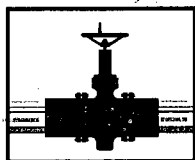


**1R – 83**

**REPORT**

**DATE:**

**MAY 2007**



**PLAINS**  
PIPELINE, L.P.

1R-83  
Report  
May 2007

August 13, 2007

Mr. Wayne Price  
State of New Mexico  
Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Re: Plains Pipeline, L.P.  
Document Submittal – Nine Soil Closure Reports  
Clay Osborn - Rocky Top Ranch  
Jal, Lea County, New Mexico

Dear Mr. Price:

Plains Pipeline, L.P. (Plains) is pleased to submit the attached Soil Closure Reports for the nine soil remediation project sites located on the Osborn's Rocky Top Ranch in Jal, Lea County, New Mexico. The soil remediation activities were conducted in accordance with the General Remediation Work Plan (dated April 2006) and the Site-Specific Remediation Work Plan (dated July 2006) prepared for each site and approved by the New Mexico Oil Conservation Division (NMOCD).

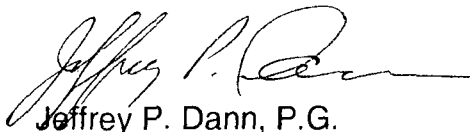
Based on the analytical laboratory results of confirmation soil samples and completion of the site-specific soil remediation and restoration activities as described in each Work Plan, remediation activities are complete and Plains requests that the NMOCD issue Plains a "no further action letter" and close these nine sites listed below.

Clay Osborn Jalmat #1	1R-0412
Clay Osborn Jalmat #2	1R-0466
Clay Osborn Jalmat #3	1R-0467
Clay Osborn Jalmat #22A	1R-0411
Clay Osborn Jalmat #22B	1R-0468
Clay Osborn East Shell North	1R-0083
Clay Osborn SH-0193-2	1R-0471
Clay Osborn SH-0184-1	1R-0472
Clay Osborn DT-27	1R-0470

Please note that site "Clay Osborn TM-245-2 (1R-0469)" was combined into site "Jalmat #22B" since the sites were immediately adjacent to each other. A separate report was not prepared for TM-245-2.

Should you have any questions or comments, please contact me at (713) 646-4657.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey P. Dann".

Jeffrey P. Dann, P.G.  
Sr. Environmental Specialist  
Plains All American

Attachment: Nine Soil Closure Reports

File: n:\jeff-files\Osborn-RockyTopRanch\DocumentClosureReptCovrLtr.doc

Report Entered

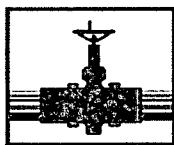
## **Site Closure Report**

### **Clay Osborn Rocky Top Ranch East Shell North Release Site**

**NW $\frac{1}{4}$  SE $\frac{1}{4}$ , Section 12  
T25S, R36E  
Lea County, New Mexico**

**SRS No.2000-10615  
NMOCD No. 1R-0083**

**Prepared For**



**PLAINS  
PIPELINE, L.P.**

**333 Clay Street, Suite 1600  
Houston, Texas 77002**

**Prepared By**



**ENVIRONMENTAL  
SERVICES**

**May 2007**

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## 1.0 Introduction

SDG Environmental Services was retained by Plains Pipeline, L.P. (Plains) to provide oversight of remediation activities and prepare a closure report for the Clay Osborn East Shell North release site located on the Clay Osborn Rocky Top Ranch. Plains Pipeline is the owner/operator of several pipelines preset on the Clay Osborn Rocky Top Ranch in Lea County, New Mexico. Plains retained Basin Environmental Services to conduct the soil excavation/remediation activities.

The site is located in the NW  $\frac{1}{4}$  of the SE  $\frac{1}{4}$  of Section 12, Township 25 South, Range 36 East, approximately 1 mile northwest of Jal at Latitude 32°08'34" North, and Longitude 103°12'58" West. A site location map is provided as Figure 1.

The hydrocarbon impacted area was the result of a historical release. The date of the release as well as the volume of crude released and recovered is not known. The East Shell North Site was initially included in the previous Shell North investigation reports which actually included two separate release sites; the west site which was apparently associated with past exploration and production activities, and the east site associated with the EOTT pipeline historical release. The east site was agreed by Plains and the landowner to comprise the area east of a dirt road and is the subject of this Site Closure Report.

Plains prepared and submitted a General Remediation Work Plan dated April 2006 to address the release sites located at the Rocky Top Ranch. The objective of the General Remediation Work Plan was to provide a framework for remediation of crude oil impacted sites consistent with the remediation/abatement goals and objectives provided in the New Mexico Oil Conservation Division (NMOCD) "NMOCD Guidelines for Remediation of Leaks, Spills, and Releases." The general Remediation Work Plan was conditionally approved by the NMOCD in a letter to Plains dated May 30, 2006.

Soil analytical data and information obtained from the EPI December 2001 Shell North Site Investigation Report was used to develop a Site Investigation Report and Site-Specific Remediation Work Plan. The Site Investigation Report and Site-Specific Remediation Work Plan dated July 2006 provided for closure of the site under three closure scenarios. The closure scenario selected to be dependent on the conditions observed in the field. These closure scenarios are as follows.

### *Work Plan Scenario 1 (Surface Restoration)*

This scenario was developed for sites where investigation data indicates that the surface area has restored itself naturally, the surface expression of the release is difficult to identify, the impacts are limited to the surface and/or shallow soils, and there is no threat to groundwater.

- Scrape the surface asphaltines where apparent and remove;
- Blend the underlying 1 to 2 feet of soil with native soil and contour;
- Do not disturb areas that have already re-vegetated.

The central area of the site was remediated under this scenario.

### *Work Plan Scenario 2 (Total Excavation)*

Areas where impacts greater than 100 mg/kg TPH were limited in vertical extent (i.e. 5 to 10 feet in depth) were recommended to be remediated under the Work Plan Scenario 2 involving the following procedures as outlined in the approved Work Plan including NMOCD conditions presented in the May 2006 NMOCD approval letter.

- Excavation of impacted soil to between 5 to 10 feet bgs or until site remediation standards are met;
- Collect and analyze soil sample from the walls and floor of the excavation to confirm that the remediation has met site guidelines;
- Relocation of excavated soil to the centralized soil treatment area for blending and aeration;
- Collect and analyze treated soil to confirm that the soil treatment activities have met site guidelines;
- Backfill the excavation with treated soil to 100 mg/kg and restore the area to as close as possible to pre-spill conditions.

One area near the eastern boundary of the site was excavated to 5 ft bgs and soil samples collected from the bottom of the excavation. Soils were excavated with a bulldozer and therefore there were no distinct vertical sidewalls. Soil samples were collected from the bottom of the excavation at side of impacted area defined by the highest PID reading and observed staining.

### *Work Plan Scenario 3 (Limited Excavation and Risk-based Closure)*

At areas of the site where data indicates that soil impacts extend to below 10 feet bgs and excavation of all the impacted soil to below NMOCD guidelines is not practical, Work Plan Scenario 3 was implemented.

Scenario 3 includes the permanent installation of an oversized 20-mil polyethylene liner at a minimum depth of 10 feet to inhibit vertical migration of contaminants in soil left in place below the cap. A 3-foot wide clean area buffer was established around the impacted soil in the floor of the excavation. The buffer extent was determined using a calibrated PID and confirmed by laboratory analysis of grab samples collected around the perimeter of the excavation. The liner was cushioned above and below with a 3 to 4-inch layer of sand to protect it from puncture and tearing during the backfilling process. Installation of the 20-mil polyethylene liner at a minimum depth of 10 feet bgs will protect the barrier from erosion and human intrusion for a term sufficient to allow natural biodegrading of contaminants in the soil.

Clean overburden and impacted soils were blended and utilized as backfill. Soil samples were collected to verify constituent concentrations were below NMOCD site-specific guidelines. Once the excavation was confirmed to meet NMOCD standards or the installation of the 20-mil poly liner was completed, backfilling of the excavation was initiated with the blended soil. The backfilled excavation was contoured to the original grade surrounding the site and restored by seeding with approved grass seed.

## **2.0 Regulatory Framework**

In New Mexico, the MNOCD oversees and regulates oil, gas and geothermal activities, including compliance with environmental regulations. The East Shell North Site was evaluated and remediated consistent with the characterization and remediation/abatement goals and objectives of the MNOCD approved General Remediation Work Plan and the MNOCD guidelines defined in the MNOCD Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993). Primary contaminants, or constituents of concern (COCs), associated with crude oil releases include total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene, and total xylenes (BTEX). Acceptable levels for these COCs are determined based on a site ranking system. The ranking system estimates the likelihood of exposures to the COCs. The more likely that human exposure will occur, the more stringent the cleanup levels. The site ranking system is set up on the three following parameters:

- Depth to groundwater
- Wellhead protection area
- Distance to surface water body

## **3.0 Regional and Site Characteristics**

### **3.1 Geological Description**

The site is located east of the caprock escarpment which defines the western margin of the high plains or Llano Estacado of southeastern New Mexico. The surface is comprised of rolling hills with sand dunes of Quaternary age deposits, eroded Ogallala Formation and windblown deposits.

### **3.2 Land Use**

Land usage in the area is primarily livestock range land and oil field activities. Several gas driven electric power stations are located in the vicinity of the site and several major oil and gas transmission lines bisect the region. The area in the immediate vicinity of the site is sparsely populated.

### **3.3 Ground Water**

The depth to groundwater at the site is approximately 45 feet below ground surface (bgs) based on measured depth to groundwater at monitor wells located at the adjacent release site. The depth to groundwater is consistent with the information provided in the USGS Groundwater Report 6 and the New Mexico Office of the State Engineer database does not list any water wells in Range 36 East of Township 25.



#### 4.0 NMOCD Site Ranking

The depth to water at the site is estimated to be approximately 50 feet bgs based on monitor wells located at the adjacent release site. Based on the analytical results of soil samples, the hydrocarbon impacted soil extends from the surface to 5 feet bgs, therefore, less than 50 feet of non-impacted soil remains between the last known impacted soil depth and groundwater. The resulting Depth to Groundwater Ranking Score is 20.

The site is greater than 1000 ft from any public water supply source and greater than 200 feet from any private domestic water supply well. The resulting Wellhead Protection Ranking Score is 0.

There are no water bodies located within 1000 ft of the site. The resulting Distance to Surface Water Body Ranking Score is 0.

Based on the individual ranking scores identified above, the site has an NMOCD Total Ranking Score of >19, which establish the following remediation levels:

The following table demonstrates the site ranking matrix:

**Table 1 – Site Ranking Matrix**

<b>Depth to Groundwater</b>	<b>Wellhead Protection Area</b>	<b>Distance to Surface Water</b>
<50 feet = 20	<1000 feet from a water source, or <200 feet from a domestic water source	<200 feet = 20
50 to 99 feet = 10	Yes = 20	200 to 1000 feet = 10
>100 feet = 0	No = 0	>1000 feet = 0
Groundwater Score = 20	Well Protection Score = 0	Surface Water Score = 0
<b>Total Site Ranking Score = 20</b>		
<b>Parameter</b>	<b>Score of &gt;19 Maximum Concentrations</b>	
Benzene	10 ppm	
BTX	50 ppm	
TPH	100 ppm	

Based on this ranking system the site has a total score of 20 resulting in remediation goals of 10 ppm benzene, 50 ppm BTEX and 100 ppm TPH were observed.

#### 5.0 Site Assessment

On 8 August 2000 and 9 September 2000, initial subsurface horizontal and vertical delineation was conducted by EPI with the installation of 12 soil borings installed at the site. Ten (10) soil borings were installed to a depth of 5 feet bgs and soil samples were collected at depths of 2, and 5 feet bgs, field screened with a PID, and analyzed for

BTEX and TPH-GRO/DRO. Laboratory results indicated that constituent concentrations of BTEX were either below NMOCOD regulatory standards or not detected above laboratory method detection limits on the 20 soil samples. Laboratory results indicated that TPH-GRO/DRO concentrations exceeded 100 mg/kg TPH in 5 of the soil samples and the remaining 15 soil samples were either below NMOCOD regulatory standards or were not detected above the laboratory method detection limits.

#### **5.1 Distribution of Hydrocarbons in the Unsaturated Zone**

The area of soils remediated was approximately 24,000 square feet. The vertical extent of soils impacted above the site specific NMOCOD cleanup guidelines was determined to be limited to the surface to less than 5 feet bgs except in the western edge of the site. The western edge of the site was found to be impacted at depths of greater than 12 feet bgs from crude oil which had migrated beneath the dirt road from the adjacent site on the west side of the road. No free phase hydrocarbons were observed during the excavation.

#### **5.2 Distribution of Hydrocarbons in the Saturated Zone**

No saturated conditions were reported in any of the borings or observed during later site remediation activities. Monitor wells installed at the adjacent release site west of the road have recorded water levels of approximately 50 feet bgs. Therefore, there is no indication that hydrocarbons from the East Shell North historical release have impacted the saturated zone.

### **6.0 Site Remediation**

The final surface area remediated was approximately 24,000 square feet. An additional 25,000 square feet of surface area was used for blending and stockpiling of soils at the site. The volume of excavated and blended soils totaled 3,200 cubic yards. The remediated area is shown in Figure 2.

The areas with observed staining and where laboratory analytical results indicated that surface impacts did not extend below 2 feet bgs were addressed under the Work Plan Scenario 1. Surface asphaltines and underlying soils were scraped to a depth of 2 ft bgs and the underlying soils blended in place. In areas where the asphaltines had become covered with windblown sand, the cleaner sand was blended with excavated soils, stockpiled and sampled. The area managed under Scenario 1 is shown in Figure 2.

An area on the east end of the site at the location of the previous soil boring BH-47 which indicated possible impacts to five feet bgs was remediated under Work Plan Scenario 2. This area was excavated to a depth of 5 ft bgs with a bulldozer. The soils were screened using a PID and two confirmation soil samples collected from the locations of the highest PID readings.

During scraping of the surface asphaltines at the western end of the site additional staining was observed on the vertical surface of the excavation wall along the dirt road which identifies the western boundary of the East Shell North site and separates the East Shell North site from the adjacent release site located on the west side of the dirt road.

