

## **ANALYTICAL REPORT**

Petroglyph Operating Co., Inc.

Raton Basin (Colorado)

**Lot #: D8B260200**

Tom Melland

Petroglyph  
P.O. Box 979  
124 N Main St  
LaVeta, CO 81055

TestAmerica DENVER

  
Danielle Fougere  
Project Manager

March 10, 2008

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#### ***Standard Deliverables***

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## **Case Narrative**

### **Lot #: D8B260200**

The following report contains the analytical results for two water samples submitted to TestAmerica Denver by Petroglyph Operating Company. The samples were received on February 26, 2008, according to documented sample acceptance procedures.

This report may include data with reporting limits (RLs) less than TestAmerica's standard reporting limit. These data and reporting limits are being used specifically to meet the needs of this project. Note that, data are not customarily reported to these levels without qualifiers, because they are inherently less reliable and potentially less defensible than the latest industry standards require.

Denver utilizes USEPA approved methods in all analytical work. The sample presented in this report was analyzed for the parameters listed on the methods summary page in accordance with the methods indicated. A summary of QC data for these analyses is included.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. The results relate only to the samples in this report. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

## **SUPPLEMENTAL QC INFORMATION**

### **Sample Arrival and Receipt**

The sample containers were received in acceptable condition. The temperature of the cooler upon receipt was 2.6°C.

No anomalies were observed.

### **Dissolved Methane – Method RSK SOP-175**

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to analytes present above the linear calibration curve, sample HOPKE, B. WW had to be analyzed at a dilution. The reporting limits have been adjusted relative to the dilution required.

The method required MS/MSD could not be performed for QC batch 8067260, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

No other anomalies were observed.

## EXECUTIVE SUMMARY - Detection Highlights

D8B260200

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
<b>HOUGHTLING, J.WW 02/25/08 14:54 001</b>				
Methane	9.2	5.0	ug/L	RSK SOP-175
<b>HOPKE, B.WW 02/25/08 15:12 002</b>				
Methane	5900	50	ug/L	RSK SOP-175

## METHODS SUMMARY

D8B260200

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Dissolved Gases in Water	RSK SOP-175	RSK RSKSOP-175

### References:

RSK      Sample Prep and Calculations for Dissolved Gas Analysis  
         in Water Samples Using a GC Headspace Equilibration  
         Technique, RSKSOP-175, REV. 0, 8/11/94, USEPA Research Lab

## METHOD / ANALYST SUMMARY

D8B260200

ANALYTICAL METHOD	ANALYST	ANALYST ID
RSK SOP-175	Adam Pavlakovich	003128

### References:

RSK      Sample Prep and Calculations for Dissolved Gas Analysis  
in Water Samples Using a GC Headspace Equilibration  
Technique, RSKSOP-175, REV. 0, 8/11/94, USEPA Research Lab

## SAMPLE SUMMARY

D8B260200

WO #	SAMPLE#	CLIENT	SAMPLE ID	SAMPLED DATE	SAMP TIME
KHMGX	001	HOUGHTLING, J.WW		02/25/08	14:54
KHMHA	002	HOPKE, B.WW		02/25/08	15:12

### NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Petroglyph

Client Sample ID: HOUGHTLING, J.WW

GC Volatiles

Lot-Sample #...: D8B260200-001    Work Order #...: KHMGX1AA    Matrix.....: WATER  
Date Sampled...: 02/25/08 14:54    Date Received...: 02/26/08  
Prep Date.....: 03/06/08    Analysis Date...: 03/06/08  
Prep Batch #...: 8067260    Analysis Time...: 11:18  
Dilution Factor: 1  
Method.....: RSK SOP-175

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Methane	9.2	5.0	ug/L	0.22



Petroglyph

Client Sample ID: HOPKE, B.WW

GC Volatiles

Lot-Sample #...: D8B260200-002    Work Order #...: KHMHA1AA    Matrix.....: WATER  
Date Sampled...: 02/25/08 15:12    Date Received...: 02/26/08  
Prep Date.....: 03/06/08    Analysis Date...: 03/06/08  
Prep Batch #...: 8067260    Analysis Time...: 15:10  
Dilution Factor: 10  
Method.....: RSK SOP-175

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Methane	5900	50	ug/L	2.2

## QC DATA ASSOCIATION SUMMARY

D8B260200

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	RSK SOP-175		8067260	
002	WATER	RSK SOP-175		8067260	

**METHOD BLANK REPORT**

**GC Volatiles**

**Client Lot #...** D8B260200  
**MB Lot-Sample #:** D8C070000-260

**Work Order #...** KH7NH1AA

**Matrix.....:** WATER

**Analysis Date...** 03/06/08  
**Dilution Factor:** 1

**Prep Date.....:** 03/06/08

**Analysis Time...** 10:38

**Prep Batch #...** 8067260

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Methane	ND	5.0	ug/L	RSK SOP-175

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #...: D8B260200      Work Order #...: KH7NH1AC      Matrix.....: WATER  
 LCS Lot-Sample#: D8C070000-260  
 Prep Date.....: 03/06/08      Analysis Date...: 03/06/08  
 Prep Batch #...: 8067260      Analysis Time...: 10:28  
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
<b>Ethane</b>	<b>105</b>	<b>(75 - 125)</b>	<b>RSK SOP-175</b>
<b>Ethene</b>	<b>98</b>	<b>(75 - 125)</b>	<b>RSK SOP-175</b>
<b>Methane</b>	<b>105</b>	<b>(75 - 125)</b>	<b>RSK SOP-175</b>
<b>Acetylene</b>	<b>104</b>	<b>(75 - 125)</b>	<b>RSK SOP-175</b>

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Volatiles

Client Lot #...: D8B260200      Work Order #...: KH7NH1AC      Matrix.....: WATER  
 LCS Lot-Sample#: D8C070000-260  
 Prep Date.....: 03/06/08      Analysis Date...: 03/06/08  
 Prep Batch #...: 8067260      Analysis Time...: 10:28  
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
<b>Ethane</b>	<b>137</b>	<b>144</b>	<b>ug/L</b>	<b>105</b>	<b>RSK SOP-175</b>
<b>Ethene</b>	<b>127</b>	<b>124</b>	<b>ug/L</b>	<b>98</b>	<b>RSK SOP-175</b>
<b>Methane</b>	<b>73.0</b>	<b>76.5</b>	<b>ug/L</b>	<b>105</b>	<b>RSK SOP-175</b>
<b>Acetylene</b>	<b>118</b>	<b>123</b>	<b>ug/L</b>	<b>104</b>	<b>RSK SOP-175</b>

### **NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# Chain of Custody Record

4124 (0907)

Temperature on Receipt 2.0°C  
12.1 m

# TestAmerica

Drinking Water? Yes ☒ No ☐ State of the Leader in Environmental Testing

Client <b>Petroglyph Energy</b>		Project Manager <b>Tom Holland</b>		Date <b>2/25/08</b>		Chain of Custody Number <b>407741</b>	
Address <b>124 N Main P.O. Box 979</b>		Telephone Number (Area Code)/Fax Number <b>719-742-5570</b>		Lab Number		Page <u>1</u> of <u>1</u>	
City <b>La Veta</b>	State <b>CO</b>	Zip Code <b>81055</b>	Site Contact <b>Kenneth Quast</b>	Lab Contact <b>Michelle Tinsler</b>	Analysis (Attach list if more space is needed)		
Project Name and Location (State) <b>Raton Basin, CO</b>			Special Instructions/ Conditions of Receipt				
Contract/Purchase Order/Quote No.							

  

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives					Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH			
Houghtling, S. WW	2/25/08	14:54													
Hoppe, B. WW	2/25/08	15:12													

  

Possible Hazard Identification		Sample Disposal		QC Requirements (Specify)	
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Poison B	<input checked="" type="checkbox"/> Unknown	<input type="checkbox"/> Return To Client
Turn Around Time Required		1. Relinquished By <u>Michael G. Barrett</u>		2. Received By <u>[Signature]</u>	
<input type="checkbox"/> 24 Hours	<input type="checkbox"/> 48 Hours	<input type="checkbox"/> 7 Days	<input type="checkbox"/> 14 Days	<input type="checkbox"/> 21 Days	<input checked="" type="checkbox"/> Other <u>Routine</u>
3. Relinquished By		Date <u>2/25/08</u>		Time <u>18:00</u>	
Comments		Date		Time	

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy