1R- 119

REPORTS

DATE:

10-5-11

IR-119

AMARILLO
921 North Bivins
Amarillo, Texas 79107
Phone 806.467.0607
Fax 806.467.0622

AUSTIN
3003 Tom Gary Cove
Building C-100
Round Rock, Texas 78664
Phone 512.989.3428
Fax 512.989.3487

MIDLAND
2901 State Highway 349
Midland, Texas 79706
Phone 432.522.2133
Fax 432.522.2180

SAN ANTONIO
17170 Jordan Road
Suite 102
Selma, Texas 78154
Phone 210.579.0235
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TULSA
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Suite G
Tulsa, Oklahoma 74146
Phone 918.742.0871
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HOBBS
318 East Taylor Street
Hobbs, New Mexico 88241
Phone 505.393.4261
Fax 505.393.4658

TYLER
719 West Front Street
Suite 255
Tyler, Texas 75702
Phone 903.531.9971
Fax 903.531.9979

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3233 West 11th Street
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Houston, Texas 77008
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MOBILE DUAL PHASE EXTRACTION REPORT
TNM MONUMENT 10 PIPELINE RELEASE
MONUMENT, LEA COUNTY, NEW MEXICO
SRS # TNM MONUMENT 10
TALON/LPE PROJECT # 700376.082.02

PREPARED FOR:

PLAINS MARKETING, L.P.
333 CLAY STREET
SUITE 1600
HOUSTON, TEXAS 77002

PREPARED BY:

TALON/LPE
921 N. BIVINS
AMARILLO, TEXAS 79107

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October 5, 2011

PLAINS
PIPELINE, L.P.

RECEIVED OCD
2011 DEC -6 A 10:43

December 2, 2011

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

RE: Plains Pipeline, L.P.
Reports for MDPE Events at Seven (7) Remediation Sites in Lea County, NM

Dear Mr. Hansen:

Plains Pipeline, L.P. is pleased to submit the attached reports which provide details regarding the Mobile Dual Phase Extraction (MDPE) events that were conducted at the following sites during September 2011:

HDO 90-23	NMOCD Reference #AP-009
SPS-11	NMOCD Reference #GW-140
Livingston Ridge to Hugh P. Sims	NMOCD Reference #1R-0398
Monument 10	NMOCD Reference #1R-0119
Monument 18	NMOCD Reference #1R-0124
DCP Plant to Lea Station 6-inch #2	NMOCD Reference #1R-2136
DCP Plant to Lea Station 6-inch Sec. 31	NMOCD Reference #1R-2166

Should you have any questions or comments, please contact me at (575) 441-1099.

Sincerely,

Jason Henry
Remediation Coordinator
Plains Pipeline, L.P.

Enclosure

TABLE OF CONTENTS

Section Page

Attachments:

I. MDPE SUMMARY REPORT AND WASTE DISPOSITION

A. MDPE Results

The following report summarizes data collected during the 12-hour High Vacuum Multi-Phase Extraction (MDPE) event conducted on September 13, 2011 at the TNM Monument 10 Pipeline release site, located in Lea County, New Mexico. The objective of the MDPE treatment was to remove both vapor and liquid phase separated hydrocarbons (PSH) from onsite groundwater wells. Talon/LPE utilized an MDPE unit which consisted of an SVE extraction pump capable of generating vacuum up to 25" hg. Off gas vapors extracted from the extraction wells were destroyed using a propane-fired 1000-SCFM thermal oxidizer capable of processing 172.96 lbs/hr of gasoline.

A total of 12 hours (0.5 days) of PSH recovery was performed. MW1, 2, & 3 for 12 hours.

Prior to and immediately following the event, the groundwater wells were gauged for groundwater elevation and PSH. Depth to groundwater ranges were measured in feet below the top of casing. Refer to Attachment 1 for a summary of data collected during the MDPE event.

The volume of PSH removed during the MDPE event is shown to reflect the portions of PSH in the liquid phase and as off-gas vapor. Air removal rates were calculated from velocity measurements recorded at the influent manifold prior to entry into the MDPE unit. PSH recovery and air flow data has been detailed and is contained in Table 1. Three influent air samples were collected over the course of the event. These samples were submitted for laboratory testing in order to compare the predicted vapor concentrations (based on field-screening or calculated based on fuel consumption) to the actual vapor concentrations. All three influent samples were tested for Total-Gas Analysis (Hydrocarbon Composition) by ASTM method D 1945. Laboratory analytical results can be found in Attachment 2.

