L	1	0.100	87	67.3 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 99752 | Date Analyzed: 2013-03-15 | Analyzed By: MT
Prep Batch: 84510 | QC Preparation: 2013-03-15 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0900	mg/L	1	0.100	<0.000567	90	80 - 120
Toluene		1	0.0974	mg/L	1	0.100	<0.000518	97	80 - 120
Ethylbenzene		1	0.0944	mg/L	1	0.100	<0.000518	94	80 - 120
Xylene		1	0.277	mg/L	1	0.300	<0.000548	92	80 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0860	mg/L	1	0.100	<0.000567	86	80 - 120	4	20
Toluene		1	0.0919	mg/L	1	0.100	<0.000518	92	80 - 120	6	20
Ethylbenzene		1	0.0895	mg/L	1	0.100	<0.000518	90	80 - 120	5	20
Xylene		1	0.264	mg/L	1	0.300	<0.000548	88	80 - 120	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0878	0.0870	mg/L	1	0.100	88	87	80 - 120
4-Bromofluorobenzene (4-BFB)	0.0886	0.0866	mg/L	1	0.100	89	87	80 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 99803 | Date Analyzed: 2013-03-18 | Analyzed By: MT
Prep Batch: 84552 | QC Preparation: 2013-03-18 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0885	mg/L	1	0.100	<0.000387	88	74.4 - 120
Toluene		1	0.0871	mg/L	1	0.100	<0.000465	87	75 - 120
Ethylbenzene		1	0.0881	mg/L	1	0.100	<0.000442	88	74.7 - 120
Xylene		1	0.267	mg/L	1	0.300	<0.000413	89	75.9 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0903	mg/L	1	0.100	<0.000387	90	74.4 - 120	2	20
Toluene		1	0.0891	mg/L	1	0.100	<0.000465	89	75 - 120	2	20
Ethylbenzene		1	0.0897	mg/L	1	0.100	<0.000442	90	74.7 - 120	2	20
Xylene		1	0.270	mg/L	1	0.300	<0.000413	90	75.9 - 120	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0876	0.0898	mg/L	1	0.100	88	90	69.8 - 120
4-Bromofluorobenzene (4-BFB)	0.0873	0.0877	mg/L	1	0.100	87	88	67.3 - 120

Matrix Spike (MS-1) Spiked Sample: 323452

QC Batch: 99752 | Date Analyzed: 2013-03-15 | Analyzed By: MT
Prep Batch: 84510 | QC Preparation: 2013-03-15 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0910	mg/L	1	0.100	<0.000567	91	64.6 - 120
Toluene		1	0.0963	mg/L	1	0.100	<0.000518	96	62.9 - 123
Ethylbenzene		1	0.0930	mg/L	1	0.100	<0.000518	93	64.2 - 123
Xylene		1	0.267	mg/L	1	0.300	<0.000548	89	63.1 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0875	mg/L	1	0.100	<0.000567	88	64.6 - 120	4	20
Toluene		1	0.0939	mg/L	1	0.100	<0.000518	94	62.9 - 123	2	20
Ethylbenzene		1	0.0933	mg/L	1	0.100	<0.000518	93	64.2 - 123	0	20
Xylene		1	0.260	mg/L	1	0.300	<0.000548	87	63.1 - 121	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0894	0.0872	mg/L	1	0.1	89	87	80 - 120
4-Bromofluorobenzene (4-BFB)	0.0890	0.0876	mg/L	1	0.1	89	88	80 - 120

Matrix Spike (MS-1) Spiked Sample: 323459

QC Batch: 99803 | Date Analyzed: 2013-03-18 | Analyzed By: MT
Prep Batch: 84552 | QC Preparation: 2013-03-18 | Prepared By: MT

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Qs	Qs	1	0.196	mg/L	1	0.100	0.105	91	57.7 - 120
Toluene			1	0.0870	mg/L	1	0.100	<0.000465	87	56.9 - 120
Ethylbenzene			1	0.0898	mg/L	1	0.100	0.0022	88	62.9 - 120
Xylene			1	0.264	mg/L	1	0.300	<0.000413	88	63.2 - 120

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

Param		F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	Qs	Qs	1	0.199	mg/L	1	0.100	0.105	94	57.7 - 120	2	20
Toluene			1	0.0888	mg/L	1	0.100	<0.000465	89	56.9 - 120	2	20
Ethylbenzene			1	0.0909	mg/L	1	0.100	0.0022	89	62.9 - 120	1	20
Xylene			1	0.267	mg/L	1	0.300	<0.000413	89	63.2 - 120	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0898	0.0914	mg/L	1	0.1	90	91	69.8 - 120
4-Bromofluorobenzene (4-BFB)	0.0892	0.0863	mg/L	1	0.1	89	86	67.3 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 99752 | Date Analyzed: 2013-03-15 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0909	91	80 - 120	2013-03-15
Toluene		1	mg/L	0.100	0.0978	98	80 - 120	2013-03-15
Ethylbenzene		1	mg/L	0.100	0.0941	94	80 - 120	2013-03-15
Xylene		1	mg/L	0.300	0.276	92	80 - 120	2013-03-15

Standard (CCV-2)

QC Batch: 99752 | Date Analyzed: 2013-03-15 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0890	89	80 - 120	2013-03-15
Toluene		1	mg/L	0.100	0.0937	94	80 - 120	2013-03-15
Ethylbenzene		1	mg/L	0.100	0.0909	91	80 - 120	2013-03-15
Xylene		1	mg/L	0.300	0.266	89	80 - 120	2013-03-15

Standard (CCV-3)

QC Batch: 99752 | Date Analyzed: 2013-03-15 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0861	86	80 - 120	2013-03-15
Toluene		1	mg/L	0.100	0.0890	89	80 - 120	2013-03-15
Ethylbenzene		1	mg/L	0.100	0.0855	86	80 - 120	2013-03-15
Xylene		1	mg/L	0.300	0.251	84	80 - 120	2013-03-15

Standard (CCV-1)

QC Batch: 99803 | Date Analyzed: 2013-03-18 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0896	90	80 - 120	2013-03-18
Toluene		1	mg/L	0.100	0.0885	88	80 - 120	2013-03-18
Ethylbenzene		1	mg/L	0.100	0.0894	89	80 - 120	2013-03-18
Xylene		1	mg/L	0.300	0.271	90	80 - 120	2013-03-18

Standard (CCV-2)

QC Batch: 99803 | Date Analyzed: 2013-03-18 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0900	90	80 - 120	2013-03-18
Toluene		1	mg/L	0.100	0.0886	89	80 - 120	2013-03-18
Ethylbenzene		1	mg/L	0.100	0.0887	89	80 - 120	2013-03-18
Xylene		1	mg/L	0.300	0.267	89	80 - 120	2013-03-18

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-12-8	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

1 Dilution due to soil in VOA.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 13031503

Page _____ of _____

TraceAnalysis, Inc.

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

Company Name:	TALON LPE
Phone #:	432-522-2133
Address: (Street, City, Zip)	2901 S Hwy 349, Midland Tx
Fax #:	432-522-2133
Contact Person:	Brad Ivy
E-mail:	bivy@talonlpe.com
Invoice to: (If different from above)	Plains 2000-10757
Project #:	700376.050.01
Project Name:	Kimbrough
Project Location (including state):	HOBBS, NM
Sampler Signature:	Ramon C., Parker N.

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
323459	MW-3	3	VOA	✓				✓				✓		3/13/13	1250
460	MW-4	3	VOA	✓				✓				✓		3/13/13	1330
461	MW-10	3	VOA	✓				✓				✓		3/13/13	1330
462	MW-12	3	VOA	✓				✓				✓		3/13/13	1240
463	MW-13	3	VOA	✓				✓				✓		3/13/13	1220

MTBE 8021 / 602 / 8260 / 624
BTEX 8021 / 602 / 8260 / 624
TPH 418.1 / TX1005 / TX1005 Ext(C35)
TPH 8015 GRO / DRO / TVHC
PAH 8270 / 625
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7
TCLP Metals Ag As Ba Cd Cr Pb Se Hg
TCLP Volatiles
TCLP Semi Volatiles
TCLP Pesticides
RCI
GC/MS Vol. 8260 / 624
GC/MS Semi. Vol. 8270 / 625
PCB's 8082 / 608
Pesticides 8081 / 608
BOD, TSS, pH
Moisture Content
Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity
Na, Ca, Mg, K, TDS, EC
Turn Around Time if different from standard
Hold

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Ramon	TALON	3/14/13	1600					INST ____ OBS ____ °C COR ____ °C
								INST ____ OBS ____ °C COR ____ °C
				Brandi Wood	Trac Lubbock	3/14/13	16:00	INST IR-3 OBS 1.9 °C COR 2.3 °C

LAB USE ONLY
Int: Y / N
Headspace Y / N / NA
Log-in-Review

REMARKS:

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

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

Carrier # Cangla

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TRACEANALYSIS, INC.

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Brad Ivy
Talon LPE-Midland
2901 State Highway 349
Midland, TX, 79706

Report Date: March 22, 2013

Work Order: 13031925

Project Location: Hobbs, NM
Project Name: Kimbrough Sweet 8”
Project Number: 700376.050.01
SRS #: 2000-10757

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
323942	MW-14	water	2013-03-19	11:10	2013-03-19
323943	MW-15	water	2013-03-19	10:45	2013-03-19

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

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

Report Contents

Case Narrative

Samples for project Kimbrough Sweet 8" were received by TraceAnalysis, Inc. on 2013-03-19 and assigned to work order 13031925. Samples for work order 13031925 were received intact at a temperature of 2.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	84599	2013-03-20 at 13:49	99860	2013-03-20 at 13:49
BTEX	S 8021B	84630	2013-03-21 at 15:21	99888	2013-03-21 at 15:21

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13031925 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 323942 - MW-14

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	99888	Date Analyzed:	2013-03-21	Analyzed By:	MT
Prep Batch:	84630	Sample Preparation:	2013-03-21	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**0.208**	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0915	mg/L	1	0.100	92	80 - 120
4-Bromofluorobenzene (4-BFB)			0.0901	mg/L	1	0.100	90	80 - 120

Sample: 323943 - MW-15

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	99860	Date Analyzed:	2013-03-20	Analyzed By:	MT
Prep Batch:	84599	Sample Preparation:	2013-03-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**0.00240**	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0949	mg/L	1	0.100	95	80 - 120
4-Bromofluorobenzene (4-BFB)			0.0970	mg/L	1	0.100	97	80 - 120

Method Blanks

Method Blank (1) QC Batch: 99860

QC Batch:	99860	Date Analyzed:	2013-03-20	Analyzed By:	MT
Prep Batch:	84599	QC Preparation:	2013-03-20	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000567	mg/L	0.001
Toluene		1	<0.000518	mg/L	0.001
Ethylbenzene		1	<0.000518	mg/L	0.001
Xylene		1	<0.000548	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0969	mg/L	1	0.100	97	80 - 120
4-Bromofluorobenzene (4-BFB)			0.101	mg/L	1	0.100	101	80 - 120

Method Blank (1) QC Batch: 99888

QC Batch:	99888	Date Analyzed:	2013-03-21	Analyzed By:	MT
Prep Batch:	84630	QC Preparation:	2013-03-21	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000567	mg/L	0.001
Toluene		1	<0.000518	mg/L	0.001
Ethylbenzene		1	<0.000518	mg/L	0.001
Xylene		1	<0.000548	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0931	mg/L	1	0.100	93	80 - 120
4-Bromofluorobenzene (4-BFB)			0.0924	mg/L	1	0.100	92	80 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 99860 | Date Analyzed: 2013-03-20 | Analyzed By: MT
Prep Batch: 84599 | QC Preparation: 2013-03-20 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0954	mg/L	1	0.100	<0.000567	95	80 - 120
Toluene		1	0.0995	mg/L	1	0.100	<0.000518	100	80 - 120
Ethylbenzene		1	0.0994	mg/L	1	0.100	<0.000518	99	80 - 120
Xylene		1	0.295	mg/L	1	0.300	<0.000548	98	80 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0958	mg/L	1	0.100	<0.000567	96	80 - 120	0	20
Toluene		1	0.103	mg/L	1	0.100	<0.000518	103	80 - 120	4	20
Ethylbenzene		1	0.104	mg/L	1	0.100	<0.000518	104	80 - 120	4	20
Xylene		1	0.308	mg/L	1	0.300	<0.000548	103	80 - 120	4	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0960	0.0946	mg/L	1	0.100	96	95	80 - 120
4-Bromofluorobenzene (4-BFB)	0.0969	0.0969	mg/L	1	0.100	97	97	80 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 99888 | Date Analyzed: 2013-03-21 | Analyzed By: MT
Prep Batch: 84630 | QC Preparation: 2013-03-21 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0927	mg/L	1	0.100	<0.000567	93	80 - 120
Toluene		1	0.0979	mg/L	1	0.100	<0.000518	98	80 - 120
Ethylbenzene		1	0.100	mg/L	1	0.100	<0.000518	100	80 - 120
Xylene		1	0.291	mg/L	1	0.300	<0.000548	97	80 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0932	mg/L	1	0.100	<0.000567	93	80 - 120	0	20
Toluene		1	0.0991	mg/L	1	0.100	<0.000518	99	80 - 120	1	20
Ethylbenzene		1	0.0995	mg/L	1	0.100	<0.000518	100	80 - 120	1	20
Xylene		1	0.293	mg/L	1	0.300	<0.000548	98	80 - 120	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0930	0.0921	mg/L	1	0.100	93	92	80 - 120
4-Bromofluorobenzene (4-BFB)	0.0902	0.0887	mg/L	1	0.100	90	89	80 - 120

Matrix Spike (MS-1) Spiked Sample: 323910

QC Batch: 99860 | Date Analyzed: 2013-03-20 | Analyzed By: MT
Prep Batch: 84599 | QC Preparation: 2013-03-20 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0857	mg/L	1	0.100	<0.000567	86	64.6 - 120
Toluene		1	0.0906	mg/L	1	0.100	<0.000518	91	62.9 - 123
Ethylbenzene		1	0.0904	mg/L	1	0.100	<0.000518	90	64.2 - 123
Xylene		1	0.267	mg/L	1	0.300	<0.000548	89	63.1 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0900	mg/L	1	0.100	<0.000567	90	64.6 - 120	5	20
Toluene		1	0.0956	mg/L	1	0.100	<0.000518	96	62.9 - 123	5	20
Ethylbenzene		1	0.0954	mg/L	1	0.100	<0.000518	95	64.2 - 123	5	20
Xylene		1	0.282	mg/L	1	0.300	<0.000548	94	63.1 - 121	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0972	0.0957	mg/L	1	0.1	97	96	80 - 120
4-Bromofluorobenzene (4-BFB)	0.0989	0.0968	mg/L	1	0.1	99	97	80 - 120

Matrix Spike (MS-1) Spiked Sample: 323921

QC Batch: 99888 | Date Analyzed: 2013-03-21 | Analyzed By: MT
Prep Batch: 84630 | QC Preparation: 2013-03-21 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.00	mg/L	10	1.00	1.04	96	64.6 - 120
Toluene		1	0.996	mg/L	10	1.00	<0.00518	100	62.9 - 123
Ethylbenzene		1	1.00	mg/L	10	1.00	<0.00518	100	64.2 - 123
Xylene		1	2.93	mg/L	10	3.00	<0.00548	98	63.1 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.90	mg/L	10	1.00	1.04	86	64.6 - 120	5	20
Toluene		1	0.971	mg/L	10	1.00	<0.00518	97	62.9 - 123	2	20
Ethylbenzene		1	0.974	mg/L	10	1.00	<0.00518	97	64.2 - 123	3	20
Xylene		1	2.86	mg/L	10	3.00	<0.00548	95	63.1 - 121	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.931	0.920	mg/L	10	1	93	92	80 - 120
4-Bromofluorobenzene (4-BFB)	0.905	0.888	mg/L	10	1	90	89	80 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 99860 | Date Analyzed: 2013-03-20 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.101	101	80 - 120	2013-03-20
Toluene		1	mg/L	0.100	0.105	105	80 - 120	2013-03-20
Ethylbenzene		1	mg/L	0.100	0.106	106	80 - 120	2013-03-20
Xylene		1	mg/L	0.300	0.312	104	80 - 120	2013-03-20

Standard (CCV-2)

QC Batch: 99860 | Date Analyzed: 2013-03-20 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0931	93	80 - 120	2013-03-20
Toluene		1	mg/L	0.100	0.0986	99	80 - 120	2013-03-20
Ethylbenzene		1	mg/L	0.100	0.0985	98	80 - 120	2013-03-20
Xylene		1	mg/L	0.300	0.293	98	80 - 120	2013-03-20

Standard (CCV-3)

QC Batch: 99860 | Date Analyzed: 2013-03-20 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0962	96	80 - 120	2013-03-20
Toluene		1	mg/L	0.100	0.100	100	80 - 120	2013-03-20
Ethylbenzene		1	mg/L	0.100	0.100	100	80 - 120	2013-03-20
Xylene		1	mg/L	0.300	0.299	100	80 - 120	2013-03-20

Standard (CCV-1)

QC Batch: 99888 | Date Analyzed: 2013-03-21 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0970	97	80 - 120	2013-03-21
Toluene		1	mg/L	0.100	0.101	101	80 - 120	2013-03-21
Ethylbenzene		1	mg/L	0.100	0.101	101	80 - 120	2013-03-21
Xylene		1	mg/L	0.300	0.297	99	80 - 120	2013-03-21

Standard (CCV-2)

QC Batch: 99888 | Date Analyzed: 2013-03-21 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0948	95	80 - 120	2013-03-21
Toluene		1	mg/L	0.100	0.100	100	80 - 120	2013-03-21
Ethylbenzene		1	mg/L	0.100	0.0993	99	80 - 120	2013-03-21
Xylene		1	mg/L	0.300	0.293	98	80 - 120	2013-03-21

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-12-8	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 1303925

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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

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

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

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

Company Name: Tolow LLC
Phone #: 432-522-2133
Address: (Street, City, Zip) 2901 S Hwy 349, Midland TX
Fax #: 432-522-2183
Contact Person: Brad Luy
E-mail: Bluy@tolowllc.com
Invoice to: (If different from above) Plains SRS# 2000-10757
Project #: 200376.050.01
Project Name: Kimbrough
Project Location (including state): Hobbs, NM
Sampler Signature: Tolow LLC

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity	Na, Ca, Mg, K, TDS, EC						Turn Around Time if different from standard	Hold
323942	MW-14	3	VOA	X				X				X		3/19/13	1110		X																								
943	MW-15	3	VOA	X				X				X		3/19/13	1045		X																								

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
	Tolow	3/19/13	1:47					INST ____ OBS ____ °C COR ____ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
								INST ____ OBS ____ °C COR ____ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
								INST IR2 OBS 3.9 °C COR 2.8 °C

LAB USE ONLY
Intact Y / N
Headspace Y / N / NA
Log-in-Review

REMARKS:

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

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

Carrier # _____

ORIGINAL COPY

Analytical Report 464682

for

PLAINS ALL AMERICAN EH&S

Project Manager: Brad Ivy

Kimbrough Sweet 8

700376.050.01

13-JUN-13

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

13-JUN-13

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

Reference: XENCO Report No(s): **464682**
Kimbrough Sweet 8
Project Address: Lea County, NM

Brad Ivy:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 464682. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 464682 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-3	W	06-06-13 11:30		464682-001
MW-4	W	06-06-13 12:30		464682-002
MW-10	W	06-06-13 13:00		464682-003
MW-12	W	06-06-13 12:00		464682-004
MW-13	W	06-06-13 11:00		464682-005
MW-14	W	06-06-13 10:00		464682-006
MW-15	W	06-06-13 10:30		464682-007

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-916109 BTEX by EPA 8021B
SW8021BM

Batch 916109, Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.
Samples affected are: 464682-007, -004, -002, -003, -006, -005, -001.
The Laboratory Control Sample for Toluene, m,p-Xylenes , Benzene, Ethylbenzene, o-Xylene is within laboratory Control Limits

Certificate of Analytical Results 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id: **MW-3** Matrix: Water Date Received:06.07.13 14.30

Lab Sample Id: 464682-001 Date Collected: 06.06.13 11.30

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: DYV % Moisture:

Analyst: DYV Date Prep: 06.12.13 08.00

Seq Number: 916109

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.501**	0.00500	mg/L	06.13.13 11.36		5
Toluene	108-88-3	ND	0.0100	mg/L	06.13.13 11.36	U	5
Ethylbenzene	100-41-4	ND	0.00500	mg/L	06.13.13 11.36	U	5
m,p-Xylenes	179601-23-1	ND	0.0100	mg/L	06.13.13 11.36	U	5
o-Xylene	95-47-6	ND	0.00500	mg/L	06.13.13 11.36	U	5
Total Xylenes	1330-20-7	ND	0.00500	mg/L	06.13.13 11.36	U	5
Total BTEX		**0.501**	0.00500	mg/L	06.13.13 11.36		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	95	%	80-120	06.13.13 11.36	
4-Bromofluorobenzene	460-00-4	83	%	80-120	06.13.13 11.36	

Certificate of Analytical Results 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id:	**MW-4**	Matrix:	Water	Date Received:	06.07.13 14.30
Lab Sample Id:	464682-002	Date Collected:	06.06.13 12.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	DYV			% Moisture:	
Analyst:	DYV	Date Prep:	06.12.13 08.00		
Seq Number:	916109				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00100	mg/L	06.12.13 12.37	U	1
Toluene	108-88-3	ND	0.00200	mg/L	06.12.13 12.37	U	1
Ethylbenzene	100-41-4	ND	0.00100	mg/L	06.12.13 12.37	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/L	06.12.13 12.37	U	1
o-Xylene	95-47-6	ND	0.00100	mg/L	06.12.13 12.37	U	1
Total Xylenes	1330-20-7	ND	0.00100	mg/L	06.12.13 12.37	U	1
Total BTEX		ND	0.00100	mg/L	06.12.13 12.37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	80-120	06.12.13 12.37	
4-Bromofluorobenzene	460-00-4	83	%	80-120	06.12.13 12.37	

Certificate of Analytical Results 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id:	**MW-10**	Matrix:	Water	Date Received:	06.07.13 14.30
Lab Sample Id:	464682-003	Date Collected:	06.06.13 13.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	DYV			% Moisture:	
Analyst:	DYV	Date Prep:	06.12.13 08.00		
Seq Number:	916109				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00100	mg/L	06.12.13 17.09	U	1
Toluene	108-88-3	ND	0.00200	mg/L	06.12.13 17.09	U	1
Ethylbenzene	100-41-4	ND	0.00100	mg/L	06.12.13 17.09	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/L	06.12.13 17.09	U	1
o-Xylene	95-47-6	ND	0.00100	mg/L	06.12.13 17.09	U	1
Total Xylenes	1330-20-7	ND	0.00100	mg/L	06.12.13 17.09	U	1
Total BTEX		ND	0.00100	mg/L	06.12.13 17.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	80-120	06.12.13 17.09	
4-Bromofluorobenzene	460-00-4	82	%	80-120	06.12.13 17.09	

Certificate of Analytical Results 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id: **MW-12** Matrix: Water Date Received:06.07.13 14.30

Lab Sample Id: 464682-004 Date Collected: 06.06.13 12.00

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: DYV % Moisture:

Analyst: DYV Date Prep: 06.12.13 08.00

Seq Number: 916109

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**3.01**	0.0200	mg/L	06.13.13 12.40		20
Toluene	108-88-3	ND	0.0400	mg/L	06.13.13 12.40	U	20
Ethylbenzene	100-41-4	**0.107**	0.0200	mg/L	06.13.13 12.40		20
m,p-Xylenes	179601-23-1	ND	0.0400	mg/L	06.13.13 12.40	U	20
o-Xylene	95-47-6	ND	0.0200	mg/L	06.13.13 12.40	U	20
Total Xylenes	1330-20-7	ND	0.0200	mg/L	06.13.13 12.40	U	20
Total BTEX		**3.12**	0.0200	mg/L	06.13.13 12.40		20

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	96	%	80-120	06.13.13 12.40	
4-Bromofluorobenzene	460-00-4	83	%	80-120	06.13.13 12.40	

Certificate of Analytical Results 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id: **MW-13**
Lab Sample Id: 464682-005

Matrix: Water
Date Collected: 06.06.13 11.00

Date Received:06.07.13 14.30

Analytical Method: BTEX by EPA 8021B
Tech: DYV
Analyst: DYV
Seq Number: 916109

Prep Method: SW5030B
% Moisture:

Date Prep: 06.12.13 08.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00100	mg/L	06.12.13 11.33	U	1
Toluene	108-88-3	ND	0.00200	mg/L	06.12.13 11.33	U	1
Ethylbenzene	100-41-4	ND	0.00100	mg/L	06.12.13 11.33	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/L	06.12.13 11.33	U	1
o-Xylene	95-47-6	ND	0.00100	mg/L	06.12.13 11.33	U	1
Total Xylenes	1330-20-7	ND	0.00100	mg/L	06.12.13 11.33	U	1
Total BTEX		ND	0.00100	mg/L	06.12.13 11.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	98	%	80-120	06.12.13 11.33	
4-Bromofluorobenzene	460-00-4	81	%	80-120	06.12.13 11.33	

Certificate of Analytical Results 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id:	**MW-14**	Matrix:	Water	Date Received:	06.07.13 14.30
Lab Sample Id:	464682-006	Date Collected:	06.06.13 10.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	DYV			% Moisture:	
Analyst:	DYV	Date Prep:	06.12.13 08.00		
Seq Number:	916109				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.437**	0.00500	mg/L	06.12.13 17.47		5
Toluene	108-88-3	ND	0.0100	mg/L	06.12.13 17.47	U	5
Ethylbenzene	100-41-4	ND	0.00500	mg/L	06.12.13 17.47	U	5
m,p-Xylenes	179601-23-1	ND	0.0100	mg/L	06.12.13 17.47	U	5
o-Xylene	95-47-6	ND	0.00500	mg/L	06.12.13 17.47	U	5
Total Xylenes	1330-20-7	ND	0.00500	mg/L	06.12.13 17.47	U	5
Total BTEX		**0.437**	0.00500	mg/L	06.12.13 17.47		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	80-120	06.12.13 17.47	
4-Bromofluorobenzene	460-00-4	83	%	80-120	06.12.13 17.47	

Certificate of Analytical Results 464682

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet 8

Sample Id:	**MW-15**	Matrix:	Water	Date Received:	06.07.13 14.30
Lab Sample Id:	464682-007	Date Collected:	06.06.13 10.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	DYV			% Moisture:	
Analyst:	DYV	Date Prep:	06.12.13 08.00		
Seq Number:	916109				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	ND	0.00100	mg/L	06.12.13 16.32	U	1
Toluene	108-88-3	ND	0.00200	mg/L	06.12.13 16.32	U	1
Ethylbenzene	100-41-4	ND	0.00100	mg/L	06.12.13 16.32	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/L	06.12.13 16.32	U	1
o-Xylene	95-47-6	ND	0.00100	mg/L	06.12.13 16.32	U	1
Total Xylenes	1330-20-7	ND	0.00100	mg/L	06.12.13 16.32	U	1
Total BTEX		ND	0.00100	mg/L	06.12.13 16.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	80-120	06.12.13 16.32	
4-Bromofluorobenzene	460-00-4	81	%	80-120	06.12.13 16.32	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantiation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

* Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

\+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

PLAINS ALL AMERICAN EH&S

Kimbrough Sweet 8

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 916109 Matrix: Water Date Prep: 06.12.13

MB Sample Id: 639605-1-BLK LCS Sample Id: 639605-1-BKS LCSD Sample Id: 639605-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00100	0.100	0.0910	91	0.0904	90	70-125	1	25	mg/L	06.12.13 08:21	
Toluene	<0.00200	0.100	0.0862	86	0.0891	89	70-125	3	25	mg/L	06.12.13 08:21	
Ethylbenzene	<0.00100	0.100	0.0902	90	0.0960	96	71-129	6	25	mg/L	06.12.13 08:21	
m,p-Xylenes	<0.00200	0.200	0.182	91	0.195	98	70-131	7	25	mg/L	06.12.13 08:21	
o-Xylene	<0.00100	0.100	0.0937	94	0.101	101	71-133	7	25	mg/L	06.12.13 08:21	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		104		107		80-120	%	06.12.13 08:21
4-Bromofluorobenzene	86		103		116		80-120	%	06.12.13 08:21

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 916109 Matrix: Water Date Prep: 06.12.13

Parent Sample Id: 464816-001 MS Sample Id: 464816-001 S MSD Sample Id: 464816-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00100	0.100	0.0921	92	0.0898	90	70-125	3	25	mg/L	06.12.13 13:42	
Toluene	<0.00200	0.100	0.0853	85	0.0850	85	70-125	0	25	mg/L	06.12.13 13:42	
Ethylbenzene	<0.00100	0.100	0.0880	88	0.0887	89	71-129	1	25	mg/L	06.12.13 13:42	
m,p-Xylenes	<0.00200	0.200	0.176	88	0.178	89	70-131	1	25	mg/L	06.12.13 13:42	
o-Xylene	<0.00100	0.100	0.0906	91	0.0916	92	71-133	1	25	mg/L	06.12.13 13:42	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		101		80-120	%	06.12.13 13:42
4-Bromofluorobenzene	90		98		80-120	%	06.12.13 13:42

Xenco Laboratories

The Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

12600 West I-20 East
Odessa, Texas 79765

Phone: 432-563-1800
Fax: 432-563-1713

Project Manager: Brad Ivy
Company Name: Talon /LPE
Company Address: 921 N. Bivins St
City/State/Zip: Amarillo, TX 79107
Telephone No: (432) 978-5414
Fax No: 806-467-0622
Sampler Signature: [signature]
e-mail: Bivy@talonlpe.com

Project Name: Kimbrough Sweet 8"
Project #: 700376.050.01
Project Loc: Lea Co., NM
PO #: Plains
Report Format: ☑ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #: 464682

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO_3	HCl	H_2SO_4	NaOH	$Na_2S_2O_3$	None	Other (Specify)	Matrix (DW=Drinking Water SL=Sludge GW=Groundwater S=Soil/Solid NP=Non-Potable Specify Other)	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
	MW-3			6.6.13	11:30		3	X		X						GW									X				X
	MW-4			6.6.13	12:30		3	X		X						GW									X				X
	MW-10			6.6.13	13:00		3	X		X						GW									X				X
	MW-12			6.6.13	12:00		3	X		X						GW									X				X
	MW-13			6.6.13	11:00		3	X		X						GW									X				X
	MW-14			6.6.13	10:00		3	X		X						GW									X				X
	MW-15			6.6.13	10:30		3	X		X						GW									X				X

Analyze For: TCLP: TOTAL:

Special Instructions:

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6-6-13	14:45	[signature]	6-6-13	2:45
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by ELOT: Shaune Smith	6-7-13	14:30

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered by Sampler/Client Rep. ?	Y	N
by Courier? UPS DHL	FedEx	Lone Star

Temperature Upon Receipt: 3.0 °C

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 06/07/2013 02:30:00 PM

Work Order #: 464682

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**Yes**
#6 *Custody Seals Signed and dated?	**Yes**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**Yes**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	**Yes**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**Yes**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:	PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 06/07/2013

Checklist reviewed by: Kelsey Brooks Date: 06/07/2013

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Brad Ivy
Talon LPE-Amarillo
921 North Bivins
Amarillo, TX, 79107

Report Date: October 10, 2013

Work Order: 13100208

Project Location: Hobbs, NM
Project Name: Kimbrough Sweet 8”
Project Number: 700376.050.01
SRS #: 2000-10757

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
343084	MW-3	water	2013-09-26	08:30	2013-10-02
343085	MW-4	water	2013-09-26	08:00	2013-10-02
343086	MW-10	water	2013-09-26	07:30	2013-10-02
343087	MW-12	water	2013-09-26	07:00	2013-10-02
343088	MW-13	water	2013-09-26	06:40	2013-10-02
343089	MW-14	water	2013-09-26	06:00	2013-10-02
343090	MW-15	water	2013-09-26	06:20	2013-10-02

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

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

Report Contents

Case Narrative

Samples for project Kimbrough Sweet 8" were received by TraceAnalysis, Inc. on 2013-10-02 and assigned to work order 13100208. Samples for work order 13100208 were received intact without headspace and at a temperature of 2.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	89535	2013-10-03 at 15:28	105715	2013-10-03 at 15:28
BTEX	S 8021B	89584	2013-10-07 at 12:45	105775	2013-10-07 at 12:45
PAH	S 8270D	89658	2013-10-04 at 15:00	105853	2013-10-10 at 11:24

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13100208 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 343084 - MW-3

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	105715	Date Analyzed:	2013-10-03	Analyzed By:	JS
Prep Batch:	89535	Sample Preparation:	2013-10-03	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	Qr	1	**0.337**	mg/L	1	0.00100
Toluene	Qr,U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	Qr,U	1	<0.00100	mg/L	1	0.00100
Xylene	Qr	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0942	mg/L	1	0.100	94	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.124	mg/L	1	0.100	124	74.6 - 120

Sample: 343084 - MW-3

Laboratory:	Lubbock				
Analysis:	PAH	Analytical Method:	S 8270D	Prep Method:	S 3510C
QC Batch:	105853	Date Analyzed:	2013-10-10	Analyzed By:	MN
Prep Batch:	89658	Sample Preparation:	2013-10-04	Prepared By:	MN

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Naphthalene	U	1	<0.000193	mg/L	0.966	0.000200
2-Methylnaphthalene	U	1	<0.000193	mg/L	0.966	0.000200
1-Methylnaphthalene	U		<0.000193	mg/L	0.966	0.000200
Acenaphthylene	U	1	<0.000193	mg/L	0.966	0.000200
Acenaphthene	U	1	<0.000193	mg/L	0.966	0.000200
Dibenzofuran	U	1	<0.000193	mg/L	0.966	0.000200
Fluorene	U	1	<0.000193	mg/L	0.966	0.000200
Anthracene	Qs,U	1	<0.000193	mg/L	0.966	0.000200
Phenanthrene	U	1	<0.000193	mg/L	0.966	0.000200
Fluoranthene	Qs,U	1	<0.000193	mg/L	0.966	0.000200
Pyrene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(a)anthracene	Qc,U	1	<0.000193	mg/L	0.966	0.000200
Chrysene	U	1	<0.000193	mg/L	0.966	0.000200

continued ...

sample 343084 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzo(b)fluoranthene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(k)fluoranthene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(a)pyrene	U	1	<0.000193	mg/L	0.966	0.000200
Indeno(1,2,3-cd)pyrene	U	1	<0.000193	mg/L	0.966	0.000200
Dibenzo(a,h)anthracene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(g,h,i)perylene	U	1	<0.000193	mg/L	0.966	0.000200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5			0.0558	mg/L	0.966	0.0800	70	40 - 110
2-Fluorobiphenyl			0.0552	mg/L	0.966	0.0800	69	50 - 110
Terphenyl-d14			0.0783	mg/L	0.966	0.0800	98	50 - 135

Sample: 343085 - MW-4

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	105715	Date Analyzed:	2013-10-03	Analyzed By:	JS
Prep Batch:	89535	Sample Preparation:	2013-10-03	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.104	mg/L	1	0.100	104	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.105	mg/L	1	0.100	105	74.6 - 120

Sample: 343086 - MW-10

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	105715	Date Analyzed:	2013-10-03	Analyzed By:	JS
Prep Batch:	89535	Sample Preparation:	2013-10-03	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.103	mg/L	1	0.100	103	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.104	mg/L	1	0.100	104	74.6 - 120

Sample: 343087 - MW-12

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	105775	Date Analyzed:	2013-10-07	Analyzed By:	JS
Prep Batch:	89584	Sample Preparation:	2013-10-07	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**3.63**	mg/L	50	0.00100
Toluene	U	1	<0.0500	mg/L	50	0.00100
Ethylbenzene		1	**0.0526**	mg/L	50	0.00100
Xylene	U	1	<0.0500	mg/L	50	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			4.97	mg/L	50	5.00	99	75.4 - 120
4-Bromofluorobenzene (4-BFB)			5.24	mg/L	50	5.00	105	74.6 - 120

Sample: 343087 - MW-12

Laboratory:	Lubbock				
Analysis:	PAH	Analytical Method:	S 8270D	Prep Method:	S 3510C
QC Batch:	105853	Date Analyzed:	2013-10-10	Analyzed By:	MN
Prep Batch:	89658	Sample Preparation:	2013-10-04	Prepared By:	MN

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Naphthalene	U	1	<0.000184	mg/L	0.922	0.000200
2-Methylnaphthalene	U	1	<0.000184	mg/L	0.922	0.000200
1-Methylnaphthalene	U		<0.000184	mg/L	0.922	0.000200

continued ...

sample 343087 continued . . .

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Acenaphthylene	U	1	<0.000184	mg/L	0.922	0.000200
Acenaphthene	U	1	<0.000184	mg/L	0.922	0.000200
Dibenzofuran		1	**0.00107**	mg/L	0.922	0.000200
Fluorene	U	1	<0.000184	mg/L	0.922	0.000200
Anthracene	Qs,U	1	<0.000184	mg/L	0.922	0.000200
Phenanthrene		1	**0.000924**	mg/L	0.922	0.000200
Fluoranthene	Qs,U	1	<0.000184	mg/L	0.922	0.000200
Pyrene	U	1	<0.000184	mg/L	0.922	0.000200
Benzo(a)anthracene	Qc,U	1	<0.000184	mg/L	0.922	0.000200
Chrysene	U	1	<0.000184	mg/L	0.922	0.000200
Benzo(b)fluoranthene	U	1	<0.000184	mg/L	0.922	0.000200
Benzo(k)fluoranthene	U	1	<0.000184	mg/L	0.922	0.000200
Benzo(a)pyrene	U	1	<0.000184	mg/L	0.922	0.000200
Indeno(1,2,3-cd)pyrene	U	1	<0.000184	mg/L	0.922	0.000200
Dibenzo(a,h)anthracene	U	1	<0.000184	mg/L	0.922	0.000200
Benzo(g,h,i)perylene	U	1	<0.000184	mg/L	0.922	0.000200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5			0.0489	mg/L	0.922	0.0800	61	40 - 110
2-Fluorobiphenyl			0.0526	mg/L	0.922	0.0800	66	50 - 110
Terphenyl-d14			0.0742	mg/L	0.922	0.0800	93	50 - 135

Sample: 343088 - MW-13

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	105775	Date Analyzed:	2013-10-07	Analyzed By:	JS
Prep Batch:	89584	Sample Preparation:	2013-10-07	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0991	mg/L	1	0.100	99	75.4 - 120

continued . . .

sample continued . . .

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			0.101	mg/L	1	0.100	101	74.6 - 120

Sample: 343089 - MW-14

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	105715	Date Analyzed:	2013-10-03	Analyzed By:	JS
Prep Batch:	89535	Sample Preparation:	2013-10-03	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.103	mg/L	1	0.100	103	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.103	mg/L	1	0.100	103	74.6 - 120

Sample: 343089 - MW-14

Laboratory:	Lubbock				
Analysis:	PAH	Analytical Method:	S 8270D	Prep Method:	S 3510C
QC Batch:	105853	Date Analyzed:	2013-10-10	Analyzed By:	MN
Prep Batch:	89658	Sample Preparation:	2013-10-04	Prepared By:	MN

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Naphthalene	U	1	<0.000183	mg/L	0.917	0.000200
2-Methylnaphthalene	U	1	<0.000183	mg/L	0.917	0.000200
1-Methylnaphthalene	U		<0.000183	mg/L	0.917	0.000200
Acenaphthylene	U	1	<0.000183	mg/L	0.917	0.000200
Acenaphthene	U	1	<0.000183	mg/L	0.917	0.000200
Dibenzofuran	U	1	<0.000183	mg/L	0.917	0.000200
Fluorene	U	1	<0.000183	mg/L	0.917	0.000200
Anthracene	Qs,U	1	<0.000183	mg/L	0.917	0.000200
Phenanthrene	U	1	<0.000183	mg/L	0.917	0.000200
Fluoranthene	Qs,U	1	<0.000183	mg/L	0.917	0.000200

continued . . .

sample 343089 continued . . .

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Pyrene	U	1	<0.000183	mg/L	0.917	0.000200
Benzo(a)anthracene	Qc,U	1	<0.000183	mg/L	0.917	0.000200
Chrysene	U	1	<0.000183	mg/L	0.917	0.000200
Benzo(b)fluoranthene	U	1	<0.000183	mg/L	0.917	0.000200
Benzo(k)fluoranthene	U	1	<0.000183	mg/L	0.917	0.000200
Benzo(a)pyrene	U	1	<0.000183	mg/L	0.917	0.000200
Indeno(1,2,3-cd)pyrene	U	1	<0.000183	mg/L	0.917	0.000200
Dibenzo(a,h)anthracene	U	1	<0.000183	mg/L	0.917	0.000200
Benzo(g,h,i)perylene	U	1	<0.000183	mg/L	0.917	0.000200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5			0.0532	mg/L	0.917	0.0800	66	40 - 110
2-Fluorobiphenyl			0.0509	mg/L	0.917	0.0800	64	50 - 110
Terphenyl-d14			0.0741	mg/L	0.917	0.0800	93	50 - 135

Sample: 343090 - MW-15

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	105715	Date Analyzed:	2013-10-03	Analyzed By:	JS
Prep Batch:	89535	Sample Preparation:	2013-10-03	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.103	mg/L	1	0.100	103	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.103	mg/L	1	0.100	103	74.6 - 120

Sample: 343090 - MW-15

Laboratory:	Lubbock				
Analysis:	PAH	Analytical Method:	S 8270D	Prep Method:	S 3510C
QC Batch:	105853	Date Analyzed:	2013-10-10	Analyzed By:	MN
Prep Batch:	89658	Sample Preparation:	2013-10-04	Prepared By:	MN

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Naphthalene	U	1	<0.000193	mg/L	0.966	0.000200
2-Methylnaphthalene	U	1	<0.000193	mg/L	0.966	0.000200
1-Methylnaphthalene	U		<0.000193	mg/L	0.966	0.000200
Acenaphthylene	U	1	<0.000193	mg/L	0.966	0.000200
Acenaphthene	U	1	<0.000193	mg/L	0.966	0.000200
Dibenzofuran	U	1	<0.000193	mg/L	0.966	0.000200
Fluorene	U	1	<0.000193	mg/L	0.966	0.000200
Anthracene	Qs,U	1	<0.000193	mg/L	0.966	0.000200
Phenanthrene	U	1	<0.000193	mg/L	0.966	0.000200
Fluoranthene	Qs,U	1	<0.000193	mg/L	0.966	0.000200
Pyrene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(a)anthracene	Qc,U	1	<0.000193	mg/L	0.966	0.000200
Chrysene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(b)fluoranthene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(k)fluoranthene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(a)pyrene	U	1	<0.000193	mg/L	0.966	0.000200
Indeno(1,2,3-cd)pyrene	U	1	<0.000193	mg/L	0.966	0.000200
Dibenzo(a,h)anthracene	U	1	<0.000193	mg/L	0.966	0.000200
Benzo(g,h,i)perylene	U	1	<0.000193	mg/L	0.966	0.000200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5			0.0749	mg/L	0.966	0.0800	94	40 - 110
2-Fluorobiphenyl			0.0729	mg/L	0.966	0.0800	91	50 - 110
Terphenyl-d14 Qsr	Qsr		0.109	mg/L	0.966	0.0800	136	50 - 135

Method Blanks

Method Blank (1) QC Batch: 105715

QC Batch:	105715	Date Analyzed:	2013-10-03	Analyzed By:	JS
Prep Batch:	89535	QC Preparation:	2013-10-03	Prepared By:	JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000567	mg/L	0.001
Toluene		1	<0.000518	mg/L	0.001
Ethylbenzene		1	<0.000518	mg/L	0.001
Xylene		1	<0.000548	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.106	mg/L	1	0.100	106	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.107	mg/L	1	0.100	107	74.6 - 120

Method Blank (1) QC Batch: 105775

QC Batch:	105775	Date Analyzed:	2013-10-07	Analyzed By:	JS
Prep Batch:	89584	QC Preparation:	2013-10-07	Prepared By:	JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000567	mg/L	0.001
Toluene		1	<0.000518	mg/L	0.001
Ethylbenzene		1	<0.000518	mg/L	0.001
Xylene		1	<0.000548	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.104	mg/L	1	0.100	104	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.107	mg/L	1	0.100	107	74.6 - 120

Method Blank (1) QC Batch: 105853

QC Batch:	105853	Date Analyzed:	2013-10-10	Analyzed By:	MN
Prep Batch:	89658	QC Preparation:	2013-10-04	Prepared By:	MN

Parameter	Flag	Cert	MDL Result	Units	RL
Naphthalene		1	<0.000121	mg/L	0.0002
2-Methylnaphthalene		1	<0.0000913	mg/L	0.0002
1-Methylnaphthalene			<0.000109	mg/L	0.0002
Acenaphthylene		1	<0.000100	mg/L	0.0002
Acenaphthene		1	<0.000122	mg/L	0.0002
Dibenzofuran		1	<0.000108	mg/L	0.0002
Fluorene		1	<0.000100	mg/L	0.0002
Anthracene		1	<0.0000791	mg/L	0.0002
Phenanthrene		1	<0.0000824	mg/L	0.0002
Fluoranthene		1	<0.000124	mg/L	0.0002
Pyrene		1	<0.0000691	mg/L	0.0002
Benzo(a)anthracene		1	<0.000101	mg/L	0.0002
Chrysene		1	<0.0000769	mg/L	0.0002
Benzo(b)fluoranthene		1	<0.0000813	mg/L	0.0002
Benzo(k)fluoranthene		1	<0.0000790	mg/L	0.0002
Benzo(a)pyrene		1	<0.0000701	mg/L	0.0002
Indeno(1,2,3-cd)pyrene		1	<0.0000770	mg/L	0.0002
Dibenzo(a,h)anthracene		1	<0.0000851	mg/L	0.0002
Benzo(g,h,i)perylene		1	<0.0000798	mg/L	0.0002

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5			0.0427	mg/L	1	0.0800	53	40 - 110
2-Fluorobiphenyl			0.0412	mg/L	1	0.0800	52	50 - 110
Terphenyl-d14			0.0540	mg/L	1	0.0800	68	50 - 135

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 105715 | Date Analyzed: 2013-10-03 | Analyzed By: JS
Prep Batch: 89535 | QC Preparation: 2013-10-03 | Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.104	mg/L	1	0.100	<0.000567	104	74.3 - 120
Toluene		1	0.103	mg/L	1	0.100	<0.000518	103	77.6 - 120
Ethylbenzene		1	0.105	mg/L	1	0.100	<0.000518	105	78.5 - 120
Xylene		1	0.317	mg/L	1	0.300	<0.000548	106	77.6 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.102	mg/L	1	0.100	<0.000567	102	74.3 - 120	2	20
Toluene		1	0.101	mg/L	1	0.100	<0.000518	101	77.6 - 120	2	20
Ethylbenzene		1	0.103	mg/L	1	0.100	<0.000518	103	78.5 - 120	2	20
Xylene		1	0.313	mg/L	1	0.300	<0.000548	104	77.6 - 120	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.102	0.101	mg/L	1	0.100	102	101	75.4 - 120
4-Bromofluorobenzene (4-BFB)	0.103	0.103	mg/L	1	0.100	103	103	74.6 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 105775 | Date Analyzed: 2013-10-07 | Analyzed By: JS
Prep Batch: 89584 | QC Preparation: 2013-10-07 | Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0916	mg/L	1	0.100	<0.000567	92	74.3 - 120
Toluene		1	0.0923	mg/L	1	0.100	<0.000518	92	77.6 - 120
Ethylbenzene		1	0.0961	mg/L	1	0.100	<0.000518	96	78.5 - 120
Xylene		1	0.289	mg/L	1	0.300	<0.000548	96	77.6 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0864	mg/L	1	0.100	<0.000567	86	74.3 - 120	6	20
Toluene		1	0.0874	mg/L	1	0.100	<0.000518	87	77.6 - 120	5	20
Ethylbenzene		1	0.0906	mg/L	1	0.100	<0.000518	91	78.5 - 120	6	20
Xylene		1	0.276	mg/L	1	0.300	<0.000548	92	77.6 - 120	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0968	0.0904	mg/L	1	0.100	97	90	75.4 - 120
4-Bromofluorobenzene (4-BFB)	0.0995	0.0941	mg/L	1	0.100	100	94	74.6 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 105853 | Date Analyzed: 2013-10-10 | Analyzed By: MN
Prep Batch: 89658 | QC Preparation: 2013-10-04 | Prepared By: MN

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Naphthalene		1	0.0444	mg/L	1	0.0800	<0.000121	56	40 - 100
2-Methylnaphthalene		1	0.0415	mg/L	1	0.0800	<0.0000913	52	45 - 105
1-Methylnaphthalene			0.0429	mg/L	1	0.0800	<0.000109	54	34.3 - 120
Acenaphthylene		1	0.0483	mg/L	1	0.0800	<0.000100	60	55 - 105
Acenaphthene		1	0.0437	mg/L	1	0.0800	<0.000122	55	45 - 110
Dibenzofuran		1	0.0505	mg/L	1	0.0800	<0.000108	63	55 - 105
Fluorene		1	0.0453	mg/L	1	0.0800	<0.000100	57	50 - 110
Anthracene	Qs	Qs	0.0378	mg/L	1	0.0800	<0.0000791	47	55 - 110
Phenanthrene		1	0.0404	mg/L	1	0.0800	<0.0000824	50	50 - 115
Fluoranthene	Qs	Qs	0.0383	mg/L	1	0.0800	<0.000124	48	55 - 115
Pyrene		1	0.0451	mg/L	1	0.0800	<0.0000691	56	50 - 130
Benzo(a)anthracene		1	0.0544	mg/L	1	0.0800	<0.000101	68	55 - 110
Chrysene		1	0.0859	mg/L	1	0.0800	<0.0000769	107	55 - 110
Benzo(b)fluoranthene		1	0.0460	mg/L	1	0.0800	<0.0000813	58	45 - 120
Benzo(k)fluoranthene		1	0.0603	mg/L	1	0.0800	<0.0000790	75	45 - 125
Benzo(a)pyrene		1	0.0499	mg/L	1	0.0800	<0.0000701	62	55 - 110
Indeno(1,2,3-cd)pyrene		1	0.0537	mg/L	1	0.0800	<0.0000770	67	45 - 125
Dibenzo(a,h)anthracene		1	0.0702	mg/L	1	0.0800	<0.0000851	88	40 - 125
Benzo(g,h,i)perylene		1	0.0481	mg/L	1	0.0800	<0.0000798	60	40 - 125

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Naphthalene		1	0.0441	mg/L	1	0.0800	<0.000121	55	40 - 100	1	20

continued ...

control spikes continued . . .

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
2-Methylnaphthalene		1	0.0430	mg/L	1	0.0800	<0.0000913	54	45 - 105	4	20
1-Methylnaphthalene			0.0444	mg/L	1	0.0800	<0.000109	56	34.3 - 120	3	20
Acenaphthylene		1	0.0492	mg/L	1	0.0800	<0.000100	62	55 - 105	2	20
Acenaphthene		1	0.0457	mg/L	1	0.0800	<0.000122	57	45 - 110	4	20
Dibenzofuran		1	0.0528	mg/L	1	0.0800	<0.000108	66	55 - 105	4	20
Fluorene		1	0.0483	mg/L	1	0.0800	<0.000100	60	50 - 110	6	20
Anthracene	Qs	Qs 1	0.0398	mg/L	1	0.0800	<0.0000791	50	55 - 110	5	20
Phenanthrene		1	0.0425	mg/L	1	0.0800	<0.0000824	53	50 - 115	5	20
Fluoranthene	Qs	Qs 1	0.0398	mg/L	1	0.0800	<0.000124	50	55 - 115	4	20
Pyrene		1	0.0474	mg/L	1	0.0800	<0.0000691	59	50 - 130	5	20
Benzo(a)anthracene		1	0.0547	mg/L	1	0.0800	<0.000101	68	55 - 110	0	20
Chrysene		1	0.0869	mg/L	1	0.0800	<0.0000769	109	55 - 110	1	20
Benzo(b)fluoranthene		1	0.0477	mg/L	1	0.0800	<0.0000813	60	45 - 120	4	20
Benzo(k)fluoranthene		1	0.0622	mg/L	1	0.0800	<0.0000790	78	45 - 125	3	20
Benzo(a)pyrene		1	0.0506	mg/L	1	0.0800	<0.0000701	63	55 - 110	1	20
Indeno(1,2,3-cd)pyrene		1	0.0544	mg/L	1	0.0800	<0.0000770	68	45 - 125	1	20
Dibenzo(a,h)anthracene		1	0.0737	mg/L	1	0.0800	<0.0000851	92	40 - 125	5	20
Benzo(g,h,i)perylene		1	0.0496	mg/L	1	0.0800	<0.0000798	62	40 - 125	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Nitrobenzene-d5	0.0594	0.0592	mg/L	1	0.0800	74	74	40 - 110
2-Fluorobiphenyl	0.0562	0.0577	mg/L	1	0.0800	70	72	50 - 110
Terphenyl-d14	0.0640	0.0689	mg/L	1	0.0800	80	86	50 - 135

Matrix Spike (MS-1) Spiked Sample: 343082

QC Batch: 105715 | Date Analyzed: 2013-10-03 | Analyzed By: JS
Prep Batch: 89535 | QC Preparation: 2013-10-03 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0867	mg/L	1	0.100	<0.000567	87	50.2 - 129
Toluene		1	0.0849	mg/L	1	0.100	<0.000518	85	58.1 - 129
Ethylbenzene		1	0.0860	mg/L	1	0.100	<0.000518	86	58.1 - 127
Xylene		1	0.262	mg/L	1	0.300	<0.000548	87	53.1 - 128

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

continued . . .

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	Qr	Qr	0.0647	mg/L	1	0.100	<0.000567	65	50.2 - 129	29	20
Toluene	Qr	Qr	0.0624	mg/L	1	0.100	<0.000518	62	58.1 - 129	30	20
Ethylbenzene	Qr	Qr	0.0647	mg/L	1	0.100	<0.000518	65	58.1 - 127	28	20
Xylene	Qr	Qr	0.196	mg/L	1	0.300	<0.000548	65	53.1 - 128	29	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0977	0.0998	mg/L	1	0.1	98	100	75.4 - 120
4-Bromofluorobenzene (4-BFB)	0.0988	0.101	mg/L	1	0.1	99	101	74.6 - 120

Matrix Spike (MS-1) Spiked Sample: 343087

QC Batch: 105775 | Date Analyzed: 2013-10-07 | Analyzed By: JS
Prep Batch: 89584 | QC Preparation: 2013-10-07 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	8.43	mg/L	50	5.00	3.63	96	50.2 - 129
Toluene		1	4.56	mg/L	50	5.00	<0.0259	91	58.1 - 129
Ethylbenzene		1	5.08	mg/L	50	5.00	0.0526	100	58.1 - 127
Xylene		1	14.5	mg/L	50	15.0	<0.0274	97	53.1 - 128

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	8.72	mg/L	50	5.00	3.63	102	50.2 - 129	3	20
Toluene		1	4.71	mg/L	50	5.00	<0.0259	94	58.1 - 129	3	20
Ethylbenzene		1	5.04	mg/L	50	5.00	0.0526	100	58.1 - 127	1	20
Xylene		1	14.8	mg/L	50	15.0	<0.0274	99	53.1 - 128	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	4.70	4.78	mg/L	50	5	94	96	75.4 - 120
4-Bromofluorobenzene (4-BFB)	4.94	5.06	mg/L	50	5	99	101	74.6 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 105715 | Date Analyzed: 2013-10-03 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0997	100	80 - 120	2013-10-03
Toluene		1	mg/L	0.100	0.0988	99	80 - 120	2013-10-03
Ethylbenzene		1	mg/L	0.100	0.102	102	80 - 120	2013-10-03
Xylene		1	mg/L	0.300	0.305	102	80 - 120	2013-10-03

Standard (CCV-2)

QC Batch: 105715 | Date Analyzed: 2013-10-03 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.102	102	80 - 120	2013-10-03
Toluene		1	mg/L	0.100	0.101	101	80 - 120	2013-10-03
Ethylbenzene		1	mg/L	0.100	0.104	104	80 - 120	2013-10-03
Xylene		1	mg/L	0.300	0.311	104	80 - 120	2013-10-03

Standard (CCV-3)

QC Batch: 105715 | Date Analyzed: 2013-10-03 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0993	99	80 - 120	2013-10-03
Toluene		1	mg/L	0.100	0.0985	98	80 - 120	2013-10-03
Ethylbenzene		1	mg/L	0.100	0.101	101	80 - 120	2013-10-03
Xylene		1	mg/L	0.300	0.304	101	80 - 120	2013-10-03

Standard (CCV-1)

QC Batch: 105775 | Date Analyzed: 2013-10-07 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0931	93	80 - 120	2013-10-07
Toluene		1	mg/L	0.100	0.0934	93	80 - 120	2013-10-07
Ethylbenzene		1	mg/L	0.100	0.0979	98	80 - 120	2013-10-07
Xylene		1	mg/L	0.300	0.293	98	80 - 120	2013-10-07

Standard (CCV-2)

QC Batch: 105775 | Date Analyzed: 2013-10-07 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0947	95	80 - 120	2013-10-07
Toluene		1	mg/L	0.100	0.0950	95	80 - 120	2013-10-07
Ethylbenzene		1	mg/L	0.100	0.0983	98	80 - 120	2013-10-07
Xylene		1	mg/L	0.300	0.296	99	80 - 120	2013-10-07

Standard (CCV-3)

QC Batch: 105775 | Date Analyzed: 2013-10-07 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0935	94	80 - 120	2013-10-07
Toluene		1	mg/L	0.100	0.0934	93	80 - 120	2013-10-07
Ethylbenzene		1	mg/L	0.100	0.0966	97	80 - 120	2013-10-07
Xylene		1	mg/L	0.300	0.292	97	80 - 120	2013-10-07

Standard (CCV-1)

QC Batch: 105853 | Date Analyzed: 2013-10-10 | Analyzed By: MN

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		1	mg/L	60.0	68.4	114	80 - 120	2013-10-10
2-Methylnaphthalene		1	mg/L	60.0	65.2	109	80 - 120	2013-10-10
1-Methylnaphthalene			mg/L	60.0	68.6	114	80 - 120	2013-10-10
Acenaphthylene		1	mg/L	60.0	67.6	113	80 - 120	2013-10-10
Acenaphthene		1	mg/L	60.0	63.8	106	80 - 120	2013-10-10
Dibenzofuran		1	mg/L	60.0	64.6	108	80 - 120	2013-10-10
Fluorene		1	mg/L	60.0	68.8	115	80 - 120	2013-10-10
Anthracene		1	mg/L	60.0	63.5	106	80 - 120	2013-10-10
Phenanthrene		1	mg/L	60.0	62.0	103	80 - 120	2013-10-10
Fluoranthene		1	mg/L	60.0	58.2	97	80 - 120	2013-10-10
Pyrene		1	mg/L	60.0	70.4	117	80 - 120	2013-10-10
Benzo(a)anthracene	Qc	Qc	1	mg/L	60.0	75.7	126	80 - 120	2013-10-10
Chrysene		1	mg/L	60.0	67.9	113	80 - 120	2013-10-10
Benzo(b)fluoranthene		1	mg/L	60.0	63.9	106	80 - 120	2013-10-10
Benzo(k)fluoranthene		1	mg/L	60.0	67.4	112	80 - 120	2013-10-10
Benzo(a)pyrene		1	mg/L	60.0	68.2	114	80 - 120	2013-10-10
Indeno(1,2,3-cd)pyrene		1	mg/L	60.0	65.2	109	80 - 120	2013-10-10
Dibenzo(a,h)anthracene		1	mg/L	60.0	61.5	102	80 - 120	2013-10-10
Benzo(g,h,i)perylene		1	mg/L	60.0	66.7	111	80 - 120	2013-10-10

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
Nitrobenzene-d5			77.3	mg/L	1	60.0	129	-
2-Fluorobiphenyl			62.5	mg/L	1	60.0	104	-
Terphenyl-d14			71.0	mg/L	1	60.0	118	-

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 13100208

Page 1 of 1

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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

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

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

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

Brandon & Clark
3403 Industrial Blvd.
Hobbs, NM 88240
Tel (575) 392-7561
Fax (575) 392-4508

Company Name: Talon/LPE
Phone #: 806-350-8877
Address: (Street, City, Zip) 921 N. Bivins (Amarillo, Tx 79107)
Fax #: 806-4670622
Contact Person: Brad Ivy
E-mail: Bivy@talonlpe.com
Invoice to: (If different from above) Plains (SRS: 2000-107577)
Project #: 700376.050.01
Project Name: Kimbrough Sweet 8"
Project Location (including state): Lea Co., NM
Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
343084	MW-3	4		X				X				X		9-26-13	8:30
085	MW-4	3		X				X				X		9-26-13	8:00
086	MW-10	3		X				X				X		9-26-13	7:30
087	MW-12	4		X				X				X		9-26-13	7:00
088	MW-13	3		X				X				X		9-26-13	6:40
089	MW-14	4		X				X				X		9-26-13	6:00
090	MW-15	4		X				X				X		9-26-13	6:20

ANALYSIS REQUEST (Circle or Specify Method No.)	Turn Around Time if different from standard	Hold
MTBE 8021 / 602 / 8260 / 624		
BTEX 8021 / 602 / 8260 / 624	X	
TPH 418.1 / TX1005 / TX1005 Ext(C35)		
TPH 8015 GRO / DRO / TVHC		
PAH 8270 / 625	X	
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7		
TCLP Metals Ag As Ba Cd Cr Pb Se Hg		
TCLP Volatiles		
TCLP Semi Volatiles		
TCLP Pesticides		
RCI		
GC/MS Vol. 8260 / 624		
GC/MS Semi. Vol. 8270 / 625		
PCB's 8082 / 608		
Pesticides 8081 / 608		
BOD, TSS, pH		
Moisture Content		
Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity		
Na, Ca, Mg, K, TDS, EC		

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Mark Ramos	Talon	10/1/13	3:02 pm					INST ___ °C OBS ___ °C COR ___ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
								INST ___ °C OBS ___ °C COR ___ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
				Brenda Ward	TA Lubbock	10/1/13	3:02 pm	INST 1.3 °C OBS 1.9 °C COR 1.8 °C

LAB USE ONLY
Intact Y / N
Headspace Y N NA
Log-in-Review MK

REMARKS:

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

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

Carrier # Courier

ORIGINAL COPY

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Brad Ivy
Talon LPE-Amarillo
921 North Bivins
Amarillo, TX, 79107