As excavation continued additional staining was uncovered at depth up to the road indicating the staining was encroaching the site from the beneath the road. Soil samples were collected from the floor and walls of the deeper excavation which indicated hydrocarbon impacts were present above the NMOCD standards. Initial and intermediate soil samples were collected from 6 feet bgs and 10 feet bgs respectively. Analytical results indicated them to be above the site-specific cleanup guidelines. Excavation continued to 12 feet bgs at which point the excavation was terminated. Final soil samples of the excavation floor in the west end indicated the soils to be above the site-specific guidelines and therefore that area of the site was managed under closure Scenario 3 of the approved Site-Specific Work Plan. A 20 mil liner was installed at 12 ft bgs. The one-piece liner was installed to cover the vertical surface of the wall adjacent to the dirt road and extended horizontally 33 ft east of the western wall along the excavation floor.

Prior to liner installation, a 3-foot wide clean area buffer was established around the impacted soil in the floor of the excavation. The buffer extent was determined using a calibrated PID and confirmed by laboratory analysis of grab samples collected around the perimeter of the excavation at locations of heaviest staining or highest PID reading. The liner was cushioned above and below with a 3 to 4-inch layer of blended sandy soils to protect it from puncture and tearing during the backfilling process. The soils used in liner placement were determined by laboratory analysis to be below the 1000 mg/kg concentration acceptable of soils left in place above the liner installation. Installation of the 20-mil polyethylene liner at a depth of 12 feet bgs will protect the barrier from erosion and human intrusion for a term sufficient to allow natural biodegrading of contaminants in the soil.

The clean overburden and impacted soils were blended and utilized as backfill. Soil samples of blended soils were collected to verify constituent concentrations of BTEX are below NMOCD guidelines and TPHGRO/DRO are below 100 mg/kg for direct backfill and below 1000 mg/kg as approved for backfill over liners. Once the excavation was confirmed to meet NMOCD standards or the installation of the 20-mil poly liner was completed, backfilling of the excavation was initiated with the blended soil.

After determining that the confirmation samples did not exceed the site-specific remediation standards, the excavated area was backfilled with blended soils meeting the cleanup guidelines for the closure scenario, topped with clean soils obtained from the landowner, contoured to the original grade surrounding the site, and reseeded with approved grass seed.

## **7.0 Confirmation Sampling and Comparison to Remediation Guideline Standards**

Confirmation samples were collected from the four walls and the bottom of the excavation and submitted to Environmental Lab of Texas for laboratory analyses of total petroleum hydrocarbons (TPH) by EPA Method 8015M (DRO, GRO), and for benzene, toluene, ethyl benzene, and total xylenes (BTEX) by EPA Method 8021B, a copy of the

laboratory report is presented in Appendix C. A site detail map identifying soil sample locations is presented as Figure 2. Table 2 provides a summary of the analytical results.

Soils visually impacted with asphaltines were excavated and stockpiled adjacent to the site. The asphaltine impacted soils were predominantly located approximately 1.5 ft below windblown sand that had covered the release area. The asphaltine impacted soils and overburden sand was excavated and transported to the central land farm. The underlying soils were blended and checked with a PID. PID readings ranged from 0.0 to 1.2 parts per million (ppm), indicating the cleanup of the asphaltine impacted area under Scenario 1 was complete.

Laboratory results from these soil samples indicated TPH concentrations of soils remaining in the area excavated under Scenario 2 ranged from <10 mg/kg in the sample from the floor at six feet bgs to 53.2 mg/kg in the sample from wall at approximately four feet bgs. Laboratory analyses of BTEX constituents from all samples were below the detection limit of 0.025 mg/kg, a summary of the analytical results is presented in Table 2.

Soils to be left in place below the liner were sampled and the final confirmation samples indicated concentrations of TPH in soils remaining in place below the liner in the area closed under Scenario 3 ranged from 1000 mg/kg to <10 mg/kg. The soil samples from the perimeter of the liner installation did not exhibit TPH or BTEX concentrations above their detection limits of 10 mg/kg and 0.025 mg/kg, respectively.

Sample results were compared to the site-specific soil remediation guidelines. As indicated in Table 2 and the laboratory report, all constituents for soils remaining in place are below the site-specific cleanup guidelines for the closure scenarios implemented at the site. Therefore, remediation at this site is considered complete.

## **8.0 Conclusion**

SDG Environmental Services was retained by Plains Pipeline, L.P. (Plains) to provide oversight of remediation activities and prepare a closure report for the Clay Osborn East Shell North release site located on the Clay Osborn Rocky Top Ranch. The site is located in the NW ¼ of the SE ¼ of Section 12, Township 25 South, Range 36 East, approximately 1 mile northwest of Jal at Latitude 32°08'34" North, and Longitude 103°12'58" West.

The hydrocarbon impacted area was the result of a historical release. The date of the release as well as the volume of crude released and recovered is not known. A Site-Specific Remediation Work Plan dated April 2006 provided for closure of the site under three closure scenarios which were implemented at the East Shell North release site in December 2006 through March 2007.

Impacted soils were excavated and confirmation samples were collected and compared to the site-specific cleanup guidelines. Soil samples from the excavated areas confirm that the East Shell North release site was remediated per the NMOCD approved Site-Specific

Work Plan. Therefore, remediation at this site has been completed and no further investigation is warranted. SDG recommends that Plains submit a copy of this report to the NMOCD and request that the NMOCD close this case and issue a “no further action letter” to Plains.

TABLE 2  
SOIL SAMPLE ANALYTICAL RESULTS SUMMARY  
EAST SHELL NORTH  
SRS NO: 2000-10615

PLAINS PIPELINE, L.P.  
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	DEPTH ft bgs	SAMPLE DATE	LABORATORY I.D.	METHOD: EPA 8021B					METHOD: EPA 8015M			
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL- BENZENE (mg/kg)	M.P.- XYLENES (mg/kg)	O-XYLENE (mg/kg)	C6-C12 (mg/kg)	C12-C28 (mg/kg)	C28-C35 (mg/kg)	TOTAL TPH C6-C35 (mg/kg)
ESN-F1	5	12/5/2006	6L06001-01	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	<10.0	<10.0	<10.0
ESN-F2	4	12/5/2006	6L06001-02	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	39	14.2	53.2
ESN-SP1	stockpile	12/5/2006	6L06001-03	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	78.7	24.6	103
ESN-SP2	stockpile	12/6/2006	6L07002-01	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	91.3	9.07 J	100
ESN-WF 1	6*	12/18/2006	6L18011-01	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	310	145	455
ESN-WF 2	6*	12/18/2006	6L18011-02	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	337	145	482
ESN-WF 3	6*	12/18/2006	6L18011-03	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	81.8	60.4	142
ESN-WF 4	6*	12/18/2006	6L18011-04	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	146	103	249
ESN-2F2	10*	12/21/2006	6L22003-01	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	133	87.9	221
ESN-2F3	10*	12/21/2006	6L22003-02	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	123	79	202
ESN-2F4	10*	12/21/2006	6L22003-03	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	129	80.1	209
N FLR	12	1/4/2007	7A05010-01	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	<10.0	<10.0	<10.0
MID FLR	12	1/4/2007	7A05010-02	na	na	na	na	na	<10.0	121	68.4	189
S FLR	12	1/4/2007	7A05010-03	na	na	na	na	na	<10.0	835	165	1000
ESN-NW	12	1/11/2007	7A12026-01	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	<10.0	<10.0	<10.0
ESN-EW	12	1/11/2007	7A12026-02	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	<10.0	<10.0	<10.0
ESN-WW	12	1/11/2007	7A12026-03	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	<10.0	<10.0	<10.0
ESN-SW	12	1/11/2007	7A12026-04	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	<10.0	<10.0	<10.0
ESN-2WF1	4	1/11/2007	7A12026-05	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<10.0	<10.0	<10.0	<10.0
ESN-LFSP	stockpile	1/18/2007	7A18004-01	na	na	na	na	na	<10.0	87.5	13.4	101

\* Soils subsequently excavated after sample collection.

< indicates the constituent was not detected

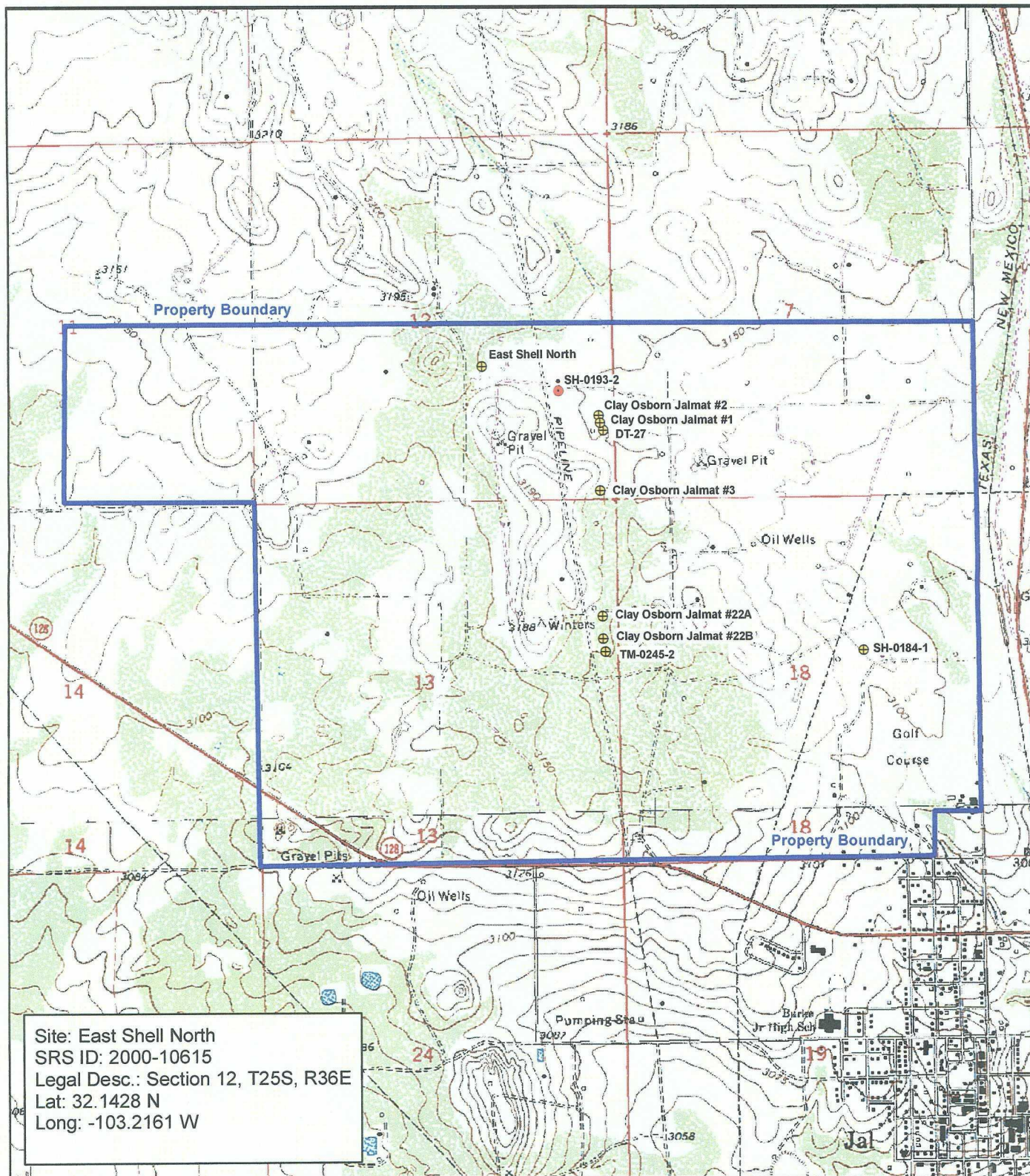
J indicates estimated value (detected below method reporting limit

na indicates not analyzed

# **Appendix A**

## **Figures**

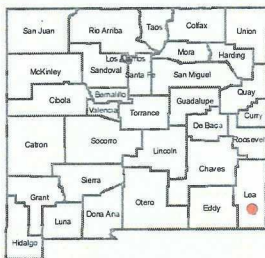




Site: East Shell North  
 SRS ID: 2000-10615  
 Legal Desc.: Section 12, T25S, R36E  
 Lat: 32.1428 N  
 Long: -103.2161 W

Map Source: USGS, Jal NW New Mexico Topographic Map, 1980.

0 1,000 2,000  
 Feet

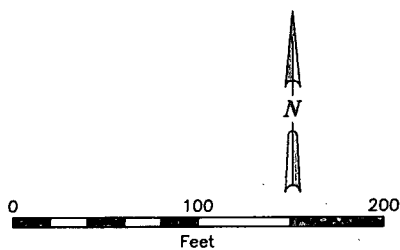
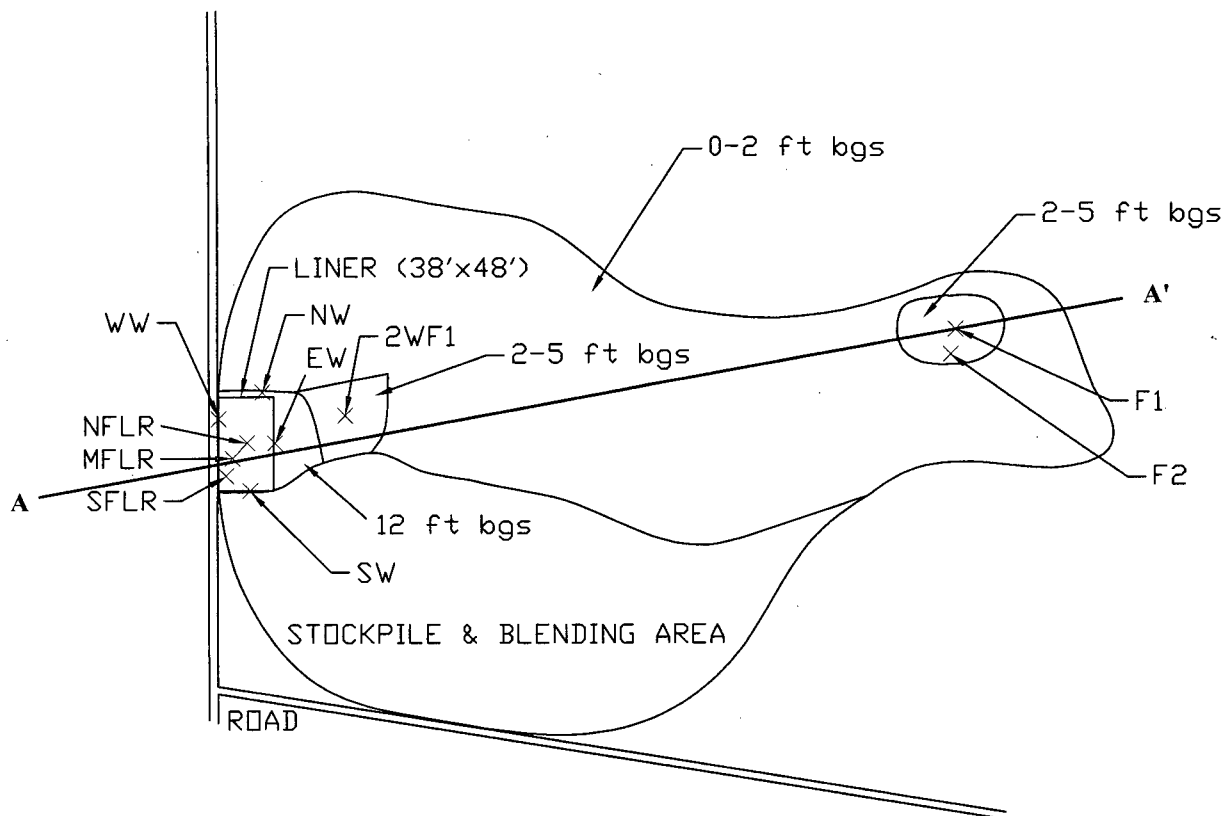


**SDG**  
 ENVIRONMENTAL SERVICES

East Shell North  
 SRS ID: 2000-10615  
 Plains Marketing L.P.  
 Lea County, New Mexico

**Figure 1: Site Location Map**





**LEGEND:**

× Soil Sample Locations

— Final Excavation Boundary

**SDG ENVIRONMENTAL SERVICES**

Rocky Top Ranch  
Clay Osborn East Shell North  
SRS ID: Rocky Top 1  
Lea County, New Mexico

**Figure 2: Excavation Detail**

## **Appendix B**

### **Site Photographs**



EAST SHELL NORTH - View of west end of site next to road prior to liner placement.



EAST SHELL NORTH - View of central area of site facing east.



EAST SHELL NORTH - View of stockpile and blending area prior to final cover placement.



EAST SHELL NORTH - View of east end of site facing west final cover being placed.



EAST SHELL NORTH - Liner placement



EAST SHELL NORTH - Backfill over liner

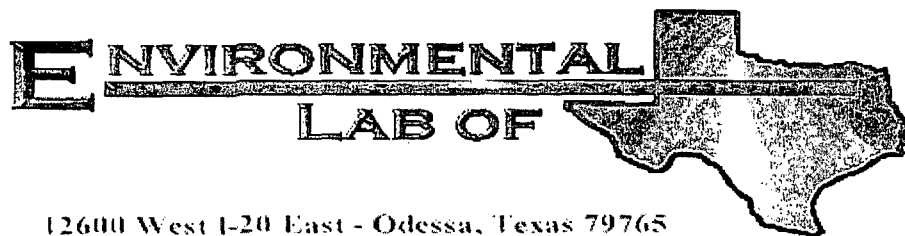




EAST SHELL NORTH - Final cover being placed over site

## **Appendix C**

### **Analytical Reports**



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: East Shell North

Project Number: 2000-10615

Location: Clay Osborn Ranch

Lab Order Number: 6L06001

Report Date: 12/07/06

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ESN- F1	6L06001-01	Soil	12/05/06 12:30	12-05-2006 17:00
ESN- F2	6L06001-02	Soil	12/05/06 12:35	12-05-2006 17:00
ESN- SP1	6L06001-03	Soil	12/05/06 13:10	12-05-2006 17:00



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**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- F1 (6L06001-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL60512	12/06/06	12/06/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		81.2 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL60514	12/06/06	12/06/06	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbons	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		116 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		117 %	70-130		"	"	"	"	
<b>ESN- F2 (6L06001-02) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL60512	12/06/06	12/06/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		81.2 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.5 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL60514	12/06/06	12/06/06	EPA 8015M	
Carbon Ranges C12-C28	39.0	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	14.2	10.0	"	"	"	"	"	"	
Total Hydrocarbons	53.2	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		124 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		125 %	70-130		"	"	"	"	
<b>ESN- SP1 (6L06001-03) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL60512	12/06/06	12/06/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		83.0 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL60514	12/06/06	12/06/06	EPA 8015M	

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- SP1 (6L06001-03) Soil</b>									
<b>Carbon Ranges C12-C28</b>	<b>78.7</b>	10.0	mg/kg dry	1	EL60514	12/06/06	12/06/06	EPA 8015M	
<b>Carbon Ranges C28-C35</b>	<b>24.6</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>103</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		76.0 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		77.0 %	70-130		"	"	"	"	

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**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- F1 (6L06001-01) Soil</b>									
% Moisture	21.0	0.1	%	1	EL60615	12/06/06	12/06/06	% calculation	
<b>ESN- F2 (6L06001-02) Soil</b>									
% Moisture	7.8	0.1	%	1	EL60615	12/06/06	12/06/06	% calculation	
<b>ESN- SP1 (6L06001-03) Soil</b>									
% Moisture	8.2	0.1	%	1	EL60615	12/06/06	12/06/06	% calculation	

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60512 - EPA 5030C (GC)**

**Blank (EL60512-BLK1)**

Prepared & Analyzed: 12/05/06

Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	47.2		ug/kg	40.0		118	80-120			
Surrogate: 4-Bromofluorobenzene	44.9		"	40.0		112	80-120			

**LCS (EL60512-BS1)**

Prepared & Analyzed: 12/05/06

Benzene	1.16	0.0250	mg/kg wet	1.25		92.8	80-120			
Toluene	1.20	0.0250	"	1.25		96.0	80-120			
Ethylbenzene	1.45	0.0250	"	1.25		116	80-120			
Xylene (p/m)	2.51	0.0250	"	2.50		100	80-120			
Xylene (o)	1.14	0.0250	"	1.25		91.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	39.6		ug/kg	40.0		99.0	80-120			
Surrogate: 4-Bromofluorobenzene	43.4		"	40.0		108	80-120			

**Calibration Check (EL60512-CCV1)**

Prepared & Analyzed: 12/05/06

Benzene	44.9		ug/kg	50.0		89.8	80-120			
Toluene	43.7		"	50.0		87.4	80-120			
Ethylbenzene	44.2		"	50.0		88.4	80-120			
Xylene (p/m)	85.4		"	100		85.4	80-120			
Xylene (o)	43.4		"	50.0		86.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	41.7		"	40.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	34.0		"	40.0		85.0	80-120			

**Matrix Spike (EL60512-MS1)**

Source: 6L01016-01

Prepared: 12/05/06 Analyzed: 12/06/06

Benzene	1.15	0.0250	mg/kg dry	1.26	ND	91.3	80-120			
Toluene	1.10	0.0250	"	1.26	ND	87.3	80-120			
Ethylbenzene	1.33	0.0250	"	1.26	ND	106	80-120			
Xylene (p/m)	2.11	0.0250	"	2.53	ND	83.4	80-120			
Xylene (o)	1.02	0.0250	"	1.26	ND	81.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	33.4		ug/kg	40.0		83.5	80-120			
Surrogate: 4-Bromofluorobenzene	35.2		"	40.0		88.0	80-120			

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60512 - EPA 5030C (GC)**

**Matrix Spike Dup (EL60512-MSD1)**

Source: 6L01016-01

Prepared: 12/05/06 Analyzed: 12/06/06

Benzene	1.30	0.0250	mg/kg dry	1.26	ND	103	80-120	12.0	20	
Toluene	1.29	0.0250	"	1.26	ND	102	80-120	15.5	20	
Ethylbenzene	1.36	0.0250	"	1.26	ND	108	80-120	1.87	20	
Xylene (p/m)	2.46	0.0250	"	2.53	ND	97.2	80-120	15.3	20	
Xylene (o)	1.23	0.0250	"	1.26	ND	97.6	80-120	18.6	20	
Surrogate: a,a,a-Trifluorotoluene	37.6		ug/kg	40.0		94.0	80-120			
Surrogate: 4-Bromofluorobenzene	36.9		"	40.0		92.2	80-120			

**Batch EL60514 - Solvent Extraction (GC)**

**Blank (EL60514-BLK1)**

Prepared: 12/05/06 Analyzed: 12/06/06

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	63.8		mg/kg	50.0		128	70-130			
Surrogate: 1-Chlorooctadecane	61.2		"	50.0		122	70-130			

**LCS (EL60514-BS1)**

Prepared: 12/05/06 Analyzed: 12/06/06

Carbon Ranges C6-C12	457	10.0	mg/kg wet	500		91.4	75-125			
Carbon Ranges C12-C28	411	10.0	"	500		82.2	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00			75-125			
Total Hydrocarbons	868	10.0	"	1000		86.8	75-125			
Surrogate: 1-Chlorooctane	59.0		mg/kg	50.0		118	70-130			
Surrogate: 1-Chlorooctadecane	47.8		"	50.0		95.6	70-130			

**Calibration Check (EL60514-CCV1)**

Prepared: 12/05/06 Analyzed: 12/06/06

Carbon Ranges C6-C12	240		mg/kg	250		96.0	80-120			
Carbon Ranges C12-C28	295		"	250		118	80-120			
Total Hydrocarbons	535		"	500		107	80-120			
Surrogate: 1-Chlorooctane	62.4		"	50.0		125	70-130			
Surrogate: 1-Chlorooctadecane	64.2		"	50.0		128	70-130			

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60514 - Solvent Extraction (GC)**

<b>Matrix Spike (EL60514-MS1)</b>		<b>Source: 6L04012-01</b>		Prepared: 12/05/06 Analyzed: 12/06/06						
Carbon Ranges C6-C12	600	10.0	mg/kg dry	538	78.5	96.9	75-125			
Carbon Ranges C12-C28	1070	10.0	"	538	513	104	75-125			
Carbon Ranges C28-C35	6.99	10.0	"	0.00	5.40		75-125			J
Total Hydrocarbons	1670	10.0	"	1080	592	99.8	75-125			
Surrogate: 1-Chlorooctane	57.3		mg/kg	50.0		115	70-130			
Surrogate: 1-Chlorooctadecane	57.9		"	50.0		116	70-130			

<b>Matrix Spike Dup (EL60514-MSD1)</b>		<b>Source: 6L04012-01</b>		Prepared: 12/05/06 Analyzed: 12/06/06						
Carbon Ranges C6-C12	685	10.0	mg/kg dry	538	78.5	113	75-125	13.2	20	
Carbon Ranges C12-C28	1130	10.0	"	538	513	115	75-125	5.45	20	
Carbon Ranges C28-C35	12.6	10.0	"	0.00	5.40		75-125	57.3	20	R4
Total Hydrocarbons	1830	10.0	"	1080	592	115	75-125	9.14	20	
Surrogate: 1-Chlorooctane	73.2		mg/kg	100		73.2	70-130			
Surrogate: 1-Chlorooctadecane	73.6		"	100		73.6	70-130			

Plains All American EH & S	Project: East Shell North	Fax: (432) 687-4914
1301 S. County Road 1150	Project Number: 2000-10615	
Midland TX, 79706-4476	Project Manager: Camille Reynolds	

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60615 - General Preparation (Prep)**

**Blank (EL60615-BLK1)**

Prepared & Analyzed: 12/06/06

% Solids	100		%							
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**Duplicate (EL60615-DUP1)**

Source: 6L06001-01

Prepared & Analyzed: 12/06/06

% Solids	78.3		%		79.0			0.890	20	
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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

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### Notes and Definitions

R4 Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

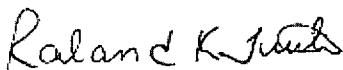
RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

12/7/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

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If you have received this material in error, please notify us immediately at 432-563-1800.





# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

Client: PLANS  
 Date/ Time: 12/5/06 15:00  
 Lab ID #: 6L06001  
 Initials: UK

### Sample Receipt Checklist

Client Initials

#1 Temperature of container/ cooler?	Yes	No	0.5 °C	
#2 Shipping container in good condition?	<del>Yes</del>	No		
#3 Custody Seals intact on shipping container/ cooler?	Yes	No	<u>Not Present</u>	
#4 Custody Seals intact on sample bottles/ container?	Yes	No	<u>Not Present</u>	
#5 Chain of Custody present?	<del>Yes</del>	No		
#6 Sample instructions complete of Chain of Custody?	<del>Yes</del>	No		
#7 Chain of Custody signed when relinquished/ received?	<del>Yes</del>	No		
#8 Chain of Custody agrees with sample label(s)?	<del>Yes</del>	No	ID written on Cont./ Lid	
#9 Container label(s) legible and intact?	<del>Yes</del>	No	Not Applicable	
#10 Sample matrix/ properties agree with Chain of Custody?	<del>Yes</del>	No		
#11 Containers supplied by EL0T?	<del>Yes</del>	No		
#12 Samples in proper container/ bottle?	<del>Yes</del>	No	See Below	
#13 Samples properly preserved?	<del>Yes</del>	No	See Below	
#14 Sample bottles intact?	<del>Yes</del>	No		
#15 Preservations documented on Chain of Custody?	<del>Yes</del>	No		
#16 Containers documented on Chain of Custody?	<del>Yes</del>	No		
#17 Sufficient sample amount for indicated test(s)?	<del>Yes</del>	No	See Below	
#18 All samples received within sufficient hold time?	<del>Yes</del>	No	See Below	
#19 Subcontract of sample(s)?	Yes	No	<u>Not Applicable</u>	
#20 VOC samples have zero headspace?	<del>Yes</del>	No	<u>Not Applicable</u>	

### Variance Documentation

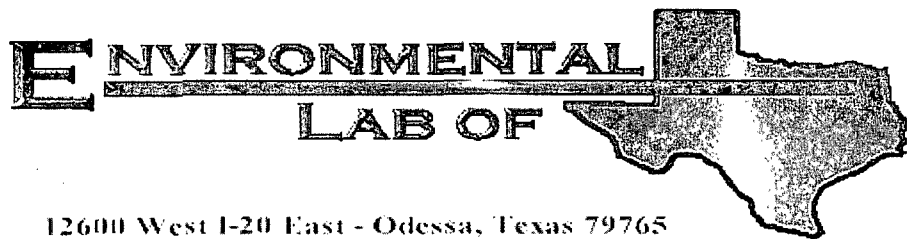
Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

Check all that Apply:

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



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: East Shell North

Project Number: 2000-10615

Location: Clay Osborn Ranch

Lab Order Number: 6L07002

Report Date: 12/15/06

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ESN- SP2	6L07002-01	Soil	12/06/06 13:40	12-07-2006 08:00

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

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**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- SP2 (6L07002-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL60810	12/08/06	12/13/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		106 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		112 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL60703	12/07/06	12/08/06	EPA 8015M	
<b>Carbon Ranges C12-C28</b>	<b>91.3</b>	10.0	"	"	"	"	"	"	
<b>Carbon Ranges C28-C35</b>	<b>J [9.07]</b>	10.0	"	"	"	"	"	"	J
<b>Total Hydrocarbons</b>	<b>91.3</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		92.6 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		84.0 %	70-130		"	"	"	"	

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**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
ESN- SP2 (6L07002-01) Soil										
% Moisture	2.2	0.1	%	1	EL60804	12/07/06	12/08/06	% calculation		

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60703 - Solvent Extraction (GC)**

**Blank (EL60703-BLK1)**

Prepared: 12/07/06 Analyzed: 12/08/06

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	47.7		mg/kg	50.0		95.4	70-130			
Surrogate: 1-Chlorooctadecane	40.3		"	50.0		80.6	70-130			

**LCS (EL60703-BS1)**

Prepared: 12/07/06 Analyzed: 12/08/06

Carbon Ranges C6-C12	448	10.0	mg/kg wet	500		89.6	75-125			
Carbon Ranges C12-C28	414	10.0	"	500		82.8	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00			75-125			
Total Hydrocarbons	862	10.0	"	1000		86.2	75-125			
Surrogate: 1-Chlorooctane	56.6		mg/kg	50.0		113	70-130			
Surrogate: 1-Chlorooctadecane	46.3		"	50.0		92.6	70-130			

**Calibration Check (EL60703-CCV1)**

Prepared: 12/07/06 Analyzed: 12/09/06

Carbon Ranges C6-C12	219		mg/kg	250		87.6	80-120			
Carbon Ranges C12-C28	254		"	250		102	80-120			
Total Hydrocarbons	473		"	500		94.6	80-120			
Surrogate: 1-Chlorooctane	50.1		"	50.0		100	70-130			
Surrogate: 1-Chlorooctadecane	42.0		"	50.0		84.0	70-130			

**Matrix Spike (EL60703-MS1)**

Source: 6L06007-28

Prepared: 12/07/06 Analyzed: 12/08/06

Carbon Ranges C6-C12	456	10.0	mg/kg dry	525	4.06	86.1	75-125			
Carbon Ranges C12-C28	426	10.0	"	525	22.1	76.9	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125			
Total Hydrocarbons	882	10.0	"	1050	22.1	81.9	75-125			
Surrogate: 1-Chlorooctane	51.9		mg/kg	50.0		104	70-130			
Surrogate: 1-Chlorooctadecane	45.0		"	50.0		90.0	70-130			

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1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60703 - Solvent Extraction (GC)**

Matrix Spike Dup (EL60703-MSD1)		Source: 6L06007-28		Prepared: 12/07/06		Analyzed: 12/08/06				
Carbon Ranges C6-C12	463	10.0	mg/kg dry	525	4.06	87.4	75-125	1.50	20	
Carbon Ranges C12-C28	435	10.0	"	525	22.1	78.6	75-125	2.19	20	
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125		20	
Total Hydrocarbons	898	10.0	"	1050	22.1	83.4	75-125	1.81	20	
Surrogate: 1-Chlorooctane	56.4		mg/kg	50.0		113	70-130			
Surrogate: 1-Chlorooctadecane	43.6		"	50.0		87.2	70-130			

**Batch EL60810 - EPA 5030C (GC)**

Blank (EL60810-BLK1)				Prepared: 12/08/06		Analyzed: 12/12/06				
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	35.5		ug/kg	40.0		88.8	80-120			
Surrogate: 4-Bromofluorobenzene	33.5		"	40.0		83.8	80-120			

LCS (EL60810-BS1)				Prepared: 12/08/06		Analyzed: 12/12/06				
Benzene	1.03	0.0250	mg/kg wet	1.25		82.4	80-120			
Toluene	1.01	0.0250	"	1.25		80.8	80-120			
Ethylbenzene	1.23	0.0250	"	1.25		98.4	80-120			
Xylene (p/m)	2.07	0.0250	"	2.50		82.8	80-120			
Xylene (o)	1.02	0.0250	"	1.25		81.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	35.6		ug/kg	40.0		89.0	80-120			
Surrogate: 4-Bromofluorobenzene	34.2		"	40.0		85.5	80-120			



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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60810 - EPA 5030C (GC)**

**Calibration Check (EL60810-CCV1)**

Prepared: 12/08/06 Analyzed: 12/12/06

Benzene	43.1		ug/kg	50.0		86.2	80-120			
Toluene	41.3		"	50.0		82.6	80-120			
Ethylbenzene	42.8		"	50.0		85.6	80-120			
Xylene (p/m)	81.2		"	100		81.2	80-120			
Xylene (o)	40.0		"	50.0		80.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	35.5		"	40.0		88.8	80-120			
Surrogate: 4-Bromofluorobenzene	32.3		"	40.0		80.8	80-120			

**Matrix Spike (EL60810-MS1)**

Source: 6L07002-01

Prepared: 12/08/06 Analyzed: 12/12/06

Benzene	1.08	0.0250	mg/kg dry	1.28	ND	84.4	80-120			
Toluene	1.08	0.0250	"	1.28	ND	84.4	80-120			
Ethylbenzene	1.11	0.0250	"	1.28	ND	86.7	80-120			
Xylene (p/m)	2.25	0.0250	"	2.56	ND	87.9	80-120			
Xylene (o)	1.09	0.0250	"	1.28	ND	85.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	35.1		ug/kg	40.0		87.8	80-120			
Surrogate: 4-Bromofluorobenzene	38.4		"	40.0		96.0	80-120			

**Matrix Spike Dup (EL60810-MSD1)**

Source: 6L07002-01

Prepared: 12/08/06 Analyzed: 12/12/06

Benzene	1.10	0.0250	mg/kg dry	1.28	ND	85.9	80-120	1.76	20	
Toluene	1.09	0.0250	"	1.28	ND	85.2	80-120	0.943	20	
Ethylbenzene	1.05	0.0250	"	1.28	ND	82.0	80-120	5.57	20	
Xylene (p/m)	2.24	0.0250	"	2.56	ND	87.5	80-120	0.456	20	
Xylene (o)	1.09	0.0250	"	1.28	ND	85.2	80-120	0.00	20	
Surrogate: a,a,a-Trifluorotoluene	34.4		ug/kg	40.0		86.0	80-120			
Surrogate: 4-Bromofluorobenzene	37.2		"	40.0		93.0	80-120			

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Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL60804 - General Preparation (Prep)**

**Blank (EL60804-BLK1)**

Prepared: 12/07/06 Analyzed: 12/08/06

% Solids	100		%							
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**Duplicate (EL60804-DUP1)**

Source: 6L07002-01

Prepared: 12/07/06 Analyzed: 12/08/06

% Solids	97.5		%		97.8			0.307	20	
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**Duplicate (EL60804-DUP2)**

Source: 6L07018-01

Prepared: 12/07/06 Analyzed: 12/08/06

% Solids	96.1		%		97.0			0.932	20	
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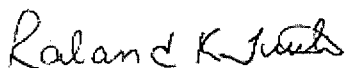
Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

### Notes and Definitions

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date: 12/15/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.



# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

Client: Fluoro  
 Date/ Time: 12/1/00 8:00  
 Lab ID #: 6207002  
 Initials: ck

### Sample Receipt Checklist

Client Initials

1	Temperature of container/ cooler?	Yes	No	-0.5 °C	
#2	Shipping container in good condition?	<del>Yes</del>	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	<del>Not Present</del>	
4	Custody Seals intact on sample bottles/ container?	Yes	No	<del>Not Present</del>	
#5	Chain of Custody present?	<del>Yes</del>	No		
#6	Sample instructions complete of Chain of Custody?	<del>Yes</del>	No		
7	Chain of Custody signed when relinquished/ received?	<del>Yes</del>	No		
#8	Chain of Custody agrees with sample label(s)?	<del>Yes</del>	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	<del>Yes</del>	No	Not Applicable	
10	Sample matrix/ properties agree with Chain of Custody?	<del>Yes</del>	No		
11	Containers supplied by ELOT?	<del>Yes</del>	No		
#12	Samples in proper container/ bottle?	<del>Yes</del>	No	See Below	
#13	Samples properly preserved?	<del>Yes</del>	No	See Below	
14	Sample bottles intact?	<del>Yes</del>	No		
#15	Preservations documented on Chain of Custody?	<del>Yes</del>	No		
#16	Containers documented on Chain of Custody?	<del>Yes</del>	No		
17	Sufficient sample amount for indicated test(s)?	<del>Yes</del>	No	See Below	
#18	All samples received within sufficient hold time?	<del>Yes</del>	No	See Below	
#19	Subcontract of sample(s)?	Yes	No	Not Applicable	
20	VOC samples have zero headspace?	<del>Yes</del>	No	Not Applicable	

### Variance Documentation

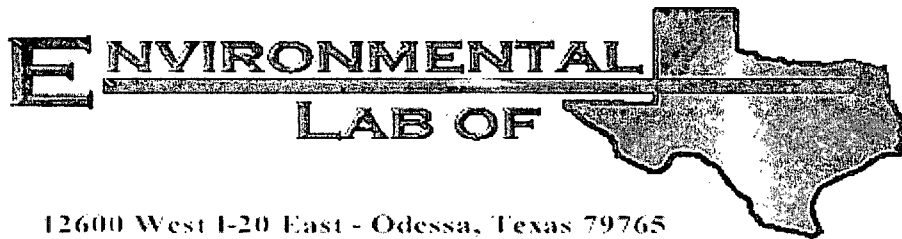
Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

Check all that Apply:

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



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: East Shell North

Project Number: 2000-10615

Location: None Given

Lab Order Number: 6L18011

Report Date: 12/20/06

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1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ESN- WF 1	6L18011-01	Soil	12/18/06 14:10	12-18-2006 16:40
ESN- WF 2	6L18011-02	Soil	12/18/06 14:12	12-18-2006 16:40
ESN- WF 3	6L18011-03	Soil	12/18/06 14:15	12-18-2006 16:40
ESN- WF 4	6L18011-04	Soil	12/18/06 14:20	12-18-2006 16:40

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**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- WF 1 (6L18011-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL62007	12/20/06	12/20/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		92.2 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		84.2 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL61918	12/19/06	12/19/06	EPA 8015M	
<b>Carbon Ranges C12-C28</b>	<b>310</b>	10.0	"	"	"	"	"	"	
<b>Carbon Ranges C28-C35</b>	<b>145</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>455</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		76.6 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		89.6 %	70-130		"	"	"	"	
<b>ESN- WF 2 (6L18011-02) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL62007	12/20/06	12/20/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		94.8 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		80.0 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL61918	12/19/06	12/19/06	EPA 8015M	
<b>Carbon Ranges C12-C28</b>	<b>337</b>	10.0	"	"	"	"	"	"	
<b>Carbon Ranges C28-C35</b>	<b>145</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>482</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		82.6 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		94.0 %	70-130		"	"	"	"	
<b>ESN- WF 3 (6L18011-03) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL62007	12/20/06	12/20/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		91.2 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.2 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL61918	12/19/06	12/19/06	EPA 8015M	

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Page 2 of 9



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Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- WF 3 (6L18011-03) Soil</b>									
<b>Carbon Ranges C12-C28</b>	<b>81.8</b>	10.0	mg/kg dry	1	EL61918	12/19/06	12/19/06	EPA 8015M	
<b>Carbon Ranges C28-C35</b>	<b>60.4</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>142</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		83.2 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		96.8 %	70-130		"	"	"	"	
<b>ESN- WF 4 (6L18011-04) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL62007	12/20/06	12/20/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		95.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		95.2 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL61918	12/19/06	12/19/06	EPA 8015M	
<b>Carbon Ranges C12-C28</b>	<b>146</b>	10.0	"	"	"	"	"	"	
<b>Carbon Ranges C28-C35</b>	<b>103</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>249</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		98.6 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		115 %	70-130		"	"	"	"	

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**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- WF 1 (6L18011-01) Soil</b>									
% Moisture	3.3	0.1	%	1	EL61917	12/18/06	12/19/06	% calculation	
<b>ESN- WF 2 (6L18011-02) Soil</b>									
% Moisture	5.1	0.1	%	1	EL61917	12/18/06	12/19/06	% calculation	
<b>ESN- WF 3 (6L18011-03) Soil</b>									
% Moisture	3.9	0.1	%	1	EL61917	12/18/06	12/19/06	% calculation	
<b>ESN- WF 4 (6L18011-04) Soil</b>									
% Moisture	2.5	0.1	%	1	EL61917	12/18/06	12/19/06	% calculation	

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL61918 - Solvent Extraction (GC)**

**Blank (EL61918-BLK1)**

Prepared: 12/19/06 Analyzed: 12/20/06

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	42.5		mg/kg	50.0		85.0	70-130			
Surrogate: 1-Chlorooctadecane	49.6		"	50.0		99.2	70-130			

**LCS (EL61918-BS1)**

Prepared: 12/19/06 Analyzed: 12/20/06

Carbon Ranges C6-C12	609	10.0	mg/kg wet	500		122	75-125			
Carbon Ranges C12-C28	521	10.0	"	500		104	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00			75-125			
Total Hydrocarbons	1130	10.0	"	1000		113	75-125			
Surrogate: 1-Chlorooctane	58.8		mg/kg	50.0		118	70-130			
Surrogate: 1-Chlorooctadecane	50.7		"	50.0		101	70-130			

**Calibration Check (EL61918-CCV1)**

Prepared: 12/19/06 Analyzed: 12/20/06

Carbon Ranges C6-C12	231		mg/kg	250		92.4	80-120			
Carbon Ranges C12-C28	298		"	250		119	80-120			
Total Hydrocarbons	529		"	500		106	80-120			
Surrogate: 1-Chlorooctane	50.7		"	50.0		101	70-130			
Surrogate: 1-Chlorooctadecane	51.5		"	50.0		103	70-130			

**Duplicate (EL61918-DUP1)**

Source: 6L18001-13

Prepared: 12/19/06 Analyzed: 12/20/06

Carbon Ranges C6-C12	ND	10.0	mg/kg dry		ND				20	
Carbon Ranges C12-C28	ND	10.0	"		ND				20	
Carbon Ranges C28-C35	ND	10.0	"		ND				20	
Total Hydrocarbons	ND	10.0	"		ND				20	
Surrogate: 1-Chlorooctane	51.7		mg/kg	50.0		103	70-130			
Surrogate: 1-Chlorooctadecane	61.0		"	50.0		122	70-130			

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL61918 - Solvent Extraction (GC)**

**Matrix Spike (EL61918-MS1)**

Source: 6L18001-13

Prepared: 12/19/06 Analyzed: 12/20/06

Carbon Ranges C6-C12	487	10.0	mg/kg dry	550	ND	88.5	75-125			
Carbon Ranges C12-C28	529	10.0	"	550	ND	96.2	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125			
Total Hydrocarbons	1020	10.0	"	1100	ND	92.7	75-125			
Surrogate: 1-Chlorooctane	53.6		mg/kg	50.0		107	70-130			
Surrogate: 1-Chlorooctadecane	52.1		"	50.0		104	70-130			

**Batch EL62007 - EPA 5030C (GC)**

**Blank (EL62007-BLK1)**

Prepared & Analyzed: 12/20/06

Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	42.2		ug/kg	40.0		106	80-120			
Surrogate: 4-Bromofluorobenzene	41.6		"	40.0		104	80-120			

**LCS (EL62007-BS1)**

Prepared & Analyzed: 12/20/06

Benzene	1.21	0.0250	mg/kg wet	1.25		96.8	80-120			
Toluene	1.28	0.0250	"	1.25		102	80-120			
Ethylbenzene	1.26	0.0250	"	1.25		101	80-120			
Xylene (p/m)	2.54	0.0250	"	2.50		102	80-120			
Xylene (o)	1.23	0.0250	"	1.25		98.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.9		ug/kg	40.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	44.0		"	40.0		110	80-120			

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

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Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL62007 - EPA 5030C (GC)**

**Calibration Check (EL62007-CCV1)**

Prepared & Analyzed: 12/20/06

Benzene	50.3		ug/kg	50.0		101	80-120			
Toluene	48.7		"	50.0		97.4	80-120			
Ethylbenzene	50.2		"	50.0		100	80-120			
Xylene (p/m)	89.8		"	100		89.8	80-120			
Xylene (o)	45.2		"	50.0		90.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	41.4		"	40.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	39.2		"	40.0		98.0	80-120			

**Matrix Spike (EL62007-MS1)**

Source: 6L18011-01

Prepared & Analyzed: 12/20/06

Benzene	1.05	0.0250	mg/kg dry	1.29	ND	81.4	80-120			
Toluene	1.09	0.0250	"	1.29	ND	84.5	80-120			
Ethylbenzene	1.10	0.0250	"	1.29	ND	85.3	80-120			
Xylene (p/m)	2.11	0.0250	"	2.59	ND	81.5	80-120			
Xylene (o)	1.11	0.0250	"	1.29	ND	86.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	32.1		ug/kg	40.0		80.2	80-120			
Surrogate: 4-Bromofluorobenzene	33.2		"	40.0		83.0	80-120			

**Matrix Spike Dup (EL62007-MSD1)**

Source: 6L18011-01

Prepared & Analyzed: 12/20/06

Benzene	1.12	0.0250	mg/kg dry	1.29	ND	86.8	80-120	6.42	20	
Toluene	1.14	0.0250	"	1.29	ND	88.4	80-120	4.51	20	
Ethylbenzene	1.23	0.0250	"	1.29	ND	95.3	80-120	11.1	20	
Xylene (p/m)	2.28	0.0250	"	2.59	ND	88.0	80-120	7.67	20	
Xylene (o)	1.12	0.0250	"	1.29	ND	86.8	80-120	0.926	20	
Surrogate: a,a,a-Trifluorotoluene	32.4		ug/kg	40.0		81.0	80-120			
Surrogate: 4-Bromofluorobenzene	37.4		"	40.0		93.5	80-120			

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Page 7 of 9

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**

**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL61917 - General Preparation (Prep)**

**Blank (EL61917-BLK1)**

Prepared: 12/18/06 Analyzed: 12/19/06

% Moisture	ND	0.1	%
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**Duplicate (EL61917-DUP1)**

**Source: 6L16004-01**

Prepared: 12/18/06 Analyzed: 12/19/06

% Moisture	21.1	0.1	%	20.9	0.952	20
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**Duplicate (EL61917-DUP2)**

**Source: 6L18002-02**

Prepared: 12/18/06 Analyzed: 12/19/06

% Moisture	2.7	0.1	%	2.6	3.77	20
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**Duplicate (EL61917-DUP3)**

**Source: 6L18001-19**

Prepared: 12/18/06 Analyzed: 12/19/06

% Moisture	4.8	0.1	%	4.6	4.26	20
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Midland TX, 79706-4476

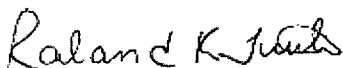
Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

12/20/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

# 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:

Camille Reynolds

Company Name

Plain Pipeline LP

Company Address:

Project Name:

East Shell North

Project #:

2000-12615

Project Loc:

PO #:

City/State/Zip:

Telephone No:

Fax No:

Report Format:

☒ Standard

☐ TRRP

☐ NPDES

Sampler Signature:

[Signature]

e-mail:

kathy@sdgenv.com

(lab use only)

ORDER #:

641861

LAB # (lab use only)

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge GW= Groundwater S=Soil/Solid NP=Non-Portable Specify Other	TPH: 418.1 8015M- 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg S	Volatiles	Semivolatiles	STEX 802TBX030 or STEX 828D	RCI	N.O.R.M.	Standard TAT	RUSH TAT (Pre-Schedule) 24	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓</
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Special Instructions:

Laboratory Comments:

Sample Containers Intact?

VOCs Free of Headspace?

Labels on container(s)

Custody seals on container(s)

Sample Hand Delivered

by Sample/Client Rep.?

by Carrier?

UPS DHL FedEx Lone Star

Temperature Upon Receipt:

11.0 °C

Relinquished by:

[Signature]

Date

12/18/06

Received by:

1640

Time

1640

Date

12/18/06

Time

1640

Date

12/18/06

Time

1640



# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

Client: Plains  
 Date/ Time: 12/8/06 16:40  
 Lab ID #: 6L18011  
 Initials: OK

### Sample Receipt Checklist

				Client Initials
#1	Temperature of container/ cooler?	Yes	No	11.0 °C
#2	Shipping container in good condition?	<u>Yes</u>	No	
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	<u>Not Present</u>
#4	Custody Seals intact on sample bottles/ container?	Yes	No	<u>Not Present</u>
#5	Chain of Custody present?	<u>Yes</u>	No	
#6	Sample instructions complete of Chain of Custody?	<u>Yes</u>	No	
#7	Chain of Custody signed when relinquished/ received?	<u>Yes</u>	No	
#8	Chain of Custody agrees with sample label(s)?	<u>Yes</u>	No	ID written on Cont./ Lid
#9	Container label(s) legible and intact?	<u>Yes</u>	No	Not Applicable
#10	Sample matrix/ properties agree with Chain of Custody?	<u>Yes</u>	No	
#11	Containers supplied by ELOT?	<u>Yes</u>	No	
#12	Samples in proper container/ bottle?	<u>Yes</u>	No	See Below
#13	Samples properly preserved?	<u>Yes</u>	No	See Below
#14	Sample bottles intact?	<u>Yes</u>	No	
#15	Preservations documented on Chain of Custody?	<u>Yes</u>	No	
#16	Containers documented on Chain of Custody?	<u>Yes</u>	No	
#17	Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No	See Below
#18	All samples received within sufficient hold time?	<u>Yes</u>	No	See Below
#19	Subcontract of sample(s)?	Yes	No	<u>Not Applicable</u>
#20	VOC samples have zero headspace?	<u>Yes</u>	No	Not Applicable

### Variance Documentation

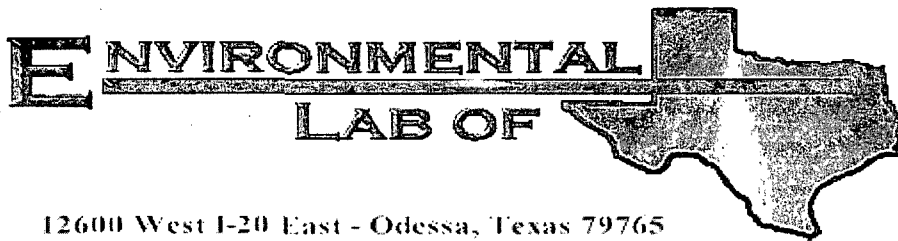
Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

Check all that Apply:

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



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: East Shell North

Project Number: 2000-10615

Location: None Given

Lab Order Number: 6L22003

Report Date: 01/02/07

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ESN- 2F2	6L22003-01	Soil	12/21/06 13:55	12-22-2006 08:30
ESN- 2F3	6L22003-02	Soil	12/21/06 14:00	12-22-2006 08:30
ESN- 2F4	6L22003-03	Soil	12/21/06 14:05	12-22-2006 08:30

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- 2F2 (6L22003-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL62220	12/22/06	12/28/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		82.5 %	80-120		"	"	"	"	S-04
<i>Surrogate: 4-Bromofluorobenzene</i>		87.8 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL62217	12/22/06	12/22/06	EPA 8015M	
<b>Carbon Ranges C12-C28</b>	<b>133</b>	10.0	"	"	"	"	"	"	
<b>Carbon Ranges C28-C35</b>	<b>87.9</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>221</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		93.0 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		111 %	70-130		"	"	"	"	
<b>ESN- 2F3 (6L22003-02) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL62220	12/22/06	12/28/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		85.2 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		95.8 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL62217	12/22/06	12/22/06	EPA 8015M	
<b>Carbon Ranges C12-C28</b>	<b>123</b>	10.0	"	"	"	"	"	"	
<b>Carbon Ranges C28-C35</b>	<b>79.0</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>202</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		74.0 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		78.0 %	70-130		"	"	"	"	
<b>ESN- 2F4 (6L22003-03) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EL62220	12/22/06	12/28/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		92.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.0 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EL62217	12/22/06	12/22/06	EPA 8015M	

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Page 2 of 9

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- 2F4 (6L22003-03) Soil</b>									
<b>Carbon Ranges C12-C28</b>	<b>129</b>	10.0	mg/kg dry	1	EL62217	12/22/06	12/22/06	EPA 8015M	
<b>Carbon Ranges C28-C35</b>	<b>80.1</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbons</b>	<b>209</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		104 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		126 %	70-130		"	"	"	"	

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**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- 2F2 (6L22003-01) Soil</b>									
<b>% Moisture</b>	<b>11.9</b>	0.1	%	1	EL62219	12/22/06	12/22/06	% calculation	
<b>ESN- 2F3 (6L22003-02) Soil</b>									
<b>% Moisture</b>	<b>7.1</b>	0.1	%	1	EL62219	12/22/06	12/22/06	% calculation	
<b>ESN- 2F4 (6L22003-03) Soil</b>									
<b>% Moisture</b>	<b>12.5</b>	0.1	%	1	EL62219	12/22/06	12/22/06	% calculation	

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL62217 - Solvent Extraction (GC)**

**Blank (EL62217-BLK1)**

Prepared & Analyzed: 12/22/06

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	36.1		mg/kg	50.0		72.2	70-130			
Surrogate: 1-Chlorooctadecane	39.3		"	50.0		78.6	70-130			

**LCS (EL62217-BS1)**

Prepared & Analyzed: 12/22/06

Carbon Ranges C6-C12	604	10.0	mg/kg wet	500		121	75-125			
Carbon Ranges C12-C28	523	10.0	"	500		105	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00			75-125			
Total Hydrocarbons	1130	10.0	"	1000		113	75-125			
Surrogate: 1-Chlorooctane	59.3		mg/kg	50.0		119	70-130			
Surrogate: 1-Chlorooctadecane	51.4		"	50.0		103	70-130			

**Calibration Check (EL62217-CCV1)**

Prepared: 12/22/06 Analyzed: 12/23/06

Carbon Ranges C6-C12	205		mg/kg	250		82.0	80-120			
Carbon Ranges C12-C28	241		"	250		96.4	80-120			
Total Hydrocarbons	446		"	500		89.2	80-120			
Surrogate: 1-Chlorooctane	51.4		"	50.0		103	70-130			
Surrogate: 1-Chlorooctadecane	56.9		"	50.0		114	70-130			

**Matrix Spike (EL62217-MS1)**

Source: 6L22004-01

Prepared: 12/22/06 Analyzed: 12/23/06

Carbon Ranges C6-C12	595	10.0	mg/kg dry	559	ND	106	75-125			
Carbon Ranges C12-C28	483	10.0	"	559	27.6	81.5	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125			
Total Hydrocarbons	1080	10.0	"	1120	27.6	94.0	75-125			
Surrogate: 1-Chlorooctane	53.4		mg/kg	50.0		107	70-130			
Surrogate: 1-Chlorooctadecane	48.9		"	50.0		97.8	70-130			

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL62217 - Solvent Extraction (GC)**

<b>Matrix Spike Dup (EL62217-MSD1)</b>		<b>Source: 6L22004-01</b>		Prepared: 12/22/06		Analyzed: 12/23/06				
Carbon Ranges C6-C12	595	10.0	mg/kg dry	559	ND	106	75-125	0.00	20	
Carbon Ranges C12-C28	502	10.0	"	559	27.6	84.9	75-125	4.09	20	
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125		20	
Total Hydrocarbons	1100	10.0	"	1120	27.6	95.8	75-125	1.90	20	
Surrogate: 1-Chlorooctane	57.4		mg/kg	50.0		115	70-130			
Surrogate: 1-Chlorooctadecane	52.1		"	50.0		104	70-130			

**Batch EL62220 - EPA 5030C (GC)**

<b>Blank (EL62220-BLK1)</b>				Prepared: 12/22/06		Analyzed: 12/28/06				
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	44.2		ug/kg	40.0		110	80-120			
Surrogate: 4-Bromofluorobenzene	43.6		"	40.0		109	80-120			
<b>LCS (EL62220-BS1)</b>				Prepared: 12/22/06		Analyzed: 12/28/06				
Benzene	1.13	0.0250	mg/kg wet	1.25		90.4	80-120			
Toluene	1.28	0.0250	"	1.25		102	80-120			
Ethylbenzene	1.33	0.0250	"	1.25		106	80-120			
Xylene (p/m)	2.73	0.0250	"	2.50		109	80-120			
Xylene (o)	1.27	0.0250	"	1.25		102	80-120			
Surrogate: a,a,a-Trifluorotoluene	41.0		ug/kg	40.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	45.9		"	40.0		115	80-120			



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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL62220 - EPA 5030C (GC)**

**Calibration Check (EL62220-CCV1)**

Prepared: 12/22/06 Analyzed: 12/29/06

Benzene	58.8		ug/kg	50.0		118	80-120			
Toluene	55.7		"	50.0		111	80-120			
Ethylbenzene	58.1		"	50.0		116	80-120			
Xylene (p/m)	101		"	100		101	80-120			
Xylene (o)	46.3		"	50.0		92.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	48.0		"	40.0		120	80-120			
Surrogate: 4-Bromofluorobenzene	44.9		"	40.0		112	80-120			

**Matrix Spike (EL62220-MS1)**

Source: 6L22004-04

Prepared: 12/22/06 Analyzed: 12/28/06

Benzene	1.47	0.0250	mg/kg dry	1.56	ND	94.2	80-120			
Toluene	1.45	0.0250	"	1.56	ND	92.9	80-120			
Ethylbenzene	1.29	0.0250	"	1.56	ND	82.7	80-120			
Xylene (p/m)	2.75	0.0250	"	3.13	ND	87.9	80-120			
Xylene (o)	1.35	0.0250	"	1.56	ND	86.5	80-120			
Surrogate: a,a,a-Trifluorotoluene	37.7		ug/kg	40.0		94.2	80-120			
Surrogate: 4-Bromofluorobenzene	42.2		"	40.0		106	80-120			

**Matrix Spike Dup (EL62220-MSD1)**

Source: 6L22004-04

Prepared: 12/22/06 Analyzed: 12/28/06

Benzene	1.77	0.0250	mg/kg dry	1.56	ND	113	80-120	18.1	20	
Toluene	1.77	0.0250	"	1.56	ND	113	80-120	19.5	20	
Ethylbenzene	1.75	0.0250	"	1.56	ND	112	80-120	30.1	20	R
Xylene (p/m)	3.48	0.0250	"	3.13	ND	111	80-120	23.2	20	R
Xylene (o)	1.63	0.0250	"	1.56	ND	104	80-120	18.4	20	
Surrogate: a,a,a-Trifluorotoluene	46.0		ug/kg	40.0		115	80-120			
Surrogate: 4-Bromofluorobenzene	42.8		"	40.0		107	80-120			

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Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL62219 - General Preparation (Prep)**

**Blank (EL62219-BLK1)**

Prepared & Analyzed: 12/22/06

% Solids 99.8 %

**Duplicate (EL62219-DUP1)**

Source: 6L22003-01

Prepared & Analyzed: 12/22/06

% Solids 87.2 % 88.1 1.03 20

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### Notes and Definitions

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

R The RPD exceeded the method control limit. The individual analyte QA/QC recoveries, however, were within acceptance limits.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

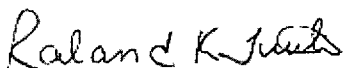
RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

1/2/2007

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

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If you have received this material in error, please notify us immediately at 432-563-1800.



# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

Client: Plains  
 Date/ Time: 12/22/06 8:30  
 Lab ID #: 6L2003  
 Initials: CL

### Sample Receipt Checklist

				Client Initials
#1	Temperature of container/ cooler?	Yes	No	-3.0 °C
#2	Shipping container in good condition?	<u>Yes</u>	No	
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	<u>Not Present</u>
#4	Custody Seals intact on sample bottles/ container?	Yes	No	<u>Not Present</u>
#5	Chain of Custody present?	<u>Yes</u>	No	
#6	Sample instructions complete of Chain of Custody?	<u>Yes</u>	No	
#7	Chain of Custody signed when relinquished/ received?	<u>Yes</u>	No	
#8	Chain of Custody agrees with sample label(s)?	<u>Yes</u>	No	ID written on Cont./ Lid
#9	Container label(s) legible and intact?	<u>Yes</u>	No	Not Applicable
#10	Sample matrix/ properties agree with Chain of Custody?	<u>Yes</u>	No	
#11	Containers supplied by ELOT?	<u>Yes</u>	No	
#12	Samples in proper container/ bottle?	<u>Yes</u>	No	See Below
#13	Samples properly preserved?	<u>Yes</u>	No	See Below
#14	Sample bottles intact?	<u>Yes</u>	No	
#15	Preservations documented on Chain of Custody?	<u>Yes</u>	No	
#16	Containers documented on Chain of Custody?	<u>Yes</u>	No	
#17	Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No	See Below
#18	All samples received within sufficient hold time?	<u>Yes</u>	No	See Below
#19	Subcontract of sample(s)?	<u>Yes</u>	No	<u>Not Applicable</u>
#20	VOC samples have zero headspace?	<u>Yes</u>	No	Not Applicable

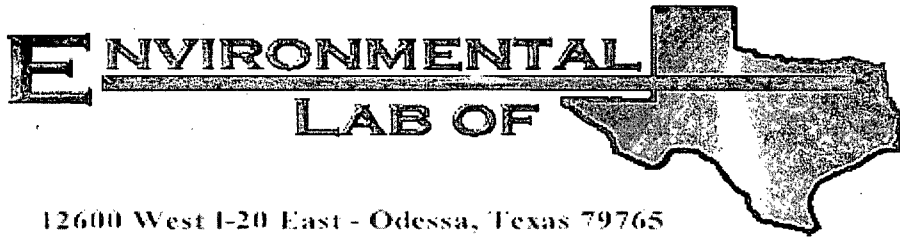
### Variance Documentation

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

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



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: East Shell North

Project Number: 2000-10615

Location: Lea County, NM

Lab Order Number: 7A05010

Report Date: 01/10/07

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N FLR	7A05010-01	Soil	01/04/07 14:00	01-05-2007 16:30
MID FLR	7A05010-02	Soil	01/04/07 14:15	01-05-2007 16:30
S FLR	7A05010-03	Soil	01/04/07 14:30	01-05-2007 16:30

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**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>N FLR (7A05010-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA70806	01/08/07	01/08/07	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		120 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.2 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA70805	01/08/07	01/08/07	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbons	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		92.6 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		102 %	70-130		"	"	"	"	
<b>MID FLR (7A05010-02) Soil</b>									
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA70805	01/08/07	01/08/07	EPA 8015M	
Carbon Ranges C12-C28	121	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	68.4	10.0	"	"	"	"	"	"	
Total Hydrocarbons	189	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		81.8 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		87.6 %	70-130		"	"	"	"	
<b>S FLR (7A05010-03) Soil</b>									
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA70805	01/08/07	01/08/07	EPA 8015M	
Carbon Ranges C12-C28	835	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	165	10.0	"	"	"	"	"	"	
Total Hydrocarbons	1000	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		96.0 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		107 %	70-130		"	"	"	"	



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**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>N FLR (7A05010-01) Soil</b>									
% Moisture	8.3	0.1	%	1	EA70903	01/08/07	01/09/07	% calculation	
<b>MID FLR (7A05010-02) Soil</b>									
% Moisture	5.7	0.1	%	1	EA70903	01/08/07	01/09/07	% calculation	
<b>S FLR (7A05010-03) Soil</b>									
% Moisture	11.7	0.1	%	1	EA70903	01/08/07	01/09/07	% calculation	

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA70805 - Solvent Extraction (GC)**

**Blank (EA70805-BLK1)**

Prepared & Analyzed: 01/08/07

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	38.5		mg/kg	50.0		77.0	70-130			
Surrogate: 1-Chlorooctadecane	41.0		"	50.0		82.0	70-130			

**LCS (EA70805-BS1)**

Prepared & Analyzed: 01/08/07

Carbon Ranges C6-C12	556	10.0	mg/kg wet				75-125			
Carbon Ranges C12-C28	454	10.0	"				75-125			
Carbon Ranges C28-C35	ND	10.0	"				75-125			
Total Hydrocarbons	1010	10.0	"				75-125			
Surrogate: 1-Chlorooctane	53.3		mg/kg	50.0		107	70-130			
Surrogate: 1-Chlorooctadecane	42.5		"	50.0		85.0	70-130			

**Calibration Check (EA70805-CCV1)**

Prepared & Analyzed: 01/08/07

Carbon Ranges C6-C12	255		mg/kg	250		102	80-120			
Carbon Ranges C12-C28	295		"	250		118	80-120			
Total Hydrocarbons	549		"	500		110	80-120			
Surrogate: 1-Chlorooctane	59.0		"	50.0		118	70-130			
Surrogate: 1-Chlorooctadecane	54.3		"	50.0		109	70-130			

**Matrix Spike (EA70805-MS1)**

Source: 7A05011-05

Prepared & Analyzed: 01/08/07

Carbon Ranges C6-C12	629	10.0	mg/kg dry	511	ND	123	75-125			
Carbon Ranges C12-C28	598	10.0	"	511	69.9	103	75-125			
Carbon Ranges C28-C35	5.08	10.0	"	0.00	2.64		75-125			J
Total Hydrocarbons	1230	10.0	"	1020	69.9	114	75-125			
Surrogate: 1-Chlorooctane	65.0		mg/kg	50.0		130	70-130			
Surrogate: 1-Chlorooctadecane	57.4		"	50.0		115	70-130			

Plains All American EH & S 1301 S. County Road 1150 Midland TX, 79706-4476	Project: East Shell North Project Number: 2000-10615 Project Manager: Camille Reynolds	Fax: (432) 687-4914
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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA70805 - Solvent Extraction (GC)**

<b>Matrix Spike Dup (EA70805-MSD1)</b>		<b>Source: 7A05011-05</b>		<b>Prepared: 01/08/07</b>		<b>Analyzed: 01/09/07</b>				
Carbon Ranges C6-C12	623	10.0	mg/kg dry	511	ND	122	75-125	0.816	20	
Carbon Ranges C12-C28	596	10.0	"	511	69.9	103	75-125	0.00	20	
Carbon Ranges C28-C35	3.35	10.0	"	0.00	2.64		75-125		20	J
Total Hydrocarbons	1220	10.0	"	1020	69.9	113	75-125	0.881	20	
Surrogate: 1-Chlorooctane	63.7		mg/kg	50.0		127	70-130			
Surrogate: 1-Chlorooctadecane	55.3		"	50.0		111	70-130			

**Batch EA70806 - EPA 5030C (GC)**

<b>Blank (EA70806-BLK1)</b>		<b>Prepared &amp; Analyzed: 01/08/07</b>								
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	43.8		ug/kg	40.0		110	80-120			
Surrogate: 4-Bromofluorobenzene	36.9		"	40.0		92.2	80-120			
<b>LCS (EA70806-BS1)</b>		<b>Prepared &amp; Analyzed: 01/08/07</b>								
Benzene	1.47	0.0250	mg/kg wet	1.25		118	80-120			
Toluene	1.43	0.0250	"	1.25		114	80-120			
Ethylbenzene	1.34	0.0250	"	1.25		107	80-120			
Xylene (p/m)	2.65	0.0250	"	2.50		106	80-120			
Xylene (o)	1.26	0.0250	"	1.25		101	80-120			
Surrogate: a,a,a-Trifluorotoluene	45.6		ug/kg	40.0		114	80-120			
Surrogate: 4-Bromofluorobenzene	36.6		"	40.0		91.5	80-120			

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA70806 - EPA 5030C (GC)**

**Calibration Check (EA70806-CCV1)**

Prepared: 01/08/07 Analyzed: 01/09/07

Benzene	59.2		ug/kg	50.0		118	80-120			
Toluene	59.4		"	50.0		119	80-120			
Ethylbenzene	56.4		"	50.0		113	80-120			
Xylene (p/m)	109		"	100		109	80-120			
Xylene (o)	56.6		"	50.0		113	80-120			
Surrogate: a,a,a-Trifluorotoluene	46.7		"	40.0		117	80-120			
Surrogate: 4-Bromofluorobenzene	45.2		"	40.0		113	80-120			

**Matrix Spike (EA70806-MS1)**

Source: 7A05010-01

Prepared: 01/08/07 Analyzed: 01/09/07

Benzene	1.38	0.0250	mg/kg dry	1.36	ND	101	80-120			
Toluene	1.49	0.0250	"	1.36	ND	110	80-120			
Ethylbenzene	1.63	0.0250	"	1.36	ND	120	80-120			
Xylene (p/m)	3.00	0.0250	"	2.73	ND	110	80-120			
Xylene (o)	1.45	0.0250	"	1.36	ND	107	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.7		ug/kg	40.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	39.2		"	40.0		98.0	80-120			

**Matrix Spike Dup (EA70806-MSD1)**

Source: 7A05010-01

Prepared: 01/08/07 Analyzed: 01/09/07

Benzene	1.40	0.0250	mg/kg dry	1.36	ND	103	80-120	1.96	20	
Toluene	1.49	0.0250	"	1.36	ND	110	80-120	0.00	20	
Ethylbenzene	1.58	0.0250	"	1.36	ND	116	80-120	3.39	20	
Xylene (p/m)	2.97	0.0250	"	2.73	ND	109	80-120	0.913	20	
Xylene (o)	1.49	0.0250	"	1.36	ND	110	80-120	2.76	20	
Surrogate: a,a,a-Trifluorotoluene	41.5		ug/kg	40.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	45.6		"	40.0		114	80-120			

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1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA70903 - General Preparation (Prep)**

**Blank (EA70903-BLK1)**

Prepared: 01/08/07 Analyzed: 01/09/07

% Solids 100 %

**Duplicate (EA70903-DUP1)**

Source: 7A05010-01

Prepared: 01/08/07 Analyzed: 01/09/07

% Solids 91.9 % 91.7 0.218 20

**Duplicate (EA70903-DUP2)**

Source: 7A08004-06

Prepared: 01/08/07 Analyzed: 01/09/07

% Solids 88.3 % 94.6 6.89 20

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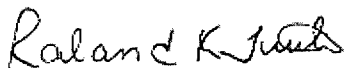
Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

### Notes and Definitions

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

1/10/2007

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

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

Project Name: EAST SHELL NORTH

Project #: 2000-10615

Project Loc: Lea County, NM

PO#: PAA - C. J. Reynolds

**Fax No: (505) 396-1429**

jwalters@basinenv.com

NPDES

ORDER #: 7A05010

[illegible]

## Special Instructions:

NOTE: RUN BTEX ANALYSIS IF TPH IS <100 PPM

Relinquished by: <i>John Watter</i>	Date <i>5/25/07</i>	Time <i>8:12</i>	Received by: <i>Amela Blackwood</i>	Date <i>1.5.07</i>	Time <i>8:12</i>
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by: <i>Amela Blackwood</i>	Date <i>1/5/07</i>	Time <i>16:30</i>	Received by ELOR: <i>Van</i>	Date <i>15/07</i>	Time <i>16:30</i>

## Laboratory Comments:

## Sample Containers Impact?

Salpids Channels  
Coccoliths  
Coccoliths

**VOCs Free of Headspace?**

Labels on container(s)

Custody seals on container

Custody seals on cooler(s)

Sample Hand Delivered

by Sample Client Rep.

by Courier? UPS

402-0107

Temperature Upon Receipt:

100

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# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

Client: Plains  
 Date/ Time: 1/5/07 16:30  
 Lab ID #: TA05010  
 Initials: CK

### Sample Receipt Checklist

Client Initials

#1	Temperature of container/ cooler?	Yes	No	30 ° C	
#2	Shipping container in good condition?	Yes	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
#4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5	Chain of Custody present?	Yes	No		
#6	Sample instructions complete of Chain of Custody?	Yes	No		
#7	Chain of Custody signed when relinquished/ received?	Yes	No		
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	Yes	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#11	Containers supplied by ELOT?	Yes	No		
#12	Samples in proper container/ bottle?	Yes	No	See Below	
#13	Samples properly preserved?	Yes	No	See Below	
#14	Sample bottles intact?	Yes	No		
#15	Preservations documented on Chain of Custody?	Yes	No		
#16	Containers documented on Chain of Custody?	Yes	No		
#17	Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
#18	All samples received within sufficient hold time?	Yes	No	See Below	
#19	Subcontract of sample(s)?	Yes	No	Not Applicable	
#20	VOC samples have zero headspace?	Yes	No	Not Applicable	

### Variance Documentation

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

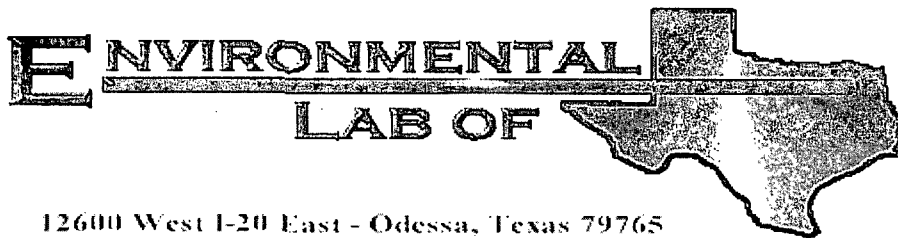
Regarding: \_\_\_\_\_

Corrective Action Taken:

Check all that Apply:

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





12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: East Shell North

Project Number: 2000-10615

Location: Clay Osborn Ranch

Lab Order Number: 7A12026

Report Date: 01/18/07

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ESN- NW	7A12026-01	Soil	01/11/07 12:00	01-12-2007 16:30
ESN- EW	7A12026-02	Soil	01/11/07 12:05	01-12-2007 16:30
ESN- WW	7A12026-03	Soil	01/11/07 12:10	01-12-2007 16:30
ESN- SW	7A12026-04	Soil	01/11/07 12:15	01-12-2007 16:30
ESN- 2WF1	7A12026-05	Soil	01/11/07 12:20	01-12-2007 16:30

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1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- NW (7A12026-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA71504	01/15/07	01/16/07	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		94.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		110 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA71509	01/15/07	01/17/07	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbons	ND	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		99.6 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		98.4 %	70-130		"	"	"	"	
<b>ESN- EW (7A12026-02) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA71504	01/15/07	01/15/07	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		93.8 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.0 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA71509	01/15/07	01/17/07	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbons	ND	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		124 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		124 %	70-130		"	"	"	"	
<b>ESN- WW (7A12026-03) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA71504	01/15/07	01/15/07	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		93.8 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.5 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA71509	01/15/07	01/17/07	EPA 8015M	

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- WW (7A12026-03) Soil</b>									
Carbon Ranges C12-C28	ND	10.0	mg/kg dry	1	EA71509	01/15/07	01/17/07	EPA 8015M	
Carbon Ranges C28-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbons	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		122 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		118 %	70-130		"	"	"	"	
<b>ESN- SW (7A12026-04) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA71504	01/15/07	01/15/07	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		84.8 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.5 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA71509	01/15/07	01/17/07	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbons	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		115 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		111 %	70-130		"	"	"	"	
<b>ESN- 2WF1 (7A12026-05) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA71504	01/15/07	01/15/07	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		95.2 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %	80-120		"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA71510	01/15/07	01/17/07	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbons	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		104 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		108 %	70-130		"	"	"	"	

Environmental Lab of Texas

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN- NW (7A12026-01) Soil</b>									
% Moisture	3.6	0.1	%	1	EA71607	01/15/07	01/16/07	% calculation	
<b>ESN- EW (7A12026-02) Soil</b>									
% Moisture	5.4	0.1	%	1	EA71607	01/15/07	01/16/07	% calculation	
<b>ESN- WW (7A12026-03) Soil</b>									
% Moisture	6.8	0.1	%	1	EA71607	01/15/07	01/16/07	% calculation	
<b>ESN- SW (7A12026-04) Soil</b>									
% Moisture	4.7	0.1	%	1	EA71607	01/15/07	01/16/07	% calculation	
<b>ESN- 2WF1 (7A12026-05) Soil</b>									
% Moisture	5.0	0.1	%	1	EA71607	01/15/07	01/16/07	% calculation	

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71504 - EPA 5030C (GC)**

**Blank (EA71504-BLK1)**

Prepared & Analyzed: 01/15/07

Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	40.0		ug/kg	40.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	44.7		"	40.0		112	80-120			

**LCS (EA71504-BS1)**

Prepared & Analyzed: 01/15/07

Benzene	1.27	0.0250	mg/kg wet	1.25		102	80-120			
Toluene	1.24	0.0250	"	1.25		99.2	80-120			
Ethylbenzene	1.22	0.0250	"	1.25		97.6	80-120			
Xylene (p/m)	2.41	0.0250	"	2.50		96.4	80-120			
Xylene (o)	1.15	0.0250	"	1.25		92.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	35.2		ug/kg	40.0		88.0	80-120			
Surrogate: 4-Bromofluorobenzene	40.8		"	40.0		102	80-120			

**Calibration Check (EA71504-CCV1)**

Prepared & Analyzed: 01/15/07

Benzene	50.8		ug/kg	50.0		102	80-120			
Toluene	48.2		"	50.0		96.4	80-120			
Ethylbenzene	48.7		"	50.0		97.4	80-120			
Xylene (p/m)	90.5		"	100		90.5	80-120			
Xylene (o)	43.3		"	50.0		86.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	35.6		"	40.0		89.0	80-120			
Surrogate: 4-Bromofluorobenzene	36.2		"	40.0		90.5	80-120			

**Matrix Spike (EA71504-MS1)**

Source: 7A12026-02

Prepared: 01/15/07 Analyzed: 01/16/07

Benzene	1.17	0.0250	mg/kg dry	1.32	ND	88.6	80-120			
Toluene	1.17	0.0250	"	1.32	ND	88.6	80-120			
Ethylbenzene	1.43	0.0250	"	1.32	ND	108	80-120			
Xylene (p/m)	2.31	0.0250	"	2.64	ND	87.5	80-120			
Xylene (o)	1.08	0.0250	"	1.32	ND	81.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	38.4		ug/kg	40.0		96.0	80-120			
Surrogate: 4-Bromofluorobenzene	47.5		"	40.0		119	80-120			

Environmental Lab of Texas

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71504 - EPA 5030C (GC)**

**Matrix Spike Dup (EA71504-MSD1)**

Source: 7A12026-02

Prepared: 01/15/07 Analyzed: 01/16/07

Benzene	1.27	0.0250	mg/kg dry	1.32	ND	96.2	80-120	8.23	20	
Toluene	1.29	0.0250	"	1.32	ND	97.7	80-120	9.77	20	
Ethylbenzene	1.59	0.0250	"	1.32	ND	120	80-120	10.5	20	
Xylene (p/m)	2.55	0.0250	"	2.64	ND	96.6	80-120	9.89	20	
Xylene (o)	1.23	0.0250	"	1.32	ND	93.2	80-120	13.0	20	
Surrogate: a,a,a-Trifluorotoluene	33.3		ug/kg	40.0		83.2	80-120			
Surrogate: 4-Bromofluorobenzene	42.5		"	40.0		106	80-120			

**Batch EA71509 - Solvent Extraction (GC)**

**Blank (EA71509-BLK1)**

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	49.4		mg/kg	50.0		98.8	70-130			
Surrogate: 1-Chlorooctadecane	48.3		"	50.0		96.6	70-130			

**LCS (EA71509-BS1)**

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	561	10.0	mg/kg wet	500		112	75-125			
Carbon Ranges C12-C28	473	10.0	"	500		94.6	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00			75-125			
Total Hydrocarbons	1030	10.0	"	1000		103	75-125			
Surrogate: 1-Chlorooctane	58.4		mg/kg	50.0		117	70-130			
Surrogate: 1-Chlorooctadecane	49.5		"	50.0		99.0	70-130			

**Calibration Check (EA71509-CCV1)**

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	228		mg/kg	250		91.2	80-120			
Carbon Ranges C12-C28	251		"	250		100	80-120			
Total Hydrocarbons	479		"	500		95.8	80-120			
Surrogate: 1-Chlorooctane	51.3		"	50.0		103	70-130			
Surrogate: 1-Chlorooctadecane	47.1		"	50.0		94.2	70-130			

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Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71509 - Solvent Extraction (GC)**

**Matrix Spike (EA71509-MS1)**

Source: 7A12026-04

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	639	10.0	mg/kg dry	525	ND	122	75-125			
Carbon Ranges C12-C28	534	10.0	"	525	ND	102	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125			
Total Hydrocarbons	1170	10.0	"	1050	ND	111	75-125			
Surrogate: 1-Chlorooctane	62.5		mg/kg	50.0		125	70-130			
Surrogate: 1-Chlorooctadecane	62.5		"	50.0		125	70-130			

**Matrix Spike Dup (EA71509-MSD1)**

Source: 7A12026-04

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	632	10.0	mg/kg dry	525	ND	120	75-125	1.65	20	
Carbon Ranges C12-C28	509	10.0	"	525	ND	97.0	75-125	5.03	20	
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125		20	
Total Hydrocarbons	1140	10.0	"	1050	ND	109	75-125	1.82	20	
Surrogate: 1-Chlorooctane	51.1		mg/kg	50.0		102	70-130			
Surrogate: 1-Chlorooctadecane	52.1		"	50.0		104	70-130			

**Batch EA71510 - Solvent Extraction (GC)**

**Blank (EA71510-BLK1)**

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	45.5		mg/kg	50.0		91.0	70-130			
Surrogate: 1-Chlorooctadecane	49.4		"	50.0		98.8	70-130			

**LCS (EA71510-BS1)**

Prepared: 01/15/07 Analyzed: 01/16/07

Carbon Ranges C6-C12	591	10.0	mg/kg wet	500		118	75-125			
Carbon Ranges C12-C28	487	10.0	"	500		97.4	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00			75-125			
Total Hydrocarbons	1080	10.0	"	1000		108	75-125			
Surrogate: 1-Chlorooctane	55.7		mg/kg	50.0		111	70-130			
Surrogate: 1-Chlorooctadecane	54.7		"	50.0		109	70-130			



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1301 S. County Road 1150  
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Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71510 - Solvent Extraction (GC)**

**Calibration Check (EA71510-CCV1)**

Prepared & Analyzed: 01/15/07

Carbon Ranges C6-C12	231		mg/kg	250		92.4	80-120			
Carbon Ranges C12-C28	286		"	250		114	80-120			
Total Hydrocarbons	517		"	500		103	80-120			
Surrogate: 1-Chlorooctane	53.0		"	50.0		106	70-130			
Surrogate: 1-Chlorooctadecane	50.4		"	50.0		101	70-130			

**Matrix Spike (EA71510-MS1)**

Source: 7A12026-05

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	620	10.0	mg/kg dry	526	ND	118	75-125			
Carbon Ranges C12-C28	501	10.0	"	526	ND	95.2	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125			
Total Hydrocarbons	1120	10.0	"	1050	ND	107	75-125			
Surrogate: 1-Chlorooctane	62.6		mg/kg	50.0		125	70-130			
Surrogate: 1-Chlorooctadecane	58.7		"	50.0		117	70-130			

**Matrix Spike Dup (EA71510-MSD1)**

Source: 7A12026-05

Prepared: 01/15/07 Analyzed: 01/17/07

Carbon Ranges C6-C12	651	10.0	mg/kg dry	526	ND	124	75-125	4.96	20	
Carbon Ranges C12-C28	518	10.0	"	526	ND	98.5	75-125	3.41	20	
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125		20	
Total Hydrocarbons	1170	10.0	"	1050	ND	111	75-125	3.67	20	
Surrogate: 1-Chlorooctane	63.1		mg/kg	50.0		126	70-130			
Surrogate: 1-Chlorooctadecane	64.6		"	50.0		129	70-130			

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**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71607 - General Preparation (Prep)**

**Blank (EA71607-BLK1)**

Prepared: 01/15/07 Analyzed: 01/16/07

% Solids 99.8 %

**Duplicate (EA71607-DUP1)**

Source: 7A12022-01

Prepared: 01/15/07 Analyzed: 01/16/07

% Solids 96.4 % 94.6 1.88 20

**Duplicate (EA71607-DUP2)**

Source: 7A12022-32

Prepared: 01/15/07 Analyzed: 01/16/07

% Solids 95.2 % 95.1 0.105 20

**Duplicate (EA71607-DUP3)**

Source: 7A12024-20

Prepared: 01/15/07 Analyzed: 01/16/07

% Solids 97.7 % 97.8 0.102 20

**Duplicate (EA71607-DUP4)**

Source: 7A12027-12

Prepared: 01/15/07 Analyzed: 01/16/07

% Solids 92.4 % 92.0 0.434 20

**Duplicate (EA71607-DUP5)**

Source: 7A15002-03

Prepared: 01/15/07 Analyzed: 01/16/07

% Solids 83.9 % 85.9 2.36 20

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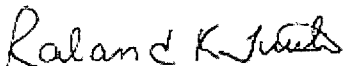
Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:



Date:

1/18/2007

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

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If you have received this material in error, please notify us immediately at 432-563-1800.



# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

Client: Plains  
 Date/ Time: 1/12/07 10:30  
 Lab ID #: TA12026  
 Initials: CK

### Sample Receipt Checklist

Client Initials

#1	Temperature of container/ cooler?	Yes	No	-1.0 °C	
#2	Shipping container in good condition?	Yes	No		
	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5	Chain of Custody present?	Yes	No		
	Sample instructions complete of Chain of Custody?	Yes	No		
	Chain of Custody signed when relinquished/ received?	Yes	No		
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	Yes	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	Yes	No		
#11	Containers supplied by ELOT?	Yes	No		
#12	Samples in proper container/ bottle?	Yes	No	See Below	
#13	Samples properly preserved?	Yes	No	See Below	
#14	Sample bottles intact?	Yes	No		
#15	Preservations documented on Chain of Custody?	Yes	No		
#16	Containers documented on Chain of Custody?	Yes	No		
#17	Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
#18	All samples received within sufficient hold time?	Yes	No	See Below	
#19	Subcontract of sample(s)?	Yes	No	Not Applicable	
#20	VOC samples have zero headspace?	Yes	No	Not Applicable	

### Variance Documentation

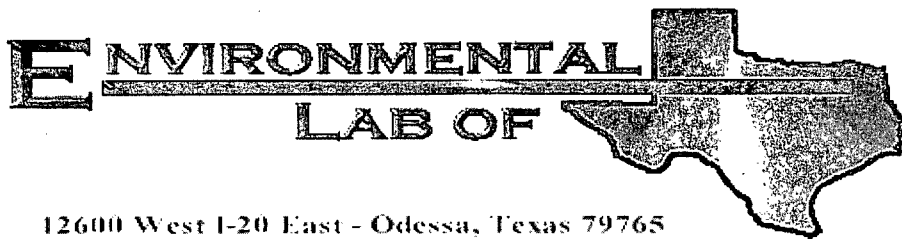
Contacted: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken:

Check all that Apply:

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



12600 West I-20 East - Odessa, Texas 79765

A Xenco Laboratories, Inc. Company

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: East Shell North

Project Number: 2000-10615

Location: Clay Osborn Ranch

Lab Order Number: 7A18004

Report Date: 01/25/07

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ESN-LFSP	7A18004-01	Soil	01/18/07 09:40	01-18-2007 14:25

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN-LFSP (7A18004-01) Soil</b>									
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EA71902	01/19/07	01/20/07	EPA 8015M	
Carbon Ranges C12-C28	87.5	10.0	"	"	"	"	"	"	
Carbon Ranges C28-C35	13.4	10.0	"	"	"	"	"	"	
Total Hydrocarbons	101	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		91.8 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		93.8 %	70-130		"	"	"	"	

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN-LFSP (7A18004-01) Soil</b>									
<b>% Moisture</b>	<b>5.6</b>	<b>0.1</b>	<b>%</b>	<b>1</b>	<b>EA71901</b>	<b>01/18/07</b>	<b>01/19/07</b>	<b>% calculation</b>	

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Project Number: 2000-10615  
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**Volatile Organic Compounds by EPA Method 8260B**

**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>ESN-LFSP (7A18004-01) Soil</b>									
Benzene	ND	0.00200	mg/kg dry	2	EA72303	01/23/07	01/23/07	EPA 8260B	
Toluene	ND	0.00200	"	"	"	"	"	"	
Ethylbenzene	ND	0.00200	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00200	"	"	"	"	"	"	
Xylene (o)	ND	0.00200	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		110 %	70-139		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		104 %	52-149		"	"	"	"	
Surrogate: Toluene-d8		99.6 %	76-125		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	66-145		"	"	"	"	

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Project: East Shell North  
Project Number: 2000-10615  
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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71902 - Solvent Extraction (GC)**

**Blank (EA71902-BLK1)**

Prepared: 01/19/07 Analyzed: 01/20/07

Carbon Ranges C6-C12	ND	10.0	mg/kg wet							
Carbon Ranges C12-C28	ND	10.0	"							
Carbon Ranges C28-C35	ND	10.0	"							
Total Hydrocarbons	ND	10.0	"							
Surrogate: 1-Chlorooctane	53.2		mg/kg	50.0		106	70-130			
Surrogate: 1-Chlorooctadecane	54.2		"	50.0		108	70-130			

**LCS (EA71902-BS1)**

Prepared: 01/19/07 Analyzed: 01/21/07

Carbon Ranges C6-C12	505	10.0	mg/kg wet	500		101	75-125			
Carbon Ranges C12-C28	404	10.0	"	500		80.8	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00			75-125			
Total Hydrocarbons	909	10.0	"	1000		90.9	75-125			
Surrogate: 1-Chlorooctane	55.0		mg/kg	50.0		110	70-130			
Surrogate: 1-Chlorooctadecane	39.3		"	50.0		78.6	70-130			

**Calibration Check (EA71902-CCV1)**

Prepared: 01/19/07 Analyzed: 01/20/07

Carbon Ranges C6-C12	272		mg/kg	250		109	80-120			
Carbon Ranges C12-C28	274		"	250		110	80-120			
Total Hydrocarbons	546		"	500		109	80-120			
Surrogate: 1-Chlorooctane	60.9		"	50.0		122	70-130			
Surrogate: 1-Chlorooctadecane	53.1		"	50.0		106	70-130			

**Matrix Spike (EA71902-MS1)**

Source: 7A18002-02

Prepared: 01/19/07 Analyzed: 01/20/07

Carbon Ranges C6-C12	573	10.0	mg/kg dry	515	ND	111	75-125			
Carbon Ranges C12-C28	462	10.0	"	515	ND	89.7	75-125			
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125			
Total Hydrocarbons	1040	10.0	"	1030	ND	101	75-125			
Surrogate: 1-Chlorooctane	57.5		mg/kg	50.0		115	70-130			
Surrogate: 1-Chlorooctadecane	47.6		"	50.0		95.2	70-130			

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Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71902 - Solvent Extraction (GC)**

**Matrix Spike Dup (EA71902-MSD1)**

**Source: 7A18002-02**

Prepared: 01/19/07 Analyzed: 01/20/07

Carbon Ranges C6-C12	594	10.0	mg/kg dry	515	ND	115	75-125	3.54	20	
Carbon Ranges C12-C28	476	10.0	"	515	ND	92.4	75-125	2.97	20	
Carbon Ranges C28-C35	ND	10.0	"	0.00	ND		75-125		20	
Total Hydrocarbons	1070	10.0	"	1030	ND	104	75-125	2.93	20	
Surrogate: 1-Chlorooctane	59.6		mg/kg	50.0		119	70-130			
Surrogate: 1-Chlorooctadecane	48.5		"	50.0		97.0	70-130			

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Project Number: 2000-10615  
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**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA71901 - General Preparation (Prep)**

**Blank (EA71901-BLK1)**

Prepared: 01/18/07 Analyzed: 01/19/07

% Solids	100		%							
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**Duplicate (EA71901-DUP1)**

Source: 7A17007-01

Prepared: 01/18/07 Analyzed: 01/19/07

% Solids	76.7		%		77.9			1.55	20	
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**Duplicate (EA71901-DUP2)**

Source: 7A17005-01

Prepared: 01/18/07 Analyzed: 01/19/07

% Solids	61.0		%		62.7			2.75	20	
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Environmental Lab of Texas

A Xenco Laboratories, Inc. Company

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA72303 - EPA 5030C (GCMS)**

**Blank (EA72303-BLK1)**

Prepared & Analyzed: 01/23/07

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: Dibromofluoromethane	57.0		ug/kg	50.0		114	70-139			
Surrogate: 1,2-Dichloroethane-d4	48.6		"	50.0		97.2	52-149			
Surrogate: Toluene-d8	50.1		"	50.0		100	76-125			
Surrogate: 4-Bromofluorobenzene	51.2		"	50.0		102	66-145			

**LCS (EA72303-BS1)**

Prepared & Analyzed: 01/23/07

Benzene	0.0517	0.00100	mg/kg wet	0.0500		103	70-130			
Toluene	0.0487	0.00100	"	0.0500		97.4	70-130			
Ethylbenzene	0.0522	0.00100	"	0.0500		104	70-130			
Xylene (p/m)	0.100	0.00100	"	0.100		100	70-130			
Xylene (o)	0.0518	0.00100	"	0.0500		104	70-130			
Surrogate: Dibromofluoromethane	50.9		ug/kg	50.0		102	70-139			
Surrogate: 1,2-Dichloroethane-d4	52.2		"	50.0		104	52-149			
Surrogate: Toluene-d8	50.8		"	50.0		102	76-125			
Surrogate: 4-Bromofluorobenzene	51.1		"	50.0		102	66-145			

**Calibration Check (EA72303-CCV1)**

Prepared & Analyzed: 01/23/07

Toluene	48.4		ug/kg	50.0		96.8	70-130			
Ethylbenzene	53.9		"	50.0		108	70-130			
Surrogate: Dibromofluoromethane	51.8		"	50.0		104	70-139			
Surrogate: 1,2-Dichloroethane-d4	46.6		"	50.0		93.2	52-149			
Surrogate: Toluene-d8	46.7		"	50.0		93.4	76-125			
Surrogate: 4-Bromofluorobenzene	51.9		"	50.0		104	66-145			

Environmental Lab of Texas

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA72303 - EPA 5030C (GCMS)**

**Matrix Spike (EA72303-MS1)**

Source: 7A18002-01

Prepared & Analyzed: 01/23/07

Benzene	0.115	0.00200	mg/kg dry	0.113	ND	102	70-130			
Toluene	0.105	0.00200	"	0.113	ND	92.9	70-130			
Ethylbenzene	0.110	0.00200	"	0.113	ND	97.3	70-130			
Xylene (p/m)	0.207	0.00200	"	0.226	ND	91.6	70-130			
Xylene (o)	0.118	0.00200	"	0.113	ND	104	70-130			
Surrogate: Dibromofluoromethane	60.1		ug/kg	50.0		120	70-139			
Surrogate: 1,2-Dichloroethane-d4	54.4		"	50.0		109	52-149			
Surrogate: Toluene-d8	47.7		"	50.0		95.4	76-125			
Surrogate: 4-Bromofluorobenzene	56.1		"	50.0		112	66-145			

**Matrix Spike Dup (EA72303-MSD1)**

Source: 7A18002-01

Prepared & Analyzed: 01/23/07

Benzene	0.118	0.00200	mg/kg dry	0.113	ND	104	70-130	1.94	20	
Toluene	0.103	0.00200	"	0.113	ND	91.2	70-130	1.85	20	
Ethylbenzene	0.104	0.00200	"	0.113	ND	92.0	70-130	5.60	20	
Xylene (p/m)	0.197	0.00200	"	0.226	ND	87.2	70-130	4.92	20	
Xylene (o)	0.112	0.00200	"	0.113	ND	99.1	70-130	4.83	20	
Surrogate: Dibromofluoromethane	54.9		ug/kg	50.0		110	70-139			
Surrogate: 1,2-Dichloroethane-d4	50.2		"	50.0		100	52-149			
Surrogate: Toluene-d8	46.8		"	50.0		93.6	76-125			
Surrogate: 4-Bromofluorobenzene	54.2		"	50.0		108	66-145			

Environmental Lab of Texas

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: East Shell North  
Project Number: 2000-10615  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By: 

Date: 1/25/2007

Brent Barron, Laboratory Director/Corp. Technical Director  
Celey D. Keene, Org. Tech Director  
Raland K. Tuttle, Laboratory Consultant

James Mathis, QA/QC Officer  
Jeanne Mc Murrey, Inorg. Tech Director

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If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

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**CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST**

12600 West I-20 East  
Odessa, Texas 79785

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

Telephone No: \_\_\_\_\_  
 Fax No: \_\_\_\_\_  
 e-mail: keedy@sdgeast.com  
 Report Format: ☐ Standard ☐ TRRP ☐ NPDES  
 Analyze For: \_\_\_\_\_  
 Sampler Signature: [Signature]

[illegible]

# Environmental Lab of Texas

## Variance/ Corrective Action Report- Sample Log-In

Client: Plains P/L  
 Date/ Time: 01-18-07@1425  
 Lab ID #: 7A18004  
 Initials: JMM

### Sample Receipt Checklist

Client Initials

#1	Temperature of container/ cooler?	<u>Yes</u>	No	<u>-0.5</u> °C	
#2	Shipping container in good condition?	<u>Yes</u>	No		
#3	Custody Seals intact on shipping container/ cooler?	<u>Yes</u>	No	<u>Not Present</u>	
#4	Custody Seals intact on sample bottles/ container?	<u>Yes</u>	No	<u>Not Present</u>	
#5	Chain of Custody present?	<u>Yes</u>	No		
#6	Sample instructions complete of Chain of Custody?	<u>Yes</u>	No		
#7	Chain of Custody signed when relinquished/ received?	<u>Yes</u>	No		
#8	Chain of Custody agrees with sample label(s)?	<u>Yes</u>	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	<u>Yes</u>	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	<u>Yes</u>	No		
#11	Containers supplied by ELOT?	<u>Yes</u>	No		
#12	Samples in proper container/ bottle?	<u>Yes</u>	No	See Below	
#13	Samples properly preserved?	<u>Yes</u>	No	See Below	
#14	Sample bottles intact?	<u>Yes</u>	No		
#15	Preservations documented on Chain of Custody?	<u>Yes</u>	No		
#16	Containers documented on Chain of Custody?	<u>Yes</u>	No		
#17	Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No	See Below	
#18	All samples received within sufficient hold time?	<u>Yes</u>	No	See Below	
#19	Subcontract of sample(s)?	<u>Yes</u>	No	<u>Not Applicable</u>	
#20	VOC samples have zero headspace?	<u>Yes</u>	No	Not Applicable	

### Variance Documentation

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/ Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken:

\_\_\_\_\_  
 \_\_\_\_\_

Check all that Apply:

☐  
☐  
☐

See attached e-mail/ fax

Client understands and would like to proceed with analysis

Cooling process had begun shortly after sampling event