Based on a combination of field vapor screening and collected laboratory samples, a combined estimated total of **51.58 equivalent gallons of PSH (Total)** were removed during the event. The combined volume of PSH was comprised of approximately **33 gallons of PSH (liquid phase)** and approximately **18.58 gallons as off-gas vapor**.

The cumulative air flow measurements for the MDPE event were calculated using a combination of field data measurements and Preso® B+ manufacturer provided formulas. **Air flow rates extracted from the recovery wells averaged 314.45 SCFM** during the event.

A portion of the extracted air flow rates measured is attributable to compressed air, which was "injected" into the extraction wells. This "injected" air is introduced into the extraction wells for the purpose of enhancing liquid recovery rates.

B. Air Quality

Three influent air samples were collected during the event. These samples were submitted for laboratory testing in order to compare the predicted vapor concentrations (based on field-screening or calculated based on fuel consumption) to the actual vapor concentrations. The maximum concentration in air influent was recorded as 11,489 ppmv for Hydrocarbon Composition. Laboratory analytical results can be found in Attachment 2.

C. Waste Management and Disposition

A cumulative total of 989 gallons of fluid were generated during this event. The fluids were temporarily transferred to an on-site storage tank prior to being transferred to an authorized disposal facility. A copy of the waste ticket can be found in Attachment 4.

II. SYSTEM OPERATION DATA AND MASS RECOVERY CALCULATIONS

Formulae:

$$\text{Concentration (C\_mg/l)} = \frac{\text{C\_ppmv x Mol. wt. in mg(estimated) x 0.000001}}{\text{0.0821 x Temp (K)}}$$

$$\text{Recovery Rate (lbs/hr)} = \frac{\text{(C\_mg/l) x 2.2 x (Flowrate) x 60 x 28.32}}{\text{1,000,000}}$$

$$\text{Recovery (lbs)} = \text{(lbs/hr) x (hrs)}$$

$$\text{Correction Factor (CF)} = \frac{\text{FID Reading(ppmv)}}{\text{FID Reading at Time of Laboratory Analysis}}$$

$$\frac{\text{8.34 lbs}}{\text{gallon water}} \times \text{0.845 average specific gravity of light crude (estimated)} = \frac{\text{7.047 lbs light crude}}{\text{gallon}}$$

Table 1
System Operation Data and Mass Recovery Calculations

Time	Period (hours)	Influent Temp. (°f	Vacuum (In. hg)	Vacuum (In. h20)	Differential pressure (In. h20)	Flow (SCFM)	FID Readings (ppmv)	Lab Result (ppmv)	Assigned Lab Result (ppmv)	Correction Factor (CF)	Adjusted Lab Result (ppmv)	Adjusted Lab Result (mg/L)	Recovery (lbs/hr)	Recovery in Period (lbs)	Total Recovery (lbs)
10:00	0.5	86	10	136.09	130	320.49	50000	-	11489.00	1.00	11489	16.87	20.21	10.10	10.10
10:30	0.5	88	10	136.09	125	313.69	50000	11489.00	11489.00	1.00	11489	16.81	19.71	9.85	19.96
11:30	1	88	10	136.09	125	313.69	50000	-	11489.00	1.00	11489	16.81	19.71	19.71	39.66
12:30	1	90	10	136.09	125	313.12	50000	-	11489.00	1.00	11489	16.74	19.60	19.60	59.26
13:30	1	88	10	136.09	124	312.43	50000	-	3347.00	1.00	3347	3.36	3.92	3.92	63.18
14:30	1	88	10	136.09	123	311.17	50000	-	3347.00	1.00	3347	3.36	3.90	3.90	67.09
15:30	1	88	10	136.09	123	311.17	50000	3347.00	3347.00	1.00	3347	3.36	3.90	3.90	70.99
16:30	1	86	10	136.09	125	314.26	50000	-	3347.00	1.00	3347	3.37	3.96	3.96	74.95
17:30	1	86	10	136.09	125	314.26	50000	-	3347.00	1.00	3347	3.37	3.96	3.96	78.90
18:30	1	86	10	136.09	125	314.26	50000	-	5425.00	1.00	5425	10.94	12.85	12.85	91.76
19:30	1	84	10	136.09	125	314.84	50000	-	5425.00	1.00	5425	10.98	12.92	12.92	104.68
20:30	1	80	10	136.09	126	317.26	50000	5425.00	5425.00	1.00	5425	11.06	13.12	13.12	117.80
21:30	1	80	10	136.09	126	317.26	50000		5425.00	1.00	5425	11.06	13.12	13.12	130.92
Averages:		86.00	10.00	136.09	125.15	314.45	50000.00						Total	130.92	

PSH Mass Recovered in Vapor Phase = 18.58 gallons

FID maximum Concentration = 50,000 PPM

Ex: Conversion from ppmv to mg/L (influent 1)

Measured Conc.	Molecular Wt.	Pressure	Gas Constant	Temp.	Temp.	Conc.
(C_ppmv)	(Grams)	(atm)	(atm liter/K.mole)	(F)	(K)	(C_mg/l)
11489	36.52029245	1	0.0821	86	303	16.86672214

Inputs are the green values.
Calculated values are yellow.
Constants are purple values.
Outpus are the blue values.

Liquid-phase Hydrocarbon Recovery

(assumes gasoline product)

$\Pi * r^2 * h$ = volume

Total Hydrocarbon Recovery

PSH Mass Recovered in Vapor Phase =	130.92	lbs
	18.58	gallons
PSH Mass Recovered in Liquid Phase =	232.55	lbs
	33.00	gallons
TOTAL =	**363.47**	**lbs**
	51.58	**gallons**

Gallons removed determined at time of pick up

PSH Volume in Gallons=	33
PSH Mass in Pounds=	232.551

% Total Hydrocarbon to mg/m³ to ppmv - Influent 1

Compound	Molecular Weight (g/mol)	% total	=	ppmv
Methane (CH4)	16.04	0.7211		7211.00
Ethane (C2H6)	30.07	0		0.00
Propane (C3H8)	44.10	0.0164		164.00
Iso-Butane (C4H10)	58.12	0.0427		427.00
N-Butane (C4H10)	58.12	0.0709		709.00
Iso-Pentane (C4H12)	72.15	0.0762		762.00
N-Pentane (C5H12)	72.15	0.109		1090.00
Hexane+ (C6H14)	86.18	0.1126		1126.00
			Total	**11489.00**

Molecular Weight Calculations

Total Hydrocarbon %=	1.1489
g of Methane (CH4) =	10.06740709
g of Ethane (C2H6) =	0
g of Propane (C3H8) =	0.629506484
g of Iso-Butane (C4H10) =	2.16008704
g of N-Butane (C4H10) =	3.586655061
g of Iso-Pentane (C4H12) =	4.785298982
g of N-Pentane (C5H12) =	6.845112717
g of Hexane+ (C6H14) =	8.446225085
Calculated MW (Grams)	**36.52029245**

% Total Hydrocarbon to mg/m³ to ppmv - Influent 2

Compound	Molecular Weight (g/mol)	% total	=	ppmv
Methane (CH4)	16.04	0.2861		2861.00
Ethane (C2H6)	30.07	0		0.00
Propane (C3H8)	44.10	0		0.00
Iso-Butane (C4H10)	58.12	0.0026		26.00
N-Butane (C4H10)	58.12	0.0063		63.00
Iso-Pentane (C4H12)	72.15	0.0049		49.00
N-Pentane (C5H12)	72.15	0.0057		57.00
Hexane+ (C6H14)	86.18	0.0291		291.00
			Total	**3347.00**

Molecular Weight Calculations

Total Hydrocarbon %=	0.3347
g of Methane (CH4) =	13.71091724
g of Ethane (C2H6) =	0
g of Propane (C3H8) =	0
g of Iso-Butane (C4H10) =	0.451484912
g of N-Butane (C4H10) =	1.093982671
g of Iso-Pentane (C4H12) =	1.056274275
g of N-Pentane (C5H12) =	1.228727218
g of Hexane+ (C6H14) =	7.492793546
Calculated MW (Grams)	**25.03417986**

% Total Hydrocarbon to mg/m³ to ppmv - Influent 3

Compound	Molecular Weight (g/mol)	% total	=	ppmv
Methane (CH4)	16.04	0.2187		2187.00
Ethane (C2H6)	30.07	0.0007		7.00
Propane (C3H8)	44.10	0.0082		82.00
Iso-Butane (C4H10)	58.12	0.0306		306.00
N-Butane (C4H10)	58.12	0.0346		346.00
Iso-Pentane (C4H12)	72.15	0.1043		1043.00
N-Pentane (C5H12)	72.15	0.0371		371.00
Hexane+ (C6H14)	86.18	0.1083		1083.00
			Total	**5425.00**

Molecular Weight Calculations

Total Hydrocarbon %=	0.5425
g of Methane (CH4) =	6.466263594
g of Ethane (C2H6) =	0.0388
g of Propane (C3H8) =	0.666580645
g of Iso-Butane (C4H10) =	3.278289401
g of N-Butane (C4H10) =	3.706823963
g of Iso-Pentane (C4H12) =	13.87141935
g of N-Pentane (C5H12) =	4.934129032
g of Hexane+ (C6H14) =	17.20422857
Calculated MW (Grams)	**50.16653456**

ATTACHMENT 1

MDPE Field Logs

MDPE FIELD NOTES					
Site Name:	TNM Monument #10			Event #:	2
Location:	S. of Monument, NM			Arrive at site:	9/13/2011 7:45
Date:	9/13/2011				
Job#:	700376.082.02	SRS#:	TNM Monument #10	Start Vac:	9/13/2011 9:30
Phase:	MDPE2	Unit:	1107	Stop Vac:	9/13/2011 21:30
Onsite Personnel:	M.L.Coggins, L.C.Jaquez			Leave Site:	9/13/2011 23:45

GAUGING DATA

WELL#	BEFORE			AFTER			COMMENTS
	PSH	GW	PSH-T	PSH	GW	PSH-T	
MW1	-	21.81	-	-	22.50	-	Stinget set @ 24'
MW2	22.42	23.35	0.93	-	23.59	-	Stinget set @ 24'
MW3	22.16	24.17	2.01	-	23.23	-	Stinget set @ 24'
MW4	-	20.40	-	-	20.51	-	
MW5	-	21.62	-	-	21.92	-	
MW6	-	24.13	-	-	24.35	-	
MW7	-	22.84	-	-	22.95	-	
WASTE:	H2O:	956		PSH:	33		TOTAL (GAL): 989

Sample Name	Analysis	Date:	Time:	Comments:
INFLUENT	ASTM D 1945	9/13/2011	10:30	FID = >50K
INFLUENT	ASTM D 1945	9/13/2011	15:30	FID = >50K
INFLUENT	ASTM D 1945	9/13/2011	20:30	FID = >50K
EFFLUENT				

Notes:	

Start Date: 9/13/2011

MDPE FIELD DATA

		Total Flow			Well Flow						Well Data									
TIME	SAMPLE TAKEN *	Inflent temp. (°f)	Diff. Pressure (INH20) 6" Pitot	Pressure (In. h2O)	Inflent temp. (°f)	Diff. Pressure (INH20) 2" Preso	Vac (In.Hg)	FID Composite (PPM)	Propane Tank (%-size) 250 Gal.	EXHAUST TEMP F	COMMENTS:									
											MW1		MW2		MW3					
											VAC (INH2O)	PPM	VAC (INH2O)	PPM	VAC (INH2O)	PPM	VAC (INH2O)	PPM	VAC (INH2O)	PPM
10:00		118	0.4	0.2	86	130	10	>50K	90	1410	All recovery through stinger. No data collected.									
10:30	*	120	0.3	0.2	88	125	10	>50K	86	1413										
11:30		120	0.4	0.2	88	125	10	>50K	83	1415										
12:30		122	0.4	0.2	90	125	10	>50K	80	1412										
13:30		124	0.4	0.2	88	124	10	>50K	78	1408										
14:30		121	0.3	0.2	88	123	10	>50K	76	1414										
15:30	*	122	0.3	0.2	88	123	10	>50K	74	1411										
16:30		120	0.4	0.2	86	125	10	>50K	69	1412										
17:30		120	0.4	0.2	86	125	10	>50K	64	1410										
18:30		119	0.3	0.2	86	125	10	>50K	62	1408										
19:30		118	0.3	0.2	84	125	10	>50K	60	1409										
20:30	*	116	0.3	0.2	80	126	10	>50K	58	1411										
21:30		116	0.3	0.2	80	126	10	>50K	55	1411										

ATTACHMENT 2

Laboratory Analytical Results

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Simon Walshe
Talon LPE-Amarillo
921 North Bivins
Amarillo, TX, 79107

Report Date: September 29, 2011

Work Order: 11091547

Project Location: Mounument New Mexico
Project Name: TNM Monument #10
Project Number: 700376.082.02

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
277391	Inflnent Air #1	air	2011-09-13	10:30	2011-09-15

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

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

Report Contents

Case Narrative

Samples for project TNM Monument #10 were received by TraceAnalysis, Inc. on 2011-09-15 and assigned to work order 11091547. Samples for work order 11091547 were received intact at a temperature of 22.3 C.

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

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring; however, it may not pertain to the samples for work order 11091547 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

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

LAB Order ID # 1109151 W7

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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

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

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

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

Company Name: TALONLPE / PLAINS ALL AMERICAN
Phone #: 806 · 467 · 0607
Address: (Street, City, Zip) 921 N. BIVINS AMARILLO TX 79107
Fax #: 806 · 467 · 0622
Contact Person: SIMON WALSHE
E-mail: S.WALSHE@TALONLPE.COM
Invoice to: (If different from above) JASON HENRY "PLAINS ALL AMERICAN"
Project #: 700376.082.02
Project Name: TNM MONUMENT #10
Project Location (including state): MONUMENT NEW MEXICO
Sampler Signature: [signature]

ANALYSIS REQUEST
(Circle or Specify Method No.)
SRS# TNM MONUMENT #10

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021 / 602 / 8260 / 624	BTEX 8021 / 602 / 8260 / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270 / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260 / 624	GC/MS Semi. Vol. 8270 / 625	PCB's 8082 / 608	Pesticides 8081 / 608	BOD, TSS, pH	Moisture Content	Cl, Fl, S04, NO3, NO2, Alkalinity	Na, Ca, Mg, K, TDS, EC	ASTM D 1945	Turn Around Time if different from standard	Hold
277391	INFL AIR #1	1	1 LTR			X							X	9·13·11	10:30																				1		
392	INFL AIR #2	1	1 LTR			X							X	9·13·11	15:30																				1		
393	INFL AIR #3	1	1 LTR			X							X	9·13·11	20:30																				1		

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
M.L. Coggins	TALON LPE	9-14-11	16:00	[signature]	JH	9/16/11	11:00	INST 22.3 °C OBS 22.3 °C COR ___ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST ___ °C OBS ___ °C COR ___ °C
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST ___ °C OBS ___ °C COR ___ °C

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

REMARKS:

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

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

Carrier # UPS: J006745714

ORIGINAL COPY

806-665-0750
806-665-0753
877-788-0750

Midwest Precision Testing LLC
135 N Price Rd
Pampa, TX 79065

www.mwptlab.com

The following analytical results were produced using the strictest quality control and most current methods:

COC #: N/A

Lab #: 6869-6871

Quality Control #: 1671

Approved by:

Neil Ray

Neil Ray

Date: 9/26/11

806-665-0750
806-665-0753
877-788-0750

Midwest Precision Testing LLC
135 N Price Rd
Pampa, TX 79065

www.mwptlab.com

Sample Matrix: Gas
Sample Type: Spot
Preservative: N/A
Sample Container: Tedlar Bag

Method(s): ASTM D 1945
Gas Analysis by Gas Chromatography

Client: Trace Analysis, Inc.
Project Location: N/A

Sample Id.: Influent #1
Trace: 277391-1
Sample Temp.: N/A
Atmospheric Temp.: N/A
Pressure: N/A
Field Data: N/A
Sample Date: 9/13/11 Time: 10:30 am
Sampled By: N/A
Analysis Date: 9/23/11
Analysis By: Neil Ray

Lab #: 6869
Quality Control Report: 1671

Analytical Results

Gas Composition				
	Mol %	GPM	Vol %	Wt. %
Nitrogen (N2):	90.5066	9.9057	85.8191	86.1761
Carbon Dioxide (CO2):	8.8604	1.4943	13.0319	13.2252
Hydrocarbon Composition	**Mol %**	**GPM**	**Vol. %**	**Wt. %**
Methane (CH4):	0.4933	0.0838	0.7211	0.2684
Ethane (C2H6):	0.0000	0.0000	0.0000	0.0000
Propane (C3H8):	0.0069	0.0019	0.0164	0.0103
Iso-Butane (C4H10):	0.0151	0.0049	0.0427	0.0298
N-Butane (C4H10):	0.0261	0.0082	0.0709	0.0514
Iso-Pentane (C5H12):	0.0242	0.0088	0.0762	0.0591
N-Pentane (C5H12):	0.0349	0.0126	0.1090	0.0853
Hexane+ (C6H14):	0.0325	0.0140	0.1126	0.0945
Totals	100.0000	11.5342	100.0000	100.0000

Comments - Additional Data

BTU -dry (BTU/ft^3):	10.5	Z-Comp. Factor-dry:	0.99950
BTU -water vapor sat.(BTU/ft^3):	11.3	Z-Comp. Factor-water vapor sat.:	0.99425
Specific Gravity -dry:	1.0164	14.65 psi Pressure Base	
Specific Gravity-water vapor sat.:	1.0148		

806-665-0750
806-665-0753
877-788-0750

Midwest Precision Testing LLC
135 N Price Rd
Pampa, TX 79065

www.mwptlab.com

Sample Matrix: Gas
Sample Type: Spot
Preservative: N/A
Sample Container: Tedlar Bag

Method(s): ASTM D 1945
Gas Analysis by Gas Chromatography

Client: Trace Analysis, Inc.
Project Location: N/A

Sample Id.: Influent #2
Trace: 277392-1
Sample Temp.: N/A
Atmospheric Temp.: N/A
Pressure: N/A
Field Data: N/A
Sample Date: 9/13/11 Time: 3:30 pm
Sampled By: N/A
Analysis Date: 9/23/11
Analysis By: Neil Ray

Lab #: 6870
Quality Control Report: 1671

Analytical Results

Gas Composition				
	Mol %	**GPM**	**Vol %**	**Wt. %**
Nitrogen (N2):	91.0081	9.9604	86.6895	86.7345
Carbon Dioxide (CO2):	8.7821	1.4811	12.9759	13.1206
Hydrocarbon Composition	**Mol %**	**GPM**	**Vol. %**	**Wt. %**
Methane (CH4):	0.1948	0.0331	0.2861	0.1061
Ethane (C2H6):	0.0000	0.0000	0.0000	0.0000
Propane (C3H8):	0.0000	0.0000	0.0000	0.0000
Iso-Butane (C4H10):	0.0009	0.0003	0.0026	0.0018
N-Butane (C4H10):	0.0023	0.0007	0.0063	0.0046
Iso-Pentane (C5H12):	0.0015	0.0006	0.0049	0.0038
N-Pentane (C5H12):	0.0018	0.0007	0.0057	0.0044
Hexane+ (C6H14):	0.0083	0.0036	0.0291	0.0243
Totals	100.0000	11.4805	100.0000	100.0000

Comments - Additional Data

BTU -dry (BTU/ft^3):	2.6	Z-Comp. Factor-dry:	0.99951
BTU -water vapor sat.(BTU/ft^3):	3.5	Z-Comp. Factor-water vapor sat.:	0.99435
Specific Gravity -dry:	1.0153	14.65 psi Pressure Base	
Specific Gravity-water vapor sat.:	1.0137		

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Sample Matrix: Gas
Sample Type: Spot
Preservative: N/A
Sample Container: Tedlar Bag

Method(s): ASTM D 1945
Gas Analysis by Gas Chromatography

Client: Trace Analysis, Inc.
Project Location: N/A

Sample Id.: Influent #3
Trace: 277393-1
Sample Temp.: N/A
Atmospheric Temp.: N/A
Pressure: N/A
Field Data: N/A
Sample Date: 9/13/11 Time: 8:30 pm
Sampled By: N/A
Analysis Date: 9/23/11
Analysis By: Neil Ray

Lab #: 6871
Quality Control Report: 1671

Analytical Results

Gas Composition				
	Mol %	**GPM**	**Vol %**	**Wt. %**
Nitrogen (N2):	91.4972	10.0139	87.2526	87.3226
Carbon Dioxide (CO2):	8.2511	1.3915	12.2049	12.3445
Hydrocarbon Composition	**Mol %**	**GPM**	**Vol. %**	**Wt. %**
Methane (CH4):	0.1488	0.0253	0.2187	0.0811
Ethane (C2H6):	0.0003	0.0001	0.0007	0.0003
Propane (C3H8):	0.0035	0.0009	0.0082	0.0052
Iso-Butane (C4H10):	0.0108	0.0035	0.0306	0.0213
N-Butane (C4H10):	0.0127	0.0040	0.0346	0.0250
Iso-Pentane (C5H12):	0.0329	0.0120	0.1043	0.0806
N-Pentane (C5H12):	0.0118	0.0043	0.0371	0.0289
Hexane+ (C6H14):	0.0311	0.0134	0.1083	0.0905
Totals	100.0000	11.4688	100.0000	100.0000

