1R - 2166

REPORTS

DATE:

6-1-11

IR-2166

TALON LPE

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
Fax 210 568.2191

TULSA
9906 East 43rd Street
Suite G
Tulsa, Oklahoma 74146
Phone 918.742 0871
Fax 918 742.0876

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

HOUSTON
3233 West 11th Street
Suite 400
Houston, Texas 77008
Phone 713.861.0081
Fax 713 868.3208

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MOBILE DUAL PHASE EXTRACTION REPORT
DCP PLANT TO LEA STATION 6 INCH SEC. 31 PIPELINE RELEASE
MONUMENT, LEA COUNTY, NEW MEXICO
SRS #.2009-084
TALON/LPE PROJECT # 700376.085.01

PREPARED FOR:

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

PREPARED BY:

TALON/LPE
921 N. BIVINS
AMARILLO, TEXAS 79107

DISTRIBUTION:

COPY 1 - PLAINS MARKETING, L.P. – DENVER CITY
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COPY 3 – NMOCD – SANTA FE
COPY 4 – BASIN ENVIRONMENTAL
COPY 5 - TALON/LPE

June 1, 2011

PLAINS
PIPELINE, L.P.

June 10, 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 Four (4) 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 May 2011:

DCP Plant to Lea Station 6-inch Sec. 31	NMOCD Reference #1R-2166
DCP Plant to Lea Station 6-inch #2	NMOCD Reference #1R-2136
Monument 10	NMOCD Reference #1R-0119
Monument 18	NMOCD Reference #1R-0124

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

Sincerely,

Jason Henry

Jason Henry
Remediation Coordinator
Plains Pipeline, L.P.

Enclosure

RECEIVED OCD
2011 JUN 13 P 1:31

TABLE OF CONTENTS

Section Page

Attachments:

Attachment 1 - MDPE field logs
Attachment 2 - Laboratory Analytical Results
Attachment 3 – Oxidizer Charts

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 from May 4, 2011 to May 5, 2011 at the DCP Plant to Lea Station 6 Inch Sec. 31 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. MW-1 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 **40.92 equivalent gallons of PSH (Total)** were removed during the event. The combined volume of PSH was comprised of approximately **8 gallons of PSH (liquid phase)** and approximately **32.92 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 50.33 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 30,135.50 ppmv for Hydrocarbon Composition. Laboratory analytical results can be found in Attachment 2.

C. Waste Management and Disposition

A cumulative total of 611 gallons of fluid were generated during this event. The fluids were transferred to an on-site storage tank.

II. SYSTEM OPERATION DATA AND MASS RECOVERY CALCULATIONS

Formulae:

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

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

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

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

$$\frac{\text{8.34 lbs}}{\text{gallon water}} \times \text{0.734 average specific gravity of light crude (estimated)} = \frac{\text{6.12 lbs light crude}}{\text{gallon}}$$

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)
13:00	0	79	21	285.79	7.6	52.25	50000	-	11919.75	1.00	11920	43.69	8.53	0.00	0.00
14:00	1	81	21	285.79	7.5	51.81	50000	11919.75	11919.75	1.00	11920	43.52	8.43	8.43	8.43
15:00	1	83	21	285.79	7.4	51.37	50000	-	11919.75	1.00	11920	43.36	8.33	8.33	16.76
16:00	1	85	21	285.79	7.3	50.93	50000	-	11919.75	1.00	11920	43.20	8.23	8.23	24.98
17:00	1	86	21	285.79	7.5	51.58	50000	-	30135.5	1.00	30136	109.03	21.02	21.02	46.00
18:00	1	83	21	285.79	7.5	51.72	50000	-	30135.5	1.00	30136	109.63	21.20	21.20	67.20
19:00	1	80	21	285.79	7.2	50.81	50000	30135.5	30135.5	1.00	30136	110.24	20.94	20.94	88.14
20:00	1	73	21	285.79	5.7	45.51	50000	-	30135.5	1.00	30136	111.69	19.00	19.00	107.14
21:00	1	75	21	285.79	5.1	42.97	50000	-	30135.5	1.00	30136	111.27	17.87	17.87	125.01
22:00	1	72	21	285.79	6.2	47.51	50000	-	26529.75	1.00	26530	98.51	17.49	17.49	142.51
23:00	1	67	21	285.79	6.9	50.35	50000	-	26529.75	1.00	26530	99.45	18.72	18.72	161.23
0:00	1	64	21	285.79	7.5	52.65	50000	26529.75	26529.75	1.00	26530	100.02	19.68	19.68	180.91
1:00	1	62	21	285.79	8.1	54.82	50000	-	26529.75	1.00	26530	100.40	20.57	20.57	201.48
Averages:		76.15	21.00	285.79	7.04	50.33	50000.00						Total	201.48	

PSH Mass Recovered in Vapor Phase = 32.92 gallons

FID maximum Concentration = 50,000 PPM

Ex: Conversion from ppmv to mg/L (light crude)

Measured Conc.	Molecular Wt.	Pressure	Gas Constant	Temp.	Temp.	Conc.
(C_ppmv)	(Grams)	(atm)	(atm.liter/K. mole)	(F)	(K)	(C_mg/l)
11920	90	1	0.0821	79	299.11111	43.68516

% Total Hydrocarbon to mg/m³ to ppmv

% total Hydrocarbon	=	mg/m³	=	ppmv
4.7679%		47,679.00		11919.75
12.0542%		120,542.00		30135.5
10.6119%		106,119.00		26529.75

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)

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

Gallons removed determined at time of pick up

PSH Volume in Gallons=	8
PSH Mass in Pounds=	48.96

Total Hydrocarbon Recovery

PSH Mass Recovered in Vapor Phase =	201.48	lbs
	32.92	gallons
PSH Mass Recovered in Liquid Phase =	48.96	lbs
	8.00	gallons
TOTAL =	**250.44**	**lbs**
	40.92	**gallons**

ATTACHMENT 1

MDPE Field Logs

MDPE FIELD NOTES					
Site Name:	DCP Plant to Lea Station 6in Sec.31			Event #.	1
Location.	Lea County, New Mexico			Arrive at site.	5/4/2011 8:00
Date:	5/4-5/2011				
Job#:	700376 085.01	SRS# :	2009-084	Start Vac:	5/4/2011 13:00
Phase.	MDPE	Unit:	1107	Stop Vac:	5/5/2011 1:00
Onsite Personnel	R.Breeding, M.L Coggins			Leave Site.	5/5/2011 2 00

GAUGING DATA

WELL#	BEFORE			AFTER			COMMENTS
	PSH	GW	PSH-T	PSH	GW	PSH-T	
MW1	84.22	87.30	3.08	-	85.09	-	TD=91
MW2	-	82.50	-	-	82.48	-	TD=95 12
MW3	-	82.81	-	-	82.80	-	TD=95 80
MW4	-	83.85	-	-	83.84	-	TD=93 05
MW5	-	83.48	-	-	83 49	-	TD=99 34
WASTE:	H2O:	603		PSH:	8		TOTAL (GAL): 611

Sample Name	Analysis	Date:	Time:	Comments:
INFLUENT 1	ASTM D 1945	4-May-11	14 00	
INFLUENT 2	ASTM D 1945	4-May-11	19:00	
INFLUENT 3	ASTM D 1945	5-May-11	0.00	
EFFLUENT	TPH/BTEX	4-May-11	19:00	

Notes:	

Start Date 4-May-11

700376.085.01 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) 500GAL	EXHAUST TEMP F	COMMENTS. MW1 VAC (INWC)	PPM	VAC (INHG)	PPM	VAC (INHG)	PPM	VAC (INHG)	PPM	VAC (INHG)	PPM
13 00		100	0.9	0.5	79	7.6	21	50K+	45%	1417	3 9	50K+								
14.00	*	105	0.9	0.25	81	7 5	21	50K+	45%	1419	2.5	50K+								
15:00		105	0 9	0.25	83	7 4	21	50K+	40%	1415	9.4	50K+								
16:00		106	0.9	0.25	85	7 3	21	50K+	36%	1414	13 6	50K+								
17:00		106	0 9	0.25	86	7 5	21	50K+	32%	1412	19 1	50K+								
18:00		104	0.9	0.25	83	7.5	21	50K+	31%	1410	19 4	50K+								
19:00	**	102	0 9	0.25	80	7.2	21	50K+	30%	1414	19 7	50K+								
20:00		96	0.9	0.25	73	5.7	21	50K+	28%	1408	20.6	50K+								
21:00		85	0.9	0.25	75	5.1	21	50K+	24%	1412	19.2	50K+								
22:00		85	0.9	0.25	72	6.2	21	50K+	24%	1410	19.5	50K+								
23:00		86	0.9	0.25	67	6.9	21	50K+	23%	1413	19.8	50K+								
0 00	*	86	0.9	0.25	64	7.5	21	50K+	22%	1417	20.1	50K+								
1 00		84	0.9	0.25	62	8.1	21	50K+	22%	1409	20.4	50K+								

Soil Vacuum Influence

Observation Well	MW5
Extraction Well (EW)	MW1
Distance (ft) to EW	63
Time	In H2O
13 00	0.22
19 00	0 05
0:00	0 07

ATTACHMENT 2

Laboratory Analytical Results

LAB Order ID # 11051704

Page 1 of 1

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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

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

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

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

Company Name:	**Phone #:**
TAlon LPE Amarillo / Plains	866 742 0742
Address: (Street, City, Zip)	**Fax #:**
421 N. Bivins Amarillo TX 79107	
Contact Person:	**E-mail:**
Simon Walshe	swalshe@talonlpe.com
Invoice to: (If different from above)	Plains Jason Henny SRS # 2009-084
Project #:	**Project Name:**
700376.085.01	DCP Plant to Lea station 6in Sec. 31
Project Location (including state):	**Sampler Signature:**
S. of Monument, NM	R. Breeding

ANALYSIS REQUEST

(Circle or Specify Method No.)

SRS# 2009-084

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
0dd07	Influent 1	1	1L			X							X	4May11	1400																		X							
668	Influent 2	1	1L			X							X	4May11	1900																		X							
669	Influent 3	1	1L			X							X	5May11	∞∞																		X							
670	Effluent 1	1	1L			X							X	4May11	1900		X	X																							

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
R. Breeding	Talon LPE	5May11	13:50					INST ____ OBS ____ °C COR ____ °C
								INST ____ OBS ____ °C COR ____ °C
				Brenda Reed	TAL LUB	5/6/11	3:30 pm	INST IR OBS 22.5 °C COR 22.4 °C

LAB USE ONLY

Intact Y N

Headspace Y/N/NA

Log-In-Review MA

REMARKS:

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

Carrier # _____

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

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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 #: 5299-5301

Quality Control #: 1512

Approved by:

Neil Ray

Neil Ray

Date: 5/20/11

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: DCP Plant to Lea Station
Sec. 31
Sample Id.: Influent #1
700376.085.01
Trace: 266667
Sample Temp.: N/A
Atmospheric Temp.: N/A
Pressure: N/A
Field Data: N/A
Sample Date: 5/04/11 Time: 2:00 pm
Sampled By: N/A
Analysis Date: 5/19/11
Analysis By: Andrew Dunn

Lab #: 5299
Quality Control Report: 1512

Analytical Results

Gas Composition				
	Mol %	GPM	Vol %	Wt. %
Nitrogen (N2):	97.9617	10.7209	94.4737	95.4484
Carbon Dioxide (CO2):	0.5069	0.0855	0.7583	0.7743
Hydrocarbon Composition	**Mol %**	**GPM**	**Vol. %**	**Wt. %**
Methane (CH4):	0.2271	0.0386	0.3376	0.1264
Ethane (C2H6):	0.0015	0.0004	0.0034	0.0015
Propane (C3H8):	0.0043	0.0012	0.0103	0.0065
Iso-Butane (C4H10):	0.0186	0.0061	0.0534	0.0375
N-Butane (C4H10):	0.0768	0.0241	0.2125	0.1549
Iso-Pentane (C5H12):	0.1084	0.0394	0.3472	0.2708
N-Pentane (C5H12):	0.1671	0.0603	0.5315	0.4187
Hexane+ (C6H14):	0.9276	0.4004	3.2720	2.7609
Totals	100.0000	11.3768	100.0000	100.0000

Comments - Additional Data

BTU -dry (BTU/ft^3):	64.0	Z-Comp. Factor-dry:	0.99956
BTU -water vapor sat.(BTU/ft^3):	64.1	Z-Comp. Factor-water vapor sat.:	0.99465
Specific Gravity -dry:	0.9953	14.65 psi Pressure Base	
Specific Gravity-water vapor sat.:	0.9936		

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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: DCP Plant to Lea Station
Sec. 31
Sample Id.: Influent #2
700376.085.01
Trace: 266668
Sample Temp.: N/A
Atmospheric Temp.: N/A
Pressure: N/A
Field Data: N/A
Sample Date: 5/04/11 Time: 7:00 pm
Sampled By: N/A
Analysis Date: 5/19/11
Analysis By: Andrew Dunn

Lab #: 5300
Quality Control Report: 1512

Analytical Results

Gas Composition				
	Mol %	GPM	Vol %	Wt. %
Nitrogen (N2):	91.8670	10.0579	82.4771	84.7413
Carbon Dioxide (CO2):	3.9269	0.6625	5.4686	5.6784
Hydrocarbon Composition	**Mol %**	**GPM**	**Vol. %**	**Wt. %**
Methane (CH4):	0.5100	0.0866	0.7058	0.2688
Ethane (C2H6):	0.0628	0.0167	0.1370	0.0620
Propane (C3H8):	0.0620	0.0170	0.1394	0.0897
Iso-Butane (C4H10):	0.0905	0.0295	0.2417	0.1727
N-Butane (C4H10):	0.3466	0.1087	0.8924	0.6615
Iso-Pentane (C5H12):	0.4695	0.1709	1.4007	1.1107
N-Pentane (C5H12):	0.6584	0.2375	1.9494	1.5617
Hexane+ (C6H14):	2.0062	0.8663	6.5878	5.6531
Totals	100.0000	12.2536	100.0000	100.0000

Comments - Additional Data

BTU -dry (BTU/ft^3):	169.8	Z-Comp. Factor-dry:	0.99917
BTU -water vapor sat.(BTU/ft^3):	168.8	Z-Comp. Factor-water vapor sat.:	0.99262
Specific Gravity -dry:	1.0546	14.65 psi Pressure Base	
Specific Gravity-water vapor sat.:	1.0539		

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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: DCP Plant to Lea Station
Sec. 31
Sample Id.: Influent #3
700376.085.01
Trace: 266669
Sample Temp.: N/A
Atmospheric Temp.: N/A
Pressure: N/A
Field Data: N/A
Sample Date: 5/05/11 Time: 3:00 pm
Sampled By: N/A
Analysis Date: 5/19/11
Analysis By: Andrew Dunn

Lab #: 5301
Quality Control Report: 1512

Analytical Results

Gas Composition				
	Mol %	GPM	Vol %	Wt. %
Nitrogen (N2):	93.4327	10.2285	85.0219	86.8692
Carbon Dioxide (CO2):	3.0933	0.5218	4.3662	4.5085
Hydrocarbon Composition	**Mol %**	**GPM**	**Vol. %**	**Wt. %**
Methane (CH4):	0.1837	0.0312	0.2577	0.0976
Ethane (C2H6):	0.0084	0.0022	0.0185	0.0083
Propane (C3H8):	0.0236	0.0065	0.0538	0.0344
Iso-Butane (C4H10):	0.0603	0.0196	0.1633	0.1160
N-Butane (C4H10):	0.2796	0.0877	0.7296	0.5379
Iso-Pentane (C5H12):	0.4093	0.1489	1.2375	0.9759
N-Pentane (C5H12):	0.6098	0.2200	1.8301	1.4580
Hexane+ (C6H14):	1.8993	0.8201	6.3214	5.3942
Totals	100.0000	12.0866	100.0000	100.0000

Comments - Additional Data

BTU -dry (BTU/ft^3):	151.6	Z-Comp. Factor-dry:	0.99925
BTU -water vapor sat.(BTU/ft^3):	150.7	Z-Comp. Factor-water vapor sat.:	0.99298
Specific Gravity -dry:	1.0459	14.65 psi Pressure Base	
Specific Gravity-water vapor sat.:	1.0450		

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806-665-0753
877-788-0750

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

www.mwptlab.com

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

Sample Id.: DCG
Reference Std. 47366AW
Sample Temp.: 120° F
Analysis Date: 5/19/11
Analysis By: Andrew Dunn

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

Quality Control Report#: 1512

Analytical Results

RESULTS	ACTUAL	ANALYSIS			
Gas Composition			MDL	RL	% Deviation
	Mol %	Mol %	Mol %	ppm mol	(90-100%)
Nitrogen (N2):	4.926	4.9317	0.0010	10	99.9
Carbon Dioxide (CO2):	1.489	1.5108	0.0010	10	98.5
			MDL	RL	% Deviation
Hydrocarbon Composition	Mol %	Mol %	Mol %	ppm mol	(90-100%)
Methane (CH4):	69.955	69.9543	0.0001	1	100.0
Ethane (C2H6):	9.138	9.1688	0.0001	1	99.7
Propane (C3H8):	5.947	5.9028	0.0001	1	99.3
Iso-Butane (C4H10):	3.018	3.0089	0.0001	1	99.7
N-Butane (C4H10):	3.021	3.0057	0.0001	1	99.5
Iso-Pentane (C5H12):	1.001	1.0120	0.0001	1	98.9
N-Pentane (C5H12):	1.007	1.0098	0.0001	1	99.7
Hexane+ (C6H14):	0.498	0.4951	0.0001	1	99.4
Totals	100.000	100.000			

Comments - Additional Data

ACTUAL		ANALYSIS	
BTU -dry (BTU/ft3):	1322.3	BTU -dry (BTU/ft^3):	1321.3
BTU -water vapor sat. (BTU/ft3):	1316.6	BTU -water vapor sat. (BTU/ft^3):	1315.6
Specific Gravity -dry:	0.8337	Specific Gravity -dry:	0.8335
Specific Gravity -water vapor sat.:	0.8406	Specific Gravity -water vapor sat.:	0.8404
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.:	0.98310

ATTACHMENT 3

Oxidizer Charts

HONEYWELL
FT. WASHINGTON, PA.
2400/660-202
0 TO 2000 °F
MIDNIGHT
1AM
2AM
3AM
4AM
NOON
1PM
2PM
3PM
4PM
5PM
6PM
7PM
8PM
9PM
10PM
11PM
200
400
600
800
1000
1200
1400
1600
1800

invoice

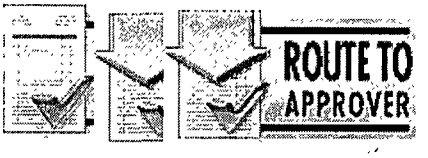
GANDY CORPORATION
P.O. BOX 2140
LOVINGTON, NM 88260
(575) 396-0522 FAX (575) 396-0797
PRC 14225

BILL TO: PLAINS ALL AMERICAN
C/O ENV-00 ACCTS.PAYABLE
P.O. BOX 4648
HOUSTON, TX 77210-4648

LEASE: DCP PLANT TO LEA STATION
SRS 2009-84

PAGE 1

INVOICE DATE		INVOICE NO.	
5/30/11			197386
QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
	05/05/11 WT. 444979		
	JOB 700376-085-01		
4.50	HRS HAZMAT,DOT,COATED VACUUM TRUCK W/OPER	108.00	486.00
14.50	BBLS DISPOSAL FEE	0.85	12.33
	HAULED 14.5 BBLS PRODUCED WATER FROM LOCATION TO DISPOSAL.		
		SUBTOTAL	498.33
		TAX 5.5%	27.41
		INVOICE TOTAL	525.74



Thank You

ORIGINAL

TERMS: Net., Interest of 1 1/2% per month (18% per annum) added to accounts over 90 days.

78529

24-HOUR SERVICE, CALL
LOVINGTON 396-4948
TATUM 398-4960

GANDY CORPORATION

KILL TRUCKS - VACUUM TRUCKS - WINCH TRUCKS
TANK CLEANING - ROUSTABOUTING
PRC #14225

P.O. BOX 2140
LOVINGTON, NEW MEXICO 88260

444979

Date 5/5/11 Plains Pipeline Truck No. 356

Company DCP Plant to Lea Station Purchase Order No. _____ Invoice Number _____

From 6" Section 31 Rig No. _____ Location _____

To Lease SRS 2009-84 Well No. _____ Location _____

	A.M. / P.M.	A.M. / P.M.	TIME	RATE	AMOUNT
Time Out		Time In			
Diesel / Crude Oil	Brine Water / Salt Water	Fresh Water / Acid	Bbls. Hauled 14.5	.85	12.33
Driver, Operator or Pusher Richard G. Lennox			4.80	108.00	486.00
Helper					
Helper					
Helper Job #					
Other Charges 700376.085.01					
603-GAL H2O					
Description of Work: 8-GAL PSH					
611-GAL					
				Sub Total	498.33
				Sales Tax	27.41
Authorized by: M.L. Owens 806-576-3028				TOTAL	525.74

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