

Paramount et al Ft Liard F-36 60 10 123 15

WID 1841

Report on Zonal Abandonment Operations

20170201 - 20170217

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Heenan Energy Services  
20170413

## Executive Summary

The F-36 well was one of three connected to the Liard gathering system and the Shiha pipeline. Due to low gas production, the field was shut in and the pipeline suspended in 2008. It was decided to abandon the F-36 well, along with two other former producing wells (O-35 and N-01) and two wells that had never been placed on production (I-46 and A-01).

The required land use permit and water license were obtained, and requests for Approval to Alter the Condition of a Well were made to abandon all five wells.

The F-36 well was dually completed as a Mattson (tubing side) and Fantasque (annulus side) producing gas well. The initially approved program was to remove the packer at 1379mKB and the associated tubing, and then to squeeze cement into the Mattson perforations. Due to junk left in the hole in 2006, it was not possible to remove the remaining packers and associated completion hardware. Once the service rig arrived on location (20160204), it proved impossible to pump sufficient fluid into the well to kill it. Based on previous static gradient measurements, a full column of fresh water has sufficient density to kill the well, but it proved impossible to pump sufficient fluid to achieve the required column, and the well repeatedly flowed back the kill fluid, preventing removal of the wellhead and installation of BOPs. It is thought that a fish comprised of wireline tools left in the well and associated scale and other debris formed a “check valve” type plug allowing gas to flow upward and yet preventing kill fluid from being pumped downhole. (This phenomenon is frequently noted with sand or barite plugs.) A modification to the original program was approved, where a permanent bridge plug was set in the tubing to enable the wellhead to be removed and the BOPs to be installed.

The tubing was cut and removed. A bridge plug was set at 1367mKB. A balanced plug of 4.1 tonnes of class G cement was set on top of the bridge plug and squeezed to 14MPa. The cement top was tagged at 1213mKB and the cement plug pressure tested to 7MPa. These operations abandoned the Mattson and Fantasque zones as per OROGO requirements.

Previous shut-in well inspections (2016 and 2014), along with observations on-site during the abandonment of the lower zones indicated gas flow from the surface casing vent. Gas samples were taken of the surface casing vent and analyzed for gas composition and isotopes. Due to the lack of control information from adjacent wells, results were not conclusive, although it appeared to be of thermogenic rather than biogenic origin (i.e. not “swamp gas”) which is to be expected, since its origin is presumably below the 502m surface casing shoe.

A noise and temperature logs were run, along with a cement bond log from plug back depth to surface. Indications were not conclusive, but it appeared that the source of the gas was in the area of 900m. A review of the cement bond log showed “good bond” (i.e. not sufficient annular space to squeeze cement) in this area. The lowest region where there appeared to be significantly poor bond to permit a cement squeeze was 836-838mKB, and the next lowest similar zone was at 562-564mKB.

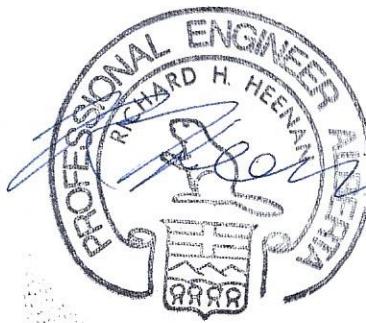
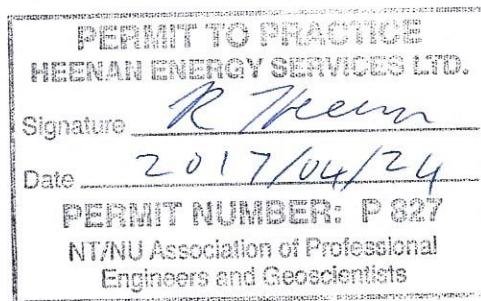
The 836-838mKB zone was perforated but a negligible feed rate was achieved with water. The zone was acidized with 2 m<sup>3</sup> of 15% HCl and a final feed rate of 180 lpm was achieved with water at 14MPa on surface. A cement retainer was run on wireline and set at 827m. A total of 550 liters of micro-fine cement was squeezed into the formation with a final squeeze pressure of 7Mpa on February 14. The remaining cement was spotted on top of the retainer with a calculated cement top at 764mKB.

Operations that increased the pressure on the production casing (pressure testing, feed rate with water, and acidizing) resulted in a temporary decrease of gas flow via the SCV, but the flow returned as soon as the flow was bled off, suggesting flow was up a micro annulus outside the production casing.

The 562-564mKB zone was perforated but a negligible feed rate was achieved with water. The zone was acidized with 2 m<sup>3</sup> of 15% HCl and a final feed rate of 170 lpm was achieved with water at 13MPa on surface. A cement retainer was run on tubing and set at 558mKB. A total of 1.2m<sup>3</sup> of micro-fine cement was squeezed into the formation with a final squeeze pressure of 8Mpa on February 17. The remaining cement was spotted on the cement retainer with a calculated cement top of 534mKB. Again, operations that increase the pressure on the production casing (pressure testing, feed rate with water, and acidizing) resulted in a temporary decrease of gas flow via the SCV, but after the squeeze the flow decreased from 4-8 m<sup>3</sup>/day to less than 0.01 m<sup>3</sup>/day.

The very low flow rate continued (showing a downward trend) but was interspersed with periods where the well was on vacuum. Based upon these observations, it was apparent that the SCVF had been substantially reduced and likely the source of the flow had been shut off, but the well was not ready to be cut and capped. As approved by OROGO, the well will be left with the SCV open to atmosphere to allow any remaining trapped gas to bleed off. The SCVF will be evaluated in the summer of 2017 and Paramount will develop a plan to either cut and cap the well or develop a remediation plan to shut off the SCVF.

As the well remains in a shut-in status no change of Well Status Form was submitted



The following are attached to this report

Wellbore Diagrams

At end of operations (20170217)

Prior to operations (20170201)

Geologic Analysis re Possible Sources of SCVF

Gas Analyses

Mattson Gas Analysis – (20010723)

Fantasque Gas Analysis – (20050206)

SCV gas (composition) – (20170207)

SCV gas (Isotope) – (20170207)

Noise Logs (SCV Flowing and Shut-in on one presentation)

Surface Casing Vent – Flow Rate and SI Pressures

2017 February 4-20

2017 February 20 – March 4

2017 March 4 – 7

Daily Completion Reports – 20170201-20170217

Letter to OROGO Requesting Modification to ACW to Allow F-36 SCV to Vent for Evaluation

OROGO Approval to Allow F-36 SCV to Vent for Evaluation

# F-36 Original Configuration

Downhole Well Profile							
WELL NAME		Paramount et al Fort Liard F-36		DATE	March 21,2006		
ELEVATIONS (meters)							
KB ELEV	GL ELEV	KB TO THF	KB TO SCF	KB TO GL	PBTD		
470.3	464.8	4.95		5.5	2092 mKB		
CASING DESCRIPTION		OD (mm)	LANDED DEPTH	WEIGHT (kg/m)	TOP OF (mKB)		
Surface Casing	244.5		502 mKB	48.07	Surface		
Intermediate Casing	177.8		1494 mKB	34.2	Surface		
Liner	114.3		2107.59 mKB	17.26	1387.7		
Perf Date							
Zones		Top Shot	Bottom Shot	Status	Gun Data		
Mattson	1751.00	2046.00		Open			
Mattson	1600.00	1724.00		Open			
Mattson	1514.00	1582.00		Open			
Fantasque	1344.00	1347.00		Open			
DOWNHOLE DESCRIPTION FROM BOTTOM UP (Tubing String)							
ITEM #	DESCRIPTION		LENGTH	TOP OF (mKB)			
1	139.7 mm On/Off not latched, no seals		0.44	1382.36			
2	60.3 mm L-80 tubing pup joint		0.63	1381.73			
3	60.3 mm x 47.63 mm 'F' profile		0.28	1381.45			
4	60.3 mm x 73.0 mm x-over		0.20	1381.25			
5	177.8 x 73.0 mm 'FH' 10K Hydraulic set packer		2.03	1379.22			
6	73.0 mm x 60.3 mm x-over		0.20	1379.02			
7	139.7 mm L-10 On/Off c/w 47.63 mm profile		0.44	1378.58			
8	60.3 mm L-80 tubing pup joint		1.27	1377.31			
9	60.3 mm x 47.63 mm 'F' profile		0.28	1377.03			
10	60.3 mm L-80 tubing nipple		0.33	1376.70			
11	3 - Its 60.3 mm, 6.99 kg/m, L-80 tubing		29.08	1347.62			
12	2 - 60.3 mm blast joints (78.0 mm x 50.6 mm)		6.00	1341.62			
13	Baker 'D' SSL 60.3 mm x 47.63 mm 'F' profile		1.16	1340.46			
14	136 jts 60.3 mm, 6.99 kg/m, L-80 tubing		1317.91	22.55			
15	3 - 60.3 mm, L-80 tubing pup joints (1-6, 2-10')		8.00	14.55			
16	1 - jt 60.3mm, 6.99 kg/m, L-80 tubing		9.71	4.84			
17	Dual Hanger Assembly		0.20	4.64			
18	52.4 mm re-entry guide @ 1347.90 mKB			-			
19	52.4 mm x 3.00 m pup jt @ 1347.82			-			
20	52.4 x 39.67mm 'F' no/go 38.35mm @ 1344.61 mKB			-			
21	52.4 mm, 4.84 kg/m jt tbg @ 1334.69 mKB			-			
22	52.4 x 39.67mm 'F' @ 1334.46 mKB			-			
23	52.4 mm x 3.00 m pup jt @ 1331.43			-			
24	52.4 mm, 4.84 kg/m, 134 jts tbg @ 1331.43 mKB			-			
WEIGHT OF TUBING STRING (daN)		8000	TOTAL STRING LENGTH		1378.16		
TENSION/COMPRESSION (+/- daN)		-5000	STRETCH/SLACKOFF (+/- m)		-0.31		
LANDED STRING WEIGHT (daN)		3000	TUBING BOTTOM (mKB)		1382.80		
DOWNHOLE DESCRIPTION FROM BOTTOM UP (Rod String)							
AMOUNT	DESCRIPTION		LENGTH	TOTAL (m)			
				-			
				-			
				-			
				-			
				-			
PUMP DESCRIPTION			PUMPJACK DESCRIPTION				
LANDED DEPTH (mKB)		4.95	WELL HEAD DESCRIPTION				
ITEM #	DESCRIPTION		SERIAL #	MWP	SIZE		
REMARKS							
Baker 'FH' packer set at 1379.97 mKB to center element in 5000 daN compression.							
Pup joints at top							
Recorders & wire left in Mattson @ 1592m - see daily reports March 2006							

## PARAMOUNT ET AL FT. LIARD F-36 (as of 20170217)

Wellhead left in place  
to monitor SCVF

SCV Flow Remediation

Squeeze perforations  
562-564mKB

SCV Flow Remediation  
(unsuccessful)  
Squeeze perforations  
836-838m

Fantasque top  
1225mKB  
Fantasque Perforations  
1344-1347m

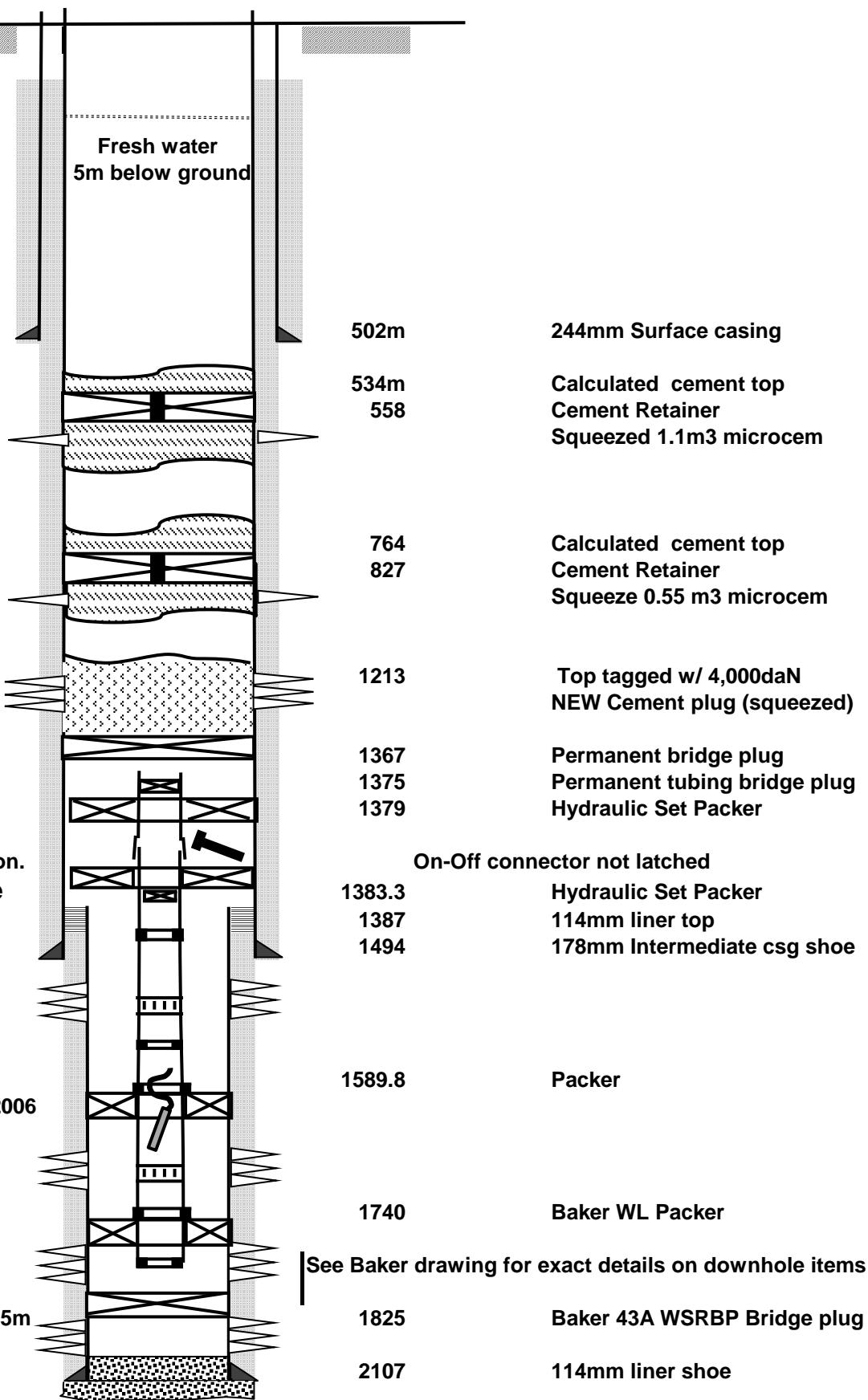
FSG Plug dropped  
stuck on & blocking on/off con.  
Packer is not retrievable

Mattson top 1400mKB  
1514-1582mKB  
Mattson Perforations

Recorders, sinker bar & wire  
between 1592 and 1720mKB  
(reports not clear) Lost Mar 2006

Mattson Perforations  
1644-1724mKB

Numerous Mattson  
Perforations  
Above & below the BP @ 1825m  
1751-2046mKB  
Not to scale:  
DH 20161213



## Geological Review of Uphole Zones – Paramount et al Fort Liard F-36

No shows were encountered while drilling the 311 mm surface hole and 244.5mm casing was landed at 502m. No open hole logs were run over this interval.

From base of Surface Casing to the top of the Fantasque Fm. at 1225m, there are two intervals that are considered to have the potential to yield gas; the Lower Cretaceous Scatter Formation and the Cretaceous Chinkeh Formation. A review of both is provided as follows:

### Scatter

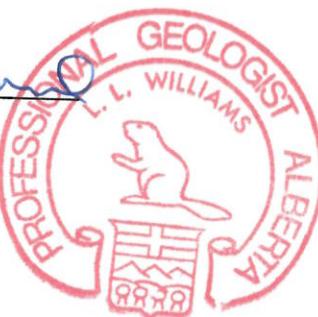
Top and base of the Scatter are picked at 791.6 and 969.0m, respectively. The formation is described as very fine grained sandstone with dark gray to gray black shale inter-beds. The only shows were from the interval 898-928m where there were observed traces of pinpoint intergranular porosity and gas readings increased from background of 20-37 units to 36-110 units. No DST's were run over this interval. There is significant separation of the neutron and density porosity logs (sst matrix) other than a 1m interval from 925.5-926.5m where these curves approach to within 3 p.u. and corresponding resistivity increases to over 100 ohm-m. From 925-928m, the drill rate decreased from 8.6 to 11.2-12.2 min/m while the gas readings increased from a background of 20 to 70 units. Lithology is described as sandstone with an oil show and rare pinpoint porosity. The wellsite geologist also noted numerous gas reading increases with oil shows and trace or rare pinpoint porosity over the gross interval of 898-928m but the 925-928m interval is the only interval where there is corroboration on open hole well logs.

### Chinkeh

Top and base of the Chinkeh are picked at 1113.2 and 1156.2m, respectively. The formation is described as very fine-grained, medium to light grey sandstone with very rare oil staining and blue white cut and traces of pinpoint porosity. Drilling was stopped at 1174 meters and drillstem tests were run over the intervals 1115-1125m and 1145-1155m. The upper interval had no corresponding gas show while the lower interval was selected on the basis of an increase in gas readings from a background of 15 to a maximum of 108 units although this interval showed no porosity or oil staining in drill cuttings. DST 1 (1145-1155m) showed minimal pressure increase on main flow and no permeability. DST 2 had a very small increase of 16.8 kPa over 90 minutes of valve open, indicating very low permeability. Recovery was 8m of drilling mud. There are no indications of gas on the open hole logs. Of note is a trip gas response of 100 units after a bit trip at 1144m. Also noteworthy is that the Chinkeh in the I-46 well some 800 meters to the west was completed and swabbed but no burnable gas was recovered. In this well the well log indications and gas response while drilling are better than observed at F-36.

A thorough review of the geological report and open hole logs was conducted. It is concluded that there is no potential for gas flow from the Chinkeh Formation but the possibility of minor contribution from the Scatter exists.

Original in  
Llew L. Williams, P. Geol.  
December 15, 2016



Container Identification	
AGAT12088	

Laboratory Number  
GF80687L

Operator Name  
PARAMOUNT RESOURCES LTD.

Unique Well Identifier f-036	Well Name SINGLE WELL BATTERY	Elevation KB m      GRD m
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Field or Area	Pool or Zone MATTSON	Sampler's Company AGAT
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Test Type	Test No.	Test Recovery	Name of Sampler
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Test Interval or Perfs	Sampling Point WELLHEAD TUBING	Separator	Reservoir	Source	Sampled	Received
		Pressure (kPa)		2069	2069	2400
		Temperature (°C)				21

Date Sampled Jul 23, 2001	Date Received Jul 25, 2001	Date Reported Aug 01, 2001	Analyst PL
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Other Information UWI: f-036					
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COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m³
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	TRACE	TRACE	
He	0.0002	0.0002	
N2	0.0028	0.0028	
CO2	0.0093	0.0000	
H2S	0.0000	0.0000	
C1	0.9518	0.9608	
C2	0.0221	0.0223	
C3	0.0072	0.0073	26.4
IC4	0.0013	0.0013	5.7
NC4	0.0022	0.0022	9.3
IC5	0.0008	0.0008	3.9
NC5	0.0007	0.0007	3.4
C6	0.0007	0.0007	3.8
C7	0.0007	0.0007	4.3
C8	0.0002	0.0002	1.4
C9	0.0000	0.0000	0.0
C10+	0.0000	0.0000	0.0
Total	1.0000	1.0000	58.2

GROSS HEATING VALUE MJ/m³  
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
39.08	39.44

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.594	0.585

PSEUDO CRITICAL PROPERTIES (CALCULATED)

pPc (abs) kPa	pTc K	As Sampled	Acid Gas Free
		4621	197.0

RELATIVE MOLECULAR MASS

Total Gas	C <sub>7</sub> +
17.2	103.3

VAPOUR PRESSURE  
(Pentanes +)

71.11 kPa

H<sub>2</sub>S g/m³

0.00



# F-36 Fantasque



## EXTENDED GAS ANALYSIS

V0008440 - 1

CONTAINER IDENTITY

METER ID

1841

52134-2005-1394

LABORATORY FILE NUMBER

Paramount Resources Ltd.

OPERATOR

WELL LICENSE NUMBER

PAGE

300/3660102315/50

Paramount et al Liard F-36

469.4

464.8

LOCATION (UWI)

WELL NAME

KB ELEV (m)

GR ELEV (m)

Liard

Fatasque

Wesco Testing

FIELD OR AREA

POOL OR ZONE

SAMPLER

TEST TYPE AND NO.

Meter Run

TEST RECOVERY

SAMPLE POINT ID

POINT OF SAMPLE

		PUMPING	FLOWING	GAS LIFT	SWAB		
SEPARATOR	RESERVOIR	WATER	m³/d	OIL	m³/d	GAS	m³/d
		342	6 °C	400 @ 22 °C	SEPARATOR	-12.0	OTHER
Pressures, kPa (gauge)							Temperatures, °C

2005 02 06

DATE SAMPLED (Y/M/D)

2005 02 16

DATE RECEIVED (Y/M/D)

2005 03 01

DATE ANALYZED (Y/M/D)

YW

ANALYST

AMT. AND TYPE CUSHION

@ °C

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	mL/m³ AIR FREE AS RECEIVED	CALCULATED GROSS HEATING VALUE MJ/m³ @ 15°C & 101.325 kPa (abs.)		CALCULATED VAPOR PRESSURE kPa (abs.) @ 40 °C	
				37.85 MOISTURE FREE	38.98 MOISTURE & ACID GAS FREE	91.6 PENTANES PLUS	
H <sub>2</sub>	0.0001	0.0001					
He	0.0001	0.0001					
N <sub>2</sub>	0.0053	0.0055					
CO <sub>2</sub>	0.0294	0.0000					
H <sub>2</sub> S	0.0000	0.0000					
C <sub>1</sub>	0.9294	0.9576					
C <sub>2</sub>	0.0273	0.0282	97.0				
C <sub>3</sub>	0.0052	0.0053	19.1				
iC <sub>4</sub>	0.0016	0.0016	7.0				
C <sub>4</sub>	0.0006	0.0006	2.5				
iC <sub>5</sub>	0.0004	0.0004	2.0				
C <sub>5</sub>	0.0001	0.0001	0.5				
C <sub>6</sub>	0.0003	0.0003	1.5				
C <sub>7+</sub>	0.0002	0.0002	1.1				
Total	1.0000	1.0000	130.7				

REMARKS:

NOTE: THE GROSS HEATING VALUE HAS BEEN CALCULATED IN ACCORDANCE TO  
AGA REPORT #5 AND ALL PROPERTIES HAVE BEEN CALCULATED UTILIZING  
GPA 2145 - 03 PHYSICAL CONSTANTS AND BOILING POINT GROUPING.

TB2A

17GN185156A

Container Identification

Sample Point Code

Meter Code

AGAT WDMS Number

Previous Number

Laboratory Number

PARAMOUNT RESOURCES LTD

SURFACE CASING VENT

300/F-36-6010-12315

Operator Name

Sampling Point

Unique Well Identifier

NORTH WEST TERRITORIES

Well Name

Well License

Well Status

Well Fluid Status

LSD

NOT AVAILABLE

NOT AVAILABLE

AGAT/FORT NELSON

DT/SB

Field or Area

Pool or Zone

Sampler's Company

Name of Sampler

Test Interval (mKB)

Elevation (m)

Pressure (kPa)

Temperature (°C)

From

To

Test Type

Test No.

KB

GRD

50

Source

Received

0

Source

21

Received

Feb 07, 2017

Feb 10, 2017

Feb 11, 2017

Feb 11, 2017

Calgary - Binh Nguyen - Reporter

Date Sampled

Date Received

Date Analyzed

Date Reported

Location - Approved By - Title

Other Information

## COMPOSITION

Component	Mole Fraction		Liquid Volume mL / m <sup>3</sup>	Mole Fraction of Previous Analysis
	Air Free As Received	Air & Acid Gas Free As Received		
H <sub>2</sub>	0.0019	0.0019		
He	0.0001	0.0001		
N <sub>2</sub>	0.0038	0.0038		
CO <sub>2</sub>	TRACE	0.0000		
H <sub>2</sub> S	0.0000	0.0000		
C <sub>1</sub>	0.9531	0.9531		
C <sub>2</sub>	0.0292	0.0292	103.8	
C <sub>3</sub>	0.0071	0.0071	26.1	
iC <sub>4</sub>	0.0019	0.0019	8.3	
nC <sub>4</sub>	0.0015	0.0015	6.3	
iC <sub>5</sub>	0.0005	0.0005	2.4	
nC <sub>5</sub>	0.0004	0.0004	1.9	
C <sub>6</sub>	0.0003	0.0003	1.6	
C <sub>7</sub>	0.0002	0.0002	1.2	
C <sub>8</sub>	TRACE	TRACE	0.0	
C <sub>9</sub>	0.0000	0.0000	0.0	
C <sub>10+</sub>	0.0000	0.0000	0.0	
<b>TOTAL</b>	<b>1.0000</b>	<b>1.0000</b>	<b>151.6</b>	



WDMS Data Verification Check

## PROPERTIES

Calculated Heating Value @ 15 °C & 101.325 kPa (MJ/m<sup>3</sup>)

Gross		Net	
<b>39.29</b>	39.29	0.04	<b>35.35</b>
Air Free as Received	Moisture & Acid Gas Free	C <sub>7</sub> + Moisture Free	Air Free as Received

## Calculated Density

Relative		Absolute	
<b>0.583</b>	0.583	3.460	688.0
Moisture Free As Received	Moisture & Acid Gas Free	C <sub>7</sub> + Moisture Free	Total Sample Density (kg/m <sup>3</sup> )

## Calculated Pseudo Critical Properties

As Sampled		Acid Gas Free	
4588.2	195.8	4588.2	195.8
pPc (kPa)	pTc (K)	pPc (kPa)	pTc (K)

Hydrogen Sulfide (H<sub>2</sub>S) (ppm)

Field Value	Laboratory Value	g/m <sup>3</sup>
Stain Tube	Tutweiler	0.00

## Calculated Molecular Weight (Moisture Free as Received) (g/mol)

16.9	100.2
Total Sample	

## Calculated Vapour Pressure

89.95	0.9976
C <sub>7</sub> + (kPa) @ 15 °C & 101.325 kPa	

## Gas Compressibility

Results relate only to items tested. Analysis and associated calculations are based on GPA 2261, GPA 2286, GPA 2145, AGA #5, and TP-17.

View or download your data online at [webfluids.agatlabs.com](http://webfluids.agatlabs.com)

# F-36 SCV Gas Isotope Analysis

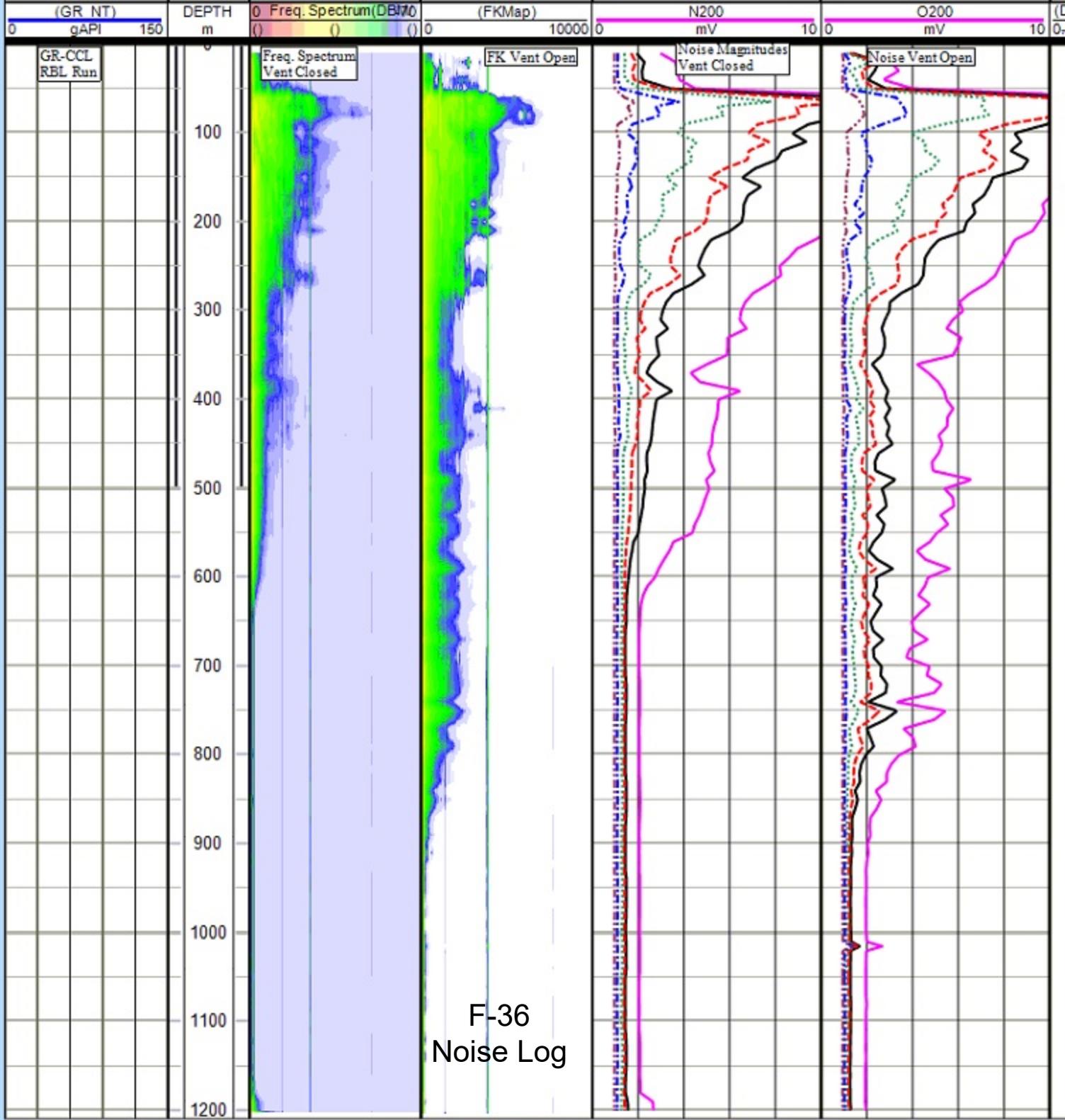


## Isotope Analysis Report

Operator	Results to	Work Order #	Well Location	Sample Point	Date Sampled
PARAMOUNT RES.	PATRICK KELLY	17N185156	300/F-036-6010-12315	SURFACE CASING VENT	7-Feb-17

$\delta^{13}\text{C}_{\text{CH}_4}$	$\delta^{13}\text{C}_{\text{C}_2}$	$\delta^{13}\text{C}_{\text{C}_3}$	$\delta^{13}\text{C}_{\text{iC}_4}$	$\delta^{13}\text{C}_{\text{nC}_4}$	$\delta^{13}\text{C}_{\text{CO}_2}$
-42.11	-30.69	-24.35	-29.24	-27.69	

Comments:	This is a mature gas, possibly within the "oil window". I have no background data from this region to do a more specific pick but it may come from 1500 m or so depth.
Analyst Karlis Muehlenbachs, U of A. 780-492-2827	



# F36 Vent Nanny

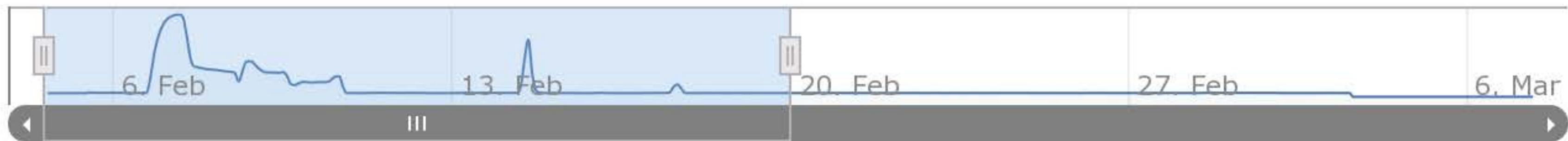
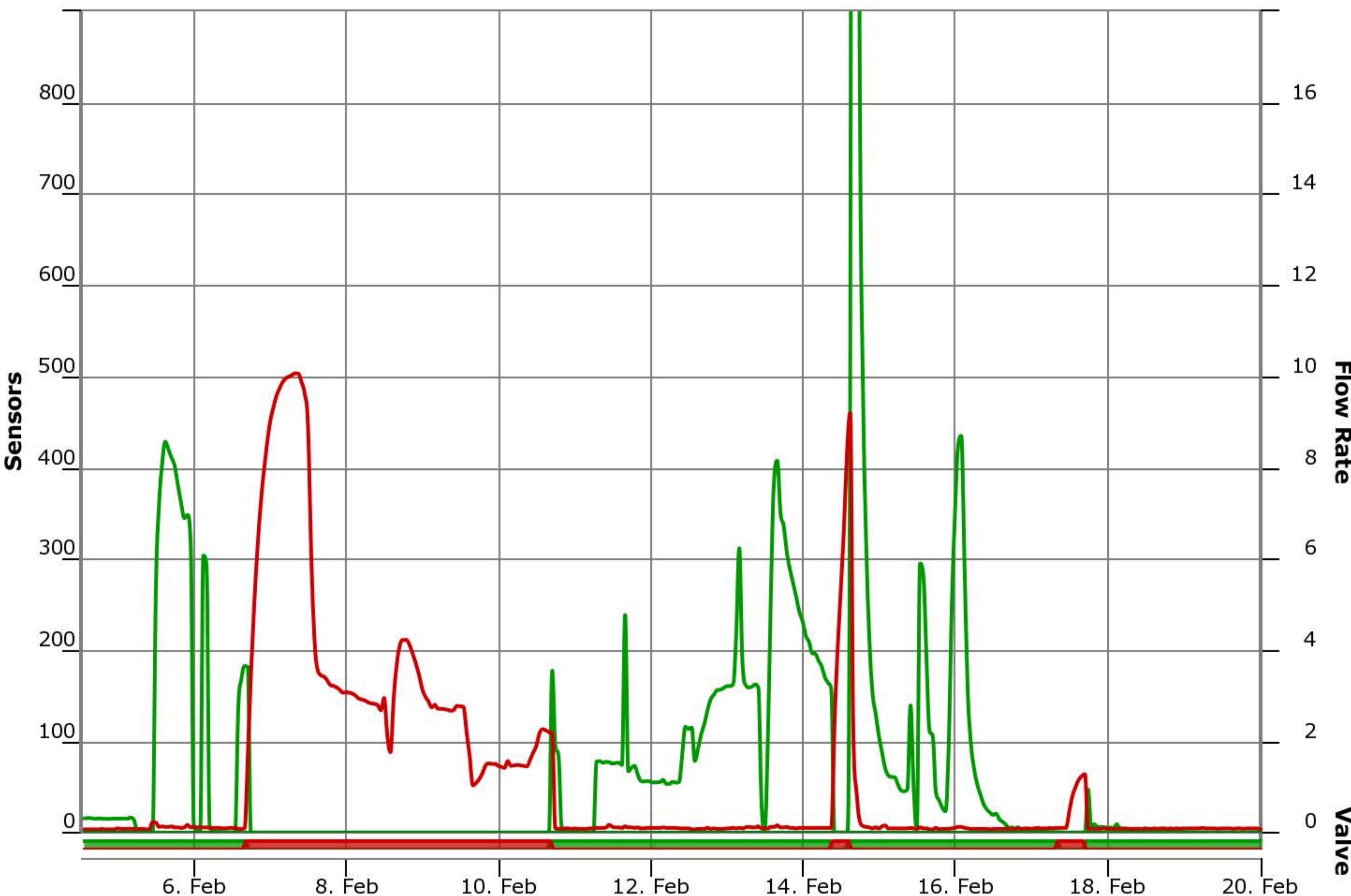
Zoom 1d 1w 1m 3m 6m All

From

Feb 4, 2017

To

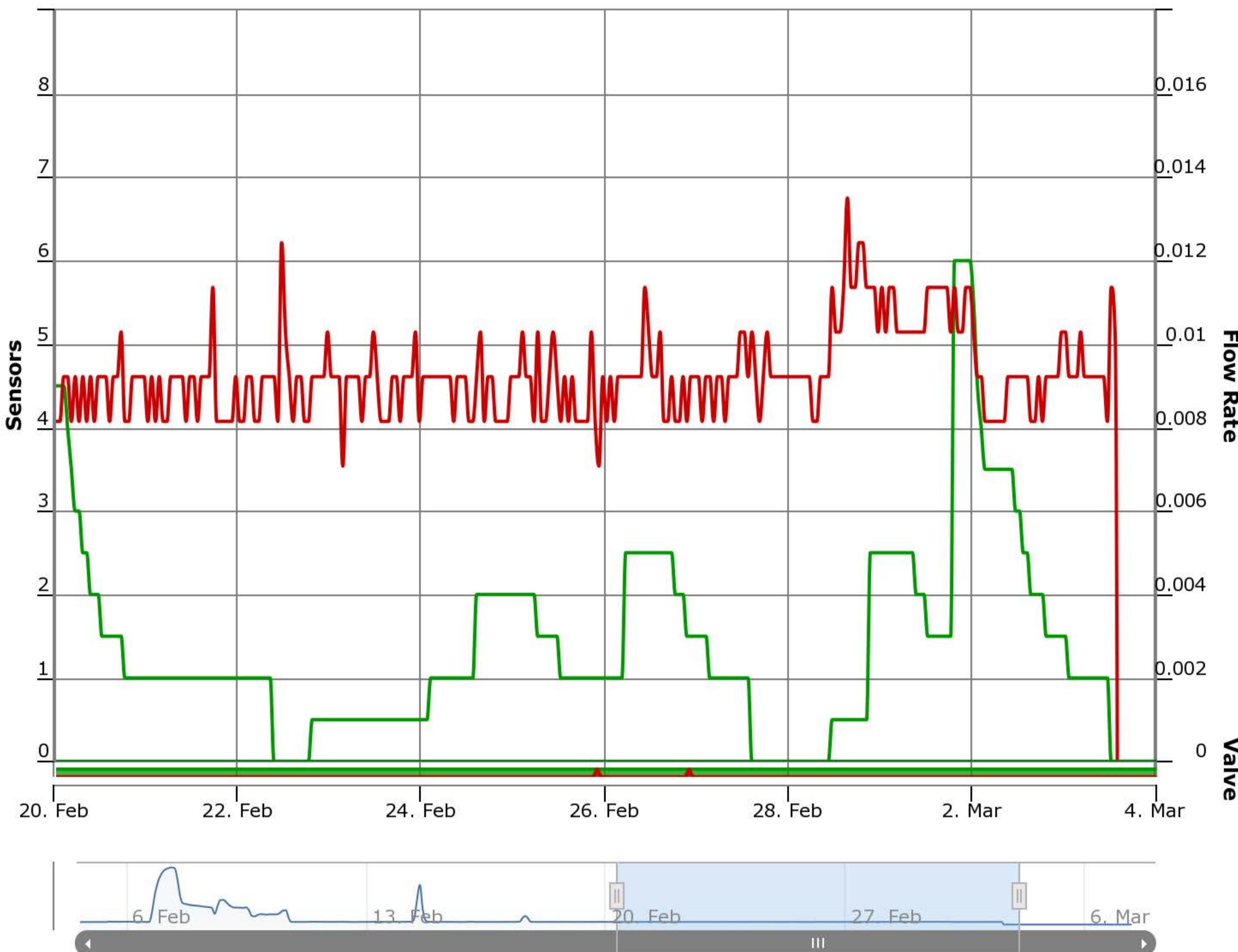
Feb 20, 2017



# F36 Vent Nanny

Zoom 1d 1w 1m 3m 6m All

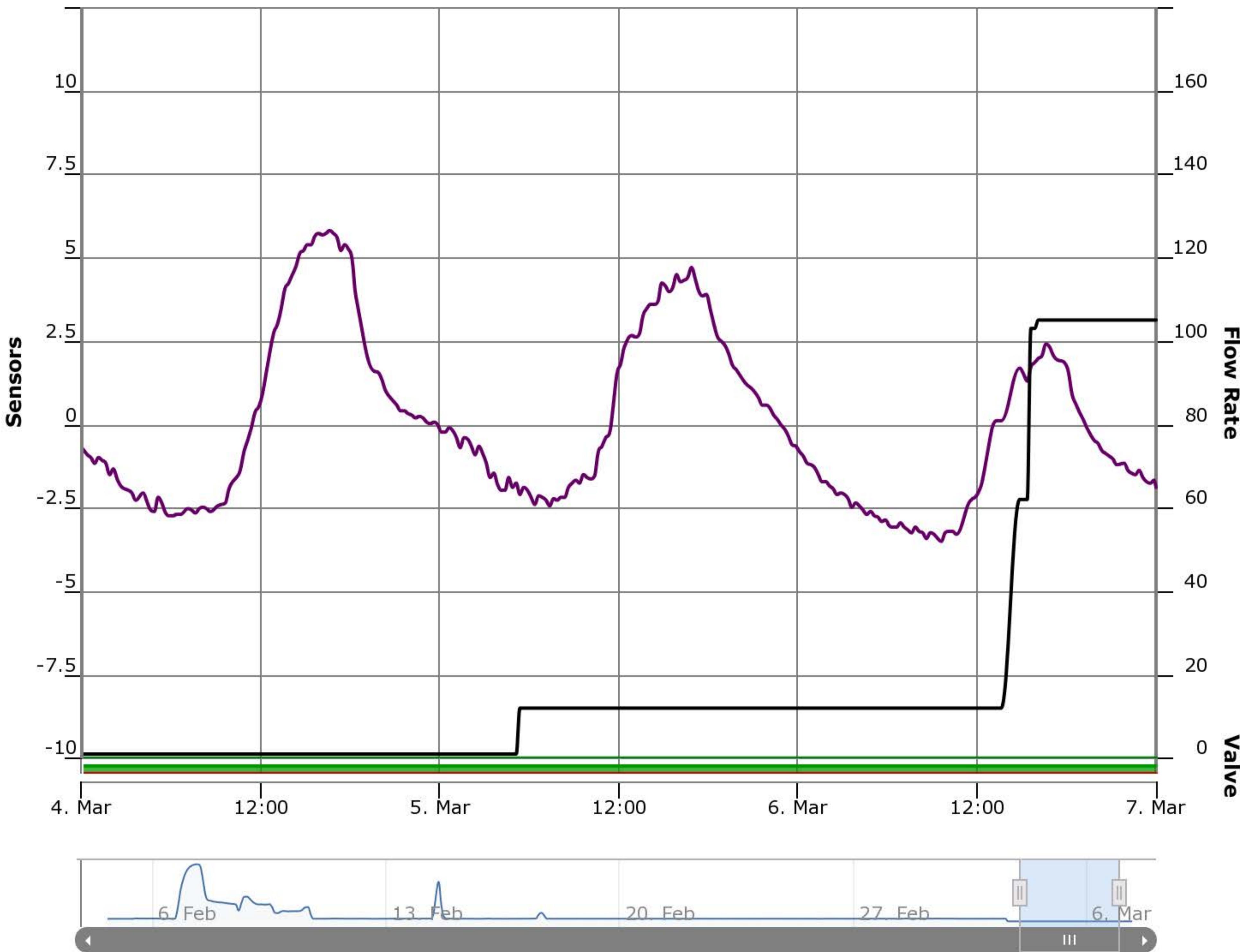
From Feb 20, 2017 To Mar 4, 2017



# F36 Vent Nanny

Zoom 1d 1w 1m 3m 6m All

From Mar 4, 2017 To Mar 7, 2017





# Daily Completion and Workover

Report Date: 2017-02-01  
Report # 1.0

## PARAMOUNT ET AL FT LAIRD F-36/3

### Rig:

### Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 5,500  
Cum Cost to Date: 5,500

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m)	Ground Elevation (m)	Original KB Elevation (m)
Last Casing String		PBTD (All) (mKB)	

Objective  
Abandon well

Operation at 6am

Well shut in - waiting for service rig to arrive on Feb. 4/17.

Operations Summary

Moved in and rigged up wellsite trailer and enviro / spill containment bin. Checked the well pressures and conducted a bubble test on the SCV.

Operations Next Report Period

Move in and rig up service rig and associated equipment. Kill well.

Road Condition Ice/Snow	Weather Clear	Report Start Date 2017-02-01	Report End Date 2017-02-02
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Checked the lease conditions; checked the for LEL's.
08:00	10:00	2.00	DFIT	Record well pressures	Checked the wellhead pressures and observed 60 mm SITP = 10,383 kPa; 52.8 mm SITP = 11,335 kPa and SICP = 10,813 kPa. Bled down the 60 mm tubing for 3 minutes; then shut in the flow and observed the STIP return to 10, 380 kPa; bled of the 52.8 mm tubing for 3 minutes; then shut in and observed the pressure return to 11,330 kPa. Preformed a bubble test on the surface casing vent for 60 minutes and observed no bubbles; left the surface casing vent open - Note the surface casing vent valve opened and closed freely.
10:00	10:30	0.50	DTIM	Downtime	Wait on equipment.
10:30	13:00	2.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing spotting and rigging in equipment; pinch points; lease and road hazards. Complete Paramount Safe Work Permit and Site Hazard Assessment forms. One vehicle moving at a time with one spotter.
13:00	15:30	2.50	Job Prep	JOB PREP	Spotted and rigged in the wellsite trailer; recycle / spill containment / light tower units.

### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status

### Tubing Components

Item Des	Top (mKB)

### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



# Daily Completion and Workover

Report Date: 2017-02-04

Report # 2.0

## PARAMOUNT ET AL FT LAIRD F-36/3

### Rig:

### Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 59,875

Cum Cost to Date: 65,375

API/JWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective  
Abandon well

Operation at 6am  
Stump test BOP's

Operations Summary  
MIRU Savanna rig # 126 and associated equipment

Operations Next Report Period

Kill well; install and test BOP's; POOH laying down tubing.

Road Condition Ice/Snow	Weather overcast	Report Start Date 2017-02-04	Report End Date 2017-02-04
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Head Count

Personnel Total Hours (hr)

Cum Personnel Total Hours (hr)

### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:30	1.00	SMTG	Safety Meeting	Held safety meeting with all personnel discussing spotting and rigging up equipment; overhead lifts; high pressure; two men carrying line pipe; lease and lease road hazards. Orientated 11 men to Paramount Orientation. Completed Safe Work Agreement and Field Risk Assessment forms.
08:30	16:30	8.00	SRIG	Rig Up/Down	Spotted and rigged in Savanna Well Servicing rig #126; boiler; pump and tank to Paramount Resources; OH&S and Northwest Territories and OROGO regulations. Note rig tank and boiler placed on rig matting. Very tight lease - needed loader to help spot equipment on location. Moved in and spotted two 60 m <sup>3</sup> tanks on rig matting. Rigged in the boiler lines to the 60 m <sup>3</sup> and rig tank. Rigged in the catwalk and pipe racks.
16:30	17:30	1.00	Testing	Record Well Pressures	Checked well pressures and observed 60 mm SITP = 10,380 kPa; 52.8 mm SITP = 11,300 kPa; SICP = 10,800 kPa. Changed the rams in the BOP's. Hauled in 15 m <sup>3</sup> of fresh water and placed in the 60 m <sup>3</sup> tank. Well remained shut in and secured. Boiler night shift will heat kill fluids and wellhead overnight.

### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status

### Tubing Components

Item Des	Top (mKB)

### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



**Paramount**  
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## Daily Completion and Workover

Report Date: 2017-02-05

Report # 3.0

### PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 28,290

Cum Cost to Date: 93,665

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective Abandon well
Operation at 6am
MIRU Electric line equipment
Operations Summary
Stump tested BOP's; kill well
Operations Next Report Period
RIH with electric line to set and test tubing Bridge Plug.

Road Condition Ice/Snow	Weather Snow	Report Start Date 2017-02-05	Report End Date 2017-02-05
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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Daily Contacts		Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780	
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364	
Consultant	Dick Heenan, Consultant	403-818-4408	
Consultant	Terry Pollard, Consultant	780-361-5962	

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing steam heating; overhead lifts; cold weather; high pressure; well kill; wellhead removal and laying down tubing hazards.
08:00	09:00	1.00	BOPT	Pressure Test BOP's	Stump tested the class III BOP's blind rams and 52.8 mm pipe rams to 1400 kPa and 21,000 kPa for 10 minutes each. Check well pressures; 50.8 mm SITP = 11,300 kPa, 60 mm SITP = 10,800 kPa and SICP = 10,800 kPa.
09:00	16:30	7.50	WKLL	Kill Well	Rigged up the pump lines onto the 60 mm tubing; pumped 1.2 m <sup>3</sup> of fresh water down the tubing and pressured up to 5,600 kPa; left the pressure on the 60 mm tubing and switched pump lines onto the 52.8 mm tubing; pumped 24.0 m <sup>3</sup> of fresh water down the tubing with casing open to the de-gasser; observed fluid returns after 16.5 m <sup>3</sup> circulated - check the salinity with refractometer and observed 0% salinity; continued to circulate until clean fresh water was observed - note checked the salinity 2 additional times with the same results. Stopped pumping and observed the casing and 52.8 mm tubing dead. Checked the 60 mm tubing and observed a SITP of 5,600 kPa; bled off the tubing gas until water returns were observed; pumped / squeezed 2.2 m <sup>3</sup> of fresh water and pressured up to 14,000 kPa; stopped pumping; observed the 60 mm tubing pressure for 20 minutes - no drop in pressure; bled off the tubing and recovered 2.6 m <sup>3</sup> of fresh water then gas; pumped 2.3 m <sup>3</sup> of fresh water and pressured up to 14,000 kPa; stopped pumping and observed the tubing pressure remain at 14,000 kPa for 25 minutes; pressure held steady; bled off the 60 mm tubing and observed 2.4 m <sup>3</sup> of fresh water return then gas flow; repeated the pressure up; waiting 30 minutes and bleeding off with the same results. Left 14,000 kPa on the 60 mm tubing; started pumping down the annulus and observed a feed rate of 350 liters / minute at 9,000 kPa - pumped 1.0 m <sup>3</sup> ; stopped pumping and observed the annulus pressure drop to 0 kPa in less than 60 seconds. Checked the 60 mm tubing and observed the pressure remaining at 14,000 kPa. Left the pressure on the 60 mm tubing for 4 hours with no bleed down. Bled down the tubing from 14,000 kPa to 6,000 kPa and observed it for 30 minutes with no bleed off. Bled down the tubing from 6,000 kPa to 3,000 kPa and observed the pressure increase to 5,100 in 30 minutes; pressured up the tubing to 14,000 kPa.
16:30	17:30	1.00	LOCL	Lock Wellhead & Secure	Shut in and secured the well for night. Drained the pump and lines. Boilerman to observed pressures overnight; heat kill fluids and wellhead.

Report Fluids Summary	Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

Perforations				
Time	Linked Zone	Top (mKB)	Blm (mKB)	Current Status

Tubing Components		Item Des	Top (mKB)



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## Daily Completion and Workover

Report Date: 2017-02-06  
Report # 4.0

### PARAMOUNT ET AL FT LAIRD F-36/3

#### Rig:

#### Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 69,954  
Cum Cost to Date: 163,619

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective  
Abandon well

Operation at 6am

Check well pressures

Operations Summary

Rigged up Bonnett Wireline; RIH with gauge ring / CCL tool string to 1400 mKB; RIH set 60 mm PBP at 1395.0 mKB.

Operations Next Report Period

Fill 60 mm tubing and test BP; remove wellhead; N/U and test BOP's - POOH with 52.8 mm tubing.

Road Condition Ice/Snow	Weather Snow	Report Start Date 2017-02-06	Report End Date 2017-02-06
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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#### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

#### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing electric line; overhead lifts; tag lines; pressure testing; bleeding off lubricator; lease and lease road hazards. Orientated 3 Bonnett employees to Paramount Safety Awareness.
08:00	12:00	4.00	ELINE	Electric Line operation	Checked the well pressures - 50.8 mm SITP = 0 kPa; 60 mm SITP = 5,100 kPa and SICP = light vacuum. Bleed off the tubing gas to the de-gasser from 5,200 kPa to 0 kPa; observed a light blow; filled the tubing with 1.5 m <sup>3</sup> of fresh water and pressured up to 1,000 kPa; stopped pumping and bled down the tubing and observed the 60 mm tubing flowing back all the water and then gas; shut in and pumped 1.5 m <sup>3</sup> of fresh water down the tubing and pressured up to 2,000 kPa. Spotted and rigged up Bonnett Wireline crossover; electric line BOP's and full lubricator c/w grease injection - heated up the lubricator and grease pack-off head with stream; Pressure tested the lubricator; BOP's and crossover to 6,000 kPa with N2; RIH with 44 mm gauge ring / CLL tool string to 1400 mKB; note the tubing pressure continued to build to a maximum of 10,600 while runng the gauge ring; logged up from 1400 mKB to 1320 mKB and correlated on depth to the well schematic. POOH with the gauge ring/CCL tool string.
12:00	13:00	1.00	PTST	Pressure Test	Installed a cap on top of the electric line BOP's; bled off the gas pressure to the de-gasser from 10,600 kPa to 1400 kPa and observed water in returns; stopped bleeding tubing and pumped 1.75 m <sup>3</sup> of fresh water down the tubing and pressured up to 6,000 kPa.
13:00	13:30	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel on location discussing electric line hazards; shut off all cell phones and air cards.
13:30	17:00	3.50	ELINE	Electric Line operation	RIH with 60 mm Owen 10K permanent bridge; correlated on depth to the above log and set the center of element at 1395.0 mKB; SITP had built to 8,200 kPa; observed a good surface indication of the bridge plug setting; POOH with the setting tools; Note slowly bled off the tubing from 8,200 kPa to 0 kPa while POOH. Partially rigged out electric line equipment.
17:00	17:30	0.50	LOCL	Lock Wellhead & Secure	Place a night cap on the wire line BOP's; shut in and secured the well for night. Boiler Man to heat wellhead and fluids overnight.

#### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

#### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status

#### Tubing Components

Item Des	Top (mKB)

#### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



**Paramount**  
resources ltd.

## Daily Completion and Workover

Report Date: 2017-02-07

Report # 5.0

### PARAMOUNT ET AL FT LAIRD F-36/3

#### Rig:

**Business Unit: NORTHERN COU**

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 35,011

Cum Cost to Date: 198,630

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective

Abandon well

Operation at 6am

Check well pressures

Operations Summary

RIH; set and tested a second 60 mm PBP at 1375 mKB; N/D wellhead top section; N/U and pressure tested BOP's; POOH laying down 52.4 mm tubing string.

Operations Next Report Period

Cut 60 mm tubing - POOH laying down 60 mm tubing string.

Road Condition Ice/Snow	Weather Snow	Report Start Date 2017-02-07	Report End Date 2017-02-07
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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#### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

#### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing bleeding off gas; high pressure; overhead lifts; tag lines; wellhead removal; installing and pressure testing BOP's; lease and lease road hazards.
08:00	09:00	1.00	FBCK	Flowback Well	Checked the 60 mm SITP - 10,600 kPa; 52.8 mm SITP - 0 kPa and SICP - light vacuum. Bled off the 60 mm tubing to the de-gasser and observed gas returns and the pressure drop to 52 kPa and remained flowing gas with a full opening choke; shut in the 60 mm tubing and observed the pressure increase to 400 kPa in 2 minutes; 1200 kPa in 5 minutes; 2,030 kPa in 10 minutes; 3420 kPa in 20 minutes; 7200 kPa in 45 minutes and 9200 kPa in 60 minutes.
09:00	09:30	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing bleeding off lubricator; overhead lifts; running electric line tool hazards. Shut off all cell phones; two-way radios and air cards.
09:30	12:30	3.00	ELINE	Electric Line operation	Bled off the tubing pressure to 100 kPa; pumped 1.0 m <sup>3</sup> of fresh water down the tubing; rigged up Bonnett's lubricator onto their BOP's and pressure tested to 9500 kPa with N2. RIH with 10K Owen 60 mm permanent bridge plug; correlated on depth to Bonnett's tubing CCL log dated yesterday and set the center of the bridge plug at 1375.0 mKB. SITP = 8,200 kPa. POOH; bled off the tubing to 0 kPa and observed for 15 minutes with no gas flow; pumped 1.6 m <sup>3</sup> of fresh water down the tubing and pressured up to 4,000 kPa - held solid for 15 minutes; bled off the tubing. Rigged out Bonnett electric line equipment.  Note; AGAT Laboratory service hand took 3 gas samples from the surface casing vent and 3 liters of flow-back fluids from the rig tank to be analyzed at 1130 hours.
12:30	13:30	1.00	BOPT	Pressure Test BOP's	Removed the wellhead top section; installed a two-way back-pressure valve in the 60 mm tubing hanger and 52.8 mm pup joint c/w stabbing valve into the 52.8 mm side of the tubing hanger; installed the class III BOP's and pressure tested the 52.8 mm pipe rams and ring gasket to 1400 kPa and 21,000 kPa for 10 minutes each. Removed the 60 mm back-pressure valve
13:30	17:00	3.50	PULT	Pull Tubing	Released the 52.4 mm tubing hanger ( 1/4 left hand turn ) pulled and laid down 52.8 mm tubing hanger; 1 joint of 52.4 mm 4.84 kg/m tubing. - Held BOP drill - well shut in and secured in 58 seconds discussed safety observations from the BOP drill. Continued to pull 52.4 mm tubing and observed 2,000 - 4,000 daN over pull while pulling the first 45 joints; laid down 134 joints of 52.4 mm tubing; 3 m x 52.4 mm pup joint; 1 joint of 52.4 mm tubing; 52.4 mm x 39.67 mm Baker R nipple; 3.0 m x 52.4 mm pup joint and 52.4 mm re-entry guide.  NormTek checked tubing for NORMs and observed no elevated readings in the 52.4 mm tubing.
17:00	17:30	0.50	CLS	Clean & Secure Lease	Drained the pump and lines. Shut in and secured the well for night. Boiler man heating the kill fluids and BOP's overnight.

#### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)



# Daily Completion and Workover

Report Date: 2017-02-08  
Report # 6.0

## PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 77,443  
Cum Cost to Date: 276,073

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String	PBTD (All) (mKB)		

Objective Abandon well
Operation at 6am
Heat BOP's

Operations Summary Change rams in BOP and pressure test; pick up on 60 mm tubing with 3,000 daN tension; RIH and cut the 60 mm tubing; POOH laying down the 60 mm tubing string; RIH set 178 mm PBP above the cut tubing.
Operations Next Report Period RIH with 60 mm tubing; cement as per program.

Road Condition Ice/Snow	Weather Clear	Report Start Date 2017-02-08	Report End Date 2017-02-08
Head Count	Personnel Total Hours (hr)		Cum Personnel Total Hours (hr)

Daily Contacts		
Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

Time Log					
Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing high pressure; cutting tubing with chemical cutters; rigging out electric line; pulling and laying down tubing hazards.
08:00	09:00	1.00	BOPT	Pressure Test BOP's	Checked the well pressures and observe SITP and SICP = 0 kPa. Removed the 52.8 mm pipe rams and installed 60 mm pipe rams in the BOP's; installed BPV's in the tubing hanger; placed a collar on the bottom of a 60 mm pup joint and pressure tested the 60 mm pipe rams to 1400 kPa and 21,000 kPa for 10 minutes each; removed the BPV's.
09:00	11:30	2.50	ELINE	Electric Line operation	Picked up on the tubing hanger and pulled 3,000 daN over pull on the 60 mm tubing; rigged up Bonnett's electric line equipment onto the 60 mm tubing; Held tailgate safety meeting to check all cell phones; air cards and radios were turned off; moved 3 GMC trucks with On-Star off location. Installed and RIH with a 60 mm Command Fishing tubing chemical cutter assembly on electric line; correlated on depth to Bonnett Wireline Completion Record Tubing Plug log dated Feb. 07/17 and cut the 60 mm tubing at 1370.5 mKB. Observed a good surface indication of the tubing cutting. POOH and rigged down Bonnett wireline equipment.
11:30	14:00	2.50	PULT	Pull Tubing	Picked up on the tubing and observed the tubing free. Rigged in the pump lines; filled the casing with 2.5 m <sup>3</sup> of fresh water; circulated 5.0 m <sup>3</sup> and observed a small amount of gas on bottom's up. Stopped circulating and observed the well dead. Pulled and laid down 179 mm x 60 mm EUE dual tubing hanger; 1 joint of 60 mm 6.99 kg/m L-80 tubing; 3 - 60 mm EUE L-80 pup joints; 136 joints of 60 mm EUE 6.99 kg/m L-80 tubing; 1 - Baker CD SSL w/w 47.63 mm profile; 2 - 60 mm EUE blast joints; 2 full joints of 60 mm 6.99 kg/m EUE L-80 tubing and 1 - cut joint of 60 mm 6.99 kg/m EUE tubing; observed a clean cut on the bottom of the joint. NormTek checked tubing for NORMs and observed no elevated readings in the 60 mm tubing.
14:00	14:30	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing rigging up and running electric line hazards.
14:30	17:00	2.50	ELINE	Electric Line operation	Rigged up Bonnett's crossover; flow tee and full lubricator onto the rig's BOP's. RIH with 150 mm gauge ring / junk basket to 1367.5 mKB and tagged the top of the cut off tubing; logged up 100 m and POOH; Checked all cell phones; air cards and radio's turned off - moved 2 GMC with On-Star off location. RIH with Tryton Tools 177 mm 10K permanent bridge plug; correlated on depth to the above log and set the COE at 1367.0 mKB. POOH and rigged out Bonnett wireline equipment.
17:00	17:30	0.50	CLLS	Clean & Secure Lease	Shut in and secured the well for night. Boiler Man to heat kill fluids and BOP's overnight.

### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)



# Daily Completion and Workover

Report Date: 2017-02-09

Report # 7.0

## PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 53,990

Cum Cost to Date: 330,063

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective

Abandon well

Operation at 6am

Heat fluids and BOP's

Operations Summary

RIH with 60 mm cement string; spotted and squeezed cement into Fantasque perforations.

Operations Next Report Period

Pressure test and tag cement top; POOH with tubing; conduct logs.

Road Condition Ice/Snow	Weather Overcast	Report Start Date 2017-02-09	Report End Date 2017-02-09
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Head Count

Personnel Total Hours (hr)

Cum Personnel Total Hours (hr)

### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting discussing winter driving conditions; overhead lifts; drifting; picking up and running tubing hazards.
08:00	10:00	2.00	RUTB	Run Tubing	RIH with 138 joints of 60 mm 6.99 kg/m L-80 EUE tubing; 4 - 60 mm 6.99 kg/m L-80 EUE pup joints and 1 full joint of 60 mm 6.99 kg/m L-80 EUE tubing to place the bottom of the tubing at 1366.5 mKB. Held Man Down and BOP drill's during the running of the tubing - well shut in and secured in 56 seconds - discussed observations of Man Down and BOP drills.
10:00	10:30	0.50	SMTG	Safety Meeting	Moved in with Trican Well Service - cement equipment; Beaver Construction - water truck and Troyer - vacuum truck. Held safety meeting with all personnel discussing spotting and rigging in equipment; high pressure; circulating; pulling tubing; back-washing hazards and MSDS for cement and chemical on location.
10:30	13:30	3.00	CEMT	Cement Squeeze	Spotted and rigged in Trican Well Service pump lines onto the 60 mm tubing; pressure tested the pump lines to 1,000 kPa and 14,000 kPa; filled the well bore with 2.5 m <sup>3</sup> of fresh water; shut in the returns and established a feed rate of 220 liters / minute with 1,500 kPa; stopped squeezing; mixed and pumped 4.1 tonne of 0:1:0 class G cement containing 10.25 kgs of LTR; 24.6 kg of TLF-HT and 4 liters of AFA-2 (slurry volume 3.1 m <sup>3</sup> 1902 kg/m <sup>3</sup> ) followed by 2.2 m <sup>3</sup> of fresh water to place a balance plug around the end of the tubing.
13:30	14:00	0.50	PULT	Pull Tubing	Pulled and laid down 1 joint of 60 mm tubing; 4 - 60 mm pup joints and 14 joints of 60 mm tubing to place the bottom of the tubing at 1207 mKB.
14:00	16:30	2.50	Cement	Cement Squeeze	Pumped 4.5 m <sup>3</sup> of fresh water down the casing with returns up the tubing to the rig tank; observed a small amount of contaminated cement on bottom's up then clean fresh water; stopped circulating; pulled 2 joints of tubing. Shut in the well and rigged in Trican pump lines to annulus; started to pump / squeeze cement into the Fantasque perforations; slowly pressured up with 150 liters to 3,500 kPa; squeezed and additional 260 liters of fresh water and pressured to 14,000 kPa; stopped pumping and observed the SICP drop 250 kPa in 20 minutes; bled off the casing pressure; rigged out and released Trican Well Servicing cementing equipment. Total cement squeezed into formation = 410 liters. Troyer vacuum truck cleaned out the cement pumper and rig tank.
16:30	17:00	0.50	CLS	Clean & Secure Lease	Shut in and secured the well for night. Boiler man heating BOP's and kill fluids overnight.

### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status

### Tubing Components

Item Des	Top (mKB)



# Daily Completion and Workover

Report Date: 2017-02-10  
Report # 8.0

## PARAMOUNT ET AL FT LAIRD F-36/3

### Rig:

### Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 52,470  
Cum Cost to Date: 382,533

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective  
Abandon well

Operation at 6am

Heat fluids and BOP's

Operations Summary

P/T'd cement top/tag cement top/POOH with tubing/ conduct Noise Temp log

Operations Next Report Period

Run second Noise / Temp log with SCV open. Conduct CBL/VDL/GR/CCL log.

Road Condition Ice/Snow	Weather Snow	Report Start Date 2017-02-10	Report End Date 2017-02-10
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel on location discussing high pressure; tripping tubing; rigging in electric line; overhead lifts and tag line hazards. Note: informed all personnel that no noise / hammering could be done around the wellhead when conducting a noise temperature log. Checked the surface cement samples and observed them set up.
08:00	09:00	1.00	PTST	Pressure Test	Checked the SICP - 0 kPa. RIH with 2.5 joints of 60 mm tubing and tagged solid at 1213.4 mKB with 4,000 daN. Pressured up the casing with fresh water to 7.0 MPa for 10 minutes - no bleed-off. Bled off the casing.
09:00	10:30	1.50	PULT	Pull Tubing	POOH standing 124 joints of 60 mm EUE tubing cement string.
10:30	16:30	6.00	ELINE	Electric Line operation	Installed Bonnett's 179 mm crossover flange and pack-off onto the rig BOP's. RIH with Temperature / Noise / CCL tool string logging at 30 m/minute for temperature log to 1210 mKB; switched signals and logged up making 1 minute stops every 10 meters to surface. Down loaded the information and sent to Bonnett's office in Calgary for interpretation. Partially rigged down electric line equipment.
16:30	17:00	0.50	CLLS	Clean & Secure Lease	Shut in and secured the well for night. Boiler man to heat the BOP's and kill fluids overnight.

### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status

### Tubing Components

Item Des	Top (mKB)

### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



## Daily Completion and Workover

Report Date: 2017-02-11  
Report # 9.0

### PARAMOUNT ET AL FT LAIRD F-36/3

#### Rig:

#### Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 71,102  
Cum Cost to Date: 453,635

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTID (All) (mKB)	

Objective

Abandon well

Operation at 6am

Heat fluids and BOP's

Operations Summary

Conducted noise / temp log followed by a CBL/VDL/GR/CCL log and followed by a CBL/VDL/GR/CCL log under pressure.

Operations Next Report Period

Perforate the casing for zonal isolation / establish feed rate.

Road Condition Ice/Snow	Weather Clear	Report Start Date 2017-02-11	Report End Date 2017-02-11
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Head Count

Personnel Total Hours (hr)

Cum Personnel Total Hours (hr)

#### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

#### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting discussing electric line rig hazards; overhead lifts; sheaves; high pressure; lease and lease road hazards. All personnel instructed not to hammer or make noises close to the wellhead during wire operations.
08:00	13:00	5.00	ELINE	Electric Line operation	Rigged up Bonnett Wireline pack-off head onto the adapter flange. RIH with noise/temp/ccl tool string recording temperatures from surface to 1207 mKB at 10 m/minute; logged up from 1207 mKB to surface making 1 minute stops every 10 meters.
13:00	17:30	4.50	ELINE	Electric Line operation	Removed the noise temp tool string and installed the CBL/VDL/GR/CCL tool string; RIH to 1200 mKB; logged up at 15 m/minute to 1140 mKB ( repeat pass ) RIH to 1200 mKB then logged up to surface at 15 m/minute; RIH to 1200 mKB; filled the casing with fresh water and pressured up to 7,000 kPa; logged out of hole maintaining between 6,500 kPa and 7,000 kPa pressure on the casing. Sent the logs to Bonnett's Calgary office to be interpreted. Bled off the pressure; partially rigged down Bonnett's equipment.
17:30	18:00	0.50	CLLS	Clean & Secure Lease	Shut in and secured the well for night; drained the pump and lines. Boiler man heated BOP's and kill fluids overnight.

#### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

#### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status

#### Tubing Components

Item Des	Top (mKB)

#### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



# Daily Completion and Workover

Report Date: 2017-02-12  
Report # 10.0

## PARAMOUNT ET AL FT LAIRD F-36/3

### Rig:

### Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 48,216  
Cum Cost to Date: 501,851

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective Abandon well
Operation at 6am
Heat fluids and BOP's
Operations Summary
Perforated the 177.8 mm casing from 836.0 - 838.0 mKB - attempted a feed rate with up to 14,000 kPa; RIH with 60 mm tubing to 844.76 mKB.
Operations Next Report Period
Acid wash / squeeze perforations - prepare for cementing.

Road Condition Ice/Snow	Weather Clear	Report Start Date 2017-02-12	Report End Date 2017-02-12
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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Daily Contacts		Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780	
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364	
Consultant	Dick Heenan, Consultant	403-818-4408	
Consultant	Terry Pollard, Consultant	780-361-5962	

Start Time	End Time	Dur (hr)	Code 1	Code 2	Comments
07:30	08:00	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing perforating with electric line; overhead lifts; tag lines; high pressure and running tubing hazards. Shut off all radio's; cell phones and air cards; moved 3 - GMC with On-Star off location and placed across the lease entrance.
08:00	10:00	2.00	ELINE	Electric Line operation	Installed Bonnett's wireline BOP's and full lubricator onto the crossover on the rig BOP's. RIH with an Owen 101 mm x 2.0 m casing gun loaded with 27 - 25 gram Good Hole charges at 13 SPM and 60° phasing; correlated on depth to Bonnett's GR/CCL/RCBL-VDL log dated yesterday and perforated the 177.8 mm casing at 836.0 - 838.0 mKB with 27 GH charges; observed a good surface indication of the guns firing; fluid level remained at surface before and after perforating. POOH and observed all shots fired.
10:00	12:30	2.50	PTST	Pressure Test	Shut in blind rams and pressured up the casing to 7,000 kPa; observed no bleed down in 3 minutes; pressured up to 9,500 kPa with a 300 kPa bleed down in 5 minutes; pressured up to 10,500 kPa and observed a bleed down of 300 kPa in 5 minutes; pressured up to 12,500 kPa and observed a bleed down of 400 kPa in 5 minutes; pressured up to 14,000 kPa and observed a bleed down of 800 kPa in 2 minutes; 2200 kPa in 5 minutes and 3,700 kPa in 15 minutes. Bled off the casing and pressured back up to 14,000 kPa and observed a pressure bleed off of 2,200 kPa in 15 minutes; hard bleed off the pressure to 0 kPa and pressured back up to 14,000 kPa 4 additional times with the same results.
12:30	15:00	2.50	RUTB	Run Tubing	Rigged out Bonnett wireline BOP's; crossover and lubricator. Tallied and ran 87 joints of 60 mm 6.99 kg/m J-55 EUE tubing to place the bottom of the tubing at 844.76 mKB. Laid down the remaining 37 joints of tubing from the derrick.
15:00	15:30	0.50	LOCL	Lock Wellhead & Secure	Shut in and secured well for night.
15:30	17:30	2.00	CLLS	Clean & Secure Lease	Rig crews doing rig maintenance

Report Fluids Summary	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

Perforations				
Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status
09:25		836.00	838.00	

Tubing Components				
Item Des		Top (mKB)		

Casing Strings				
Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)	



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## Daily Completion and Workover

Report Date: 2017-02-13  
Report # 11.0

### PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 58,860  
Cum Cost to Date: 558,820

APIUWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String	PBTD (All) (mKB)		

Objective  
Abandon well

Operation at 6am

Heat fluids and BOP's

Operations Summary

Acid washed / squeezed 836 - 838 mKB perforations; pulled the 60 mm tubing; RIH set and tested Tryton Tools cement retainer at 827.0 mKB.

Operations Next Report Period

RIH with cement string; latch stinger into cement retainer; pressure test the cement retainer; casing and tubing; preform an injection test. Cement off perforations as per program.

Road Condition Ice/Snow	Weather Partly Cloudy	Report Start Date 2017-02-13	Report End Date 2017-02-13
Head Count	Personnel Total Hours (hr)		Cum Personnel Total Hours (hr)

### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:30	1.00	SMTG	Safety Meeting	Moved in with Trican Well Service - C & A pumper and Aggressive Energy Inc. - acid hauler. Orientated 2 men to Paramount Safety Orientation. Held safety meeting with all personnel discussing spotting and rigging in equipment; high pressure; circulating; pulling tubing; back-washing hazards and MSDS for acid and chemicals on location. Only Trican and Aggressive workers wearing proper PPE around the pump lines; C&A pumper and Acid hauler when pumping acid.
08:30	13:00	4.50	ACID	Acid Wash/Squeeze	Checked the well pressures and observe 0 kPa on the 60 mm tubing and casing. Rigged in Trican Well Service pump manifold to the 60 mm tubing and 177 mm casing; broke circulation down the tubing with returns up the annulus to the rig tank; stopped pumping and pressure tested the pump lines to 14 MPa and 21 MPa. Pressured up the well bore to 10 MPa and observed 100 kPa bleed off in 2 minutes; opened the returns and bled off the pressure; pumped 0.5 m <sup>3</sup> of 15% HCL acid down the tubing at 150 liters / minute followed by 1.2 m <sup>3</sup> of fresh water to place the acid at the bottom of the tubing; reverse circulate out the spent acid with 2.5 m <sup>3</sup> of fresh water. Pumped 2.0 m <sup>3</sup> of 15% HCL acid down the tubing holding 1,000 - 2,000 kPa back-pressure on the annulus at 300 liters / minute with the first 1.7 m <sup>3</sup> then slowed down for the remaining 0.3 m <sup>3</sup> at 10 liters / minute to place 130 liters of acid across the perforations; shut in the returns and slowly pressured up to 8,000 kPa stopped pumping and observed the pressure drop to 6600 kPa in 10 minutes; bled off 100 liters fluid; shut in and pressured up to 10,000 kPa waited 10 minutes and observed the pressure drop to 8,600 kPa; bled off 100 liters from the casing; shut in and pressured up to 13,900 kPa and observed a feed rate of 30 liters / minute; continued to pump / squeeze acid into the formation at 30 liters / minute observing the pump pressure slowly drop to 11,900 kPa; pumped / squeezed 1600 liters of acid into formation; stopped pumping; let the acid soak for 20 minutes. Pressure held steady at 11,800 kPa. Started to displace the acid into formation with 1.8 m <sup>3</sup> fresh water and observed a final feed rate of 180 liters / minute with 13,300 kPa. Stopped pumping. ISIP = 12,600 kPa. Back-washed out the spent acid with 4.0 m <sup>3</sup> of fresh water. Observed the well dead. Rigged out Trican acid pumping equipment.
13:00	14:30	1.50	PULT	Pull Tubing	Pulled 87 joints of 60 mm 6.99 kg/m L-80 EU tubing.
14:30	15:00	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing electric line; overhead lifts; tag lines and running cement retainer hazards. Moved 2 GMC with On-Star off location. shut off all radios; cell phones and air cards.
15:00	16:30	1.50	ELINE	Electric Line operation	Rigged up Bonnett's adapter flange; lubricator and pack-off head onto the rig BOP's. RIH with 177 mm 10K Tryton Tools CR-10 cement retainer; correlated on depth to Bonnett's GR/CCL/RCBL/VDL log dated Feb. 11, 2017 and set the center element of the cement retainer at 827.0 mKB. POH and rigged out Bonnett wireline equipment. Filled the casing with fresh water and pressure test the cement retainer to 7.0 MPa for 10 minutes - held solid. Bled off the casing.
16:30	17:30	1:00	RUTB	Run Tubing	RIH with Tryton Tool J-latch cement stinger assembly on 61 joints of 6.99 kg/m L-80 EU tubing.
17:30	18:00	0.50	CLLS	Clean & Secure Lease	Shut in and secured the well for night. Boiler man to heat BOP's and fluids overnight.



## Daily Completion and Workover

Report Date: 2017-02-13

Report # 11.0

PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 58,860

Cum Cost to Date: 558,820

### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status
09:25		836.00	838.00	

### Tubing Components

Item Des	Top (mKB)

### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



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## Daily Completion and Workover

Report Date: 2017-02-14

Report # 12.0

### PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 57,480

Cum Cost to Date: 616,300

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective

Abandon well

Operation at 6am

Heat fluids and BOP's

Operations Summary

RIH with tubing - stung into and pressure tested cement retainer; pumped squeezed 550 liters of cement into perforations. POOH with tubing; perforated the casing from 563 - 564 mKB; unable to achieve a feed rate; RIH with 60 mm tubing to 566.63 mKB.

Operations Next Report Period

Conduct acid wash / squeeze on perforations; set and test cement retainer.

Road Condition Ice/Snow	Weather Overcast	Report Start Date 2017-02-14	Report End Date 2017-02-14
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:00	0.50	SMTG	Safety Meeting	Moved in with Trican Well Service - cement equipment and Troyer - vacuum truck. Held safety meeting with all personnel discussing running tubing; high pressure; spotting; rigging in equipment; circulating; pulling tubing and back-washing hazards. Checked MSDS for cement and chemicals on location.
08:00	09:00	1.00	RUTB	Run Tubing	Checked the well pressures - SITP = 0 kPa; SICP = 0 kPa. RIH with 25 joints of 60 mm tubing; latched into the cement retainer at 827.0 mKB; re-leased the stinger and spaced out with 1 - 3.0 m x 60 mm 6.99 kg/m L-80 pup joint placed one joint down. Pressure tested the annulus and cement retainer to 10,000 kPa - held good; bled off the pressure.
09:00	12:00	3.00	CEMT	Cement Squeeze	Rigged in Trican Well Service pump lines onto the 60 mm tubing; opened the cement retainer; filled the pump lines with fresh water; closed the cement retainer; pressure tested the tubing; pump lines and cement retainer to 21.0 MPa; held good; opened the cement retainer and obtained a feed rate of 200 liters / minute with 13,200 kPa. Stopped pumping and batch mixed 1 tonne of Microcem Cement containing 1.5% CFR -10 and 1.5% TA-1 ( 1.0 m <sup>3</sup> of cement slurry ) at 1650 kg/m <sup>3</sup> ; pumped 1.0 m <sup>3</sup> of Microcem; followed by 1.32 tonne 0:1:0 class G cement containing 0.5% TLF-HT ( 1.0 m <sup>3</sup> of cement slurry at 1902 kg/m <sup>3</sup> ) at 110 liters / minute and 9,000 kPa; slowed the pump rate to 30 liters / minute; followed by 400 liters of fresh water and squeezed 0.73 m <sup>3</sup> of cement below the cement retainer ( 550 liters of cement into perforations ); stopped squeezing and observed a flat line of 7,000 kPa for 10 minutes. Bled down the tubing pressure to 2,000 kPa and released the stinger from the cement retainer.
12:00	14:00	2.00	PULT	Pull Tubing	Slowly pulled and laid down 10 joints of 60 mm tubing; pumped 4.0 m <sup>3</sup> of fresh water down the annulus with returns up the tubing to the rig tank; observed ± 200 liters of cement on bottom's up then clear fresh water. Pulled remaining 75 joints of 60 mm tubing. Calculated cement top at 764 mKB.
14:00	14:30	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing perforating with electric line; overhead lifts; tag lines; high pressure and running tubing hazards. Shut off all radio's; cell phones and air cards; moved 2 - GMC with On-Star off location and placed across the lease entrance.
14:30	15:30	1.00	ELINE	Electric Line operation	Installed Bonnett's wireline BOP's and full lubricator onto the crossover on the rig BOP's. RIH with an Owen 101 mm x 2.0 m casing gun loaded with 27 - 25 gram Good Hole charges at 13 SPM and 60° phasing; correlated on depth to Bonnett's GR/CCL/RCBL-VDL log dated Feb. 11, 2017 and perforated the 177.8 mm casing at 562.0 - 564.0 mKB with 27 GH charges; observed a good surface indication of the guns firing; fluid level remained at 35 mKB before and after perforating. POOH and observed all shots fired.
15:30	16:00	0.50	PTST	Pressure Test	Shut in blind rams and pressured up the casing to 9,000 kPa; observed no bleed down in 2 minutes; pressured up to 14,000 kPa with a 800 kPa bleed down in 5 minutes. Bled off the casing and pressured back up to 14,000 kPa and observed a pressure bleed off of 1.000 kPa in 15 minutes; hard bled off the pressure to 0 kPa and pressured back up to 14,000 kPa 3 additional times and observed the bleed off pressure slowing down.



## Daily Completion and Workover

Report Date: 2017-02-14  
Report # 12.0

### PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 57,480  
Cum Cost to Date: 616,300

#### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
16:00	17:00	1.00	RUTB	Run Tubing	Rigged out Bonnett wireline BOP's; crossover and lubricator. Ran 58 joints of 60 mm 6.99 kg/m J-55 EUE tubing and 1 - 3.0 m x 60 mm 6.99 kg/m L-80 EUE pup joint placed one joint down; to place the bottom of the tubing at 566.63 mKB.
17:00	17:30	0.50	CLLS	Clean & Secure Lease	Shut in and secured the well for night. Boiler man to heat kill fluids and BOP's overnight.

#### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

#### Perforations

Time	Linked Zone	Top (mKB)	Blm (mKB)	Current Status
09:25		836.00	838.00	

#### Tubing Components

Item Des	Top (mKB)

#### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



**Paramount**  
resources ltd.

# Daily Completion and Workover

Report Date: 2017-02-15

Report # 13.0

## PARAMOUNT ET AL FT LAIRD F-36/3

### Rig:

**Business Unit: NORTHERN COU**

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 66,135

Cum Cost to Date: 682,435

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective

Abandon well

Operation at 6am

Heat fluids and BOP's

Operations Summary

Acid washed / squeezed 562 - 564 mKB perforations; pulled the 60 mm tubing; RIH set and tested Tryton Tools cement retainer at 558.0 mKB.

Operations Next Report Period

RIH with cement string; latch stinger into cement retainer; pressure test the cement retainer; casing and tubing; preform an injection test. Cement off perforations as per program.

Road Condition Ice/Snow	Weather Clear	Report Start Date 2017-02-15	Report End Date 2017-02-15
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
07:30	08:30	1.00	SMTG	Safety Meeting	Spotted Trican Well Service - C & A pumper and Aggressive Energy Inc. - acid hauler. Held safety meeting with all personnel discussing spotting and rigging in equipment; high pressure; circulating; pulling tubing; back-washing acid hazards and checked MSDS for acid and chemicals on location. Only Trican and Aggressive workers wearing proper PPE around the pump lines; C&A pumper and Acid hauler when pumping acid.
08:30	12:00	3.50	ACID	Acid Wash/Squeeze	Checked the well pressures and observed 0 kPa on the 60 mm tubing and casing. Rigged in Trican Well Service pump manifold to the 60 mm tubing and 177 mm casing; broke circulation down the tubing with returns up the annulus to the rig tank; stopped pumping and pressure tested the pump lines to 14 MPa and 21 MPa. Pressured up the well bore to 10 MPa and observed no bleed off in 3 minutes; pressured up to 12,000 kPa and observed 150 kPa bleed off in 2 minutes; opened the returns and pumped 1.4 m <sup>3</sup> of 15% HCL acid down the tubing holding 4,000 - 5,000 kPa back-pressure on the annulus at 300 liters / minute with the first 1.1 m <sup>3</sup> then slowed down for the remaining 0.3 m <sup>3</sup> at 20 liters / minute to place 150 liters of acid across the perforations; shut in the returns and slowly pressured up to 8,600 kPa and observed no bleed off in ten minutes; bled off 150 liters and pressured up to 12,600 kPa stopped pumping and observed the pressure drop to 8800 kPa in 10 minutes; bled off 100 liters fluid; shut in and pressured up to 11,900 kPa and observed a feed rate of 30 liters / minute; continued to pump / squeeze acid into the formation slowly increasing the pump rate to 70 liters / minute observing the pump pressure slowly increase to 13,400 kPa with a total of 1.72 m <sup>3</sup> of acid squeezed into formation; stopped pumping; let the acid soak for 60 minutes. Pressure held steady at 9,900 kPa for the last 20 minutes. Started to displace the acid into formation with 0.65 m <sup>3</sup> fresh water and observed a final feed rate of 170 liters / minute with 13,400 kPa. Stopped pumping. ISIP = 12,800 kPa. Back-washed out the spent acid with 4.0 m <sup>3</sup> of fresh water. Observed the well dead. Rigged out Trican acid pumping equipment.
12:00	13:00	1.00	PULT	Pull Tubing	Pulled 58 joints of 60 mm 6.99 kg/m L-80 EUE tubing and 1 - 3.0 m x 60 mm EUE pup joint.
13:00	13:30	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing electric line; overhead lifts; tag lines and running cement retainer hazards. Moved 3 GMC with On-Star off location. shut off all radios; cell phones and air cards.
13:30	15:30	2.00	ELINE	Electric Line operation	Rigged up Bonnett's adapter flange; lubricator and pack-off head onto the rig BOP's. RIH with 177 mm 10K Tryton Tools CR-10 cement retainer; correlated on depth to Bonnett's GR/CCL/RCBL/VDL log dated Feb. 11, 2017 and set the center element of the cement retainer at 558.0 mKB. POH and rigged out and released Bonnett wireline equipment.
15:30	16:30	1.00	RUTB	Run Tubing	RIH with Tryton Tool J-latch cement stinger assembly on 57 joints of 6.99 kg/m L-80 EUE tubing; stung into the cement retainer; released the stinger from the cement retainer and spaced out placing a 3.0 m x 60 mm pup joint 1 joint down.
16:30	17:00	0.50	PTST	Pressure Test	Pressure tested the casing and cement retainer to 10 MPa for 10 minutes; held good; bled off the annulus; closed the cement retainer and pressure tested the tubing and cement retainer to 14.0 MPa for 10 minutes held good. Bled off the pressure.



## Daily Completion and Workover

Report Date: 2017-02-15  
Report # 13.0

### PARAMOUNT ET AL FT LAIRD F-36/3

Rig:

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 66,135  
Cum Cost to Date: 682,435

#### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
17:00	17:30	0.50	CLLS	Clean & Secure Lease	Shut in and secured the well for night. Boiler man to heat BOP's and fluids overnight.

#### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

#### Perforations

Time	Linked Zone	Top (mKB)	Btm (mKB)	Current Status
13:10		562.00	564.00	
09:45		836.00	838.00	

#### Tubing Components

Item Des	Top (mKB)

#### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



# Daily Completion and Workover

Report Date: 2017-02-16  
Report # 14.0

## PARAMOUNT ET AL FT LAIRD F-36/3

Rig: Savanna Well Service

Business Unit: NORTHERN COU

Total AFE Amount: 1,138,856.00  
AFE Number: 17N770029  
Daily Cost Total: 38,020  
Cum Cost to Date: 720,455

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m)	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTD (All) (mKB)	

Objective  
Abandon well

Operation at 6am  
Heat fluids and BOP's

Operations Summary  
Crews doing rig maintenance; grader worked on the lease road and lease with ice scraper making lease and road safer to walk and drive on. Continued to heat the BOP's and kill fluids.

Operations Next Report Period  
Perform an injection test. Cement / squeeze off perforations as per program.

Road Condition Ice/Snow	Weather Overcast	Report Start Date 2017-02-16	Report End Date 2017-02-16
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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Daily Contacts		
Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

Start Time	End Time	Dur (hr)	Code 1	Code 2	Com
08:00	08:30	0.50	SMTG	Safety Meeting	Held safety meeting with all personnel discussing winter driving and lease hazards. NOTE vacuum truck was traveling on highway #77 last night and hit freezing rain and the pup was flipped over; the highway was completely shut down - unable to get a second vacuum truck for to-day.
08:30	16:30	8.00	Job Prep	JOB PREP	Rig crew changed oil in the rig and pump; cut and slipped sand line; poured a new rope socket and continued to heat the BOP's and kill fluids. Beaver Construction grader worked on the lease and lease road making driving and walking safer. Prepared for cementing operations.
16:30	17:00	0.50	CLLS	Clean & Secure Lease	Well shut in and secured. Boiler man to heat BOP's and kill fluids overnight.

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

Perforations				
Time	Linked Zone	Top (mKB)	Blm (mKB)	Current Status
13:10		562.00	564.00	
09:45		836.00	838.00	

Tubing Components		Item Des	Top (mKB)

Casing Strings			
Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



## Daily Completion and Workover

Report Date: 2017-02-17

Report # 15.0

### PARAMOUNT ET AL FT LAIRD F-36/3

**Rig: Savanna Well Service**

**Business Unit: NORTHERN COU**

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 59,055

Cum Cost to Date: 779,510

API/UWI 300/F-36/60-10-12315/3	Surface Legal Location 300/F-36-6010-12315	Field Name Laird	License # 0003029
Well Configuration Type Vertical	Casing Flange Elevation (m) 464.80	Ground Elevation (m) 464.80	Original KB Elevation (m) 470.30
Last Casing String		PBTID (All) (mKB)	

Objective

Abandon well

Operation at 6am

Heat kill fluids.

Operations Summary

Established feed rate; mixed and squeezed cement; pumped / squeezed cement into the 562 - 564 mKB perforations; pulled 3 joints of tubing; back-washed tubing; POOH laying down tubing; removed BOP's; nipple up the wellhead. Rigged out the service rig; pump and tank. Prepare to move.

Operations Next Report Period

Rig out boiler; move equipment to A-01.

Road Condition Ice/Snow	Weather Snow	Report Start Date 2017-02-17	Report End Date 2017-02-17
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Head Count	Personnel Total Hours (hr)	Cum Personnel Total Hours (hr)
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### Daily Contacts

Title	Job Contact	Mobile
Area Operations Manager	Patrick Kelly, Area Operations Manager	403-519-1780
Rig Manager	Craig Hewlett, Rig Manager	403-895-4364
Consultant	Dick Heenan, Consultant	403-818-4408
Consultant	Terry Pollard, Consultant	780-361-5962

### Time Log

Start Time	End Time	Dur (hr)	Code 1	Code 2	Comment
07:30	08:00	0.50	SMTG	Safety Meeting	Moved in with Trican Well Service - cement equipment; TNT - water truck and Troyer - vacuum truck. Held safety meeting with all personnel discussing running tubing; high pressure; spotting; rigging in equipment; circulating; pulling tubing and back-washing hazards. Checked MSDS for cement and chemicals on location. Safety orientated 1 Troyer and 1 TNT employees to Paramount Safety Orientation.
08:00	12:00	4.00	CEMT	Cement Squeeze	Checked the well pressures and observed SICP = 0 kPa; SITP = 4300 kPa. Shut in the surface casing vent. Rigged in Trican Well Service pump lines onto the 60 mm tubing; opened the cement retainer; filled the pump lines with fresh water; closed the cement retainer; pressure tested the tubing; pump lines and cement retainer to 21.0 MPa; held good; opened the cement retainer and obtained a feed rate of 180 liters / minute with 13,300 kPa. Stopped pumping and batch mixed 0.9 tonne of Microcem Cement containing 1.5% CFR-10 and 1.5% TA-1 ( 0.9 m <sup>3</sup> of cement slurry ) at 1650 kg/m <sup>3</sup> ; pumped 1.0 m <sup>3</sup> of Microcem; followed by 1.4 tonne 0:1:0 class G cement containing 0.5% TLF-HT ( 1.1 m <sup>3</sup> of cement slurry at 1902 kg/m <sup>3</sup> ) at 150 liters / minute and 10,000 kPa; slowed the pump rate to 30/40 liters / minute; followed by 300 liters of fresh water and squeezed 1.21 m <sup>3</sup> of cement below the cement retainer stopped squeezing and observed a flat line of 8,500 kPa for 10 minutes. Bled down the tubing pressure to 3,000 kPa and released the stinger from the cement retainer.
12:00	13:30	1.50	PULT	Pull Tubing	Slowly pulled and laid down 3 joints of 60 mm tubing; pumped 3.0 m <sup>3</sup> of fresh water down the annulus with returns up the tubing to the rig tank; observed ± 250 liters of cement on bottom's up then clear fresh water. Pulled remaining 54 joints of 60 mm tubing. Calculated cement top at 533.8 mKB.
13:30	14:30	1.00	BOPR	Remove BOP's	Rigged out the work floor; removed the class III BOP's and nipples up the wellhead top section.
14:30	17:00	2.50	SRIG	Rig Up/Down	Rigged out Savanna rig # 126; pump and tank. Prepared to move the rig and equipment to A-01.
17:00	17:30	0.50	CLLS	Clean & Secure Lease	Shut in and secured the wellhead; SCV left closed - to be opened at 1800 hours. Boiler man to heat kill fluids overnight.

### Report Fluids Summary

Fluid	To well (bbl)	From well (bbl)	Cum from Well (bbl)	Left to recover (bbl)

### Perforations

Time	Linked Zone	Top (mKB)	Blm (mKB)	Current Status
13:10		562.00	564.00	
09:45		836.00	838.00	

### Tubing Components

Item Des	Top (mKB)

### Casing Strings

Csg Des	Grade	Wt/Len (lb/ft)	Set Depth (mKB)



## Daily Completion and Workover

PARAMOUNT ET AL FT LAIRD F-36/3

Rig: Savanna Well Service

Business Unit: NORTHERN COU

Report Date: 2017-02-17  
Report # 15.0

Total AFE Amount: 1,138,856.00

AFE Number: 17N770029

Daily Cost Total: 59,055

Cum Cost to Date: 779,510

March 8, 2017

OROGO  
Department of Industry, Tourism and Investment  
Government of the Northwest Territories  
P.O. Box 1320  
Yellowknife NT  
X1A 2L9  
Canada

**Attn: Chief Conservation Officer**

**Re: Modification to the Approved AACW Application for Abandonment of Liard F-36  
ACW-2016-003**

The producing zones in the above well were abandoned in February 2017 and two squeezes were made in an attempt to shut off a Surface Casing Vent (SCV) Flow, as previously approved and reported.

There has been a substantial decrease in the rate of flow from the SCV, from flow rates of 4 – 8 m<sup>3</sup>/day prior to the cement squeezes to flow rates under 0.01 m<sup>3</sup>/day subsequently. The flow rates between March 4 and March 7 have decreased to rates equivalent to 10 bubbles per minute or less, with intervals of the SCV being on vacuum. Paramount interprets these results as likely indicating that the source of gas flow has been shut off, but zones and/or voids in the wellbore and near wellbore area are still somewhat charged up with gas. Accordingly, Paramount proposes the following:

1. **Cut & cap**  
Do not cut and cap the well at this time as per step 19 in the approved program.  
Current observations of the SCV do not support cutting and capping the well at this time.
2. **Monitoring the Surface Casine Vent for flow**  
During a suitable period (e.g. the summer of 2017) Paramount will install a flow monitoring device such as the “Vent Nanny” on the well and monitor the flow for a minimum of 48 hours to confirm that any gas present has dispersed and the well is in a suitable condition for cut and cap operations. Paramount will report the results of the monitoring to OROGO.  
If the monitoring indicates no SCV flow as defined in the OROGO regulations and guidelines, the well will be considered suitable for cut and cap operations to finalize abandonment. If there is still indication of SCV flow, the well will be left open for a further season and monitoring

repeated as needed to determine the success (or lack thereof) of mitigation efforts and to plan further actions.

3. Gas Migration

Consideration will be given to monitoring for Gas Migration (GM) outside of the casing during the summer for 2017. Further investigation is required to determine if this is practical under the current conditions, or if the known hydrocarbon contamination in the vicinity of the wellhead may cause false positive readings, in which case GM testing may not be useful until the surface reclamation efforts are completed.

4. Final Cut & Cap – Surface Abandonment

Due to the difficult access to this well (requiring approximately 25 km of winter road to be built for access), Paramount intends to combine final cut and cap (or other remedial operations) on the Liard F-36 well with other reclamation work on F-36 and other wellsites in the area. A firm schedule for this has not been established at this time, but in any case, operations will occur within the timelines specified by the applicable regulation.

Please contact Patrick Kelly at 403 290-3642 or Dick Heenan at 403 818 4408 or [dickheenan@shaw.ca](mailto:dickheenan@shaw.ca) if you have any questions regarding this project and application.

Regards,



Patrick Kelly  
Area Operations Manager  
Paramount Resources Ltd

Patrick Kelly  
Area Operations Manager  
Paramount Resources Ltd.  
4700 Bankers Hall West  
888 3 STREET SW  
CALGARY AB T2P 5C5

March 13, 2017

Dear Mr. Kelly:

**Amendment of Approval to Alter the Condition of a Well  
Fort Liard F-36 Well (ACW-2016-003)**

The Office of the Regulator of Oil and Gas Operations (OROGO) has received the Paramount Resources Ltd (Paramount) application dated March 8, 2017 for an amendment to the Approval to Alter the Condition of a Well (ACW) setting out the plan for the abandonment of the Fort Liard F-36 well.

Based on the information Paramount has provided and advice from my technical team, on March 9, 2017, I agreed that observations of the surface casing vent did not support cutting and capping the well and I issued an interim decision (via email), to approve Paramount's request to leave the well head in place.

OROGO's *Well Suspension and Abandonment Guidelines and Interpretation Notes* (in effect February 1, 2017) require that all gas migration or surface casing vent flow (SCVF) (serious and non-serious) must be repaired prior to abandoning the well. The guidelines set out requirements for abandonment timelines, monitoring and operations.

The ACW issued on December 19, 2016, and amended on March 6, 2017, is further amended as set out below:

1. The term of ACW-2016-003 is extended until November 30, 2017.
2. Paramount shall conduct SCVF monitoring prior to September 30, 2017 at a time of year and for a duration (minimum 48 hours) that is reasonable to confirm the presence or absence of SCVF and an estimated rate of any flow.
3. Paramount shall notify OROGO at least 30 days prior to conducting SCVF monitoring by e-mail to [orogo@gov.nt.ca](mailto:orogo@gov.nt.ca).

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4. Paramount shall conduct the SCVF monitoring utilizing a continuous flow meter that is suitable for low and intermittent flows.
5. The well head will remain in place. The cutting and capping of the well is subject to further approval from the Chief Conservation Officer.
6. Paramount shall provide an updated monitoring and well abandonment plan by October 31, 2017 consistent with OROGO's *Well Suspension and Abandonment Guidelines and Interpretation Notes*.

If you have any questions, please contact me at 867-767-9097 or by email at [James\\_Fulford@gov.nt.ca](mailto:James_Fulford@gov.nt.ca).

Sincerely,



James Fulford  
Chief Conservation Officer