Comments - Additional Data

BTU -dry (BTU/ft^3):	5.7	Z-Comp. Factor-dry:	0.99952
BTU -water vapor sat.(BTU/ft^3):	6.5	Z-Comp. Factor-water vapor sat.:	0.99438
Specific Gravity -dry:	1.0140	14.65 psi Pressure Base	
Specific Gravity-water vapor sat.:	1.0123		

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Midwest Precision Testing LLC
135 N Price Rd
Pampa, TX 79065

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Sample Type: Standard
Preservative: N/A
Sample Container: Industrial Cylinder

Sample Id.: DCG
Reference Std. 47366AW
Sample Temp.: 120° F
Analysis Date: 9/23/11
Analysis By: Neil Ray

Method(s): ASTM D 1945
Gas Analysis by Gas Chromatography

Quality Control Report#: 1671

Analytical Results

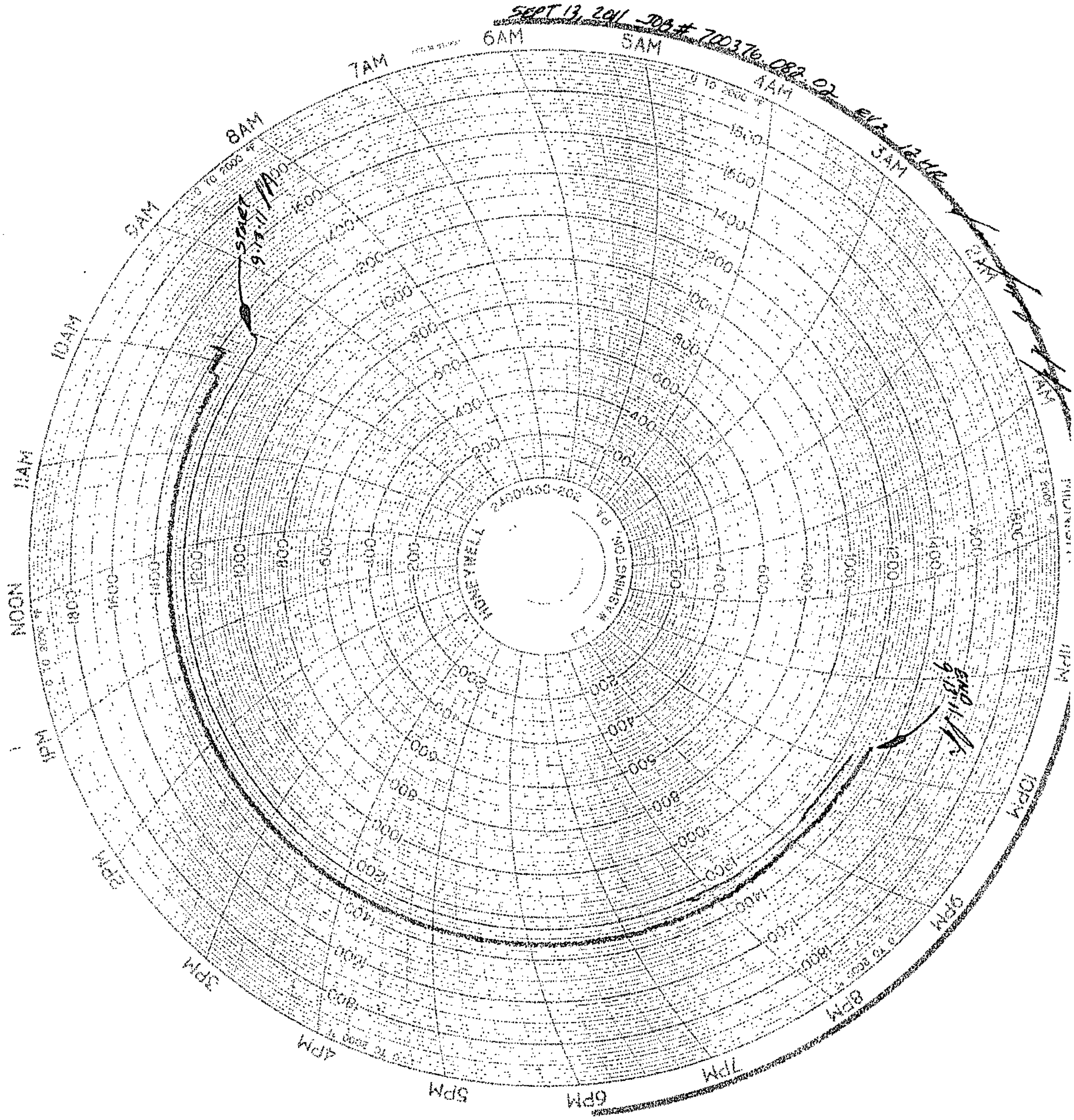
RESULTS	ACTUAL	ANALYSIS			
Gas Composition			**MDL**	**RL**	**% Deviation**
	Mol %	**Mol %**	**Mol %**	**ppm mol**	**(90-100%)**
Nitrogen (N2):	4.926	5.2099	0.0010	10	94.2
Carbon Dioxide (CO2):	1.489	1.4891	0.0010	10	100.0
			MDL	**RL**	**% Deviation**
Hydrocarbon Composition	**Mol %**	**Mol %**	**Mol %**	**ppm mol**	**(90-100%)**
Methane (CH4):	69.955	69.6889	0.0001	1	99.6
Ethane (C2H6):	9.138	9.1455	0.0001	1	99.9
Propane (C3H8):	5.947	5.9399	0.0001	1	99.9
Iso-Butane (C4H10):	3.018	3.0107	0.0001	1	99.8
N-Butane (C4H10):	3.021	3.0006	0.0001	1	99.3
Iso-Pentane (C5H12):	1.001	0.9921	0.0001	1	99.1
N-Pentane (C5H12):	1.007	0.9934	0.0001	1	98.6
Hexane+ (C6H14):	0.498	0.5300	0.0001	1	93.6
Totals	100.000	100.000			

Comments - Additional Data

ACTUAL		ANALYSIS	
BTU -dry (BTU/ft3):	1322.3	BTU -dry (BTU/ft^3):	1319.3
BTU -water vapor sat. (BTU/ft3):	1316.6	BTU -water vapor sat. (BTU/ft^3):	1313.7
Specific Gravity -dry:	0.8337	Specific Gravity -dry:	0.8348
Specific Gravity -water vapor sat.:	0.8406	Specific Gravity -water vapor sat.:	0.8418
Z-Comp. Factor -dry:	0.99565	Z-Comp. Factor -dry:	0.99566
Z-Comp. Factor -water vapor sat.:	0.98309	Z-Comp. Factor -water vapor sat.:	0.98311

ATTACHMENT 3

Oxidizer Charts



SEPT 13, 2011 JOB # 700376.082.02
6AM
5AM
4AM
3AM
7AM
8AM
9AM
10AM
11AM
NOON
1PM
2PM
3PM
4PM
5PM
6PM
7PM
8PM
9PM
10PM
11PM
HONEYWELL
FT. WASHINGTON, PA.
START 9.13.11
END 9.13.11

ATTACHMENT 4

Waste Ticket

S. C. C. 35434
ICC MC #259649

TRANSPORTS
FRAC TANKS
VAC TRUCKS
WINCH TRUCKS

PATE TRUCKING CO.

Denver City(806) 592-2772
Hobbs (575) 397-6264
Levelland(806) 897-1705
Seminole(432) 758-2166

BILL TO: Plains Pipeline

CONTRACT NUMBER:
A F E NUMBER:
REQ OR PURCHASE ORDER NUMBER:

FIELD ORDER NUMBER: 163934
DATE: 9-15-11
ORDERED BY: MIKE

DELIVERED FROM: Location
TO: Disposal
LOCATION: TNM Monument #10
WELL OR RIG NO.:

TRUCK OR UNIT NO.	CAPACITY	AMOUNT HAULED	START TIME AM/PM	END TIME AM/PM	HOURS CHGD
68	130	~~60~~ 60			4

DESCRIPTION	OHR. OBBL.		RATE		AMOUNT	
Provide V/T	4	Hrs.	82	00	328	00
Pull fluid from tank and took it to Disposal. 60 BBLS.		Bbls				
		Bbls				
		KCL				
Job # 700376.082.02	60	Disp	1	30	78	00
SRS # TNM Monument #10		Disp				
		Helper				
		Tank Min				
		Day Rental				
		Chart Recorder				
					400	00

TOP GAUGE BOTTOM GAUGE SET DATE RELEASE DATE

FOR OFFICE USE ONLY

TAX: 27.00

NET TOTAL: 433.00

Thank You

Omar Hernandez
OPERATOR OR DRIVER

SRS # TNM Monument #

Jason Henry 09/22/2011
AUTHORIZED BY: