



EA03-005  
Paramount Undertakings

4700 Bankers Hall West, 888 3rd Street SW Calgary, Alberta, Canada T2P 5C5 www.paramountres.com  
tel 403 290 3600 fax 403 262 799

March 8, 2004

Mackenzie Valley Environmental Impact Review Board  
Box 938  
5102 - 50 Avenue  
Yellowknife, NT  
X1A 2N7

**Attention: Kimberley Cliffe-Phillips**

Dear Ms. Cliffe-Phillips:

**Re: Environmental Assessment EA03-005  
Undertakings from February 17 - 19, 2004 Hearing**

With reference to the subject environmental assessment, we are pleased to be given the opportunity to submit Paramount Resources Ltd.'s Undertakings from the February 17 - 19, 2004 Hearing.

As per Paramount's commitment, please find attached:

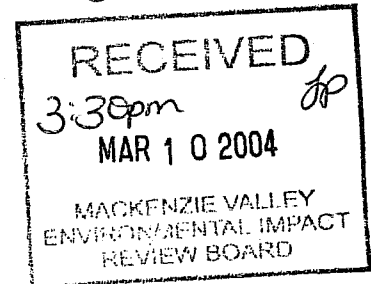
- Undertaking to Provide Failure Statistics
- Gas Analyses Reports

One copy only of each of the above-mentioned reports is being submitted to the MVEIRB for their public registry.

Please contact Lloyd Doyle at (403) 290-3673 should you require further information.

Yours truly,  
PARAMOUNT RESOURCES LTD.

Lloyd Doyle  
Corporate Operating Officer



## Undertaking to Provide Failure Statistics

As requested by the KTFN, Paramount has reviewed the spill statistics provided by Paramount in its response to IR 1.2.102 and calculated the failure statistics for Paramount Cameron Hills to compare with those for the industry as a whole, that were reported in Sections 8.2.2 and 8.2.3 of the Developer's Assessment Report.

Firstly, the KTFN has requested pipeline failure statistics and facility spill statistics specific to Paramount's Cameron Hills operation. They are:

### **A) Pipeline failures, for the two years 2002 and 2003**

#### **For 2002:**

- Total length of pipeline associated with the operation at Cameron Hills is 103.5 km
- One pipeline failure occurred

Calculated Failure Rate for Paramount Cameron Hills

$$= 1/103.5$$

$$= 96.6 * 10^{-4}$$

(which is approximately 10 times the industry average in Alberta between 1998 and 2000)

#### **For 2003:**

- Total length of pipeline associated with the operation at Cameron Hills is 115.9 km
- One pipeline failure occurred

Calculated Failure Rate for Paramount Cameron Hills

$$= 1/115.9$$

$$= 86.3 * 10^{-4}$$

(which is approximately 10 times the industry average in Alberta between 1998 and 2000)

### **B) Facility Spills**

The statistics in the Developer's Assessment Report are as reported by the Alberta Energy and Utilities Board (AEUB). The AEUB's statistics are quoted based on the AEUB's definition of facilities. On that basis, only 18 of the 38 reported spills occurred at "facilities". Of those 18, only one met the volume threshold to be included in AEUB statistics, so on a comparative basis:

Comparative Spill Frequency for Paramount Cameron Hills:

$$\frac{1 \text{ spill}}{7 \text{ facilities} * 2 \text{ years}}$$

= 7.14% (which is approximately 3 ½ times the industry average)

It must be noted that the above statistics represent the findings from the first years of operation of a new installation, which are typically more incident prone. Industry statistics are for the entire lifetime of those pipelines. There are no comparable statistics for the initial years of those pipelines and therefore these comparisons likely overestimate the comparison to the industry averages. Paramount, through its adaptive management approach investigates and reports unplanned events, and undertakes formal efforts to prevent recurrence.

EA03-005

Paramount Resources Ltd.  
Undertakings from  
Feb. 17 – 19 Hearings  
Gas Analyses Reports



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## GAS ANALYSIS

Container Identification AGAT 19276		Laboratory Number GE09435A	
Operator Name PARAMOUNT RESOURCES LTD.			
Unique Well Identifier NOT AVAILABLE		Well Name PARA et al CAMERON J-37	
Field or Area CAMERON		Elevation KB m 729.40 GRD m 725.70	
Pool or Zone SULPHUR POINT		Sampler's Company SOLID PRODUCTION SERVICES	
Test Type	Test No.	Test Recovery	
Test Interval or Perfs 1393.0-1395.5 mKB		Sampling Point METER RUN	
Date Sampled Mar 25, 2002		Date Received Apr 02, 2002	
Date Reported Apr 08, 2002		Entered By GE	
Date Reported		Certified By ES	
Other Information LAB H2S = 0.85% LOCATION: 60°10'N 117°30'W			

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WebFLUIDs, a comparison, history and trending analysis system.

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0011	0.0012	
He	0.0009	0.0010	
N2	0.0170	0.0182	
CO2	0.0568	0.0000	
H2S	0.0085	0.0000	
C1	0.8902	0.9524	
C2	0.0133	0.0142	
C3	0.0071	0.0076	26.1
IC4	0.0011	0.0012	4.8
NC4	0.0023	0.0025	9.7
IC5	0.0006	0.0006	2.9
NC5	0.0006	0.0006	2.9
C6	0.0005	0.0005	2.7
C7+	0.0000	0.0000	0.0
Total	1.0000	1.0000	49.1

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.10	38.36

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.642	0.584

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4767	201.2	4570	193.3

RELATIVE MOLECULAR MASS

Total Gas	C <sub>7</sub> <sup>+</sup>
18.6	0.0

VAPOUR PRESSURE (Pentanes +)

97.71 kPa

H<sub>2</sub>S g/m<sup>3</sup>

12.23





CALGARY

EDMONTON

GRANDE PRAIRIE

**CH I Laboratories**



### GAS ANALYSIS

LABORATORY NUMBER  
**GR1651B**

CONTAINER IDENTIFICATION  
**AGAT 18325**

OPERATOR NAME  
**PARAMOUNT RESOURCES LTD.** \*\*\*\*\*

UNIQUE WELL IDENTIFIER  
 WELL NAME  
**PARAMOUNT et al CAMERON M-73**

FIELD OR AREA  
**CAMERON**

POOL OR ZONE  
**SULPHUR POINT**

NAME OF SAMPLER  
 COMPANY  
**NORTHLAND**

TEST TYPE  
 NO  
 TEST RECOVERY

TEST INTERVAL OR PERFS  
**1415.5-1420.5**  
 mKB

SAMPLING POINT  
**METER RUN**

SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
			1340	1340	1340
GAUGE PRESSURE kPa			28	28	22
TEMPERATURE °C					

DATE SAMPLED (Y-M-D) **91-03-24** DATE RECEIVED (Y-M-D) **91-04-15** DATE REPORTED (Y-M-D) **91-04-16**

ANALYST **HU** OTHER INFORMATION **60 10<sup>1</sup> N 117 15<sup>1</sup> W**

COMP.	MOLE FRACTION		PETROLEUM LIQUID CONTENT mL · m <sup>-3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0005	0.0005	
He	0.0008	0.0008	
N <sub>2</sub>	0.0306	0.0321	
CO <sub>2</sub>	0.0403	0.0000	
H <sub>2</sub> S	0.0073	0.0000	
C <sub>1</sub>	0.8908	0.9355	
C <sub>2</sub>	0.0158	0.0166	
C <sub>3</sub>	0.0074	0.0077	27.1
IC <sub>4</sub>	0.0012	0.0012	5.0
NC <sub>4</sub>	0.0022	0.0023	9.2
IC <sub>5</sub>	0.0007	0.0008	3.5
NC <sub>5</sub>	0.0007	0.0008	3.6
C <sub>6</sub>	0.0008	0.0008	4.2
C <sub>7+</sub>	0.0009	0.0009	5.7
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10+</sub>			
TOTAL	1.0000	1.0000	58.3

GROSS HEATING VALUE MJm<sup>-3</sup>  
 15° C AND 101.325 kPa

MOISTURE AND ACID GAS FREE

MEASURED  
 ACTUAL GROSS HEATING VALUE: **36.55**

CALCULATED  
**38.19**

DETERMINED DEW POINT  
 °C

VAPOUR PRESSURE PENTANES PLUS  
**69.1** kPa

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED

MEASURED  
 CALCULATED  
**0.636**

MOISTURE AND ACID GAS FREE

MEASURED  
 CALCULATED  
**0.595**

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED

pPc (abs) **4701** kPa

pTc **199.1** K

ACID GAS FREE

pPc (abs) **4555** kPa

pTc **193.4** K

RELATIVE MOLECULAR MASS

TOTAL GAS

**18.4**      **105.8** (C<sub>7+</sub>)

H<sub>2</sub>S g/m<sup>3</sup> **10.48**

REMARKS:

LAB H<sub>2</sub>S = .73%; FIELD NOT GIVEN



<b>Container Identification</b>
AGAT 20724

<b>Laboratory Number</b>
G47268B

<b>Operator Name</b>
PARAMOUNT RESOURCES LTD.

<b>Unique Well Identifier</b>	<b>Well Name</b>	<b>Elevation</b>
Not Available		KB m      GRD m

<b>Field or Area</b>	<b>Pool or Zone</b>	<b>Sampler's Company</b>
NWT	SULPHUR POINT	SAME

<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>	<b>Name of Sampler</b>
			DR

<b>Test Interval or Perfs</b>	<b>Sampling Point</b>	<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>	<b>Sampled</b>	<b>Received</b>
	SEPARATOR	1700		1700		1500
		Pressure (kPa)				
		Temperature (°C)	5	5		21

<b>Date Sampled</b>	<b>Date Received</b>	<b>Date Reported</b>	<b>Analyst</b>
Jan 17, 2000	Jan 20, 2000	Jan 25, 2000	PL

<b>Other Information</b>
M-73      LAB H2S = 1.01%

COMP	MOLE FRACTION		PETROLEUM LIQUID mL · m <sup>-3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
I2	0.0001	0.0001	
He	0.0007	0.0007	
N2	0.0181	0.0191	
CO2	0.0416	0.0000	
H2S	0.0101	0.0000	
C1	0.9005	0.9497	
C2	0.0165	0.0174	
C3	0.0075	0.0079	27.5
IC4	0.0012	0.0013	5.2
NC4	0.0021	0.0022	8.8
IC5	0.0006	0.0006	2.9
NC5	0.0005	0.0005	2.4
C6	0.0004	0.0004	2.2
C7+	0.0001	0.0001	0.6
Total	1.0000	1.0000	49.6

**GROSS HEATING VALUE MJ/m<sup>3</sup>**  
15° C AND 101.325 kPa

<b>Air Free As Received</b>	<b>Moisture &amp; Acid Gas Free</b>
36.74	38.46

**RELATIVE DENSITY (CALCULATED)**

<b>Moisture Free</b>	<b>Moisture &amp; Acid Gas Free</b>
0.631	0.586

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4736	200.3	4574	193.9

**RELATIVE MOLECULAR MASS**

<b>Total Gas</b>	<b>C7+</b>
18.3	100.2

**VAPOUR PRESSURE (Pentanes +)**

95.66 kPa
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**H<sub>2</sub>S g/m<sup>3</sup>**

14.53
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<b>Container Identification</b> AGAT 17677		<b>Laboratory Number</b> GE09422A				
<b>Operator Name</b> PARAMOUNT RESOURCES						
<b>Unique Well Identifier</b> NOT AVAILABLE		<b>Well Name</b> PARA et al CAMERON H-03			<b>Elevation</b> KB m 768.97 GRD m 764.50	
<b>Field or Area</b> CAMERON		<b>Pool or Zone</b> SULPHUR POINT		<b>Sampler's Company</b> SOLID PRODUCTION SERVICES		
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>			<b>Name of Sampler</b>	
<b>Test Interval or Perfs</b> 1421.0-1426.0 mKB		<b>Sampling Point</b> METER RUN		<b>Separator</b>	<b>Reservoir</b>	<b>Source</b> 138
				<b>Pressure (kPa)</b>		<b>Sampled</b> 138
				<b>Temperature (°C)</b>		<b>Received</b> 21
<b>Date Sampled</b> Mar 29, 2002		<b>Date Received</b> Apr 02, 2002		<b>Date Reported</b> Apr 08, 2002		<b>Entered By</b> GE
						<b>Certified By</b> ES
<b>Other Information</b> FIELD H2S = 2%/LAB = 0.34%						

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
N <sub>2</sub>	0.0001	0.0001	
He	0.0001	0.0001	
N <sub>2</sub>	0.0884	0.0979	
CO <sub>2</sub>	0.0768	0.0000	
H <sub>2</sub> S	0.0200	0.0000	
C <sub>1</sub>	0.7365	0.8155	
C <sub>2</sub>	0.0312	0.0345	
C <sub>3</sub>	0.0225	0.0249	82.6
IC <sub>4</sub>	0.0043	0.0048	18.8
NC <sub>4</sub>	0.0106	0.0117	44.6
IC <sub>5</sub>	0.0031	0.0034	15.2
NC <sub>5</sub>	0.0027	0.0030	13.1
C <sub>6</sub>	0.0022	0.0024	12.1
C <sub>7+</sub>	0.0015	0.0017	9.3
Total	1.0000	1.0000	195.7

**NOTE: The following have exceeded normal limits: N<sub>2</sub>**

**GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa**

Air Free As Received	Moisture & Acid Gas Free
35.92	39.20

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free
0.756	0.682

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4773	211.1	4457	199.5

**RELATIVE MOLECULAR MASS**

Total Gas	C <sub>7+</sub>
21.9	101.1

**VAPOUR PRESSURE**

86.12 kPa

**H<sub>2</sub>S g/m<sup>3</sup>**

28.77







<b>Container Identification</b> AGAT 21884		<b>Laboratory Number</b> GE07658A				
<b>Operator Name</b> PARAMOUNT RESOURCES LTD.						
<b>Unique Well Identifier</b> 300N286010117300		<b>Well Name</b> PARA et al CAMARON 300N286010117300			<b>Elevation</b>	
		KB m 764.40		GRD m 760.10		
<b>Field or Area</b> CAMERON		<b>Pool or Zone</b> SLAVE POINT		<b>Sampler's Company</b> SOLID PRODUCTION SERVICES		
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>			<b>Name of Sampler</b>	
<b>Test Interval or Perfs</b> 1353.0-1361.5 mKB		<b>Sampling Point</b> SEPARATOR METER RUN		<b>Separator</b> Pressure (kPa) 352 Temperature (°C) 25	<b>Reservoir</b>	<b>Source</b> 352 25
				<b>Sampled</b>	<b>Received</b> 400 21	
<b>Date Sampled</b> Mar 05, 2002		<b>Date Received</b> Mar 12, 2002		<b>Date Reported</b> Mar 21, 2002		<b>Entered By</b> GE
				<b>Certified By</b> ES		
<b>Other Information</b> FIELD H2S = 3000 ppm/LAB = ND						

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0000	0.0000	
He	0.0010	0.0010	
N2	0.0263	0.0270	
CO2	0.0222	0.0000	
H2S	0.0030	0.0000	
C1	0.9187	0.9425	
C2	0.0150	0.0154	
C3	0.0073	0.0075	26.8
IC4	0.0011	0.0011	4.8
NC4	0.0024	0.0025	10.1
IC5	0.0008	0.0008	3.9
NC5	0.0008	0.0008	3.9
C6	0.0007	0.0007	3.8
C7+	0.0007	0.0007	4.4
Total	1.0000	1.0000	57.7

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
37.41	38.29

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.614	0.591

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4637	196.5	4561	193.5

RELATIVE MOLECULAR MASS

Total Gas	C7+
17.8	102.2

VAPOUR PRESSURE

76.56 kPa

H<sub>2</sub>S g/m<sup>3</sup>

4.32



Container Identification		AGAT 18131		Laboratory Number		03GG50421B			
Operator Name PARAMOUNT RESOURCES									
Unique Well Identifier		Well Name				Elevation			
N-28						KB m   GRD m			
Field or Area		Pool or Zone		Sampler's Company					
CAMERON HILLS		SULPHUR POINT		AGAT/GRANDE PRAIRIE					
Test Type	Test No.	Test Recovery				Name of Sampler			
Test Interval or Perfs		Sampling Point		Separator	Reservoir	Source	Sampled	Received	
		METER RUN		Pressure (kPa)		1379	1379	1200	
				Temperature		5	5	21	
Date Sampled		Date Received		Date Reported		Entered By		Certified By	
Jul 03, 2003		Jul 07, 2003		Jul 23, 2003		NV		ES	
Other Information FIELD H2S = 1.36%									

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0027	0.0029	
He	0.0007	0.0007	
N2	0.0169	0.0181	
CO2	0.0518	0.0000	
H2S	0.0136	0.0000	
C1	0.8864	0.9487	
C2	0.0148	0.0158	
C3	0.0072	0.0077	26.4
IC4	0.0011	0.0012	4.8
NC4	0.0021	0.0022	8.8
IC5	0.0006	0.0006	2.9
NC5	0.0006	0.0006	2.9
C6	0.0005	0.0005	2.7
C7	0.0005	0.0005	3.1
C8	0.0005	0.0005	3.4
C9	0.0000	0.0000	0.0
C10+	0.0000	0.0000	0.0
Total	1.0000	1.0000	55.0

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free	C7+, Air Free As Received
36.40	38.55	0.22

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free	C7+, Moisture Free
0.643	0.586	0.004

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4770	201.9	4564	193.6

RELATIVE MOLECULAR MASS

Total Gas	C7+
18.6	107.2

VAPOUR PRESSURE  
(Pentanes +)

64.28 kPa

H2S g/m<sup>3</sup>

19.56

*GAS = 70.06 t<sup>3</sup>m<sup>3</sup>/d*  
*WATER = 1.99 m<sup>3</sup>/d*  
*typically no condensate.*



Container Identification		AGAT 21406		Laboratory Number		03GG50421D			
Operator Name									
PARAMOUNT RESOURCES									
Unique Well Identifier		Well Name				Elevation			
H-58						KB m   GRD m			
Field or Area		Pool or Zone		Sampler's Company					
CAMERON HILLS		SULPHUR POINT		AGAT/GRANDE PRAIRIE					
Test Type	Test No.	Test Recovery				Name of Sampler			
Test Interval or Perfs		Sampling Point		Separator	Reservoir	Source	Sampled	Received	
		METER RUN				2000	2000	1600	
				Pressure (kPa)					
				Temperature		11	11	21	
Date Sampled		Date Received		Date Reported		Entered By		Certified By	
Jul 03, 2003		Jul 07, 2003		Jul 23, 2003		NV		ES	
Other Information									
FIELD H2S = 1.36%									

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0000	0.0000	
He	0.0007	0.0007	
N2	0.0506	0.0541	
CO2	0.0517	0.0000	
H2S	0.0136	0.0000	
C1	0.8561	0.9161	
C2	0.0144	0.0154	
C3	0.0069	0.0074	25.3
IC4	0.0011	0.0012	4.8
NC4	0.0025	0.0027	10.5
IC5	0.0007	0.0007	3.4
NC5	0.0007	0.0007	3.4
C6	0.0006	0.0006	3.3
C7	0.0004	0.0004	2.5
C8	TRACE	TRACE	0.0
C9	0.0000	0.0000	0.0
C10+	0.0000	0.0000	0.0
Total	1.0000	1.0000	53.2

Exceeds normal limits:  
N2

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free	C7+, Air Free As Received
35.13	37.19	0.08

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free	C7+, Moisture Free
0.657	0.602	0.001

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4738	200.0	4531	191.6

RELATIVE MOLECULAR MASS

Total Gas	C7+
19.0	100.2

VAPOUR PRESSURE  
(Pentanes +)

82.84 kPa	H2S g/m <sup>3</sup> 19.56
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GAS RATE = 24.9 E<sup>3</sup> m<sup>3</sup>/d

0.94 m<sup>3</sup>/d water

0.73 m<sup>3</sup>/d condensate

NEW WELL IN 2003.




<b>Container Identification</b> AGAT 21692		<b>Laboratory Number</b> GE09429A				
<b>Operator Name</b> PARAMOUNT RESOURCES LTD.						
<b>Unique Well Identifier</b> NOT AVAILABLE		<b>Well Name</b> PARA et al CAMERON C-50			<b>Elevation</b> KB m 692.70   GRD m 688.40	
<b>Field or Area</b> CAMERON		<b>Pool or Zone</b> SULPHUR POINT		<b>Sampler's Company</b> SOLID PRODUCTION SERVICES		
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>			<b>Name of Sampler</b>	
<b>Test Interval or Perfs</b>		<b>Sampling Point</b> METER RUN		<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>
				Pressure (kPa)		662
				Temperature		-5
						900
						21
<b>Date Sampled</b> Mar 24, 2002		<b>Date Received</b> Apr 02, 2002		<b>Date Reported</b> Apr 08, 2002		<b>Entered By</b> GE
						<b>Certified By</b> ES
<b>Other Information</b> LAB H2S = 0.43%    LOCATION: 60°10'N 117°30'W						

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone Information was unavailable at time of reporting. This Information is integral to AGAT's WebFLUIDs, a comparison, history and trending analysis system

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0013	0.0014	
He	0.0009	0.0010	
N2	0.0188	0.0200	
CO2	0.0534	0.0000	
H2S	0.0043	0.0000	
C1	0.8948	0.9496	
C2	0.0146	0.0155	
C3	0.0066	0.0070	24.2
IC4	0.0010	0.0011	4.4
NC4	0.0021	0.0022	8.8
IC5	0.0006	0.0006	2.9
NC5	0.0005	0.0005	2.4
C6	0.0006	0.0006	3.3
C7+	0.0005	0.0005	3.2
Total	1.0000	1.0000	49.2

**GROSS HEATING VALUE MJ/m<sup>3</sup>**  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.28	38.35

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free
0.638	0.585

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4736	200.1	4567	193.3

**RELATIVE MOLECULAR MASS**

Total Gas	C <sub>7</sub> +
18.5	103.0

**VAPOUR PRESSURE (Pentanes +)**

74.37 kPa

**H<sub>2</sub>S g/m<sup>3</sup>**

6.19



<b>Container Identification</b>		<b>Laboratory Number</b>			
AGAT 4092		03GG50421C			
<b>Operator Name</b>					
PARAMOUNT RESOURCES					
<b>Unique Well Identifier</b>		<b>Well Name</b>		<b>Elevation</b>	
C-50				KB m	GRD m
<b>Field or Area</b>		<b>Pool or Zone</b>		<b>Sampler's Company</b>	
CAMERON HILLS		SULPHUR POINT		AGAT/GRANDE PRAIRIE	
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>			<b>Name of Sampler</b>
<b>Test Interval or Perfs</b>		<b>Sampling Point</b>		<b>Separator</b>	<b>Reservoir</b>
		METER RUN			
				<b>Source</b>	<b>Sampled</b>
				2000	2000
				<b>Received</b>	1600
				17	17
					21
<b>Date Sampled</b>		<b>Date Received</b>		<b>Date Reported</b>	
Jul 03, 2003		Jul 07, 2003		Jul 23, 2003	
				<b>Entered By</b>	
				NV	
				<b>Certified By</b>	
				ES	
<b>Other Information</b>					
FIELD H2S = 1.50%					

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0026	0.0028	
He	0.0007	0.0008	
N2	0.0150	0.0161	
CO2	0.0541	0.0000	
H2S	0.0150	0.0000	
C1	0.8841	0.9497	
C2	0.0151	0.0162	
C3	0.0072	0.0077	26.4
IC4	0.0011	0.0012	4.8
NC4	0.0024	0.0026	10.1
IC5	0.0007	0.0008	3.4
NC5	0.0007	0.0008	3.4
C6	0.0006	0.0006	3.3
C7	0.0005	0.0005	3.1
C8	0.0002	0.0002	1.4
C9	0.0000	0.0000	0.0
C10+	0.0000	0.0000	0.0
<b>Total</b>	<b>1.0000</b>	<b>1.0000</b>	<b>55.9</b>

**GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa**

Air Free As Received	Moisture & Acid Gas Free	C7+, Air Free As Received
36.38	38.67	0.15

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free	C7+, Moisture Free
0.646	0.586	0.003

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4785	202.6	4566	193.9

**RELATIVE MOLECULAR MASS**

Total Gas	C7+
18.7	104.2

**VAPOUR PRESSURE  
(Pentanes +)**

74.33 kPa

**H2S g/m<sup>3</sup>**

21.58

*GAS RATE = 65.43 E<sup>3</sup>m<sup>3</sup>/d*

*NO LIQUIDS.*



Container Identification AGAT 12433		Laboratory Number 03GG50421E	
Operator Name PARAMOUNT RESOURCES			
Unique Well Identifier A-73	Well Name		Elevation KB m      GRD m
Field or Area CAMERON HILLS	Pool or Zone SULPHUR POINT	Sampler's Company AGAT/GRANDE PRAIRIE	
Test Type	Test No.	Test Recovery	Name of Sampler
Test Interval or Perfs		Sampling Point METER RUN	Separator    Reservoir    Source    Sampled    Received
			Pressure (kPa)      2500      2500      1700
			Temperature      21      21      21
Date Sampled Jul 03, 2003	Date Received Jul 07, 2003	Date Reported Jul 23, 2003	Entered By NV
			Certified By ES
Other Information FIELD H2S = 1.50%			

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0001	0.0001	
He	0.0008	0.0009	
N2	0.0161	0.0172	
CO2	0.0503	0.0000	
H2S	0.0150	0.0000	
C1	0.8918	0.9542	
C2	0.0133	0.0142	
C3	0.0069	0.0074	25.3
IC4	0.0011	0.0012	4.8
NC4	0.0025	0.0027	10.5
IC5	0.0007	0.0007	3.4
NC5	0.0007	0.0007	3.4
C6	0.0006	0.0006	3.3
C7	0.0001	0.0001	0.6
C8	0.0000	0.0000	0.0
C9	0.0000	0.0000	0.0
C10+	0.0000	0.0000	0.0
Total	1.0000	1.0000	51.3

**GROSS HEATING VALUE MJ/m<sup>3</sup>**  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free	C7+, Air Free As Received
36.38	38.50	0.02

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free	C7+, Moisture Free
0.641	0.585	0.000

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4782	202.0	4574	193.7

**RELATIVE MOLECULAR MASS**

Total Gas	C7+
18.6	100.2

**VAPOUR PRESSURE**  
(Pentanes +)

93.08 kPa

**H2S g/m<sup>3</sup>**

21.58

GAS RATE = 122.62 E<sup>3</sup>m<sup>3</sup>/d  
 ∅ WATER  
 0.04 m<sup>3</sup>/d condensate



<b>Container Identification</b> AGAT 434		<b>Laboratory Number</b> 03GG50421F				
<b>Operator Name</b> PARAMOUNT RESOURCES						
<b>Unique Well Identifier</b> A-05		<b>Well Name</b>			<b>Elevation</b> KB m      GRD m	
<b>Field or Area</b> CAMERON HILLS		<b>Pool or Zone</b> SULPHUR POINT		<b>Sampler's Company</b> AGAT/GRANDE PRAIRIE		
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>			<b>Name of Sampler</b>	
<b>Test Interval or Perfs</b>		<b>Sampling Point</b> METER RUN		<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>
				Pressure (kPa)		1500
				Temperature		11
						1500
						11
						21
<b>Date Sampled</b> Jul 03, 2003		<b>Date Received</b> Jul 07, 2003		<b>Date Reported</b> Jul 23, 2003		<b>Entered By</b> NV
						<b>Certified By</b> ES
<b>Other Information</b> FIELD H <sub>2</sub> S = 1.23%						

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0010	0.0010	
He	0.0008	0.0008	
N <sub>2</sub>	0.0206	0.0214	
CO <sub>2</sub>	0.0233	0.0000	
H <sub>2</sub> S	0.0123	0.0000	
C <sub>1</sub>	0.9130	0.9468	
C <sub>2</sub>	0.0152	0.0158	
C <sub>3</sub>	0.0074	0.0077	27.2
IC <sub>4</sub>	0.0011	0.0011	4.8
NC <sub>4</sub>	0.0023	0.0024	9.7
IC <sub>5</sub>	0.0007	0.0007	3.4
NC <sub>5</sub>	0.0007	0.0007	3.4
C <sub>6</sub>	0.0007	0.0007	3.8
C <sub>7</sub>	0.0006	0.0006	3.7
C <sub>8</sub>	0.0003	0.0003	2.1
C <sub>9</sub>	0.0000	0.0000	0.0
C <sub>10+</sub>	0.0000	0.0000	0.0
Total	1.0000	1.0000	58.1

**GROSS HEATING VALUE MJ/m<sup>3</sup>**  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free	C <sub>7+</sub> , Air Free As Received
37.46	38.51	0.19

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free	C <sub>7+</sub> , Moisture Free
0.618	0.589	0.003

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4685	198.6	4565	193.8

**RELATIVE MOLECULAR MASS**

Total Gas	C <sub>7+</sub>
17.9	104.9

**VAPOUR PRESSURE (Pentanes +)**

68.53 kPa

**H<sub>2</sub>S g/m<sup>3</sup>**

17.69

GAS = 0.63 E<sup>3</sup>m<sup>3</sup>/d  
NO LIQUIDS

R.



<b>Container Identification</b>
AGAT 18859

<b>Laboratory Number</b>
GE09432A

<b>Operator Name</b>
PARAMOUNT RESOURCES LTD.

<b>Unique Well Identifier</b>	<b>Well Name</b>	<b>Elevation</b>	
NOT AVAILABLE	PARA et al CAMERON A-05	KB m	GRD m
		778.93	775.11

<b>Field or Area</b>	<b>Pool or Zone</b>	<b>Sampler's Company</b>
CAMERON	SLAVE POINT	SOLID PRODUCTION SERVICES

<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>	<b>Name of Sampler</b>

<b>Test Interval or Perfs</b>	<b>Sampling Point</b>	<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>	<b>Sampled</b>	<b>Received</b>
	METER RUN			900	900	900
		Pressure (kPa)				
		Temperature		-5	-5	21

<b>Date Sampled</b>	<b>Date Received</b>	<b>Date Reported</b>	<b>Entered By</b>	<b>Certified By</b>
Mar 26, 2002	Apr 02, 2002	Apr 09, 2002	GE	ES

<b>Other Information</b>
LAB H2S = 0.68% LOCATION: 60°10'N 117°30'W

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WebFLUIDs, a comparison, history and trending analysis system.

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0007	0.0007	
He	0.0009	0.0009	
N2	0.0202	0.0207	
CO2	0.0180	0.0000	
H2S	0.0068	0.0000	
C1	0.9247	0.9483	
C2	0.0162	0.0166	
C3	0.0081	0.0083	29.7
IC4	0.0011	0.0011	4.8
NC4	0.0023	0.0024	9.7
IC5	0.0005	0.0005	2.4
NC5	0.0004	0.0004	1.9
C6	0.0001	0.0001	0.5
C7+	0.0000	0.0000	0.0
Total	1.0000	1.0000	49.0

**GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa**

<b>Air Free As Received</b>	<b>Moisture &amp; Acid Gas Free</b>
37.52	38.30

**RELATIVE DENSITY (CALCULATED)**

<b>Moisture Free</b>	<b>Moisture &amp; Acid Gas Free</b>
0.606	0.585

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4651	196.6	4570	193.4

**RELATIVE MOLECULAR MASS**

<b>Total Gas</b>	<b>C<sub>7+</sub></b>
17.5	0.0

**VAPOUR PRESSURE (Pentanes +)**

116.85 kPa

**H<sub>2</sub>S g/m<sup>3</sup>**

9.78







16.3

Container Identification

AGAT 20052

Laboratory Number

G47268C

Operator Name

PARAMOUNT RESOURCES LTD.

Unique Well Identifier

Not Available

Well Name

Elevation

KB m'

GRD m'

Field or Area

NWT

Pool or Zone

SULPHUR POINT

Sampler's Company

SAME

Test Type

Test No.

Test Recovery

Name of Sampler

DR

Test Interval or Perfs

Sampling Point

SEPARATOR

Separator	Reservoir	Source	Sampled	Received
414		414		290
4		4		21

Pressure (kPa):

Temperature (°C):

Date Sampled

Jan 14, 2000

Date Received

Jan 20, 2000

Date Reported

Jan 25, 2000

Analyst

PL

Other Information

C-75 NO LAB H2S DETECTED

COMP	MOLE FRACTION		PETROLEUM LIQUID mL · m <sup>-3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0000	0.0000	
He	0.0007	0.0007	
N2	0.0139	0.0149	
CO2	0.0647	0.0000	
H2S	0.0000	0.0000	
C1	0.8861	0.9475	
C2	0.0180	0.0192	
C3	0.0088	0.0094	32.3
IC4	0.0018	0.0019	7.9
NC4	0.0029	0.0031	12.2
IC5	0.0010	0.0011	4.9
NC5	0.0009	0.0010	4.4
C6	0.0006	0.0006	3.3
C7+	0.0006	0.0006	3.8
Total	1.0000	1.0000	68.8

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.61	39.11

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.653	0.593

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4757	202.5	4576	195.5

RELATIVE MOLECULAR MASS

Total Gas	C7+
18.9	104.9

VAPOUR PRESSURE (Pentanes +)

84.95 kPa

H<sub>2</sub>S g/m<sup>3</sup>

0.00



Container Identification AGAT 18360		Laboratory Number 03GG50421A					
Operator Name PARAMOUNT RESOURCES							
Unique Well Identifier H-03 <del>BATTERY</del>		Well Name CAMERON HILLS GAS PLANT			Elevation KB m   GRD m		
Field or Area CAMERON HILLS		Pool or Zone NOT APPLICABLE		Sampler's Company AGAT/GRANDE PRAIRIE			
Test Type	Test No.	Test Recovery			Name of Sampler		
Test Interval or Perfs		Sampling Point <u>GROUP SEPARATOR</u>		Separator	Reservoir	Source	
				Pressure (kPa)		350	
				Temperature		21	
Date Sampled Jun 30, 2003		Date Received Jul 07, 2003		Date Reported Jul 23, 2003		Entered By NV	
Date Sampled <i>July 13/03</i>						Certified By ES	
Other Information FIELD H2S = 2.04% - SOLUTION GAS							

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0001	0.0001	
He	0.0007	0.0008	
N2	0.0149	0.0160	
CO2	0.0487	0.0000	
H2S	0.0204	0.0000	
C1	0.8628	0.9269	
C2	0.0202	0.0217	
C3	0.0141	0.0151	51.8
IC4	0.0030	0.0032	13.1
NC4	0.0068	0.0073	28.6
IC5	0.0023	0.0025	11.2
NC5	0.0023	0.0025	11.1
C6	0.0020	0.0021	11.0
C7	0.0012	0.0013	7.4
C8	0.0005	0.0005	3.4
C9	0.0000	0.0000	0.0
C10+	0.0000	0.0000	0.0
Total	1.0000	1.0000	137.6

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free	C7+, Air Free As Received
38.39	40.68	0.36

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free	C7+, Moisture Free
0.676	0.621	0.006

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4788	208.3	4560	199.6

RELATIVE MOLECULAR MASS

Total Gas	C7+
19.6	104.3

VAPOUR PRESSURE  
(Pentanes +)

78.90 kPa

H2S g/m<sup>3</sup>

29.35

GAS RATE ~~11.63~~ E<sup>3</sup>m<sup>3</sup>/day  
11.63



*e.*

<b>Container Identification</b> AGAT 18463		<b>Laboratory Number</b> GG37728C	
<b>Operator Name</b> PARAMOUNT RESOURCES LTD.			
<b>Unique Well Identifier</b> 300/D4960101173/00	<b>Well Name</b> PARA et al CAMERON D-4960101173		<b>Elevation</b> KB m 731.53 GRD m 727.05
<b>Field or Area</b> CAMERON	<b>Pool or Zone</b> KEG RIVER	<b>Sampler's Company</b> BAKER	
<b>Test Type</b> DST	<b>Test No.</b> 1	<b>Test Recovery</b>	<b>Name of Sampler</b>
<b>Test Interval or Perfs</b> 1500.0-1510.0 mKB	<b>Sampling Point</b> BOTTOM HOLE SAMPLER	<b>Separator</b> Pressure (kPa) Temperature	<b>Reservoir</b> <b>Source</b> 1500 <b>Sampled</b> 1500 <b>Received</b> 1200 21
<b>Date Sampled</b> Feb 26, 2003	<b>Date Received</b> Feb 26, 2003	<b>Date Reported</b> Mar 11, 2003	<b>Entered By</b> GE <b>Certified By</b> ES
<b>Other Information</b> H2S BY AGAT = 1.23%			

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0005	0.0005	
He	0.0009	0.0009	
N2	0.0497	0.0516	
CO2	0.0239	0.0000	
H2S	0.0123	0.0000	
C1	0.8579	0.8902	
C2	0.0334	0.0347	
C3	0.0141	0.0146	51.8
IC4	0.0018	0.0019	7.9
NC4	0.0030	0.0031	12.6
IC5	0.0008	0.0008	3.9
NC5	0.0007	0.0007	3.4
C6	0.0006	0.0006	3.3
C7+	0.0004	0.0004	2.5
<b>Total</b>	<b>1.0000</b>	<b>1.0000</b>	<b>85.4</b>

**GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa**

Air Free As Received	Moisture & Acid Gas Free	C7+, Air Free As Received
37.27	38.34	0.08

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free	C7+, Moisture Free
0.647	0.618	0.001

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4656	200.3	4533	195.5

**RELATIVE MOLECULAR MASS**

Total Gas	C7+
18.7	100.2

**VAPOUR PRESSURE  
(Pentanes +)**

85.17 kPa

**H2S g/m<sup>3</sup>**

17.69





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 WELL FILES

## GAS ANALYSIS

<b>Container Identification</b>
11486B

<b>Laboratory Number</b>
GE70314B

<b>Operator Name</b>
PARAMOUNT RESOURCES LTD.

<b>Unique Well Identifier</b>	<b>Well Name</b>	<b>Elevation</b>	
NOT AVAILABLE	N-28 et al CAMERON	KB m	GRD m

<b>Field or Area</b>	<b>Pool or Zone</b>	<b>Sampler's Company</b>
CAMERON	SLAVE POINT	SOLID PRODUCTION SERVICES

<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>	<b>Name of Sampler</b>

<b>Test Interval or Perfs</b>	<b>Sampling Point</b>	<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>	<b>Sampled</b>	<b>Received</b>
	METER RUN					
		Pressure (kPa)				
		Temperature (°C)				

<b>Date Sampled</b>	<b>Date Received</b>	<b>Date Reported</b>	<b>Analyst</b>
Mar 25, 2001	Mar 30, 2001	Apr 09, 2001	PL

<b>Other Information</b>
FIELD H <sub>2</sub> S 1.2%, LAB H <sub>2</sub> S 0.94%

COMP	MOLE FRACTION		PETROLEUM LIQUID mL • m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0001	0.0001	
He	0.0009	0.0010	
N <sub>2</sub>	0.0133	0.0143	
CO <sub>2</sub>	0.0593	0.0000	
H <sub>2</sub> S	0.0120	0.0000	
C <sub>1</sub>	0.8902	0.9585	
C <sub>2</sub>	0.0138	0.0149	
C <sub>3</sub>	0.0060	0.0065	22.0
IC <sub>4</sub>	0.0009	0.0010	3.9
NC <sub>4</sub>	0.0020	0.0022	8.4
IC <sub>5</sub>	0.0005	0.0005	2.4
NC <sub>5</sub>	0.0005	0.0005	2.4
C <sub>6</sub>	0.0004	0.0004	2.2
C <sub>7+</sub>	0.0001	0.0001	0.6
<b>Total</b>	<b>1.0000</b>	<b>1.0000</b>	<b>41.9</b>

GROSS HEATING VALUE MJ/m<sup>3</sup>  
 15° C AND 101.325 kPa

<b>Air Free As Received</b>	<b>Moisture &amp; Acid Gas Free</b>
36.01	38.44

RELATIVE DENSITY (CALCULATED)

<b>Moisture Free</b>	<b>Moisture &amp; Acid Gas Free</b>
0.644	0.581

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4798	202.2	4579	193.5

RELATIVE MOLECULAR MASS

<b>Total Gas</b>	<b>C<sub>7+</sub></b>
18.6	100.2

VAPOUR PRESSURE

92.64 kPa
-----------

H<sub>2</sub>S g/m<sup>3</sup>

17.26
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Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.





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WELL FILES

## GAS ANALYSIS

Container Identification  
8801C

Laboratory Number  
GE70314C

Operator Name  
PARAMOUNT RESOURCES LTD.

Unique Well Identifier NOT AVAILABLE	Well Name N-28 et al CAMERON	Elevation KB m:      GRD m:
---	---------------------------------	--------------------------------

Field or Area CAMERON	Pool or Zone SULPHUR POINT	Sampler's Company SOLID PRODUCTION SERVICES
--------------------------	-------------------------------	--

Test Type	Test No.	Test Recovery SAMPLED AT 11:00	Name of Sampler
-----------	----------	-----------------------------------	-----------------

Test Interval or Perfs	Sampling Point METER RUN	Separator	Reservoir	Source	Sampled	Received
		Pressure (kPa)		1103	1103	600
		Temperature (°C)		24	24	21

Date Sampled Mar 17, 2001	Date Received Mar 30, 2001	Date Reported Apr 09, 2001	Analyst PL
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Other Information  
FIELD H2S 1.0%

COMP	MOLE FRACTION		PETROLEUM LIQUID mL · m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	TRACE	TRACE	
He	0.0009	0.0010	
N2	0.0153	0.0164	
CO2	0.0573	0.0000	
H2S	0.0100	0.0000	
C1	0.8908	0.9551	
C2	0.0135	0.0145	
C3	0.0065	0.0070	23.9
IC4	0.0011	0.0012	4.8
NC4	0.0022	0.0024	9.3
IC5	0.0006	0.0006	2.9
NC5	0.0006	0.0006	2.9
C6	0.0006	0.0006	3.3
C7+	0.0006	0.0006	3.8
Total	1.0000	1.0000	50.9

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.23	38.55

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.645	0.585

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4780	201.9	4575	193.8

RELATIVE MOLECULAR MASS

Total Gas	C7+
18.7	102.5

VAPOUR PRESSURE

73.12 kPa

H<sub>2</sub>S g/m<sup>3</sup>

14.39

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.





APR 18 2001  
WELL FILES

## GAS ANALYSIS

Container Identification
30819D

Laboratory Number
GE70314D

Operator Name
PARAMOUNT RESOURCES LTD.

Unique Well Identifier	Well Name	Elevation	
NOT AVAILABLE	N-28 et al CAMERON	KB m	GRD m

Field or Area	Pool or Zone	Sampler's Company
CAMERON	SULPHUR POINT	SAME

Test Type	Test No.	Test Recovery	Name of Sampler

Test Interval or Perfs	Sampling Point	Separator	Reservoir	Source	Sampled	Received
	METER RUN			1103	1103	1200
		Pressure (kPa)				
		Temperature (°C)		28	28	21

Date Sampled	Date Received	Date Reported	Analyst
Mar 22, 2001	Mar 30, 2001	Apr 09, 2001	PL

Other Information
FIELD H <sub>2</sub> S 1.4%

COMP	MOLE FRACTION		PETROLEUM LIQUID mL · m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0001	0.0001	
He	0.0009	0.0010	
N <sub>2</sub>	0.0025	0.0027	
CO <sub>2</sub>	0.0549	0.0000	
H <sub>2</sub> S	0.0140	0.0000	
C <sub>1</sub>	0.9032	0.9700	
C <sub>2</sub>	0.0134	0.0144	
C <sub>3</sub>	0.0063	0.0068	23.1
IC <sub>4</sub>	0.0010	0.0011	4.4
NC <sub>4</sub>	0.0021	0.0023	8.8
IC <sub>5</sub>	0.0006	0.0006	2.9
NC <sub>5</sub>	0.0005	0.0005	2.4
C <sub>6</sub>	0.0004	0.0004	2.2
C <sub>7+</sub>	0.0001	0.0001	0.6
Total	1.0000	1.0000	44.4

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.59	38.91

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.637	0.576

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4807	202.8	4593	194.3

RELATIVE MOLECULAR MASS

Total Gas	C <sub>7+</sub>
18.4	100.2

VAPOUR PRESSURE

95.66 kPa
-----------

H<sub>2</sub>S g/m<sup>3</sup>

20.14
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Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.





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WELL FILES

## GAS ANALYSIS

Container Identification
19431A

Laboratory Number
GE70314A

Operator Name
PARAMOUNT RESOURCES LTD.

Unique Well Identifier	Well Name	Elevation	
NOT AVAILABLE	N-28 et al CAMERON	KB m	GRD m

Field or Area	Pool or Zone	Sampler's Company
CAMERON	SLAVE POINT	SOLID PRODUCTION SERVICES

Test Type	Test No.	Test Recovery	Name of Sampler

Test Interval or Perfs	Sampling Point	Separator	Reservoir	Source	Sampled	Received
	METER RUN			1241	1241	1300
		Pressure (kPa)				
		Temperature (°C)		30	30	21

Date Sampled	Date Received	Date Reported	Analyst
Mar 26, 2001	Mar 30, 2001	Apr 09, 2001	PL

Other Information
FIELD H2S 1.2%, LAB H2S 2.14%

COMP	MOLE FRACTION		PETROLEUM LIQUID mL • m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0001	0.0001	
He	0.0009	0.0010	
N2	0.0157	0.0170	
CO2	0.0535	0.0000	
H2S	0.0214	0.0000	
C1	0.8829	0.9545	
C2	0.0136	0.0147	
C3	0.0066	0.0071	24.2
IC4	0.0010	0.0011	4.4
NC4	0.0020	0.0022	8.4
IC5	0.0006	0.0006	2.9
NC5	0.0005	0.0005	2.4
C6	0.0006	0.0006	3.3
C7+	0.0006	0.0006	3.8
Total	1.0000	1.0000	49.4

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.18	38.50

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.648	0.585

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4819	203.5	4574	193.7

RELATIVE MOLECULAR MASS

Total Gas	C7+
18.8	104.9

VAPOUR PRESSURE

71.30 kPa
-----------

H<sub>2</sub>S g/m<sup>3</sup>

30.79
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Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.





## GAS ANALYSIS

CONTAINER IDENTIFICATION

C&amp;G 18

LABORATORY NUMBER

GG9995B

OPERATOR NAME

PARAMOUNT RESOURCES LTD. \*\*\*\*\*

UNIQUE WELL IDENTIFIER

60°-10'N 117°-30'W

WELL NAME

PARAMOUNT et al CAMERON N-28

ELEVATIONS

760.1

756.4

FIELD OR AREA

CAMERON

POOL OR ZONE

SULPHUR POINT

NAME OF SAMPLER

COMPANY

B. O. T.

TEST TYPE NO

DST

1

TEST RECOVERY

TEST INTERVAL OR PERFS

1391.0-1417.0  
mKB

SAMPLING POINT

BUBBLE HOSE

GAUGE PRESSURE kPa

TEMPERATURE °C

SEPARATOR

TREATER

RESERVOIR

SOURCE

SAMPLED

RECEIVED

300

22

DATE SAMPLED (Y-M-D)

90-03-14

DATE RECEIVED (Y-M-D)

90-03-19

DATE REPORTED (Y-M-D)

90-03-21

ANALYST

DG HU

OTHER INFORMATION

COMP.	MOLE FRACTION		PETROLEUM LIQUID CONTENT mL · m <sup>-3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0000	0.0000	
He	0.0008	0.0008	
N <sub>2</sub>	0.0153	0.0162	
CO <sub>2</sub>	0.0561	0.0000	
H <sub>2</sub> S	0.0000	0.0000	
C <sub>1</sub>	0.9012	0.9548	
C <sub>2</sub>	0.0147	0.0156	
C <sub>3</sub>	0.0067	0.0071	24.6
IC <sub>4</sub>	0.0010	0.0011	4.5
NC <sub>4</sub>	0.0021	0.0022	8.7
IC <sub>5</sub>	0.0006	0.0006	2.9
NC <sub>5</sub>	0.0006	0.0006	2.9
C <sub>6</sub>	0.0005	0.0006	3.0
C <sub>7</sub> +	0.0004	0.0004	2.5
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10</sub> +			
TOTAL	1.0000	1.0000	49.1

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

MOISTURE AND ACID GAS FREE

MEASURED

CALCULATED

DETERMINED DEW POINT

VAPOUR PRESSURE PENTANES PLUS

38.56

°C

79.5 kPa

ACTUAL GROSS HEATING VALUE: 36.40

-----RELATIVE DENSITY-----

MOISTURE FREE AS SAMPLED

MOISTURE AND ACID GAS FREE

MEASURED

CALCULATED

MEASURED

CALCULATED

0.637

0.585

-----PSEUDO CRITICAL PROPERTIES (CALCULATED)-----

AS SAMPLED

ACID GAS FREE

pPc (abs)

pTc

pPc (abs)

pTc

4734 kPa

200.0 K

4577 kPa

193.8 K

-----RELATIVE MOLECULAR MASS-----

TOTAL GAS

C<sub>7</sub>+

18.4

100.2

H<sub>2</sub>S g/m<sup>3</sup>

0.00

REMARKS:





## GAS ANALYSIS

CONTAINER IDENTIFICATION  
AGAT 18243

LABORATORY NUMBER  
GG6196A

OPERATOR NAME  
PARAMOUNT RESOURCES LTD.

UNIQUE WELL IDENTIFIER  
PARAMOUNT ET AL CAMERON

WELL NAME

KB m ELEVATIONS GRD m  
764.10

FIELD OR AREA  
CAMERON

POOL OR ZONE  
KEG RIVER

NAME OF SAMPLER

COMPANY  
NORTHLAND

TEST TYPE  
NO

TEST RECOVERY

TEST INTERVAL OR PERFS  
1511-1518  
1521-1526  
mKB

SAMPLING POINT  
HP SEPARATOR

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa	3010			3010		2200
TEMPERATURE °C	25			25		23

DATE SAMPLED (Y-M-D)

DATE RECEIVED (Y-M-D) 93-02-09

DATE REPORTED (Y-M-D) 93-02-16

ANALYST GGO

OTHER INFORMATION N-28

COMP.	MOLE FRACTION		PETROLEUM LIQUID CONTENT mL · m <sup>-3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0002	0.0002	
He	0.0007	0.0007	
N <sub>2</sub>	0.0342	0.0357	
CO <sub>2</sub>	0.0292	0.0000	
H <sub>2</sub> S	0.0150	0.0000	
C <sub>1</sub>	0.8465	0.8857	
C <sub>2</sub>	0.0389	0.0407	
C <sub>3</sub>	0.0190	0.0199	70.0
IC <sub>4</sub>	0.0034	0.0035	14.7
NC <sub>4</sub>	0.0059	0.0062	25.0
IC <sub>5</sub>	0.0023	0.0024	11.2
NC <sub>5</sub>	0.0021	0.0022	10.1
C <sub>6</sub>	0.0022	0.0023	12.0
C <sub>7</sub> +	0.0004	0.0005	2.7
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10</sub> +			
TOTAL	1.0000	1.0000	145.7

GROSS HEATING VALUE MJ·m<sup>-3</sup>  
15° C AND 101.325 kPa

MOISTURE AND ACID GAS FREE 40.43	AIR FREE AS RECEIVED 39.01	VAPOUR PRESSURE PENTANES PLUS 89.5 kPa
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RELATIVE DENSITY

MOISTURE FREE AS SAMPLED		MOISTURE AND ACID GAS FREE	
MEASURED	CALCULATED	MEASURED	CALCULATED
	0.671		0.637

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED		ACID GAS FREE	
pPc (abs)	pTc	pPc (abs)	pTc
4693 kPa	206.3 K	4543 kPa	200.7 K

RELATIVE MOLECULAR MASS

TOTAL GAS 19.4	C <sub>7</sub> + 102.7
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H<sub>2</sub>S g/m<sup>3</sup> 21.54

REMARKS

FIELD H<sub>2</sub>S = 1.50% LAB = 0.35%



Container Identification 8801C		Laboratory Number GE70314C	
Operator Name PARAMOUNT RESOURCES LTD.			
Unique Well Identifier NOT AVAILABLE	Well Name N-28 et al CAMERON		Elevation KB m:      GRD m:
Field or Area CAMERON	Pool or Zone SULPHUR POINT	Sampler's Company SOLID PRODUCTION SERVICES	
Test Type	Test No.	Test Recovery SAMPLED AT 11:00	Name of Sampler
Test Interval or Perfs	Sampling Point METER RUN	Separator	Reservoir
		Pressure (kPa)	Source
		Temperature (°C)	Sampled
			Received
Date Sampled Mar 17, 2001	Date Received Mar 30, 2001	Date Reported Apr 09, 2001	Analyst PL
Other Information FIELD H2S 1.0%			

COMP	MOLE FRACTION		PETROLEUM LIQUID mL · m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	TRACE	TRACE	
He	0.0009	0.0010	
N2	0.0153	0.0164	
CO2	0.0573	0.0000	
H2S	0.0100	0.0000	
C1	0.8908	0.9551	
C2	0.0135	0.0145	
C3	0.0065	0.0070	23.9
IC4	0.0011	0.0012	4.8
NC4	0.0022	0.0024	9.3
IC5	0.0006	0.0006	2.9
NC5	0.0006	0.0006	2.9
C6	0.0006	0.0006	3.3
C7+	0.0006	0.0006	3.8
Total	1.0000	1.0000	50.9

**GROSS HEATING VALUE MJ/m<sup>3</sup>**  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.23	38.55

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free
0.645	0.585

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4780	201.9	4575	193.8

**RELATIVE MOLECULAR MASS**

Total Gas	C7+
18.7	102.5

**VAPOUR PRESSURE (Pentanes +)**

73.12 kPa	H <sub>2</sub> S g/m <sup>3</sup> 14.39
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*Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.*





<b>Container Identification</b> 30819D		<b>Laboratory Number</b> GE70314D																
<b>Operator Name</b> PARAMOUNT RESOURCES LTD.																		
<b>Unique Well Identifier</b> NOT AVAILABLE	<b>Well Name</b> N-28 et al CAMERON		<b>Elevation</b> KB m      GRD m															
<b>Field or Area</b> CAMERON	<b>Pool or Zone</b> SULPHUR POINT	<b>Sampler's Company</b> SAME																
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>	<b>Name of Sampler</b>															
<b>Test Interval or Perfs</b>		<b>Sampling Point</b> METER RUN	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Separator</th> <th>Reservoir</th> <th>Source</th> <th>Sampled</th> <th>Received</th> </tr> <tr> <td>Pressure (kPa)</td> <td></td> <td>1103</td> <td>1103</td> <td>1200</td> </tr> <tr> <td>Temperature (°C)</td> <td></td> <td>28</td> <td>28</td> <td>21</td> </tr> </table>	Separator	Reservoir	Source	Sampled	Received	Pressure (kPa)		1103	1103	1200	Temperature (°C)		28	28	21
Separator	Reservoir	Source	Sampled	Received														
Pressure (kPa)		1103	1103	1200														
Temperature (°C)		28	28	21														
<b>Date Sampled</b> Mar 22, 2001	<b>Date Received</b> Mar 30, 2001	<b>Date Reported</b> Apr 09, 2001	<b>Analyst</b> PL															
<b>Other Information</b> FIELD H2S 1.4%																		

COMP	MOLE FRACTION		PETROLEUM LIQUID mL • m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0001	0.0001	
He	0.0009	0.0010	
N2	0.0025	0.0027	
CO2	0.0549	0.0000	
H2S	0.0140	0.0000	
C1	0.9032	0.9700	
C2	0.0134	0.0144	
C3	0.0063	0.0068	23.1
IC4	0.0010	0.0011	4.4
NC4	0.0021	0.0023	8.8
IC5	0.0006	0.0006	2.9
NC5	0.0005	0.0005	2.4
C6	0.0004	0.0004	2.2
C7+	0.0001	0.0001	0.6
Total	1.0000	1.0000	44.4

**GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa**

Air Free As Received	Moisture & Acid Gas Free
36.59	38.91

**RELATIVE DENSITY (CALCULATED)**

Moisture Free	Moisture & Acid Gas Free
0.637	0.576

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4807	202.8	4593	194.3

**RELATIVE MOLECULAR MASS**

Total Gas	C7+
18.4	100.2

**VAPOUR PRESSURE  
(Pentanes +)**

95.66 kPa

**H<sub>2</sub>S g/m<sup>3</sup>**

20.14

*Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.*





Container Identification 11486B		Laboratory Number GE70314B	
Operator Name PARAMOUNT RESOURCES LTD.			
Unique Well Identifier NOT AVAILABLE	Well Name N-28 et al CAMERON		Elevation KB m      GRD m
Field or Area CAMERON	Pool or Zone SLAVE POINT	Sampler's Company SOLID PRODUCTION SERVICES	
Test Type	Test No.	Test Recovery	Name of Sampler
Test Interval or Perfs	Sampling Point METER RUN	Separator	Reservoir      Source      Sampled      Received
		Pressure (kPa)	
		Temperature (°C)	
Date Sampled Mar 25, 2001	Date Received Mar 30, 2001	Date Reported Apr 09, 2001	Analyst PL
Other Information FIELD H <sub>2</sub> S 1.2%, LAB H <sub>2</sub> S 0.94%			

COMP	MOLE FRACTION		PETROLEUM LIQUID mL • m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0001	0.0001	
He	0.0009	0.0010	
N <sub>2</sub>	0.0133	0.0143	
CO <sub>2</sub>	0.0593	0.0000	
H <sub>2</sub> S	0.0120	0.0000	
C <sub>1</sub>	0.8902	0.9585	
C <sub>2</sub>	0.0138	0.0149	
C <sub>3</sub>	0.0060	0.0065	22.0
IC <sub>4</sub>	0.0009	0.0010	3.9
NC <sub>4</sub>	0.0020	0.0022	8.4
IC <sub>5</sub>	0.0005	0.0005	2.4
NC <sub>5</sub>	0.0005	0.0005	2.4
C <sub>6</sub>	0.0004	0.0004	2.2
C <sub>7+</sub>	0.0001	0.0001	0.6
Total	1.0000	1.0000	41.9

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.01	38.44

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.644	0.581

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4798	202.2	4579	193.5

RELATIVE MOLECULAR MASS

Total Gas	C <sub>7+</sub>
18.6	100.2

VAPOUR PRESSURE  
(Pentanes +)

92.64 kPa

H<sub>2</sub>S g/m<sup>3</sup>

17.26

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.





<b>Container Identification</b> AGAT 21884		<b>Laboratory Number</b> GE07658A																
<b>Operator Name</b> PARAMOUNT RESOURCES LTD.																		
<b>Unique Well Identifier</b> 300N286010117300	<b>Well Name</b> PARA et al CAMARON 300N286010117300		<b>Elevation</b> KB m 764.40 GRD m 760.10															
<b>Field or Area</b> CAMERON	<b>Pool or Zone</b> SLAVE POINT	<b>Sampler's Company</b> SOLID PRODUCTION SERVICES																
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>	<b>Name of Sampler</b>															
<b>Test Interval or Perfs</b> 1353.0-1361.5 mKB		<b>Sampling Point</b> SEPARATOR METER RUN	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><b>Separator</b></td> <td><b>Reservoir</b></td> <td><b>Source</b></td> <td><b>Sampled</b></td> <td><b>Received</b></td> </tr> <tr> <td>Pressure (kPa)</td> <td>352</td> <td>352</td> <td></td> <td>400</td> </tr> <tr> <td>Temperature (°C)</td> <td>25</td> <td>25</td> <td></td> <td>21</td> </tr> </table>	<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>	<b>Sampled</b>	<b>Received</b>	Pressure (kPa)	352	352		400	Temperature (°C)	25	25		21
<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>	<b>Sampled</b>	<b>Received</b>														
Pressure (kPa)	352	352		400														
Temperature (°C)	25	25		21														
<b>Date Sampled</b> Mar 05, 2002	<b>Date Received</b> Mar 12, 2002	<b>Date Reported</b> Mar 21, 2002	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><b>Entered By</b> GE</td> <td><b>Certified By</b> ES</td> </tr> </table>	<b>Entered By</b> GE	<b>Certified By</b> ES													
<b>Entered By</b> GE	<b>Certified By</b> ES																	
<b>Other Information</b> FIELD H2S = 3000 ppm/LAB = ND																		

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0000	0.0000	
He	0.0010	0.0010	
N2	0.0263	0.0270	
CO2	0.0222	0.0000	
H2S	0.0030	0.0000	
C1	0.9187	0.9425	
C2	0.0150	0.0154	
C3	0.0073	0.0075	26.8
IC4	0.0011	0.0011	4.8
NC4	0.0024	0.0025	10.1
IC5	0.0008	0.0008	3.9
NC5	0.0008	0.0008	3.9
C6	0.0007	0.0007	3.8
C7+	0.0007	0.0007	4.4
<b>Total</b>	<b>1.0000</b>	<b>1.0000</b>	<b>57.7</b>

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

<b>Air Free As Received</b>	<b>Moisture &amp; Acid Gas Free</b>
37.41	38.29

RELATIVE DENSITY (CALCULATED)

<b>Moisture Free</b>	<b>Moisture &amp; Acid Gas Free</b>
0.614	0.591

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4637	196.5	4561	193.5

RELATIVE MOLECULAR MASS

<b>Total Gas</b>	<b>C7+</b>
17.8	102.2

VAPOUR PRESSURE

76.56 kPa

H<sub>2</sub>S g/m<sup>3</sup>

4.32



Container Identification AGAT 18131		Laboratory Number 03GG50421B				
Operator Name PARAMOUNT RESOURCES						
Unique Well Identifier N-28		Well Name			Elevation KB m   GRD m	
Field or Area CAMERON HILLS		Pool or Zone SULPHUR POINT		Sampler's Company AGAT/GRADE PRAIRIE		
Test Type	Test No.	Test Recovery			Name of Sampler	
Test Interval or Perfs		Sampling Point METER RUN		Separator	Reservoir	Source
				Pressure (kPa)		1379
				Temperature		5
Date Sampled Jul 03, 2003		Date Received Jul 07, 2003		Date Reported Jul 23, 2003		Entered By NV
						Certified By ES
Other Information FIELD-H <sub>2</sub> S = 1.36%						

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0027	0.0029	
He	0.0007	0.0007	
N <sub>2</sub>	0.0169	0.0181	
CO <sub>2</sub>	0.0518	0.0000	
H <sub>2</sub> S	0.0136	0.0000	
C <sub>1</sub>	0.8864	0.9487	
C <sub>2</sub>	0.0148	0.0158	
C <sub>3</sub>	0.0072	0.0077	26.4
IC <sub>4</sub>	0.0011	0.0012	4.8
NC <sub>4</sub>	0.0021	0.0022	8.8
IC <sub>5</sub>	0.0006	0.0006	2.9
NC <sub>5</sub>	0.0006	0.0006	2.9
C <sub>6</sub>	0.0005	0.0005	2.7
C <sub>7</sub>	0.0005	0.0005	3.1
C <sub>8</sub>	0.0005	0.0005	3.4
C <sub>9</sub>	0.0000	0.0000	0.0
C <sub>10+</sub>	0.0000	0.0000	0.0
Total	1.0000	1.0000	55.0

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free	C <sub>7+</sub> , Air Free As Received
36.40	38.55	0.22

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free	C <sub>7+</sub> , Moisture Free
0.643	0.586	0.004

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4770	201.9	4564	193.6

RELATIVE MOLECULAR MASS

Total Gas	C <sub>7+</sub>
18.6	107.2

VAPOUR PRESSURE  
(Pentanes +)

64.28 kPa

H<sub>2</sub>S g/m<sup>3</sup>

19.56

GAS = 70.06 t<sup>3</sup>m<sup>3</sup>/d  
 WATER = 6.99 m<sup>3</sup>/d  
 typically no condensate.





# GAS ANALYSIS

CONTAINER IDENTITY: **5776**  
 LICENCE NUMBER: **5776**  
 LOCATION: **J-37**  
 FIELD OR AREA: **J-37**  
 TEST TYPE: **NO.**  
 NO.: **NO.**  
 MULTIPLE RECOVERY: **Y N**  
 OPERATOR NAME: **PARAMOUNT RESOURCES LTD.**  
 WELL NAME: **PARA ET AL CAMERON**  
 POOL OR ZONE: **KEG RIVER**  
 NAME OF SAMPLER: **KEG RIVER**  
 TEST RECOVERY: **KEG RIVER**  
 LABORATORY NUMBER: **C90-7541-1**  
 ELEVATIONS (metres):  
 K.B.: **729.40**  
 GRD.: **725.70**  
 COMPANY: **PARAMOUNT RESOURCES LTD.**  
 SAMPLING POINT: **WELLHEAD**  
 AMT. & TYPE OF CUSHION: **WELLHEAD**  
 MUD RESISTIVITY: **WELLHEAD**  
 TYPE OF PRODUCTION: **PUMPING**  
 PRODUCTION RATES:  
 WATER: **1495 - 1497** m<sup>3</sup>/d  
 OIL: **KB** m<sup>3</sup>/d  
 GAS: **10 250** 10<sup>3</sup>m<sup>3</sup>/d  
 GAUGE PRESSURE: **8000** kPa  
 TEMPERATURE: **23** °C  
 DATE SAMPLED (Y-M-D): **90-03-26**  
 DATE RECEIVED (Y-M-D): **90-04-02**  
 DATE REPORTED (Y-M-D): **90-04-05**  
 ANALYST: **B. ANDERSON**  
 OTHER INFORMATION: **OTHER INFORMATION**

COMP	MOLE FRACTION		PETROLEUM LIQUID CONTENT ml/m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	TRACE	TRACE	
He	0.0008	0.0008	
N <sub>2</sub>	0.0318	0.0328	
CO <sub>2</sub>	0.0240	0.0000	
H <sub>2</sub> S	0.0079	0.0000	
C <sub>1</sub>	0.8658	0.8943	
C <sub>2</sub>	0.0359	0.0371	
C <sub>3</sub>	0.0173	0.0179	63.6
IC <sub>4</sub>	0.0030	0.0031	13.1
NC <sub>4</sub>	0.0055	0.0057	23.1
IC <sub>5</sub>	0.0021	0.0022	10.3
NC <sub>5</sub>	0.0019	0.0020	9.2
C <sub>6</sub>	0.0019	0.0020	10.4
C <sub>7+</sub>	0.0021	0.0021	13.9
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10+</sub>			
TOTAL	1.0000	1.0000	143.6

GROSS HEATING VALUE MJ/m<sup>3</sup>  
 15°C AND 101.325 kPa

MOISTURE AND ACID GAS FREE  
 MEASURED: **40.48** CALCULATED: **40.48**  
 DETERMINED DEW POINT: **71.0** °C  
 VAPOUR PRESSURE PENTANES PLUS: **71.0** kPa

RELATIVE DENSITY  
 MOISTURE FREE AS SAMPLED  
 MEASURED: **0.660** CALCULATED: **0.660**  
 MOISTURE AND ACID GAS FREE  
 MEASURED: **0.635** CALCULATED: **0.635**

PSEUDO CRITICAL PROPERTIES (CALCULATED)  
 AS SAMPLED ACID GAS FREE  
 pPc(abe): **4643.0** kPa pTc: **204.2** K  
 pPc(abe): **4540.0** kPa pTc: **200.3** K

H<sub>2</sub>S g/m<sup>3</sup>: **11.44**

RELATIVE MOLECULAR MASS TOTAL GAS: **19.12** C<sub>7+</sub>: **109.56**

C5+ ML/MDL: **1.036**  
 GROSS HEATING VALUE AS PER AGA REPORT #5  
 39.37 MAJ/M3 @ 15C AND 101.325 KPA



# GAS ANALYSIS

CONTAINER / IDENTITY: 9455, 9106  
 LICENCE NUMBER: [ ] OPERATOR NAME: PARAMOUNT RESOURCES LTD.  
 LOCATION: 60° 10' 117° 30' WELL NAME: PARAMOUNT ET AL CAMERON J-37 60° 10'  
 FIELD OR AREA: CAMERON POOL OR ZONE: KEG RIVER NAME OF SAMPLER: [ ] COMPANY: NORTHLAND  
 TEST TYPE: [ ] NO. [ ] TEST RECOVERY: [ ]  
 MULTIPLE RECOVERY: Y [ ] N [ ]  
 SAMPLING POINT: SEPARATOR AMT. & TYPE OF CUSHION: [ ] MUD RESISTIVITY: [ ] @ 25°C  
 TYPE OF PRODUCTION: PUMPING [ ] FLOWING [ ] GAS LIFT [ ] SWAB [ ]  
 PRODUCTION RATES: WATER [ ] m³/d OIL [ ] m³/d GAS [ ] 10³m³/d  
 GAUGE PRESSURE kPa: SEPARATOR 3150 TREATER [ ] RESERVOIR [ ] SOURCE [ ] SAMPLED 3150 RECEIVED 3100  
 TEMPERATURE °C: SEPARATOR 40 TREATER [ ] RESERVOIR [ ] SOURCE [ ] SAMPLED [ ] RECEIVED 23  
 DATE SAMPLED (Y-M-D): 91-02-08 DATE RECEIVED (Y-M-D): 91-02-19 DATE REPORTED (Y-M-D): 91-02-20 ANALYST: B. ANDERSON  
 TEST INTERVAL (metres): [ ] PERFORATIONS (metres): 1495 - 1497  
 OTHER INFORMATION: [ ]

COMP	MOLE FRACTION		PETROLEUM LIQUID CONTENT ml/m³
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0002	0.0002	
He	0.0007	0.0007	
N <sub>2</sub>	0.0328	0.0338	
CO <sub>2</sub>	0.0222	0.0000	
H <sub>2</sub> S	0.0081	0.0000	
C <sub>1</sub>	0.8645	0.8915	
C <sub>2</sub>	0.0371	0.0383	
C <sub>3</sub>	0.0186	0.0192	68.4
IC <sub>4</sub>	0.0032	0.0033	14.0
NC <sub>4</sub>	0.0056	0.0058	23.6
IC <sub>5</sub>	0.0020	0.0021	9.8
NC <sub>5</sub>	0.0018	0.0019	8.7
C <sub>6</sub>	0.0016	0.0016	8.8
C <sub>7+</sub>	0.0016	0.0016	10.4
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10+</sub>			
TOTAL	1.0000	1.0000	143.7

GROSS HEATING VALUE MJ/m<sup>3</sup>  
 15°C AND 101.325 kPa

MOISTURE AND ACID GAS FREE  
 MEASURED [ ] CALCULATED 40.39 DETERMINED DEW POINT [ ] °C VAPOUR PRESSURE PENTANES PLUS 77. kPa

RELATIVE DENSITY  
 MOISTURE FREE AS SAMPLED MEASURED 0.658 CALCULATED 0.658  
 MOISTURE AND ACID GAS FREE MEASURED [ ] CALCULATED 0.634

PSEUDO CRITICAL PROPERTIES (CALCULATED)  
 AS SAMPLED ACID GAS FREE  
 pPc(abs) 4639. kPa pTc 204.0 K pPc(abs) 4540. kPa pTc 200.3 K

H<sub>2</sub>S g/m<sup>3</sup> 11.70

RELATIVE MOLECULAR MASS TOTAL GAS 19.07 C<sub>7+</sub> 106.34

C<sub>5+</sub> ML/MOL 0.891

GROSS HEATING VALUE AS PER AGA REPORT #5  
 39.36 MAJ/M3 @ 15C AND 101.325 KPA





# GAS ANALYSIS

CONTAINER IDENTITY: 5776  
 LICENCE NUMBER: [ ] OPERATOR NAME: [ ] LABORATORY NUMBER: C90-7541-1  
 LOCATION: J-37 WELL NAME: PARAMOUNT RESOURCES LTD. PARA ET AL CAMERON  
 FIELD OR AREA: [ ] POOL OR ZONE: KEG RIVER NAME OF SAMPLER: [ ] COMPANY: [ ]  
 TEST TYPE: [ ] NO.: [ ] TEST RECOVERY: [ ]  
 MULTIPLE RECOVERY: Y [ ] N [ ]  
 SAMPLING POINT: WELLHEAD AMT. & TYPE OF CUSHION: [ ] MUD RESISTIVITY: [ ] @ 25°C  
 TYPE OF PRODUCTION: PUMPING [ ] FLOWING [ ] GAS LIFT [ ] SWAB [ ]  
 PRODUCTION RATES: WATER [ ] m³/d OIL [ ] m³/d GAS [ ] 10³m³/d  
 GAUGE PRESSURE kPa: SEPARATOR [ ] TREATER [ ] RESERVOIR [ ] SOURCE 8000 SAMPLED 8000 RECEIVED 10 250  
 TEMPERATURE °C: SEPARATOR [ ] TREATER [ ] RESERVOIR [ ] SOURCE [ ] SAMPLED [ ] RECEIVED 23  
 DATE SAMPLED (Y-M-D): 90-03-26 DATE RECEIVED (Y-M-D): 90-04-02 DATE REPORTED (Y-M-D): 90-04-05 ANALYST: B. ANDERSON  
 TEST INTERVAL (metres): [ ] PERFORATIONS (metres): 1495 - 1497 KB  
 OTHER INFORMATION: [ ]

COMP	MOLE FRACTION		PETROLEUM LIQUID CONTENT ml/m³
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	TRACE	TRACE	
He	0.0008	0.0008	
N <sub>2</sub>	0.0318	0.0328	
CO <sub>2</sub>	0.0240	0.0000	
H <sub>2</sub> S	0.0079	0.0000	
C <sub>1</sub>	0.8658	0.8943	
C <sub>2</sub>	0.0359	0.0371	
C <sub>3</sub>	0.0173	0.0179	63.6
IC <sub>4</sub>	0.0030	0.0031	13.1
NC <sub>4</sub>	0.0055	0.0057	23.1
IC <sub>5</sub>	0.0021	0.0022	10.3
NC <sub>5</sub>	0.0019	0.0020	9.2
C <sub>6</sub>	0.0019	0.0020	10.4
C <sub>7+</sub>	0.0021	0.0021	13.9
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10+</sub>			
TOTAL	1.0000	1.0000	143.6

GROSS HEATING VALUE MJ/m³  
 15°C AND 101.325 kPa  
 MOISTURE AND ACID GAS FREE MEASURED [ ] CALCULATED 40.48  
 DETERMINED DEW POINT [ ] °C  
 VAPOUR PRESSURE PENTANES PLUS 71. kPa  
 RELATIVE DENSITY  
 MOISTURE FREE AS SAMPLED MEASURED 0.660 CALCULATED 0.660  
 MOISTURE AND ACID GAS FREE MEASURED [ ] CALCULATED 0.635  
 PSEUDO CRITICAL PROPERTIES (CALCULATED)  
 AS SAMPLED pPc(abs) 4643. kPa pTc 204.2 K  
 ACID GAS FREE pPc(abs) 4540. kPa pTc 200.3 K

H<sub>2</sub>S g/m³ 11.44  
 RELATIVE MOLECULAR MASS TOTAL GAS 19.12 C<sub>7+</sub> 109.56  
 C<sub>5+</sub> ML/MOL 1.036

GROSS HEATING VALUE AS PER AGA REPORT #5  
 39.37 MAJ/M3 @ 15C AND 101.325 KPA



## GAS ANALYSIS

CONTAINER IDENTIFICATION: **C&G 3489** LABORATORY NUMBER: **65303A**

OPERATOR NAME: **PARAMOUNT RESOURCES LTD.** \*\*\*\*\*

UNIQUE WELL IDENTIFIER: **PARAMOUNT et al CAMERON HILLS J-37** ELEVATIONS: KB m **729.4** GRD m **725.7**

FIELD OR AREA: **CAMERON HILLS** POOL OR ZONE: **SULPHUR POINT** NAME OF SAMPLER: **NORTHLAND** COMPANY: **NORTHLAND**

TEST TYPE: **NO** TEST RECOVERY: **SEPARATOR**

TEST INTERVAL OR PERFS: **1393.0-1395.5 mKB** SAMPLING POINT: **SEPARATOR**

SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
1780			1780		1700
TEMPERATURE °C			42		22

GAUGE PRESSURE kPa: **1780** TEMPERATURE °C: **42**

DATE SAMPLED (Y-M-D): **91-03-10** DATE RECEIVED (Y-M-D): **91-03-15** DATE REPORTED (Y-M-D): **91-03-21** ANALYST: **HU** OTHER INFORMATION: **60 10' N 117 30' W**

COMP.	MOLE FRACTION		PETROLEUM LIQUID CONTENT mL · m <sup>-3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	0.0000	0.0000	
He	0.0007	0.0008	
N <sub>2</sub>	0.0454	0.0501	
CO <sub>2</sub>	0.0613	0.0000	
H <sub>2</sub> S	0.0115	0.0000	
C <sub>1</sub>	0.8533	0.9201	
C <sub>2</sub>	0.0141	0.0152	
C <sub>3</sub>	0.0070	0.0075	25.7
IC <sub>4</sub>	0.0011	0.0012	4.9
NC <sub>4</sub>	0.0021	0.0023	9.0
IC <sub>5</sub>	0.0006	0.0007	3.0
NC <sub>5</sub>	0.0006	0.0007	3.0
C <sub>6</sub>	0.0005	0.0005	2.7
C <sub>7+</sub>	0.0008	0.0009	5.1
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10+</sub>			
TOTAL	1.0000	1.0000	53.4

GROSS HEATING VALUE MJm<sup>-3</sup> 15° C AND 101.325 kPa

MOISTURE AND ACID GAS FREE

MEASURED: **37.39** DETERMINED DEW POINT: **70.2** °C VAPOUR PRESSURE PENTANES PLUS: **70.2** kPa

ACTUAL GROSS HEATING VALUE: **34.95**

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED

MEASURED: **0.663** CALCULATED: **0.601**

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED ACID GAS FREE

pPc (abs): **4762** kPa pTc: **200.9** K pPc (abs): **4536** kPa pTc: **191.9** K

RELATIVE MOLECULAR MASS

TOTAL GAS: **19.2** C<sub>7+</sub>: **105.0**

H<sub>2</sub>S g/m<sup>3</sup>: **16.52**

REMARKS:

FIELD H<sub>2</sub>S = 1.15% (TUTWEILER)

<b>Container Identification</b> AGAT 19276		<b>Laboratory Number</b> GE09435A																
<b>Operator Name</b> PARAMOUNT RESOURCES LTD.																		
<b>Unique Well Identifier</b> NOT AVAILABLE	<b>Well Name</b> PARA et al CAMERON J-37		<b>Elevation</b> KB m 729.40 GRD m 725.70															
<b>Field or Area</b> CAMERON	<b>Pool or Zone</b> SULPHUR POINT	<b>Sampler's Company</b> SOLID PRODUCTION SERVICES																
<b>Test Type</b>	<b>Test No.</b>	<b>Test Recovery</b>	<b>Name of Sampler</b>															
<b>Test Interval or Perfs</b> 1393.0-1395.5 mKB		<b>Sampling Point</b> METER RUN	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><b>Separator</b></td> <td><b>Reservoir</b></td> <td><b>Source</b></td> <td><b>Sampled</b></td> <td><b>Received</b></td> </tr> <tr> <td>Pressure (kPa)</td> <td></td> <td>565</td> <td>565</td> <td>540</td> </tr> <tr> <td>Temperature</td> <td></td> <td>-5</td> <td>-5</td> <td>21</td> </tr> </table>	<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>	<b>Sampled</b>	<b>Received</b>	Pressure (kPa)		565	565	540	Temperature		-5	-5	21
<b>Separator</b>	<b>Reservoir</b>	<b>Source</b>	<b>Sampled</b>	<b>Received</b>														
Pressure (kPa)		565	565	540														
Temperature		-5	-5	21														
<b>Date Sampled</b> Mar 25, 2002	<b>Date Received</b> Apr 02, 2002	<b>Date Reported</b> Apr 08, 2002	<b>Entered By</b> GE															
		<b>Certified By</b> ES																
<b>Other Information</b> LAB H2S = 0.85% LOCATION: 60°10'N 117°30'W																		

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WebFLUIDs, a comparison, history and trending analysis system.

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0011	0.0012	
He	0.0009	0.0010	
N2	0.0170	0.0182	
CO2	0.0568	0.0000	
H2S	0.0085	0.0000	
C1	0.8902	0.9524	
C2	0.0133	0.0142	
C3	0.0071	0.0076	26.1
IC4	0.0011	0.0012	4.8
NC4	0.0023	0.0025	9.7
IC5	0.0006	0.0006	2.9
NC5	0.0006	0.0006	2.9
C6	0.0005	0.0005	2.7
C7+	0.0000	0.0000	0.0
<b>Total</b>	<b>1.0000</b>	<b>1.0000</b>	<b>49.1</b>

**GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa**

<b>Air Free As Received</b>	<b>Moisture &amp; Acid Gas Free</b>
36.10	38.36

**RELATIVE DENSITY (CALCULATED)**

<b>Moisture Free</b>	<b>Moisture &amp; Acid Gas Free</b>
0.642	0.584

**PSEUDO CRITICAL PROPERTIES (CALCULATED)**

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4767	201.2	4570	193.3

**RELATIVE MOLECULAR MASS**

<b>Total Gas</b>	<b>C<sub>7</sub><sup>+</sup></b>
18.6	0.0

**VAPOUR PRESSURE  
(Pentanes +)**

97.71 kPa

**H<sub>2</sub>S g/m<sup>3</sup>**

12.23



**G A S   A N A L Y S I S**

V1679  
CONTAINER IDENTITY

52136-90-400  
LABORATORY NUMBER

Paramount Resources Ltd.  
OPERATOR

11 of 11  
PAGE

Paramount et al Cameron J37  
WELL OR SAMPLE LOCATION NAME

729.35 725.65  
KB ELEV.(m) GR ELEV.(m)

Cameron, N.W.T. Sulpher Point Baker Oil & Tool  
FIELD OR AREA POOL OR ZONE SAMPLER

DST # 2  
TEST TYPE & NO.

Bottomhole  
TEST RECOVERY

@ °C

POINT OF SAMPLE AMT. & TYPE CUSHION MUD RESISTIVITY

PUMPING FLOWING GAS LIFT SWAB

1375.00-  
1406.00 mkb

WATER m<sup>3</sup>/d OIL m<sup>3</sup>/d GAS m<sup>3</sup>/d

TEST INTERVALS (metres)

SEPARATOR RESERVOIR 3500 @ °C @ °C

CONTAINER WHEN SAMPLED CONTAINER WHEN RECEIVED

SEPARATOR

--- PRESSURES, kPa (gauge) ---

--- TEMPERATURES, °C ---

90 03 03 90 03 05 90 03 12 GS  
DATE SAMPLED (Y/M/D) DATE RECEIVED (Y/M/D) DATE ANALYZED (Y/M/D) ANALYST

REMARKS

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	mL/m <sup>3</sup> AIR FREE AS RECEIVED
H <sub>2</sub>	0.0002		
He	0.0008		
N <sub>2</sub>	0.0151		
CO <sub>2</sub>	0.0501		
H <sub>2</sub> S	0.0081		
C <sub>1</sub>	0.9004		
C <sub>2</sub>	0.0139		
C <sub>3</sub>	0.0064		23.5
iC <sub>4</sub>	0.0010		4.4
C <sub>4</sub>	0.0021		8.8
iC <sub>5</sub>	0.0006		2.9
C <sub>5</sub>	0.0006		2.9
C <sub>6</sub>	0.0005		2.7
C <sub>7+</sub>	0.0002		1.4
TOTAL	1.0000		46.6
		C <sub>5+</sub>	9.9

<b>CALCULATED GROSS HEATING VALUE</b> MJ/m <sup>3</sup> @15°C & 101.325 kPa (abs.)	<b>CALCULATED VAPOUR PRESSURE</b> kPa (abs.) @40.0°C
36.44 MOISTURE FREE	38.48 MOISTURE & ACID GAS FREE
	94.5 PENTANES PLUS

<b>CALCULATED TOTAL SAMPLE PROPERTIES (AIR=1) @ 15° C &amp; 101.325 kPa</b> MOISTURE FREE AS SAMPLED		
0.778 kg/m <sup>3</sup> DENSITY	0.635 RELATIVE DENSITY	18.4 RELATIVE MOLECULAR MASS

<b>CALCULATED PSEUDOCRITICAL PROPERTIES</b>			
AS SAMPLED		ACID GAS FREE	
4747.8 kPa (abs) p <sub>Pc</sub>	200.6 K p <sub>Tc</sub>	kPa (abs) p <sub>Pc</sub>	K p <sub>Tc</sub>

**REMARKS**

The H<sub>2</sub>S value of 0.0080 mole fraction was determined in the laboratory by Gas Chromatography.

Note: The Gross Heating Value has been calculated in accordance to AGA Report #5 and all Properties have been calculated utilizing GPA 2145-88 physical constants.



## GAS ANALYSIS

CONTAINER IDENTIFICATION: **CX 5542**      LABORATORY NUMBER: **62894A**

OPERATOR NAME: **PARAMOUNT RESOURCES LTD.** \*\*\*\*\*

UNIQUE WELL IDENTIFIER: **SWEDE**      WELL NAME: **PARAMOUNT et al SWEDE A-73**      KB m: **679.6**      ELEVATIONS GRD m: **675.6**

FIELD OR AREA: **SWEDE**      POOL OR ZONE: **SULPHUR POINT**      NAME OF SAMPLER: **RS**      COMPANY: **SAME**

TEST TYPE:  YES  NO      TEST RECOVERY:

TEST INTERVAL OR PERFS: **1369.0-1370.5 mKB**      SAMPLING POINT: **TUBING**

SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
			<b>8500</b>	<b>8500</b>	<b>11500</b>

Gauge Pressure kPa:       Temperature °C:

DATE SAMPLED (Y-M-D): **90-03-17**      DATE RECEIVED (Y-M-D): **90-03-21**      DATE REPORTED (Y-M-D): **90-03-27**      ANALYST: **DG HU**      OTHER INFORMATION:

COMP	MOLE FRACTION		PETROLEUM LIQUID CONTENT mL · m <sup>-3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H <sub>2</sub>	TRACE	TRACE	
H <sub>6</sub>	0.0009	0.0010	
N <sub>2</sub>	0.0159	0.0168	
CO <sub>2</sub>	0.0460	0.0000	
H <sub>2</sub> S	0.0096	0.0000	
C <sub>1</sub>	0.8938	0.9464	
C <sub>2</sub>	0.0145	0.0153	
C <sub>3</sub>	0.0073	0.0077	26.8
IC <sub>4</sub>	0.0013	0.0014	5.8
NC <sub>4</sub>	0.0033	0.0035	14.1
IC <sub>5</sub>	0.0016	0.0017	7.9
NC <sub>5</sub>	0.0018	0.0019	8.6
C <sub>6</sub>	0.0021	0.0022	11.6
C <sub>7</sub> +	0.0019	0.0021	12.4
C <sub>8</sub>			
C <sub>9</sub>			
C <sub>10</sub> +			
TOTAL	1.0000	1.0000	87.2

GROSS HEATING VALUE MJm<sup>-3</sup>  
15° C AND 101.325 kPa

MOISTURE AND ACID GAS FREE

MEASURED	CALCULATED	DETERMINED DEW POINT	VAPOUR PRESSURE PENTANES PLUS
<input type="text"/>	<b>39.49</b>	<input type="text"/> °C	<b>68.3</b> kPa

ACTUAL GROSS HEATING VALUE: **37.53**

-----RELATIVE DENSITY-----

MOISTURE FREE AS SAMPLED

MOISTURE AND ACID GAS FREE

MEASURED	CALCULATED	MEASURED	CALCULATED
<input type="text"/>	<b>0.649</b>	<input type="text"/>	<b>0.601</b>

-----PSEUDO CRITICAL PROPERTIES (CALCULATED)-----

AS SAMPLED

ACID GAS FREE

pPc (abs)	pTc	pPc (abs)	pTc
<b>4738</b> kPa	<b>202.7</b> K	<b>4566</b> kPa	<b>196.0</b> K

-----RELATIVE MOLECULAR MASS-----

TOTAL GAS	C <sub>7</sub> +
<b>18.8</b>	<b>104.1</b>

H<sub>2</sub>S g/m<sup>3</sup> **13.83**

REMARKS:



Container Identification 21788F		Laboratory Number GE70314F			
Operator Name PARAMOUNT RESOURCES LTD.					
Unique Well Identifier NOT AVAILABLE		Well Name A73 PARAMOUNT et al SWEDE		Elevation KB m 679.60 GRD m 675.60	
Field or Area SWEDE		Pool or Zone <del>SLAVE POINT</del> <i>Sulphur Point</i>		Sampler's Company SAME	
Test Type	Test No.	Test Recovery			Name of Sampler
Test Interval or Perfs		Sampling Point METER RUN		Separator	Reservoir
				Source	Sampled
				1708	1708
				21	21
				Received	1300
				21	21
Date Sampled Mar 08, 2001		Date Received Mar 30, 2001		Date Reported Apr 09, 2001	
				Analyst PL	
Other Information FIELD H2S 0.8% LAB H2S 1.26%					

COMP	MOLE FRACTION		PETROLEUM LIQUID mL • m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0007	0.0007	
He	0.0009	0.0010	
N2	0.0151	0.0160	
CO2	0.0457	0.0000	
H2S	0.0126	0.0000	
C1	0.8993	0.9552	
C2	0.0133	0.0141	
C3	0.0066	0.0070	24.2
IC4	0.0010	0.0011	4.4
NC4	0.0024	0.0025	10.1
IC5	0.0007	0.0007	3.4
NC5	0.0007	0.0007	3.4
C6	0.0006	0.0006	3.3
C7+	0.0004	0.0004	2.5
Total	1.0000	1.0000	51.3

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.62	38.52

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.634	0.584

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4757	201.0	4573	193.6

RELATIVE MOLECULAR MASS

Total Gas	C7+
18.4	100.2

VAPOUR PRESSURE  
(Pentanes +)

82.84 kPa

H<sub>2</sub>S g/m<sup>3</sup>

18.13

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.





Container Identification 17865E		Laboratory Number GE70314E	
Operator Name PARAMOUNT RESOURCES LTD.			
Unique Well Identifier NOT AVAILABLE	Well Name A73 PARAMOUNT et al SWEDE		Elevation KB m 679.60 GRD m 675.60
Field or Area SWEDE	Pool or Zone <del>SLAVE POINT</del> <i>Sulphur Point</i>	Sampler's Company SOLID PRODUCTION SERVICES	
Test Type	Test No.	Test Recovery	Name of Sampler
Test Interval or Perfs	Sampling Point METER RUN	Separator	Reservoir
		Pressure (kPa)	Source
		Temperature (°C)	Sampled
			Received
Date Sampled Mar 04, 2001	Date Received Mar 30, 2001	Date Reported Apr 09, 2001	Analyst PL
Other Information FIELD H2S 1.2%			

COMP	MOLE FRACTION		PETROLEUM LIQUID mL · m <sup>3</sup>
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0000	0.0000	
He	0.0010	0.0011	
N2	0.0173	0.0184	
CO2	0.0471	0.0000	
H2S	0.0120	0.0000	
C1	0.8965	0.9529	
C2	0.0134	0.0142	
C3	0.0065	0.0069	23.9
IC4	0.0011	0.0012	4.8
NC4	0.0024	0.0026	10.1
IC5	0.0007	0.0007	3.4
NC5	0.0007	0.0007	3.4
C6	0.0007	0.0007	3.8
C7+	0.0006	0.0006	3.8
Total	1.0000	1.0000	53.2

GROSS HEATING VALUE MJ/m<sup>3</sup>  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
36.56	38.51

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.638	0.586

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
4757	201.1	4571	193.7

RELATIVE MOLECULAR MASS

Total Gas	C7+
18.5	102.5

VAPOUR PRESSURE  
(Pentanes +)

75.46 kPa

H<sub>2</sub>S g/m<sup>3</sup>

17.26

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WinFLUID, a comparison, history and trending analysis system.

