

**Gas Analysis**

Lot Number: **965738**  
Report Number: 1866823  
Reference Sample ID: 4560315

Well License No. 10-08-013-28 W1 Operator Prairie Petro-Chem Ltd. Container Identity EX12013/MLFx2  
Location Tundra Oil and Gas 12-09/10-08-013-28 Well Name DT KB Elev, m \_\_\_\_\_ GR Elev, m \_\_\_\_\_  
Field/Area \_\_\_\_\_ Pool/Zone \_\_\_\_\_ Sampler \_\_\_\_\_ Company Prairie Petro

Test Recovery: \_\_\_\_\_  
Test Type: No  
Multiple Recovery: n/a

Test Interval, m \_\_\_\_\_  
Perforations, m \_\_\_\_\_  
Not Identified  
Sample Point \_\_\_\_\_ Meter # / Sample ID \_\_\_\_\_  
Type of Production: Pumping \_\_\_\_\_ Flowing \_\_\_\_\_ Gas Lift \_\_\_\_\_ Swab \_\_\_\_\_  
Production Rates: Water \_\_\_\_\_ m<sup>3</sup>/d Oil \_\_\_\_\_ m<sup>3</sup>/d Gas \_\_\_\_\_ 10<sup>3</sup> m<sup>3</sup>/d

Gauge Pressure, kPa: 65  
Temperature, °C: 20  
Source \_\_\_\_\_ Sampled \_\_\_\_\_ Received \_\_\_\_\_  
Date On \_\_\_\_\_ Date Off \_\_\_\_\_

Date Sampled (Y-M-D): 2013-10-11 Time Sampled \_\_\_\_\_ Date Received (Y-M-D): 2013-10-18 Date Reported (Y-M-D): 2013-10-18  
Other Information \_\_\_\_\_

Comp.	Mole Fraction (Air Free)		Petroleum Liquid Content mL/m <sup>3</sup>
	As Received	Acid Gas Free	
H2	0.0010	0.0010	
He	0.0070	0.0070	
N2	0.8229	0.8263	
CO2	0.0039	0.0000	
H2S	0.0001	0.0000	
C1	0.0050	0.0050	
C2	0.0035	0.0035	12.4
C3	0.0692	0.0694	254.3
iC4	0.0267	0.0268	116.6
nC4	0.0365	0.0367	153.6
iC5	0.0082	0.0082	40.0
nC5	0.0074	0.0074	35.8
C6	0.0043	0.0044	23.6
C7	0.0029	0.0029	17.9
C8	0.0010	0.0010	6.8
C9	0.0003	0.0003	2.2
C10+	0.0001	0.0001	0.8
Total	1.0000	1.0000	664.1

**Gross Heating Value - Moisture Free**  
MJ/m<sup>3</sup> @ 15°C, 101.325 kPa

AGA #5	AGA #5	GPA 2172	Pseudocritical Properties	
As Received	Acid Gas Free	As Received	Pressure, kPa	Temperature, K
18.68	18.75	18.68	3474	171.0

**Density - Moisture Free, As Sampled**

Ideal Gas (AGA #5)		Real Gas (GPA 2172)	
Absolute, kg/m <sup>3</sup>	Relative	Absolute, kg/m <sup>3</sup>	Relative
1.358	1.109	1.360	1.110

Relative Molecular Mass		Hydrogen Sulfide	Vapour Pressure
Total Gas	C7+	g/m <sup>3</sup>	Pentanes Plus, kPa
32.12	106.40	0.11	89

• H2S was determined by GC/SCD: 78.3 ppm (mol/mol)  
• H2S analysis was corrected for 9 % air content.

*S Montgomery*

Approved by:

Sara Montgomery, B.Sc  
Quality Officer

Note: Physical constants used in calculations from GPA Standard 2145-09

## Methodology and Notes

Bill To: Prairie Petro-Chem Ltd.	Project:	Lot ID: <b>965738</b>
Report To: Prairie Petro-Chem Ltd.	ID:	Control Number:
738 - 6 Street	Name: Tundra Oil and Gas 10-8-13-28	Date Received: Oct 18, 2013
Estevan, SK, Canada	Location: 12-09/10-08-013-28	Date Reported: Oct 18, 2013
S4A 1A4	LSD: 10-08-013-28 W1	Report Number: 1866823
Attn: Accounts Payable	P.O.:	
Sampled By: DT	Acct code:	
Company: Prairie Petro		

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## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Natural Gas - C7/10 Composition	GPA	* Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography, 2261-00	18-Oct-13	Exova Edmonton
Natural Gas - C7/10 Composition	GPA	Calculation of Gross Heating Value, Relative Density and Compressibility Factor for Natural Gas Mixtures from Compositional Analysis, 2172-09	18-Oct-13	Exova Edmonton
Total Reduced Sulfur Analysis of Natural Gas	ASTM	* Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, D 5504-08	18-Oct-13	Exova Edmonton

\* Reference Method Modified

## References

ASTM	Annual Book of ASTM Standards
GPA	Gas Processors Association

## Comments:

- Sample 965738-1; 4560315 H2S was determined by GC/SCD: 78.3 ppm (mol/mol)
- Sample 965738-1; 4560315 H2S analysis was corrected for 9 % air content.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

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## Report Transmission Cover Page

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Contact & Affiliation	Address	Delivery Commitments
Jocelyn Griffin Prairie Petro-Chem Ltd.	738 - 6 Street Estevan, Saskatchewan S4A 1A4 Phone: (306) 634-5808 Fax: (306) 634-6694 Email: ppc.lab@clariant.com	On [Lot Verification] send (COA) by Email - Single Report On [Report Approval] send (COC, Test Report) by Email - Merge Reports On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report
Accounts Payable Prairie Petro-Chem Ltd.	738 - 6 Street Estevan, Saskatchewan S4A 1A4 Phone: (306) 634-5808 Fax: (306) 634-6694 Email: ppc.payables@clariant.com	On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report

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### Notes To Clients:

- Sample 965738-1; 4560315 H2S was determined by GC/SCD: 78.3 ppm (mol/mol)
- Sample 965738-1; 4560315 H2S analysis was corrected for 9 % air content.

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