Report Date: December 17, 2013

Work Order: 13121121

Project Location: Hobbs, NM
Project Name: Kimbrough Sweet 8”
Project Number: 700376.050.01
SRS #: 2000-10757

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
348464	MW-1A	water	2013-12-03	16:00	2013-12-10
348465	MW-3	water	2013-12-03	14:45	2013-12-10
348466	MW-4	water	2013-12-03	15:00	2013-12-10
348467	MW-10	water	2013-12-03	15:45	2013-12-10
348468	MW-12	water	2013-12-03	13:30	2013-12-10
348469	MW-13	water	2013-12-03	14:30	2013-12-10
348470	MW-14	water	2013-12-03	14:00	2013-12-10
348471	MW-15	water	2013-12-03	14:35	2013-12-10
348472	MW-16	water	2013-12-03	15:30	2013-12-10
348473	MW-17	water	2013-12-03	13:35	2013-12-10
348474	MW-18	water	2013-12-03	13:00	2013-12-10

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

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

Report Contents

Case Narrative

Samples for project Kimbrough Sweet 8" were received by TraceAnalysis, Inc. on 2013-12-10 and assigned to work order 13121121. Samples for work order 13121121 were received intact without headspace and at a temperature of 2.8 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	91013	2013-12-11 at 16:13	107491	2013-12-11 at 16:13
BTEX	S 8021B	91109	2013-12-16 at 14:09	107626	2013-12-16 at 14:09

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13121121 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 348464 - MW-1A

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene [1]	U	1	<0.00500	mg/L	5	0.00100
Toluene	U	1	<0.00500	mg/L	5	0.00100
Ethylbenzene	U	1	<0.00500	mg/L	5	0.00100
Xylene	U	1	<0.00500	mg/L	5	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.537	mg/L	5	0.500	107	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.488	mg/L	5	0.500	98	67.5 - 120

Sample: 348465 - MW-3

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**0.288**	mg/L	50	0.00100
Toluene	U	1	<0.0500	mg/L	50	0.00100
Ethylbenzene	U	1	<0.0500	mg/L	50	0.00100
Xylene	U	1	<0.0500	mg/L	50	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			4.71	mg/L	50	5.00	94	68.8 - 120
4-Bromofluorobenzene (4-BFB)			4.71	mg/L	50	5.00	94	67.5 - 120

Sample: 348466 - MW-4

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [2]	U	1	<0.00500	mg/L	5	0.00100
Toluene	U	1	<0.00500	mg/L	5	0.00100
Ethylbenzene	U	1	<0.00500	mg/L	5	0.00100
Xylene	U	1	<0.00500	mg/L	5	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.450	mg/L	5	0.500	90	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.427	mg/L	5	0.500	85	67.5 - 120

Sample: 348467 - MW-10

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [3]	U	1	<0.00500	mg/L	5	0.00100
Toluene	U	1	<0.00500	mg/L	5	0.00100
Ethylbenzene	U	1	<0.00500	mg/L	5	0.00100
Xylene	U	1	<0.00500	mg/L	5	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.521	mg/L	5	0.500	104	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.474	mg/L	5	0.500	95	67.5 - 120

Sample: 348468 - MW-12

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107626	Date Analyzed:	2013-12-16	Analyzed By:	MT
Prep Batch:	91109	Sample Preparation:	2013-12-16	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**3.27**	mg/L	50	0.00100
Toluene	U	1	<0.0500	mg/L	50	0.00100
Ethylbenzene		1	**0.109**	mg/L	50	0.00100
Xylene	U	1	<0.0500	mg/L	50	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.31	mg/L	50	5.00	106	75.4 - 120
4-Bromofluorobenzene (4-BFB)			4.92	mg/L	50	5.00	98	74.6 - 120

Sample: 348469 - MW-13

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.104	mg/L	1	0.100	104	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.0923	mg/L	1	0.100	92	67.5 - 120

Sample: 348470 - MW-14

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**0.0413**	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene		1	**0.00220**	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0848	mg/L	1	0.100	85	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.0900	mg/L	1	0.100	90	67.5 - 120

Sample: 348471 - MW-15

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.107	mg/L	1	0.100	107	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.100	mg/L	1	0.100	100	67.5 - 120

Sample: 348472 - MW-16

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [4]	U	1	<0.00500	mg/L	5	0.00100
Toluene	U	1	<0.00500	mg/L	5	0.00100
Ethylbenzene	U	1	<0.00500	mg/L	5	0.00100
Xylene	U	1	<0.00500	mg/L	5	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.523	mg/L	5	0.500	105	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.475	mg/L	5	0.500	95	67.5 - 120

Sample: 348473 - MW-17

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [5]	U	1	<0.00500	mg/L	5	0.00100
Toluene	U	1	<0.00500	mg/L	5	0.00100
Ethylbenzene	U	1	<0.00500	mg/L	5	0.00100
Xylene	U	1	<0.00500	mg/L	5	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.484	mg/L	5	0.500	97	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.488	mg/L	5	0.500	98	67.5 - 120

Sample: 348474 - MW-18

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	107491	Date Analyzed:	2013-12-11	Analyzed By:	JS
Prep Batch:	91013	Sample Preparation:	2013-12-11	Prepared By:	JS

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0986	mg/L	1	0.100	99	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.0901	mg/L	1	0.100	90	67.5 - 120

Method Blanks

Method Blank (1) QC Batch: 107491

QC Batch: 107491 | Date Analyzed: 2013-12-11 | Analyzed By: JS
Prep Batch: 91013 | QC Preparation: 2013-12-11 | Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000387	mg/L	0.001
Toluene		1	<0.000465	mg/L	0.001
Ethylbenzene		1	<0.000442	mg/L	0.001
Xylene		1	<0.000413	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.106	mg/L	1	0.100	106	68.8 - 120
4-Bromofluorobenzene (4-BFB)			0.0952	mg/L	1	0.100	95	67.5 - 120

Method Blank (1) QC Batch: 107626

QC Batch: 107626 | Date Analyzed: 2013-12-16 | Analyzed By: MT
Prep Batch: 91109 | QC Preparation: 2013-12-16 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000567	mg/L	0.001
Toluene		1	<0.000518	mg/L	0.001
Ethylbenzene		1	<0.000518	mg/L	0.001
Xylene		1	<0.000548	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.110	mg/L	1	0.100	110	75.4 - 120
4-Bromofluorobenzene (4-BFB)			0.0981	mg/L	1	0.100	98	74.6 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 107491 | Date Analyzed: 2013-12-11 | Analyzed By: JS
Prep Batch: 91013 | QC Preparation: 2013-12-11 | Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.101	mg/L	1	0.100	<0.000387	101	71.6 - 120
Toluene		1	0.102	mg/L	1	0.100	<0.000465	102	71.6 - 120
Ethylbenzene		1	0.100	mg/L	1	0.100	<0.000442	100	71.1 - 120
Xylene		1	0.304	mg/L	1	0.300	<0.000413	101	72.5 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0968	mg/L	1	0.100	<0.000387	97	71.6 - 120	4	20
Toluene		1	0.102	mg/L	1	0.100	<0.000465	102	71.6 - 120	0	20
Ethylbenzene		1	0.0987	mg/L	1	0.100	<0.000442	99	71.1 - 120	1	20
Xylene		1	0.300	mg/L	1	0.300	<0.000413	100	72.5 - 120	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0888	0.0929	mg/L	1	0.100	89	93	68.8 - 120
4-Bromofluorobenzene (4-BFB)	0.0850	0.0900	mg/L	1	0.100	85	90	67.5 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 107626 | Date Analyzed: 2013-12-16 | Analyzed By: MT
Prep Batch: 91109 | QC Preparation: 2013-12-16 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.113	mg/L	1	0.100	<0.000567	113	74.3 - 120
Toluene		1	0.114	mg/L	1	0.100	<0.000518	114	77.6 - 120
Ethylbenzene		1	0.111	mg/L	1	0.100	<0.000518	111	78.5 - 120
Xylene		1	0.336	mg/L	1	0.300	<0.000548	112	77.6 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.112	mg/L	1	0.100	<0.000567	112	74.3 - 120	1	20
Toluene		1	0.114	mg/L	1	0.100	<0.000518	114	77.6 - 120	0	20
Ethylbenzene		1	0.110	mg/L	1	0.100	<0.000518	110	78.5 - 120	1	20
Xylene		1	0.332	mg/L	1	0.300	<0.000548	111	77.6 - 120	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.111	0.110	mg/L	1	0.100	111	110	75.4 - 120
4-Bromofluorobenzene (4-BFB)	0.113	0.111	mg/L	1	0.100	113	111	74.6 - 120

Matrix Spike (MS-1) Spiked Sample: 348469

QC Batch: 107491 | Date Analyzed: 2013-12-11 | Analyzed By: JS
Prep Batch: 91013 | QC Preparation: 2013-12-11 | Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0954	mg/L	1	0.100	<0.000387	95	54.2 - 120
Toluene		1	0.101	mg/L	1	0.100	<0.000465	101	55.6 - 120
Ethylbenzene		1	0.0976	mg/L	1	0.100	<0.000442	98	59.6 - 120
Xylene		1	0.294	mg/L	1	0.300	<0.000413	98	61.4 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0952	mg/L	1	0.100	<0.000387	95	54.2 - 120	0	20
Toluene		1	0.0975	mg/L	1	0.100	<0.000465	98	55.6 - 120	4	20
Ethylbenzene		1	0.0954	mg/L	1	0.100	<0.000442	95	59.6 - 120	2	20
Xylene		1	0.289	mg/L	1	0.300	<0.000413	96	61.4 - 120	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0852	0.0820	mg/L	1	0.1	85	82	68.8 - 120
4-Bromofluorobenzene (4-BFB)	0.0916	0.0821	mg/L	1	0.1	92	82	67.5 - 120

Matrix Spike (MS-1) Spiked Sample: 348302

QC Batch: 107626 | Date Analyzed: 2013-12-16 | Analyzed By: MT
Prep Batch: 91109 | QC Preparation: 2013-12-16 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.89	mg/L	10	1.00	0.736	115	50.2 - 129
Toluene		1	1.15	mg/L	10	1.00	<0.00518	115	58.1 - 129
Ethylbenzene		1	1.23	mg/L	10	1.00	0.0622	117	58.1 - 127
Xylene		1	3.45	mg/L	10	3.00	0.0268	114	53.1 - 128

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.86	mg/L	10	1.00	0.736	112	50.2 - 129	2	20
Toluene		1	1.13	mg/L	10	1.00	<0.00518	113	58.1 - 129	2	20
Ethylbenzene		1	1.20	mg/L	10	1.00	0.0622	114	58.1 - 127	2	20
Xylene		1	3.38	mg/L	10	3.00	0.0268	112	53.1 - 128	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.17	1.16	mg/L	10	1	117	116	75.4 - 120
4-Bromofluorobenzene (4-BFB)	1.13	1.12	mg/L	10	1	113	112	74.6 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 107491 | Date Analyzed: 2013-12-11 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0980	98	80 - 120	2013-12-11
Toluene		1	mg/L	0.100	0.0996	100	80 - 120	2013-12-11
Ethylbenzene		1	mg/L	0.100	0.0984	98	80 - 120	2013-12-11
Xylene		1	mg/L	0.300	0.299	100	80 - 120	2013-12-11

Standard (CCV-2)

QC Batch: 107491 | Date Analyzed: 2013-12-11 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0967	97	80 - 120	2013-12-11
Toluene		1	mg/L	0.100	0.102	102	80 - 120	2013-12-11
Ethylbenzene		1	mg/L	0.100	0.0979	98	80 - 120	2013-12-11
Xylene		1	mg/L	0.300	0.297	99	80 - 120	2013-12-11

Standard (CCV-3)

QC Batch: 107491 | Date Analyzed: 2013-12-11 | Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0963	96	80 - 120	2013-12-11
Toluene		1	mg/L	0.100	0.101	101	80 - 120	2013-12-11
Ethylbenzene		1	mg/L	0.100	0.0973	97	80 - 120	2013-12-11
Xylene		1	mg/L	0.300	0.296	99	80 - 120	2013-12-11

Standard (CCV-1)

QC Batch: 107626 | Date Analyzed: 2013-12-16 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.113	113	80 - 120	2013-12-16
Toluene		1	mg/L	0.100	0.114	114	80 - 120	2013-12-16
Ethylbenzene		1	mg/L	0.100	0.112	112	80 - 120	2013-12-16
Xylene		1	mg/L	0.300	0.339	113	80 - 120	2013-12-16

Standard (CCV-2)

QC Batch: 107626 | Date Analyzed: 2013-12-16 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.116	116	80 - 120	2013-12-16
Toluene		1	mg/L	0.100	0.117	117	80 - 120	2013-12-16
Ethylbenzene		1	mg/L	0.100	0.114	114	80 - 120	2013-12-16
Xylene		1	mg/L	0.300	0.345	115	80 - 120	2013-12-16

Standard (CCV-3)

QC Batch: 107626 | Date Analyzed: 2013-12-16 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.118	118	80 - 120	2013-12-16
Toluene		1	mg/L	0.100	0.118	118	80 - 120	2013-12-16
Ethylbenzene		1	mg/L	0.100	0.114	114	80 - 120	2013-12-16
Xylene		1	mg/L	0.300	0.344	115	80 - 120	2013-12-16

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

1 dilution due to sediment.
2 dilution due to sediment.
3 dilution due to sediment.
4 dilution due to sediment.
5 dilution due to sediment.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 13121121

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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

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

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

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

Brandon & Clark
3403 Industrial Blvd.
Hobbs, NM 88240
Tel (575) 392-7561
Fax (575) 392-4508

Company Name: Talon/LPE
Phone #: 806-467-0607
Address: (Street, City, Zip) 921 N. Bivins
Fax #: 806-467-0622
Contact Person: Brad Ivy
E-mail: Bivy@talonlpe.com
Invoice to: (If different from above) Plains: (SRS# 2000-10757)
Project #: 700376.80.01
Project Name: Kimbrough Sweet 8"
Project Location (including state): Lea Co, NM
Sampler Signature: [signature]

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624
348464	MW-1A	3		X				X				X		12.3.13	16:00		X
465	MW-3	3		X				X				X		12.3.13	14:45		X
466	MW-4	3		X				X				X		12.3.13	15:00		X
467	MW-10	3		X				X				X		12.3.13	15:45		X
468	MW-12	3		X				X				X		12.3.13	13:30		X
469	MW-13	3		X				X				X		12.3.13	14:30		X
470	MW-14	3		X				X				X		12.3.13	14:00		X
471	MW-15	3		X				X				X		12.3.13	14:35		X
472	MW-16	3		X				X				X		12.3.13	15:30		X
473	MW-17	3		X				X				X		12.3.13	13:35		X
474	MW-12	3		X				X				X			13:00		X

Other analysis columns (none marked): TPH 418.1 / TX1005 / TX1005 Ext(C35); TPH 8015 GRO / DRO / TVHC; PAH 8270 / 625; Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7; TCLP Metals Ag As Ba Cd Cr Pb Se Hg; TCLP Volatiles; TCLP Semi Volatiles; TCLP Pesticides; RCI; GC/MS Vol. 8260 / 624; GC/MS Semi. Vol. 8270 / 625; PCB's 8082 / 608; Pesticides 8081 / 608; BOD, TSS, pH; Moisture Content; Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity; Na, Ca, Mg, K, TDS, EC; Turn Around Time if different from standard; Hold

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
[signature]	Talon	12.10.13		BCS	B&C	12-10-13		INST ___ °C OBS ___ °C COR ___ °C
								INST ___ °C OBS ___ °C COR ___ °C
				[signature]	TA	12/11/13	9:00	INST #3 OBS 2.8 °C COR 2.8 °C

LAB USE ONLY
Intact (Y) / N
Headspace Y / N / (NA)
Log-in-Review MA

REMARKS:
☐ Dry Weight Basis Required
☐ TRRP Report Required
☐ Check If Special Reporting Limits Are Needed

Carrier # 8042 1874

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

ORIGINAL COPY

Analytical Report 474640

for

PLAINS ALL AMERICAN EH&S

Project Manager: Wesley Ty Burrow

Kimbrough Sweet

700376.050.01

29-NOV-13

Collected By: Client

12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-13-15-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00312), USDA (S-44102), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Lakeland: Florida (E84098)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)

29-NOV-13

Project Manager: **Wesley Ty Burrow**
PLAINS ALL AMERICAN EH&S
1301 S. COUNTY ROAD 1150
Midland, TX 79706

Reference: XENCO Report No(s): **474640**
Kimbrough Sweet
Project Address:

Wesley Ty Burrow:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 474640. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 474640 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Julian Martinez
Project Manager

Sample Cross Reference 474640

PLAINS ALL AMERICAN EH&S, Midland, TX

Kimbrough Sweet

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1A	S	11-20-13 14:30	- 60 ft	474640-001
MW-1A	S	11-20-13 15:50	- 85 ft	474640-002
MW-16	S	11-20-13 18:00	- 60 ft	474640-003
MW-16	S	11-20-13 18:40	- 85 ft	474640-004
MW-17	S	11-21-13 16:20	- 60 ft	474640-005
MW-17	S	11-21-13 17:15	- 85 ft	474640-006
MW-18	S	11-21-13 11:30	- 60 ft	474640-007
MW-18	S	11-21-13 11:20	- 85 ft	474640-008

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 474640

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Kimbrough Sweet

Project Id: 700376.050.01
Contact: Wesley Ty Burrow
Project Location:

Date Received in Lab: Fri Nov-22-13 09:48 am
Report Date: 29-NOV-13
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	474640-001		474640-002		474640-003		474640-004		474640-005		474640-006	
	Field Id:	MW-1A		MW-1A		MW-16		MW-16		MW-17		MW-17	
	Depth:	60 ft		85 ft		60 ft		85 ft		60 ft		85 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Nov-20-13 14:30		Nov-20-13 15:50		Nov-20-13 18:00		Nov-20-13 18:40		Nov-21-13 16:20		Nov-21-13 17:15	
BTEX by EPA 8021B	***Extracted:***	Nov-26-13 09:00		Nov-26-13 09:00		Nov-26-13 09:00		Nov-26-13 09:00		Nov-26-13 09:00		Nov-26-13 09:00	
	Analyzed:	Nov-26-13 17:28		Nov-26-13 17:44		Nov-26-13 18:00		Nov-26-13 18:16		Nov-26-13 18:32		Nov-26-13 18:48	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00127	ND	0.00102	ND	0.00106	ND	0.00127	ND	0.00103	ND	0.00103
Toluene		ND	0.00254	ND	0.00205	ND	0.00211	ND	0.00254	ND	0.00207	ND	0.00206
Ethylbenzene		ND	0.00127	ND	0.00102	ND	0.00106	ND	0.00127	ND	0.00103	ND	0.00103
m,p-Xylenes		ND	0.00254	ND	0.00205	ND	0.00211	ND	0.00254	ND	0.00207	ND	0.00206
o-Xylene		ND	0.00127	ND	0.00102	ND	0.00106	ND	0.00127	ND	0.00103	ND	0.00103
Total Xylenes		ND	0.00127	ND	0.00102	ND	0.00106	ND	0.00127	ND	0.00103	ND	0.00103
Total BTEX		ND	0.00127	ND	0.00102	ND	0.00106	ND	0.00127	ND	0.00103	ND	0.00103
Percent Moisture	***Extracted:***												
	Analyzed:	Nov-25-13 12:05		Nov-25-13 12:05		Nov-25-13 12:05		Nov-25-13 12:05		Nov-25-13 12:05		Nov-25-13 12:05	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		21.4	1.00	2.63	1.00	5.46	1.00	21.4	1.00	3.94	1.00	2.88	1.00
TPH By SW8015 Mod	***Extracted:***	Nov-27-13 10:00		Nov-27-13 10:00		Nov-27-13 10:00		Nov-27-13 10:00		Nov-27-13 10:00		Nov-27-13 10:00	
	Analyzed:	Nov-27-13 13:23		Nov-27-13 14:38		Nov-27-13 15:03		Nov-27-13 15:28		Nov-27-13 15:52		Nov-27-13 16:17	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C12 Gasoline Range Hydrocarbons		ND	19.1	ND	15.4	ND	15.9	ND	19.1	ND	15.6	ND	15.4
C12-C28 Diesel Range Hydrocarbons		ND	19.1	ND	15.4	ND	15.9	ND	19.1	ND	15.6	ND	15.4
C28-C35 Oil Range Hydrocarbons		ND	19.1	ND	15.4	ND	15.9	ND	19.1	ND	15.6	ND	15.4
Total TPH		ND	19.1	ND	15.4	ND	15.9	ND	19.1	ND	15.6	ND	15.4

Julian Martinez
Project Manager

Certificate of Analysis Summary 474640

PLAINS ALL AMERICAN EH&S, Midland, TX

Project Name: Kimbrough Sweet

Project Id: 700376.050.01
Contact: Wesley Ty Burrow
Project Location:

Date Received in Lab: Fri Nov-22-13 09:48 am
Report Date: 29-NOV-13
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	474640-007		474640-008					
	Field Id:	MW-18		MW-18					
	Depth:	60 ft		85 ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Nov-21-13 11:30		Nov-21-13 11:20					
BTEX by EPA 8021B	***Extracted:***	Nov-26-13 09:00		Nov-26-13 09:00					
	Analyzed:	Nov-26-13 19:04		Nov-26-13 19:20					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		ND	0.00127	ND	0.00127				
Toluene		ND	0.00254	ND	0.00255				
Ethylbenzene		ND	0.00127	ND	0.00127				
m,p-Xylenes		ND	0.00254	ND	0.00255				
o-Xylene		ND	0.00127	ND	0.00127				
Total Xylenes		ND	0.00127	ND	0.00127				
Total BTEX		ND	0.00127	ND	0.00127				
Percent Moisture	***Extracted:***								
	Analyzed:	Nov-25-13 12:05		Nov-25-13 12:05					
	Units/RL:	%	RL	%	RL				
Percent Moisture		21.7	1.00	21.9	1.00				
TPH By SW8015 Mod	***Extracted:***	Nov-27-13 10:00		Nov-27-13 10:00					
	Analyzed:	Nov-27-13 16:41		Nov-27-13 17:05					
	Units/RL:	mg/kg	RL	mg/kg	RL				
C6-C12 Gasoline Range Hydrocarbons		ND	19.2	ND	19.2				
C12-C28 Diesel Range Hydrocarbons		ND	19.2	ND	19.2				
C28-C35 Oil Range Hydrocarbons		ND	19.2	ND	19.2				
Total TPH		ND	19.2	ND	19.2				

Julian Martinez
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Kimbrough Sweet

Work Orders : 474640,

Project ID: 700376.050.01

Lab Batch #: 928666 **Sample:** 474640-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 17:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 928666 **Sample:** 474640-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 17:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 928666 **Sample:** 474640-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 18:00

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0277	0.0300	92	80-120	

Lab Batch #: 928666 **Sample:** 474640-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 18:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 928666 **Sample:** 474640-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 18:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0274	0.0300	91	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Kimbrough Sweet

Work Orders : 474640,

Project ID: 700376.050.01

Lab Batch #: 928666 **Sample:** 474640-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 18:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 928666 **Sample:** 474640-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 19:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 928666 **Sample:** 474640-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 19:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 928784 **Sample:** 474640-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 13:23

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.3	100	94	70-135	
o-Terphenyl	47.5	50.0	95	70-135	

Lab Batch #: 928784 **Sample:** 474640-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 14:38

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.6	100	98	70-135	
o-Terphenyl	46.9	50.0	94	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Kimbrough Sweet

Work Orders : 474640,

Project ID: 700376.050.01

Lab Batch #: 928784 **Sample:** 474640-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 15:03

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.4	100	97	70-135	
o-Terphenyl	45.9	50.0	92	70-135	

Lab Batch #: 928784 **Sample:** 474640-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 15:28

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.1	100	97	70-135	
o-Terphenyl	48.0	50.0	96	70-135	

Lab Batch #: 928784 **Sample:** 474640-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 15:52

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	100	98	70-135	
o-Terphenyl	46.3	50.0	93	70-135	

Lab Batch #: 928784 **Sample:** 474640-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 16:17

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.7	100	100	70-135	
o-Terphenyl	47.0	50.0	94	70-135	

Lab Batch #: 928784 **Sample:** 474640-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 16:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.8	100	98	70-135	
o-Terphenyl	48.9	50.0	98	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Kimbrough Sweet

Work Orders : 474640,

Project ID: 700376.050.01

Lab Batch #: 928784 **Sample:** 474640-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 17:05

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.4	100	97	70-135	
o-Terphenyl	48.5	50.0	97	70-135	

Lab Batch #: 928666 **Sample:** 647597-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/13 17:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 928784 **Sample:** 647674-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/27/13 12:33

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.7	100	93	70-135	
o-Terphenyl	48.1	50.0	96	70-135	

Lab Batch #: 928666 **Sample:** 647597-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/13 15:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0328	0.0300	109	80-120	

Lab Batch #: 928784 **Sample:** 647674-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/27/13 11:38

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	100	116	70-135	
o-Terphenyl	58.7	50.0	117	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Kimbrough Sweet

Work Orders : 474640,

Project ID: 700376.050.01

Lab Batch #: 928666 **Sample:** 647597-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/26/13 16:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0328	0.0300	109	80-120	

Lab Batch #: 928784 **Sample:** 647674-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/27/13 12:05

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	58.5	50.0	117	70-135	

Lab Batch #: 928666 **Sample:** 474640-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 16:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0326	0.0300	109	80-120	

Lab Batch #: 928784 **Sample:** 474640-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 13:48

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	60.7	50.0	121	70-135	

Lab Batch #: 928666 **Sample:** 474640-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/26/13 16:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0330	0.0300	110	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Kimbrough Sweet

Work Orders : 474640, **Project ID:** 700376.050.01

Lab Batch #: 928784 **Sample:** 474640-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/27/13 14:13

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	100	111	70-135	
o-Terphenyl	58.2	50.0	116	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

BS / BSD Recoveries

Project Name: Kimbrough Sweet

Work Order #: 474640 **Project ID:** 700376.050.01

Analyst: ARM **Date Prepared:** 11/26/2013 **Date Analyzed:** 11/26/2013

Lab Batch ID: 928666 **Sample:** 647597-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00100	0.100	0.0918	92	0.100	0.0926	93	1	70-130	35	
Toluene	<0.00200	0.100	0.0944	94	0.100	0.0953	95	1	70-130	35	
Ethylbenzene	<0.00100	0.100	0.103	103	0.100	0.103	103	0	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.209	105	0.200	0.210	105	0	70-135	35	
o-Xylene	<0.00100	0.100	0.105	105	0.100	0.106	106	1	71-133	35	

Analyst: ARM **Date Prepared:** 11/27/2013 **Date Analyzed:** 11/27/2013

Lab Batch ID: 928784 **Sample:** 647674-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	808	81	1000	794	79	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	826	83	1000	843	84	2	70-135	35	

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

Form 3 - MS / MSD Recoveries

Project Name: Kimbrough Sweet

Work Order # : 474640 **Project ID:** 700376.050.01

Lab Batch ID: 928666 **QC- Sample ID:** 474640-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/26/2013 **Date Prepared:** 11/26/2013 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00127	0.127	0.118	93	0.127	0.119	94	1	70-130	35	
Toluene	<0.00254	0.127	0.122	96	0.127	0.122	96	0	70-130	35	
Ethylbenzene	<0.00127	0.127	0.132	104	0.127	0.133	105	1	71-129	35	
m,p-Xylenes	<0.00254	0.254	0.269	106	0.254	0.271	107	1	70-135	35	
o-Xylene	<0.00127	0.127	0.134	106	0.127	0.136	107	1	71-133	35	

Lab Batch ID: 928784 **QC- Sample ID:** 474640-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/27/2013 **Date Prepared:** 11/27/2013 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<19.1	1270	1060	83	1270	940	74	12	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<19.1	1270	1170	92	1270	1060	83	10	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: Kimbrough Sweet

Work Order #: 474640

Lab Batch #: 928375 **Project ID:** 700376.050.01

Date Analyzed: 11/25/2013 12:05 **Date Prepared:** 11/25/2013 **Analyst:** CAJ

QC- Sample ID: 474640-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	21.4	18.9	12	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

XENCO Laboratories
B&A Laboratories, Inc.

☐ 4143 Greenbriar Drive, Stafford, Tx 77477 281-240-4200
☐ 5332 Blackberry Drive, San Antonio, Tx 78238 210-509-3334
☐ 9701 Harry Hines Blvd., Dallas, Tx 75220 214-902-0300
☐ 12600 West I-20 East, Odessa, Tx 79765 432-569-1800
☐ 842 Cantwell, Corpus Christi, Tx 78408 361-884-0371

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

Serial #: 239667 Page 1 of 1

Company-City: Talon LPE **Phone:**

Lab Only: 474640

Proj Name-Location: Kimbrough Sweet ☐ Previously done at XENCO **Project ID:** 700376-050-01

Proj State: TX, AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other **Proj. Manager (PM):** Wesley Ty Burrow

e-Mail Results to ID PM and: Brad Ivy, Camille Bryant **Fax No:**

Invoice to ☐ Accounting ☐ Inc. Invoice with Final Report ☐ Invoice must have a P.O
Bill to: Plains SRS# 2002-10757

Quote/Pricing: **P.O No:** ☐ Call for P.O.

Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP

QAPP Per-Contract CLP AFCEE NAVY DOE DOD USACE OTHER:

Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)

Sampler Name: Wesley Ty Burrow Signature:

TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.
It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

	Sample ID	Sampling Date	Time	Depth ft' In" m	Matrix	Composite	Grab	# Containers	Container Size	Container Type	Preservatives
1	MW-1A 60'	11-20-13	1430		S						
2	MW-1A 85'	11-20-13	1550		S						
3	MW-16 60'	11-20-13	1800		S						
4	MW-16 85'	11-20-13	1840		S						
5	MW-17 60'	11-21-13	1620		S						
6	MW-17 85'	11-21-13	1715		S						
7	MW-18 60'	11-21-13	1130		S						
8	MW-18 85'	11-21-13	1220		S						
9											
10											

	VOCs: Full-List BTEX MTBE EtOH Oxyg VOHs VOAs	VOC's PP TCL DW Appdx-1 Appdx-2 CALL Other:	PAHs	TX-1005 DRO GRO MA EPH MA VPH	SVOCs: Full-List DW BN&AE TCL PP Appdx-2 CALL	OC Pesticides PCBs Herbicides OP Pesticides	Metals: RCRA-8 RCRA-4 Pb 13PP 23TAL Appdx 1 Appdx 2	SPLP - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)	EDB / DBCP
1	X			X					
2	X			X					
3	X			X					
4	X			X					
5	X			X					
6	X			X					
7	X			X					
8	X			X					
9									
10									

TAT ASAP 5h 12h 24h 48h 5d 7d 10d 21d
Addn: PAH above mg/L W, mg/Kg S Highest Hit
Hold Samples (Surcharges will apply and are pre-approved)

Remarks
Sample Clean-ups are pre-approved as needed

Addn: Date Rcv by: From:

Relinquished by (Initials and Sign)	Date & Time	Relinquished to (Initials and Sign)	Date & Time
1)	11-22-13 0940	2)	11-22-13
3)		4)	
5)		6)	

Total Containers per COC: 8 Cooler Temp: 0.5+1.5 °C

Upon signings this COC you accept XENCO terms and Conditions unless otherwise agreed on writing. Reports are the Intellectual Property of XENCO until paid. Samples will be held 30 days after final report is e-mailed unless hereby requested. Rush Charges and Collection Fees are pre-approved if needed.

Preservatives: Various (**V**), HCl pH<2 (**H**), H2SO4 pH<2 (**S**), HNO3 pH<2 (**N**), Asbc Acid&NaOH (**A**), ZnAc&NaOH (**Z**), (Cool,<4C) (**C**), None (**NA**), See Label (**L**), Other (**O**) _____

Cont. Size: 4oz (**4**), 8oz (**8**), 32oz (**32**), 40ml VOA (**40**), 1L (**1**), 500ml (**5**), Tedlar Bag (**B**), Various (V), Other _____ **Cont. Type:** Glass Amb (**A**), Glass Clear (**C**), Plastic (**P**), Various (**V**)

Matrix: Air (**A**), Product (**P**), Solid(**S**), Water (**W**), Liquid (**L**)

Committed to Excellence in Service and Quality *www.xenco.com*

Notice: Signature of this document and relinquishment of these samples constitutes a valid purchase order from client company to Xenco Laboratories and its affiliates, subcontractors and assigns under Xenco's standard terms and conditions of service unless previoiusly negotiated under a fully executed client contract.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: PLAINS ALL AMERICAN EH&S

Date/ Time Received: 11/22/2013 09:48:00 AM

Work Order #: 474640

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.5
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	**N/A**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:	PH Device/Lot#:

Checklist completed by: Candace James Date: 11/22/2013
Candace James

Checklist reviewed by: Kelsey Brooks Date: 11/22/2013
Kelsey Brooks

APPENDIX D

NMOCD C-141

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

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☐ Final Report

Name of Company: **Plains Pipeline, L.P.**	Contact: **Camille Reynolds**
Address **P.O. Box 3119 Midland, Texas 79702**	Telephone No. **505.396.3341 (CJReynolds@paalp.com)**
Facility Name **Kimbrough Sweet #2000-10757**	Facility Type **8" Steel Pipeline**
Surface Owner: **State of New Mexico**	Mineral Owner / Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County:
G	**3**	**T18S**	**R37E**					Lea

Latitude: 32°46'48"N **Longitude:** 103°14'18"W

NATURE OF RELEASE

Type of Release **Crude Oil**	Volume of Release **60 bbls barrels**	Volume Recovered **22 bbls barrels**
Source of Release **8" Steel Pipeline**	Date and Hour of Occurrence **10/25/2000**	Date and Hour of Discovery **10/25/2000**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Donna Williams**	
By Whom? **Wayne Brunette**	Date and Hour **10-25-00@5:15PM**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. **NA**	

If a Watercourse was Impacted, Describe Fully.*
NA

Describe Cause of Problem and Remedial Action Taken.*
***8" Steel Pipeline*: The release was caused by internal corrosion. Approximately 60 barrels of crude oil was released and approximately 22 barrels recovered and reintroduced to the system. The leak was excavated and repaired and the line placed back in service.**

Describe Area Affected and Cleanup Action Taken.*
15,613 sqft 200' x 200': In 2001, the NMOCD approved a Soil and Groundwater Abatement Plan. Impacted soil down to 15'bgs was excavated, shredded, and treated. A 2-foot thick compacted clay barrier was installed in the bottom of the excavation and the treated soil used to bring to grade. Remedial Goals: TPH 8015m = 100 mg/Kg, Benzene = 10 mg/Kg, and BTEX, i.e., the mass sum of Benzene, Ethyl Benzene, Toluene, and Xylenes = 50 mg/Kg.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	**OIL CONSERVATION DIVISION**	
Printed Name: Camille Reynolds	Approved by District Supervisor:	
E-mail Address: CJReynolds@paalp.com	Approval Date:	Expiration Date:
Title: District Environmental Supervisor	Conditions of Approval:	Attached ☐
Date: Phone: 505.396.3341		

* Attach Additional Sheets If Necessary

PLAINS ALL AMERICAN Site Information and Metrics	Incident Date: 10/25/2000	NMOCD Notified: 10-25-00@5:15PM

SITE: Kimbrough Sweet	Assigned Site Reference #: 2000-10757
Company: Plains Pipeline, L.P.	
Street Address: P.O. Box 3119	
Mailing Address:	
City, State, Zip: Midland, Texas 79702	
Representative: Camille Reynolds	
Representative Telephone: 505.396.3341 (CJReynolds@paalp.com)	
Telephone:	
Fluid volume released (bbls): 60 bbls	Recovered (bbls): 22 bbls
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)	
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)	
Leak, Spill, or Pit (LSP) Name: Kimbrough Sweet	
Source of contamination: 8" Steel Pipeline	
Land Owner, i.e., BLM, ST, Fee, Other: State of New Mexico	
LSP Dimensions 200' x 200'	
LSP Area: 15,613 ft^2	
Location of Reference Point (RP)	
Location distance and direction from RP	
Latitude: 32°46'48"N	
Longitude: 103°14'18"W	
Elevation above mean sea level: 3,720'amsl	
Feet from South Section Line	
Feet from West Section Line	
Location- Unit or ¼¼: SW¼ of the NE¼	Unit Letter: G
Location- Section: 3	
Location- Township: T18S	
Location- Range: R37E	
Surface water body within 1000 ' radius of site: none	
Domestic water wells within 1000' radius of site: none	
Agricultural water wells within 1000' radius of site: none	
Public water supply wells within 1000' radius of site: none	
Depth from land surface to ground water (DG) 50'bgs	
Depth of contamination (DC) – 50'bgs	
Depth to ground water (DG – DC = DtGW) - zero feet	

1. Ground Water	2. Wellhead Protection Area	3. Distance to Surface Water Body
If Depth to GW <50 feet: *20 points*	If <1000' from water source, or;<200' from private domestic water source: *20 points*	<200 horizontal feet: *20 points*
If Depth to GW 50 to 99 feet: *10 points*		200-100 horizontal feet: *10 points*
If Depth to GW >100 feet: *0 points*	If >1000' from water source, or; >200' from private domestic water source: *0 points*	>1000 horizontal feet: *0 points*
Ground water Score = 20	*Wellhead Protection Area Score= 0*	*Surface Water Score= 0*
Site Rank (1+2+3) = 20		

Total Site Ranking Score and Acceptable Concentrations

Parameter	>19	10-19	0-9
Benzene[1]	10 ppm	10 ppm	10 ppm
BTEX[1]	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1000 ppm	5000 ppm

[1]100 ppm field VOC headspace measurement may be substituted for lab analysis