1857

N.E.B. COPY

EXTENDED GAS ANALYSIS

CONTAINER IDENTITY	METER ID	WELL LICENSE NUMBER	LABORATORY FILE NUMBER
V0003537 - 1			52136-2002-0102

OPERATOR: Paramount Resources Ltd. | PAGE: 1

LOCATION (UWI)	WELL NAME	KB ELEV (m)	GR ELEV (m)
300C026040123000	Para Berkley Arrowhead C-02	454.10	447.20

FIELD OR AREA	POOL OR ZONE	SAMPLER
Arrowhead	Chinkeh	Opsco '92

TEST TYPE AND NO.: | TEST RECOVERY:

POINT OF SAMPLE: Meter Run | CORE LAB SAMPLE POINT ID:

TEST INTERVAL or PERFS (meters): 605.0 - 609.0

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/d

Pressures, kPa (gauge)

SEPARATOR	RESERVOIR	OTHER	CONTAINER WHEN SAMPLED	CONTAINER WHEN RECEIVED
207			@ °C	48 @ 22 °C

Temperatures, °C

SEPARATOR	OTHER
28	

DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	AMT. AND TYPE CUSHION	MUD RESISTIVITY
2002 01 09	2002 01 12	2002 01 12	CG		@ °C

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	mL/m³ AIR FREE AS RECEIVED
H_2	0.0000	0.0000	
He	0.0006	0.0006	
N_2	0.0079	0.0085	
CO_2	0.0723	0.0000	
H_2S	0.0000	0.0000	
C_1	0.9080	0.9788	
C_2	0.0038	0.0041	13.5
C_3	0.0062	0.0066	22.8
iC_4	0.0006	0.0007	2.6
C_4	0.0003	0.0003	1.3
iC_5	0.0002	0.0002	1.0
C_5	Trace	Trace	Trace
C_6	0.0001	0.0001	0.5
C_{7+}	Trace	0.0001	Trace
Total	1.0000	1.0000	41.7

CALCULATED GROSS HEATING VALUE MJ/m³ @ 15°C & 101.325 kPa (abs.)		CALCULATED VAPOR PRESSURE kPa (abs.) @ 40 °C
35.31	38.07	113.3
MOISTURE FREE	MOISTURE & ACID GAS FREE	PENTANES PLUS

CALCULATED TOTAL SAMPLE PROPERTIES (AIR=1) @ 15°C & 101.325 kPa
MOISTURE FREE AS SAMPLED

DENSITY	RELATIVE DENSITY	RELATIVE MOLECULAR MASS
0.780 kg/m³	0.637	18.4

CALCULATED PSEUDOCRITICAL PROPERTIES

AS SAMPLED		ACID GAS FREE	
4785.1 kPa (abs)	200.0 K	4583.4 kPa (abs)	191.9 K
pPc	pTc	pPc	pTc

C_{7+} PROPERTIES @ 15°C & 101.325 kPa		GAS COMPRESSIBILITY	SUPER COMPRESSIBILITY
kg/m³			
DENSITY	MOLECULAR WEIGHT	@ 15°C 101.325 kPa	@ 15°C 101.325 kPa

REMARKS:

Opening pressure does not reflect field conditions

NOTE: THE GROSS HEATING VALUE HAS BEEN CALCULATED IN ACCORDANCE TO AGA REPORT #5 AND ALL PROPERTIES HAVE BEEN CALCULATED UTILIZING GPA 2145 - 00 PHYSICAL CONSTANTS.

WATER ANALYSIS

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CONTAINER IDENTITY	METER ID	WELL LICENSE NUMBER	LABORATORY FILE NUMBER

Paramount Resources Ltd. — OPERATOR — PAGE 2

300C026040123000	Para Berkely Arrowhead C-02	454.10	447.20
LOCATION (UWI)	WELL NAME	KB ELEV (m)	GR ELEV (m)

Arrowhead	Chinkeh	Opsco '92
FIELD OR AREA	POOL OR ZONE	SAMPLER

TEST TYPE AND NO. — TEST RECOVERY

Manifold - Fluid Sample — POINT OF SAMPLE — CORE LAB SAMPLE POINT ID

PUMPING — FLOWING — GAS LIFT — SWAB

605.0 - 609.0 — TEST INTERVAL or PERFS (meters)

WATER m³/d — OIL m³/d — GAS m³/d

SEPARATOR — RESERVOIR — OTHER — @ °C CONTAINER WHEN SAMPLED — @ °C CONTAINER WHEN RECEIVED

Pressures, kPa (gauge)

SEPARATOR — OTHER

Temperatures, °C

at 20:45 hrs

2002 01 04	2002 01 12	2002 01 13	PB		@
DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	AMT. AND TYPE CUSHION	MUD RESISTIVITY

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	253	0.0069	11.0
K	18,156	0.4952	464.4
Ca	351	0.0096	17.5
Mg	58	0.0016	4.7
Ba			
Sr			
Fe	N.D.		
Mn			

ANIONS

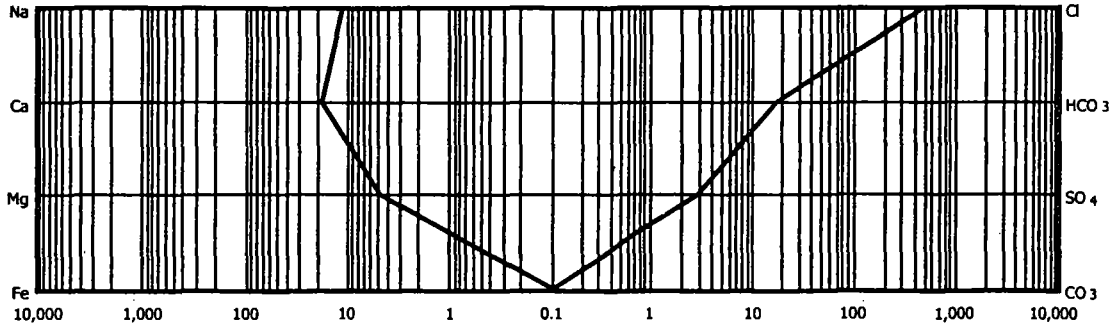
ION	mg/L	mg Fraction	meq/L
Cl	16,666	0.4546	470.1
Br			
I			
HCO_3	1,044	0.0285	17.1
SO_4	135	0.0037	2.8
CO_3	0.00	0.0000	0.0
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C	By Evaporation @ 180 °C
At Ignition	36663 Calculated
1.0206 @ 15.6 °C Specific Gravity	1.3378 @ 19 °C Refractive Index
7.4 pH	0.180 @ 25 °C Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS

meq/L



REMARKS: N.D.- Not Detected.

WATER ANALYSIS

CONTAINER IDENTITY	METER ID	WELL LICENSE NUMBER	LABORATORY FILE NUMBER
157 - 2			52136-2002-0102

Paramount Resources Ltd. — OPERATOR

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LOCATION (UWI)	WELL NAME	KB ELEV (m)	GR ELEV (m)
300C026040123000	Para Berkely Arrowhead C-02	454.10	447.20

FIELD OR AREA	POOL OR ZONE	SAMPLER
Arrowhead	Chinkeh	Opsco '92

TEST TYPE AND NO. — TEST RECOVERY

Manifold - Mud Sample — POINT OF SAMPLE — CORE LAB SAMPLE POINT ID

PUMPING — FLOWING — GAS LIFT — SWAB

605.0 - 609.0 — TEST INTERVAL or PERFS (meters)

WATER m³/d — OIL m³/d — GAS m³/d

SEPARATOR — RESERVOIR — OTHER — @ °C CONTAINER WHEN SAMPLED — @ °C CONTAINER WHEN RECEIVED

Pressures, kPa (gauge)

SEPARATOR — OTHER

Temperatures, °C

DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	AMT. AND TYPE CUSHION	@ MUD RESISTIVITY
2002 01 05	2002 01 12	2002 01 13	PB		@

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	4,191	0.1724	182.3
K	4,127	0.1698	105.6
Ca	1,573	0.0647	78.5
Mg	220	0.0090	18.1
Ba			
Sr			
Fe	Pres.		
Mn			

ANIONS

ION	mg/L	mg Fraction	meq/L
Cl	12,502	0.5143	352.6
Br			
I			
HCO_3	1,411	0.0580	23.1
SO_4	285	0.0117	5.9
CO_3	0.00	0.0000	0.0
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C	By Evaporation @ 180 °C

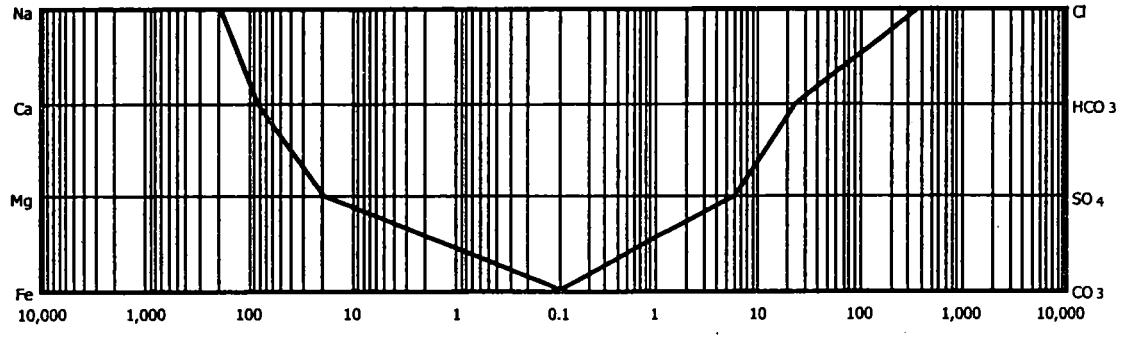
At Ignition	Calculated
	24309

Specific Gravity	Refractive Index
1.0172 @ 15.6 °C	1.3368 @ 19 °C

pH	Resistivity (Ohm-Meters)
6.8	0.276 @ 25 °C

LOGARITHMIC PATTERNS OF DISSOLVED IONS

meq/L



REMARKS: N.D.- Not Detected Pres. - Analyte Present

WATER ANALYSIS

162 - 4			52136-2002-0102
CONTAINER IDENTITY	METER ID	WELL LICENSE NUMBER	LABORATORY FILE NUMBER

Paramount Resources Ltd. — OPERATOR — PAGE 4

300C026040123000	Para Berkely Arrowhead C-02	454.10	447.20
LOCATION (UWI)	WELL NAME	KB ELEV (m)	GR ELEV (m)

Arrowhead	Chinkeh	Opsco '92
FIELD OR AREA	POOL OR ZONE	SAMPLER

TEST TYPE AND NO. — TEST RECOVERY

Pressure Tank — POINT OF SAMPLE — CORE LAB SAMPLE POINT ID

605.0 - 609.0 — TEST INTERVAL or PERFS (meters)

PUMPING — FLOWING — GAS LIFT — SWAB

WATER m³/d — OIL m³/d — GAS m³/

SEPARATOR — RESERVOIR — OTHER — @ °C CONTAINER WHEN SAMPLED — @ °C CONTAINER WHEN RECEIVED

Pressures, kPa (gauge) — at 15:00 hrs

SEPARATOR — OTHER

Temperatures, °C

2002 01 08	2002 01 12	2002 01 13	PB		@
DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	AMT. AND TYPE CUSHION	MUD RESISTIVITY

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	9,829	0.1888	427.5
K	10,481	0.2014	268.1
Ca	2,386	0.0458	119.0
Mg	176	0.0034	14.5
Ba			
Sr			
Fe	Pres.		
Mn			

ANIONS

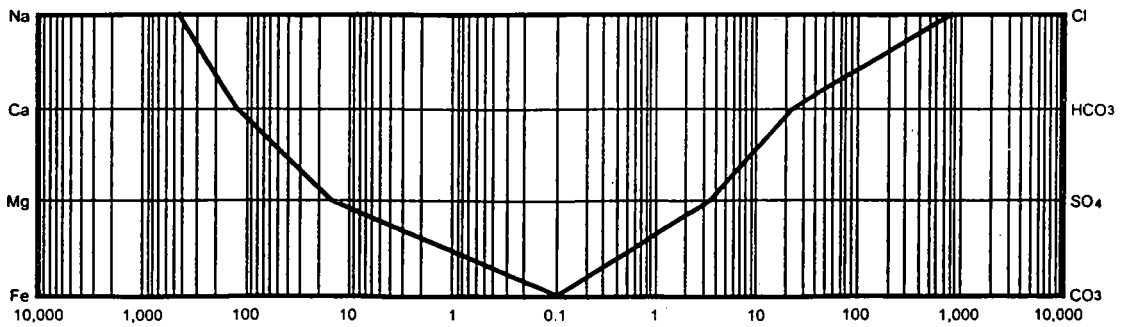
ION	mg/L	mg Fraction	meq/L
Cl	27,638	0.5310	779.6
Br			
I			
HCO_3	1,380	0.0265	22.6
SO_4	161	0.0031	3.4
CO_3	0.00	0.0000	0.0
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C	By Evaporation @ 180 °C
At Ignition	52051 Calculated
1.0355 @ 15.6 °C Specific Gravity	1.3413 @ 19 °C Refractive Index
6.9 pH	0.134 @ 25 °C Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS

meq/L



REMARKS: N.D.- Not Detected Pres. - Analyte Present