

**EWART UNIT NO. 5  
WATERFLOOD EOR PROJECT  
ANNUAL REPORT FOR 2014**

**June 22, 2015**

**Tundra Oil and Gas Partnership**

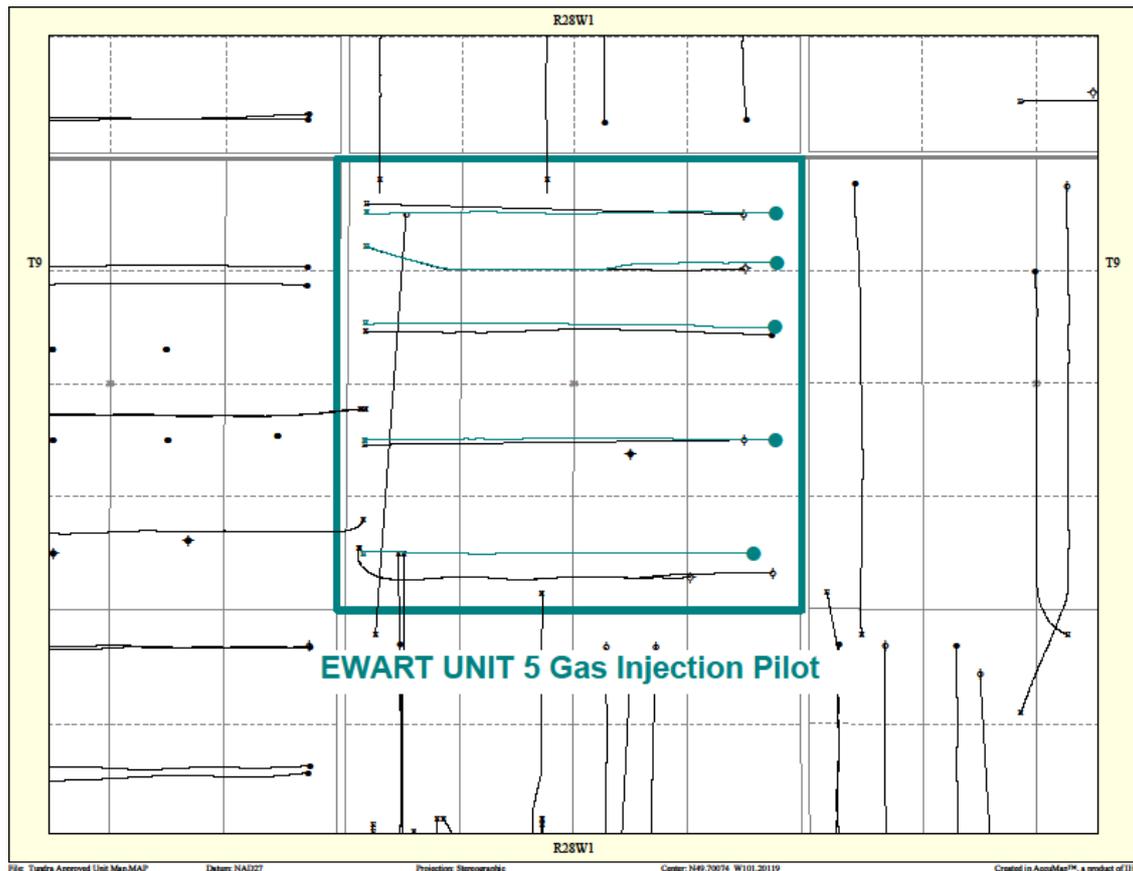
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## **INTRODUCTION**

Ewart Unit No. 5 Enhanced Oil Recovery (EOR) Scheme was approved under EOR Order No. 35 effective April 1, 2014 with Tundra Oil and Gas (Tundra) as Operator. The EOR project area contains 4 horizontal producing wells and 1 standing horizontal well in Section 34 Township 8 Range 28 W1 as shown in the figure below.

**Figure 1: Ewart Unit No. 5 Area Outline**



In accordance with Section 73 of the Manitoba Drilling and Production Regulation, Tundra hereby submits the following 2014 Annual Progress Report for Ewart Unit No. 5.

## **DISCUSSION**

### **Production History**

For the wells included in Ewart Unit No. 5, production started in July 2008 with the 00/01-34-008-28W1 well. Average oil production peaked at 14.17 m<sup>3</sup>/d per well in

December of 2009. This production was coming from 3 wells and totaled 42.52 m<sup>3</sup>/d for the Unit. In December 2014, the Unit was producing 6.92 m<sup>3</sup>/d of oil and 13.94 m<sup>3</sup>/d of water. There is currently no injection in Ewart Unit No. 5. The rates and WOR are presented in Figure 2.

**Figure 2: Ewart Unit No. 5 Production/Injection Rates and WOR vs Time**

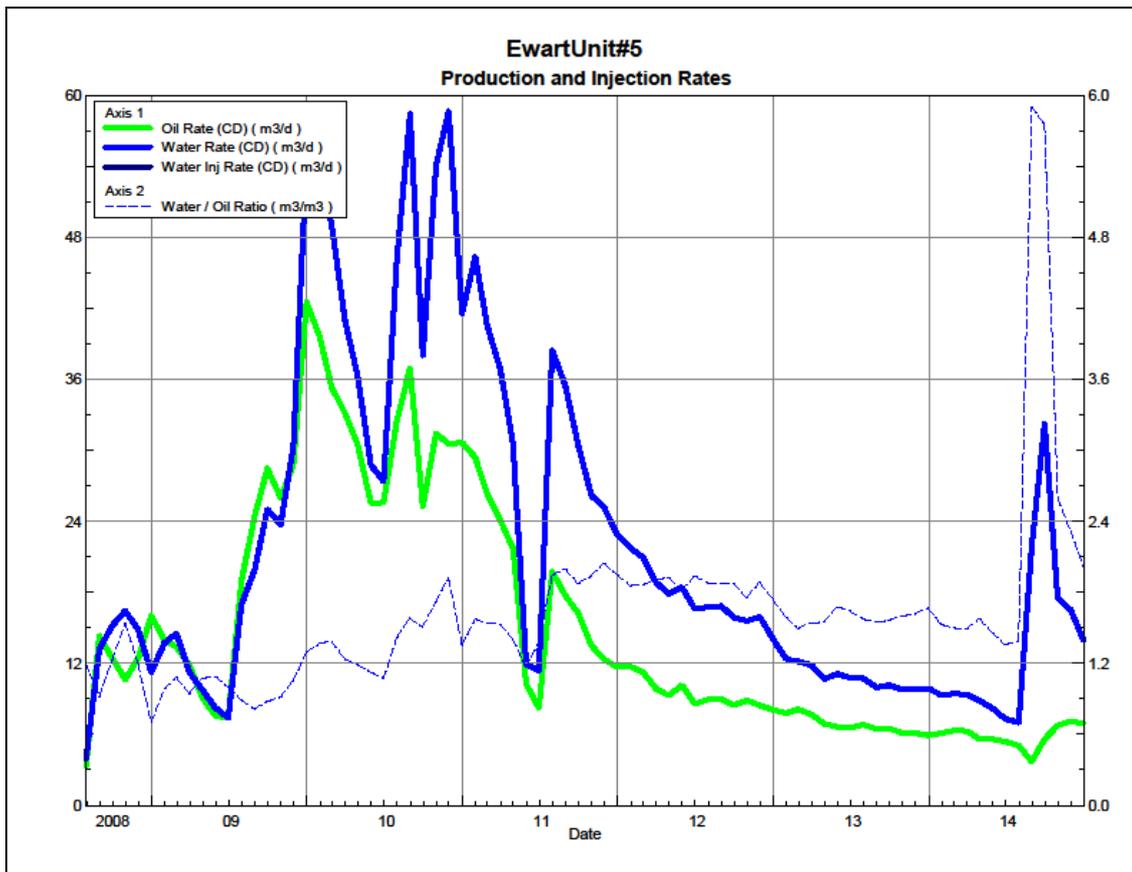
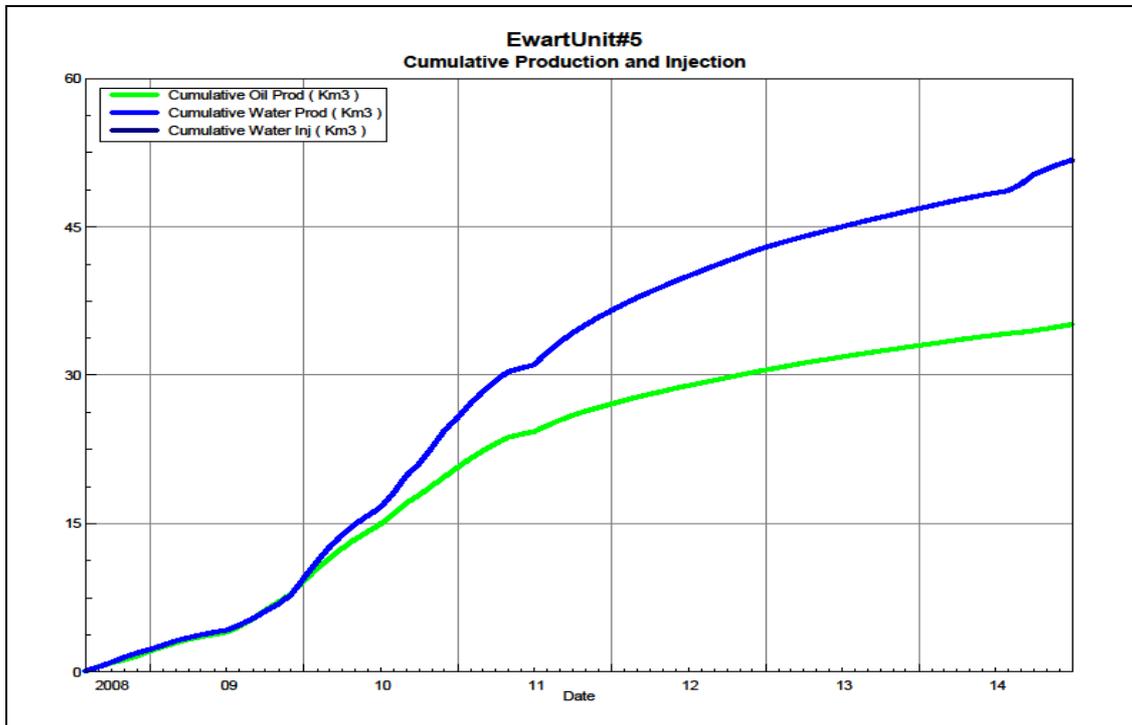


Figure 3 shows the cumulative production for Ewart Unit No. 5 to the end of December 2014 as 35.15 e<sup>3</sup>m<sup>3</sup> of oil, and 51.77 e<sup>3</sup>m<sup>3</sup> of water, representing a 7.9% recovery factor of the OOIP.

**Figure 3: Ewart Unit No. 5 Cumulative Oil, Water and Water Injected vs Time**



## **Waterflood Development Plan**

### **Ewart Unit No. 5 Waterflood (WF) Development Plan**

Ewart Unit No. 5 is still in the development phase at the end of 2014. The purpose of this Immiscible Gas Injection Pilot is to install gas injection in Section 34 and evaluate over a 5 year period whether water alternating gas (WAG) injection will result in improved oil recovery in areas where waterflooding and miscible gas flooding have been deemed uneconomic due to poor reservoir quality.

Two injection wells are proposed for the unit. The 08-34-008-28W1 (08-34) is an existing producer that will be converted to an injector. In July 2014, the 02/16-34-008-28W1 proposed horizontal injector was drilled between the 09-34 and 16-34-008-28W1 producers. The new injection well will be placed on injection after the pre-production period to clean-up the reservoir near the wellbore to maximize recovery. The new horizontal well will not be fracture stimulated unlike the 08-34 future injector.

Tundra is planning to inject water prior to gas in both wells to allow the reservoir pressure to build up without the risk of early gas breakthrough. Due to 08-34 having spent several years as a producer, Tundra expects the voidage around this wellbore to

take a bit longer to fill up. During full operation, Tundra expects to alternate water and gas injection between the two wellbores due to the capacity of our nitrogen generating equipment. After initial water injection in both wells, we would expect to begin gas injection at the newly drilled, unstimulated openhole location first, while the existing 08-34 wellbore stays on water injection. After a few months, we would switch the injection fluid on each well so that the 08-34 well is injecting gas and the newly drilled 02/16-34 well is injecting water. It should be noted that while we would only have the capability to inject gas in one well at a time, there may be instances that dictate water injection on both injection wells simultaneously.

Production performance by injector pattern is summarized in Appendix B.

Any future revisions to the waterflood development or surveillance plan would be based on new production or performance response data, technical studies, or observed reservoir behavior and reserves recovery interpretations.

### **Waterflood EOR Operating Strategy and Performance**

#### **N<sub>2</sub> Source**

The N<sub>2</sub> for this pilot will be generated on site through an N<sub>2</sub> PSA Generator. In general transporting liquid nitrogen is much more difficult than CO<sub>2</sub> due to its low boiling point temperature. This unit filters the N<sub>2</sub> from the atmosphere and compresses and stores it on site.

#### **Water Source and Quality**

The injection water for Ewart Unit No. 5 will be sourced from the 16-32-007-29W1 well (Lodgepole formation). The water is treated at the 03-04-008-29W1 battery where it is filtered to 0.5 microns and has scale inhibitor added. The injection water is then distributed to the injectors through the dedicated infrastructure system.

#### **Injection Wellhead Pressures**

There is currently no injection in Ewart Unit No. 5.

#### **Reservoir Pressure**

Where practical, Tundra is committed to collecting pressure data from newly drilled injection wells. For Ewart Unit No. 5, pressure data is currently available for the 02/16-34-008-28W1 location. A summary table is presented in Appendix C. Pressures are corrected to a common datum of -450 m SS for comparison with other units in the area.

## Well Servicing

The following table summarizes the well servicing performed within Ewart Unit No. 5 in 2014:

100.09-34-008-28W1.00	Packers Plus Drillout	8/2/2014
102.16-34-008-28W1.02	Bakken Swab Completion	9/10/2014
102.16-34-008-28W1.02	Pump Change	10/2/2014

## Waterflood Performance Discussion

At the end of 2014, there is currently no injection in Ewart Unit No. 5. Tundra intends to convert the 2 horizontal producers, 08-34 and 02/16-34-008-28W1 to injectors in 2015. This unit will have a combination of waterflood patterns at 20 acre and 40 acre spacing having utilized the existing horizontal wells in the area.

Tundra expects to alternate N<sub>2</sub> and water injection every 3-6 months to optimize the flood front and minimize gas channeling and breakthroughs. The initial Voidage Replacement Ratio (VRR) is expected to be approximately 1.25 to 3.00 within the patterns during the fill up period. As the cumulative VRR approaches 1, target reservoir operating pressure for waterflood operations will be 75-90% of original reservoir pressure.

A summary table of the injector pattern(s) is presented in Appendix B. Plots of the production are presented in Appendix D for each of the injection pattern(s).

## List of Appendices

Appendix A: Ewart Unit No. 5 Well Name and Status Table

Appendix B: Ewart Unit No. 5 Injection Pattern Summary

Appendix C: Ewart Unit No. 5 Reservoir Pressure Summary

Appendix D: Injector Pattern Production/Injection Rates, Cumulative and VRR Plots  
for the following injectors:

00/08-34-008-28W1/0

02/16-34-008-29W1/2

## Appendix A

<b>UWI</b>	<b>Surface Location</b>	<b>Well Status</b>
00/01-34-008-28W1/0	04-34-008-28W1/0	Capable of OIL Prod
00/08-34-008-28W1/0	05-34-008-28W1/0	Capable of OIL Prod
00/09-34-008-28W1/0	12-34-008-28W1/0	Capable of OIL Prod
00/16-34-008-28W1/0	13-34-008-28W1/0	Capable of OIL Prod
02/16-34-008-28W1/2	02/13-34-008-28W1/2	Completing

**Appendix B**

**Ewart Unit No. 5 Injection Pattern Summary as of December 2014**

Pattern Name	Injector BH Location (008-28W1)	Injector Surf. Location (008-28W1)	Status	No. of Supported Wells	Supported Wells (008-28W1)	Allocation Factor	Pattern Prod Start Month	Inj Start Month	Oil Rate (m <sup>3</sup> /d)	Water Rate (m <sup>3</sup> /d)	WOR (m <sup>3</sup> /m <sup>3</sup> )	Water Injection (m <sup>3</sup> /d)	Cum Oil Water (E <sup>m</sup> ³)	Cum Inj Water (E <sup>m</sup> ³)	Monthly VRR	Cum VRR
00/08-34-008-28W1 Injector	00/08-34	00/05-34	Capable of Oil Production	2	01-34, 09-34	0.5	Jul 2008	-	3.4	9.2	2.69		17.7	29.1	0.0	0.00
02/16-34-008-28W1 Injector	02/16-34	02/13-34	Completing	2	09-34, 16-34	0.5	Jul 2009	-	2.3	3.1	1.38		9.5	11.6	0.0	0.00

## APPENDIX C

### Ewart Unit No. 5 - Pressure Summary

Location	Test Date	Final Pressure (kPaa)	MPP (mTVD)	KB	Datum Depth	Gradient	Pressure @ -450 masl
102/16-34-008-28W1/02	July 29th - Sept 7th, 2014	3402.9	874.9	484.5	-450	8.25	3895



## TUNDRA OIL & GAS PARTNERSHIP

EWART UNIT No. 5 HZNTL A16A-34-8-28  
102/16-34-008-28W1/0  
LICENSE #: 9956  
BAKKEN FORMATION

RESERVOIR PRESSURE SURVEY TEST  
JULY 29<sup>th</sup> - SEPTEMBER 7<sup>th</sup>, 2014

Prepared by: **DOLLCO Well Data Services**  
e-mail: [dollco@shaw.ca](mailto:dollco@shaw.ca)

PO Box 326  
417A Mississippian Drive  
Esteran, SK  
S4A 2A4

Cell: (306) 421 - 7330  
Fax: (306) 634 - 7976  
Res: (306) 634 - 8761

E-mail: [qualityw@sasktel.net](mailto:qualityw@sasktel.net)

# Pressure Survey Report

## Company Information

Company Name	TUNDRA OIL & GAS PARTNERSHIP
Contact	TYLER ROUTLEDGE
e-mail	tyler.routledge@tundraoilandgas.com
Phone	(204) 522-0864
Site Contact	BRENT DALZIEL
Site Phone	(204) 851-1947

## Well Information

Well Name	EWART UNIT No. 5 HZNTL A16A-34-8-28
Unique Well ID	102/16-34-008-28W1/00
Surface Location	13B-34-8-28W1
Well License Number	9956
Well Type	Horizontal
Well Fluid Type	01 Oil
Field	SINCLAIR

KB Elevation (SL)	484.48 m
CF Elevation (SL)	m
GL Elevation (SL)	480.38 m
Distance from KB to CF (Log)	m
KB-GL Offset	4.10 m

Tubing ID	mm
Tubing OD	mm
Tubing Depth(Log KB)	m
Tubing Depth(TVD KB)	m
Casing ID	159.0 mm
Casing OD	177.8 mm
Casing Depth(Log KB)	992.00000 m
Casing Depth(TVD KB)	867.19000 m
PBTD(Log KB)	m
PBTD(TVD KB)	m



# Pressure Survey Report

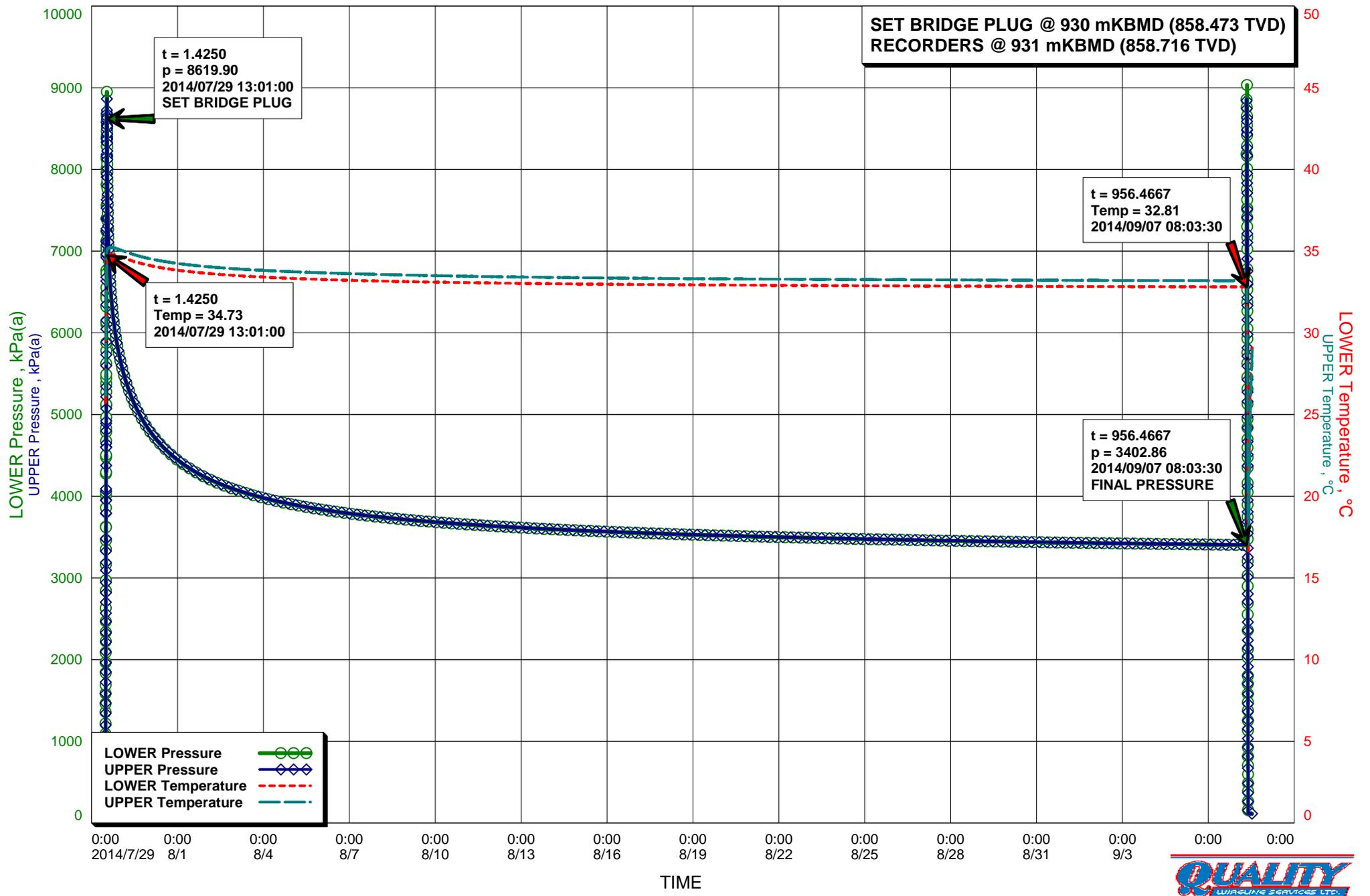
## Test Information

Well Name	EWART UNIT No. 5 HZNTL A16A-34-8-28
Unique Well ID	102/16-34-008-28W1/00
Surface Location	13B-34-8-28W1
Well License Number	9956
Well Fluid Type	01 Oil
Test Purpose	Initial Test
Test Type	RESERVOIR PRESSURE SURVEY
Formation	BAKKEN
Well Type Indicator	Horizontal
Test/Prod. Interval Top KB (Log)	992.00 m
Test/Prod. Interval Base KB (Log)	2250.00 m
MPP(Log KB)	1621.00 m
Test/Prod Interval Top KB (TVD)	867.19 m
Test/Prod. Interval Base m KB (TVD)	882.57 m
MPP(TVD KB)	874.88 m
Tubing Pressure Initial	93.00 kPa(a)
Casing Pressure Initial	93.00 kPa(a)
Tubing Pressure: Final	93.00 kPa(a)
Casing Pressure: Final	93.00 kPa(a)
Time/Date Well Shut-In	2014/07/29 13:01:00
Final Test Date/Time	2014/09/07 08:03:30
Gauge Serial Number Used in Summary	40404
Last Measured Pressure at Run Depth	3402.86 kPa(a)
Reservoir Temperature	32.81 °C
Service Company	Quality Wireline Services Ltd.
Representative	BART ROYAN
Prepared By	DOLLCO Well Data Services
Qualified By	RICK DOLL
Report Date	2014/09/09

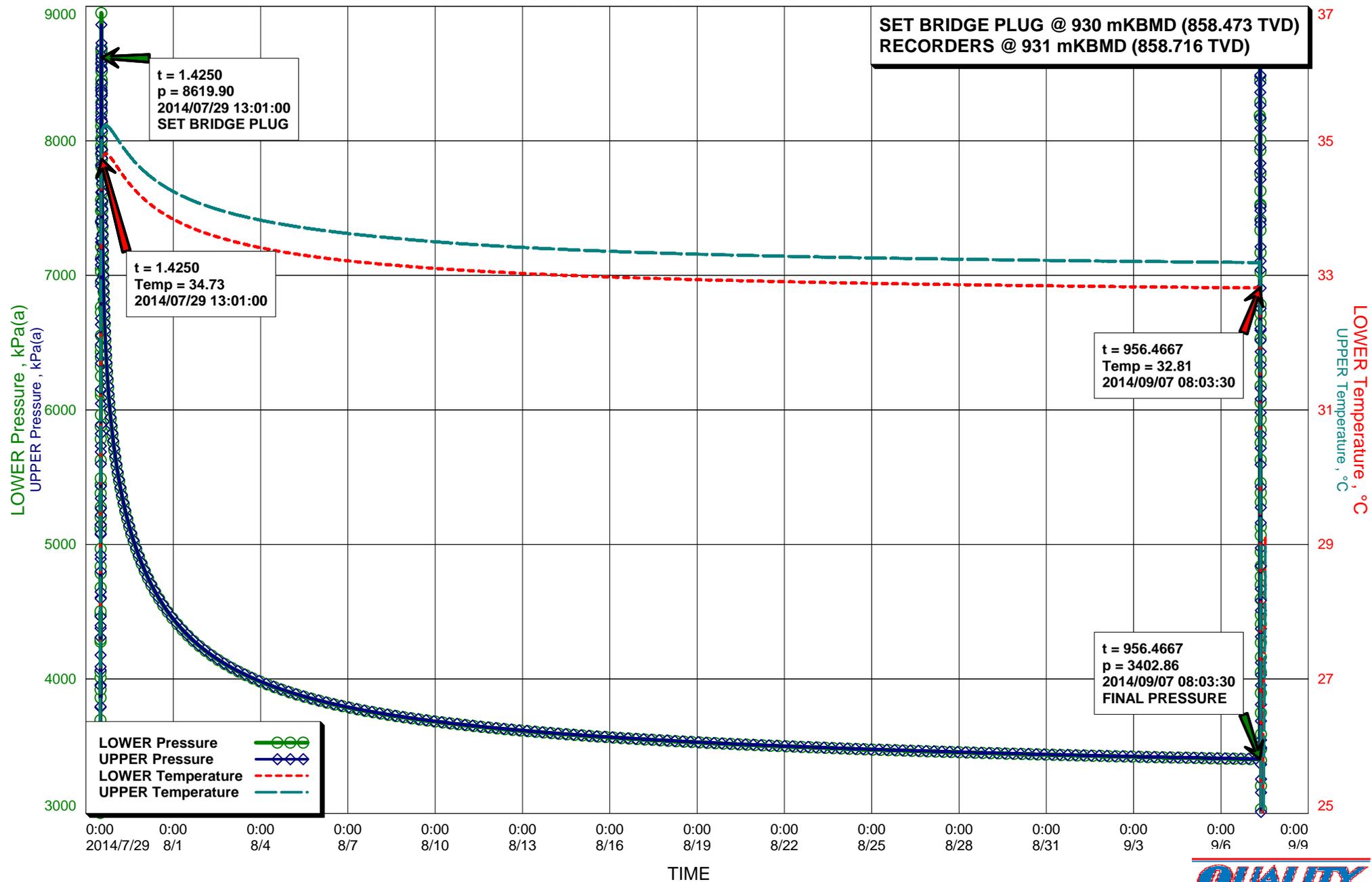
THESE RECORDERS WERE RUN BELOW A BRIDGE PLUG



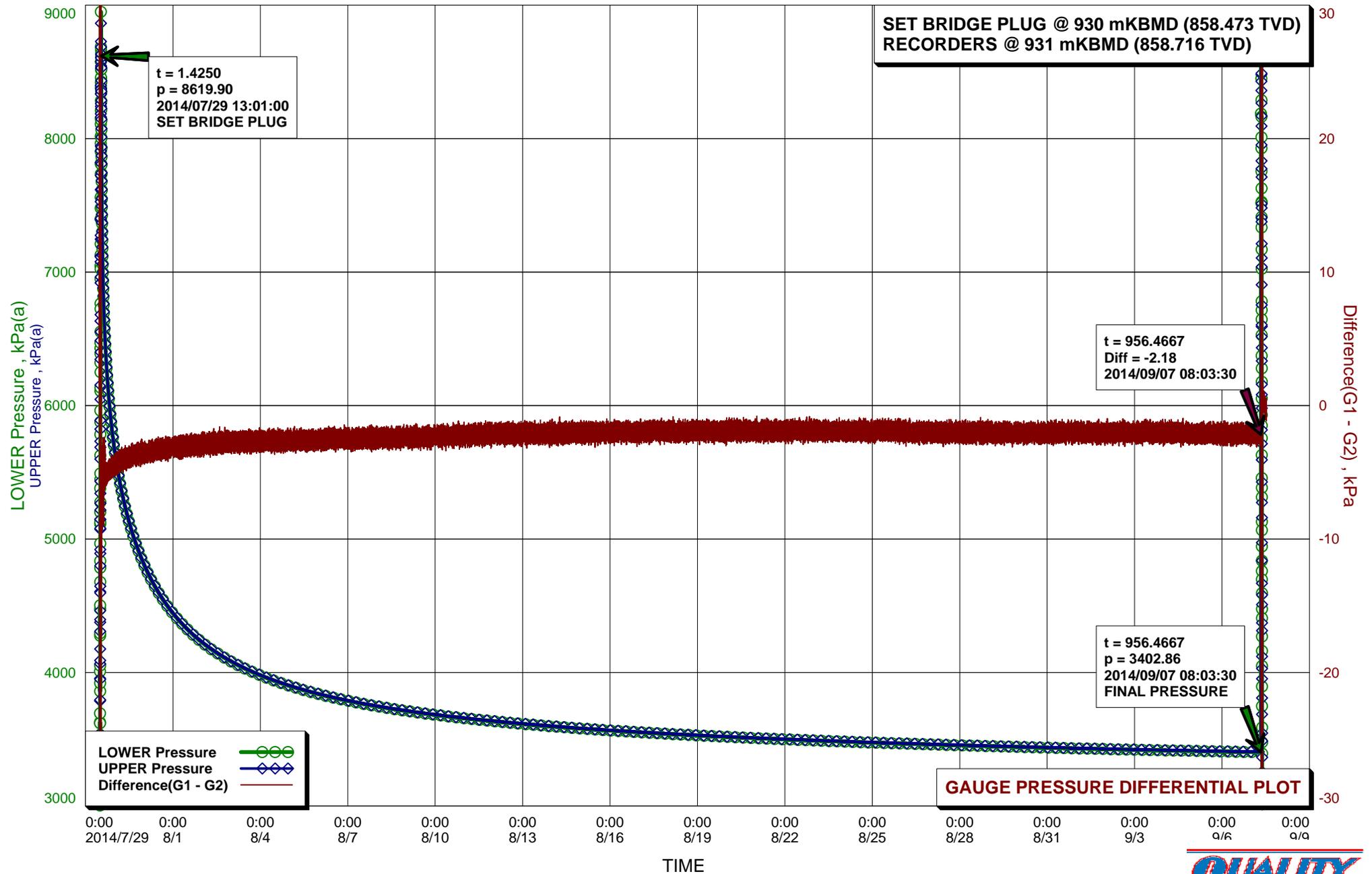
# EWART UNIT No. 5 HZNTL A16A-34-8-28



# EWART UNIT No. 5 HZNTL A16A-34-8-28



# EWART UNIT No. 5 HZNTL A16A-34-8-28



# Recorder Information

<b>Company Name</b>	TUNDRA OIL & GAS PARTNERSHIP
<b>Unique Well ID</b>	102/16-34-008-28W1/00
<b>Well Name</b>	EWART UNIT No. 5 HZNTL A16A-34-8-28
<b>Formation</b>	BAKKEN
<b>Start Test Date</b>	2014/07/29
<b>Final Test Date</b>	2014/09/07

## Gauge 1

<b>Gauge Name</b>	LOWER	<b>Gauge Type</b>	ELECTRONIC
<b>Gauge Serial Number</b>	40404	<b>Gauge Manufacturer</b>	REAL TIME MEASUREMENTS
<b>Run Depth (Log KB)</b>	931.00 m	<b>Gauge Model</b>	KC2 STRAIN
<b>Date of Last Calibration</b>	2012/09/28	<b>Maximum Recorder Range</b>	41360.00 kPa
<b>Gauge Start Date</b>	2014/07/29	<b>Gauge Start Time</b>	11:35:30
<b>Gauge Stop Date</b>	2014/09/07	<b>Gauge Stop Time</b>	12:40:00
<b>Date Gauge On Bottom</b>	2014/07/29	<b>Time Gauge On Bottom</b>	12:49:00
<b>Date Gauge Off Bottom</b>	2014/09/07	<b>Time Gauge Off Bottom</b>	08:03:30

## Gauge 2

<b>Gauge Name</b>	UPPER	<b>Gauge Type</b>	ELECTRONIC
<b>Gauge Serial Number</b>	40402	<b>Gauge Manufacturer</b>	REAL TIME MEASUREMENTS
<b>Run Depth (Log KB)</b>	931.00 m	<b>Gauge Model</b>	KC2 STRAIN
<b>Date of Last Calibration</b>	2012/09/28	<b>Maximum Recorder Range</b>	41360.00 kPa
<b>Gauge Start Date</b>	2014/07/29	<b>Gauge Start Time</b>	11:35:30
<b>Gauge Stop Date</b>	2014/09/07	<b>Gauge Stop Time</b>	12:40:00
<b>Date Gauge On Bottom</b>	2014/07/29	<b>Time Gauge On Bottom</b>	12:49:00
<b>Date Gauge Off Bottom</b>	2014/09/07	<b>Time Gauge Off Bottom</b>	08:03:30

TUNDRA OIL & GAS PARTNERSHIP  
 102/16-34-008-28W1/00  
 Start Test Date: 2014/07/29  
 Final Test Date: 2014/09/07

**RESERVOIR PRESSURE SURVEY**  
**RECORDERS @ 931 mKBMD (858.716 TVD)**

EWART UNIT No. 5 HZNTL A16A-34-8-28  
 Formation: BAKKEN

	LOWER Date yyyy/mm/dd	LOWER Clk Time hh:mm:ss	LOWER Time hr	LOWER Pres. kPa(a)	LOWER Temp. °C	UPPER Time hr	UPPER Pres. kPa(a)	UPPER Temp. °C	Diff. G1 - G2 kPa
1	2014/07/29	11:35:30	0.0000	516.23	25.90	0.0000	512.48	26.38	3.74
2	2014/07/29	11:35:30	0.0000	RIH, ACTIVATE RECORDERS S/N: 40404(L) & 40402(U)					
3	2014/07/29	11:36:00	0.0083	666.72	25.83	0.0083	665.46	26.29	1.27
4	2014/07/29	12:49:00	1.2250	8475.50	34.67	1.2250	8544.50	35.06	-68.99
5	2014/07/29	12:49:00	1.2250	TOOLS SET @ 931 mKBMD (858.716 TVD)					
6	2014/07/29	12:49:30	1.2333	8499.82	34.67	1.2333	8517.53	35.08	-17.71
7	2014/07/29	13:01:00	1.4250	8619.90	34.73	1.4250	8632.81	35.14	-12.91
8	2014/07/29	13:01:00	1.4250	SET BRIDGE PLUG @ 930 mKBMD (858.473 TVD)					
9	2014/07/29	13:01:30	1.4333	8568.74	34.73	1.4333	8578.71	35.14	-9.97
10	2014/07/29	15:35:30	4.0000	6604.00	34.80	4.0000	6609.89	35.22	-5.89
11	2014/07/29	19:35:30	8.0000	6015.69	34.77	8.0000	6020.90	35.19	-5.21
12	2014/07/29	23:35:30	12.0000	5688.89	34.67	12.0000	5693.81	35.09	-4.93
13	2014/07/30	03:35:30	16.0000	5458.47	34.57	16.0000	5462.42	34.98	-3.95
14	2014/07/30	07:35:30	20.0000	5280.61	34.46	20.0000	5284.13	34.88	-3.52
15	2014/07/30	11:35:30	24.0000	5135.30	34.37	24.0000	5139.62	34.78	-4.32
16	2014/07/30	15:35:30	28.0000	5014.57	34.28	28.0000	5017.99	34.70	-3.43
17	2014/07/30	19:35:30	32.0000	4911.33	34.21	32.0000	4915.04	34.62	-3.71
18	2014/07/30	23:35:30	36.0000	4820.95	34.14	36.0000	4824.83	34.56	-3.88
19	2014/07/31	03:35:30	40.0000	4740.98	34.08	40.0000	4744.14	34.49	-3.17
20	2014/07/31	07:35:30	44.0000	4670.05	34.02	44.0000	4673.24	34.44	-3.19
21	2014/07/31	11:35:30	48.0000	4606.30	33.97	48.0000	4609.93	34.38	-3.64
22	2014/07/31	15:35:30	52.0000	4548.67	33.92	52.0000	4551.51	34.34	-2.84
23	2014/07/31	19:35:30	56.0000	4496.36	33.88	56.0000	4499.37	34.29	-3.01
24	2014/07/31	23:35:30	60.0000	4448.47	33.84	60.0000	4451.62	34.25	-3.15
25	2014/08/01	03:35:30	64.0000	4404.09	33.80	64.0000	4407.52	34.21	-3.44
26	2014/08/01	07:35:30	68.0000	4363.79	33.77	68.0000	4367.00	34.18	-3.22
27	2014/08/01	11:35:30	72.0000	4326.48	33.73	72.0000	4328.96	34.14	-2.48
28	2014/08/01	15:35:30	76.0000	4291.43	33.70	76.0000	4294.64	34.12	-3.21
29	2014/08/01	19:35:30	80.0000	4259.11	33.67	80.0000	4262.59	34.09	-3.48
30	2014/08/01	23:35:30	84.0000	4229.17	33.65	84.0000	4231.99	34.06	-2.82
31	2014/08/02	03:35:30	88.0000	4200.92	33.62	88.0000	4203.84	34.03	-2.92
32	2014/08/02	07:35:30	92.0000	4174.77	33.60	92.0000	4178.11	34.01	-3.35
33	2014/08/02	11:35:30	96.0000	4149.98	33.58	96.0000	4153.62	33.99	-3.64
34	2014/08/02	15:35:30	100.0000	4127.08	33.55	100.0000	4129.48	33.97	-2.40
35	2014/08/02	19:35:30	104.0000	4105.00	33.53	104.0000	4107.13	33.94	-2.13
36	2014/08/02	23:35:30	108.0000	4084.32	33.52	108.0000	4087.31	33.92	-2.99
37	2014/08/03	03:35:30	112.0000	4065.05	33.50	112.0000	4066.98	33.90	-1.93
38	2014/08/03	07:35:30	116.0000	4046.31	33.48	116.0000	4048.18	33.89	-1.88
39	2014/08/03	11:35:30	120.0000	4028.41	33.46	120.0000	4031.11	33.87	-2.70
40	2014/08/03	15:35:30	124.0000	4011.55	33.44	124.0000	4013.68	33.86	-2.13

LOWER Serial Number: 40404 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 UPPER Serial Number: 40402 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
 102/16-34-008-28W1/00  
 Start Test Date: 2014/07/29  
 Final Test Date: 2014/09/07

**RESERVOIR PRESSURE SURVEY**  
**RECORDERS @ 931 mKBMD (858.716 TVD)**

EWART UNIT No. 5 HZNTL A16A-34-8-28  
 Formation: BAKKEN

	LOWER Date yyyy/mm/dd	LOWER Clk Time hh:mm:ss	LOWER Time hr	LOWER Pres. kPa(a)	LOWER Temp. °C	UPPER Time hr	UPPER Pres. kPa(a)	UPPER Temp. °C	Diff. G1 - G2 kPa
41	2014/08/03	19:35:30	128.0000	3995.46	33.43	128.0000	3998.30	33.84	-2.84
42	2014/08/03	23:35:30	132.0000	3980.12	33.41	132.0000	3983.07	33.82	-2.95
43	2014/08/04	03:35:30	136.0000	3965.31	33.40	136.0000	3967.86	33.81	-2.55
44	2014/08/04	07:35:30	140.0000	3951.53	33.38	140.0000	3953.61	33.79	-2.08
45	2014/08/04	11:35:30	144.0000	3937.90	33.37	144.0000	3940.89	33.78	-2.99
46	2014/08/04	15:35:30	148.0000	3925.24	33.36	148.0000	3927.43	33.77	-2.20
47	2014/08/04	19:35:30	152.0000	3912.56	33.34	152.0000	3915.25	33.76	-2.69
48	2014/08/04	23:35:30	156.0000	3901.29	33.33	156.0000	3903.37	33.74	-2.08
49	2014/08/05	03:35:30	160.0000	3889.48	33.32	160.0000	3892.09	33.73	-2.61
50	2014/08/05	07:35:30	164.0000	3878.72	33.31	164.0000	3881.62	33.72	-2.89
51	2014/08/05	11:35:30	168.0000	3868.04	33.30	168.0000	3870.82	33.71	-2.78
52	2014/08/05	15:35:30	172.0000	3858.00	33.29	172.0000	3861.16	33.70	-3.16
53	2014/08/05	19:35:30	176.0000	3848.39	33.28	176.0000	3850.21	33.69	-1.82
54	2014/08/05	23:35:30	180.0000	3838.83	33.27	180.0000	3841.79	33.68	-2.96
55	2014/08/06	03:35:30	184.0000	3829.93	33.26	184.0000	3832.55	33.67	-2.62
56	2014/08/06	07:35:30	188.0000	3820.85	33.25	188.0000	3823.44	33.66	-2.59
57	2014/08/06	11:35:30	192.0000	3812.47	33.24	192.0000	3814.48	33.65	-2.01
58	2014/08/06	15:35:30	196.0000	3804.14	33.23	196.0000	3806.69	33.64	-2.55
59	2014/08/06	19:35:30	200.0000	3796.27	33.22	200.0000	3798.66	33.63	-2.39
60	2014/08/06	23:35:30	204.0000	3788.50	33.22	204.0000	3791.28	33.63	-2.78
61	2014/08/07	03:35:30	208.0000	3781.56	33.21	208.0000	3783.19	33.62	-1.64
62	2014/08/07	07:35:30	212.0000	3773.81	33.20	212.0000	3776.55	33.61	-2.74
63	2014/08/07	11:35:30	216.0000	3766.78	33.19	216.0000	3769.89	33.60	-3.10
64	2014/08/07	15:35:30	220.0000	3760.05	33.19	220.0000	3763.07	33.59	-3.03
65	2014/08/07	19:35:30	224.0000	3753.32	33.18	224.0000	3756.49	33.58	-3.17
66	2014/08/07	23:35:30	228.0000	3747.65	33.17	228.0000	3749.24	33.58	-1.59
67	2014/08/08	03:35:30	232.0000	3740.93	33.17	232.0000	3743.62	33.57	-2.69
68	2014/08/08	07:35:30	236.0000	3734.68	33.16	236.0000	3737.15	33.56	-2.46
69	2014/08/08	11:35:30	240.0000	3728.87	33.15	240.0000	3731.48	33.56	-2.61
70	2014/08/08	15:35:30	244.0000	3723.53	33.15	244.0000	3725.77	33.55	-2.24
71	2014/08/08	19:35:30	248.0000	3717.89	33.14	248.0000	3719.69	33.54	-1.80
72	2014/08/08	23:35:30	252.0000	3712.22	33.14	252.0000	3714.99	33.54	-2.77
73	2014/08/09	03:35:30	256.0000	3707.42	33.13	256.0000	3710.22	33.53	-2.80
74	2014/08/09	07:35:30	260.0000	3702.06	33.13	260.0000	3704.95	33.52	-2.89
75	2014/08/09	11:35:30	264.0000	3697.20	33.12	264.0000	3699.32	33.52	-2.11
76	2014/08/09	15:35:30	268.0000	3692.24	33.12	268.0000	3694.91	33.51	-2.68
77	2014/08/09	19:35:30	272.0000	3687.49	33.11	272.0000	3690.17	33.51	-2.67
78	2014/08/09	23:35:30	276.0000	3683.01	33.10	276.0000	3685.12	33.50	-2.11
79	2014/08/10	03:35:30	280.0000	3678.91	33.10	280.0000	3681.54	33.49	-2.63
80	2014/08/10	07:35:30	284.0000	3674.12	33.10	284.0000	3676.66	33.49	-2.54

LOWER Serial Number: 40404 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 UPPER Serial Number: 40402 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
 102/16-34-008-28W1/00  
 Start Test Date: 2014/07/29  
 Final Test Date: 2014/09/07

**RESERVOIR PRESSURE SURVEY**  
**RECORDERS @ 931 mKBMD (858.716 TVD)**

EWART UNIT No. 5 HZNTL A16A-34-8-28  
 Formation: BAKKEN

	LOWER Date yyyy/mm/dd	LOWER Clk Time hh:mm:ss	LOWER Time hr	LOWER Pres. kPa(a)	LOWER Temp. °C	UPPER Time hr	UPPER Pres. kPa(a)	UPPER Temp. °C	Diff. G1 - G2 kPa
81	2014/08/10	11:35:30	288.0000	3669.83	33.09	288.0000	3672.08	33.48	-2.25
82	2014/08/10	15:35:30	292.0000	3665.48	33.08	292.0000	3667.19	33.48	-1.71
83	2014/08/10	19:35:30	296.0000	3661.69	33.08	296.0000	3664.20	33.47	-2.51
84	2014/08/10	23:35:30	300.0000	3657.63	33.08	300.0000	3660.11	33.47	-2.49
85	2014/08/11	03:35:30	304.0000	3654.00	33.07	304.0000	3655.65	33.46	-1.66
86	2014/08/11	07:35:30	308.0000	3649.65	33.07	308.0000	3651.83	33.46	-2.18
87	2014/08/11	11:35:30	312.0000	3645.67	33.06	312.0000	3648.40	33.46	-2.73
88	2014/08/11	15:35:30	316.0000	3641.75	33.06	316.0000	3643.64	33.45	-1.90
89	2014/08/11	19:35:30	320.0000	3638.37	33.06	320.0000	3640.07	33.44	-1.71
90	2014/08/11	23:35:30	324.0000	3635.13	33.05	324.0000	3636.64	33.44	-1.52
91	2014/08/12	03:35:30	328.0000	3631.10	33.05	328.0000	3633.67	33.44	-2.57
92	2014/08/12	07:35:30	332.0000	3627.99	33.04	332.0000	3630.46	33.43	-2.47
93	2014/08/12	11:35:30	336.0000	3624.18	33.04	336.0000	3626.35	33.43	-2.17
94	2014/08/12	15:35:30	340.0000	3620.99	33.04	340.0000	3622.55	33.42	-1.57
95	2014/08/12	19:35:30	344.0000	3617.88	33.03	344.0000	3619.64	33.42	-1.77
96	2014/08/12	23:35:30	348.0000	3614.69	33.03	348.0000	3616.68	33.42	-1.99
97	2014/08/13	03:35:30	352.0000	3611.59	33.03	352.0000	3613.90	33.41	-2.31
98	2014/08/13	07:35:30	356.0000	3608.62	33.02	356.0000	3611.08	33.41	-2.46
99	2014/08/13	11:35:30	360.0000	3605.61	33.02	360.0000	3607.51	33.41	-1.90
100	2014/08/13	15:35:30	364.0000	3602.70	33.02	364.0000	3604.15	33.40	-1.44
101	2014/08/13	19:35:30	368.0000	3600.00	33.01	368.0000	3601.52	33.40	-1.52
102	2014/08/13	23:35:30	372.0000	3596.75	33.01	372.0000	3598.27	33.40	-1.52
103	2014/08/14	03:35:30	376.0000	3593.77	33.01	376.0000	3595.59	33.39	-1.81
104	2014/08/14	07:35:30	380.0000	3591.19	33.00	380.0000	3593.13	33.39	-1.94
105	2014/08/14	11:35:30	384.0000	3588.63	33.00	384.0000	3590.24	33.39	-1.62
106	2014/08/14	15:35:30	388.0000	3585.95	33.00	388.0000	3587.96	33.38	-2.01
107	2014/08/14	19:35:30	392.0000	3583.08	33.00	392.0000	3585.52	33.38	-2.44
108	2014/08/14	23:35:30	396.0000	3580.43	32.99	396.0000	3583.05	33.38	-2.62
109	2014/08/15	03:35:30	400.0000	3577.67	32.99	400.0000	3579.85	33.37	-2.17
110	2014/08/15	07:35:30	404.0000	3575.66	32.99	404.0000	3577.94	33.37	-2.28
111	2014/08/15	11:35:30	408.0000	3572.58	32.99	408.0000	3575.71	33.37	-3.13
112	2014/08/15	15:35:30	412.0000	3570.42	32.98	412.0000	3572.10	33.36	-1.68
113	2014/08/15	19:35:30	416.0000	3568.48	32.98	416.0000	3570.29	33.36	-1.81
114	2014/08/15	23:35:30	420.0000	3566.13	32.98	420.0000	3568.50	33.36	-2.37
115	2014/08/16	03:35:30	424.0000	3563.56	32.97	424.0000	3566.04	33.36	-2.48
116	2014/08/16	07:35:30	428.0000	3561.05	32.97	428.0000	3563.21	33.35	-2.16
117	2014/08/16	11:35:30	432.0000	3559.04	32.97	432.0000	3560.91	33.35	-1.87
118	2014/08/16	15:35:30	436.0000	3556.96	32.96	436.0000	3559.17	33.35	-2.21
119	2014/08/16	19:35:30	440.0000	3554.63	32.96	440.0000	3556.49	33.34	-1.86
120	2014/08/16	23:35:30	444.0000	3552.46	32.96	444.0000	3554.96	33.34	-2.50

LOWER Serial Number: 40404 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 UPPER Serial Number: 40402 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
 102/16-34-008-28W1/00  
 Start Test Date: 2014/07/29  
 Final Test Date: 2014/09/07

**RESERVOIR PRESSURE SURVEY**  
**RECORDERS @ 931 mKBMD (858.716 TVD)**

EWART UNIT No. 5 HZNTL A16A-34-8-28  
 Formation: BAKKEN

	LOWER Date yyyy/mm/dd	LOWER Clk Time hh:mm:ss	LOWER Time hr	LOWER Pres. kPa(a)	LOWER Temp. °C	UPPER Time hr	UPPER Pres. kPa(a)	UPPER Temp. °C	Diff. G1 - G2 kPa
121	2014/08/17	03:35:30	448.0000	3550.44	32.96	448.0000	3552.15	33.34	-1.71
122	2014/08/17	07:35:30	452.0000	3547.87	32.96	452.0000	3550.29	33.34	-2.42
123	2014/08/17	11:35:30	456.0000	3546.11	32.95	456.0000	3547.41	33.33	-1.31
124	2014/08/17	15:35:30	460.0000	3544.16	32.95	460.0000	3546.68	33.33	-2.52
125	2014/08/17	19:35:30	464.0000	3542.23	32.95	464.0000	3544.57	33.33	-2.35
126	2014/08/17	23:35:30	468.0000	3540.03	32.95	468.0000	3541.88	33.33	-1.85
127	2014/08/18	03:35:30	472.0000	3538.03	32.95	472.0000	3539.47	33.33	-1.44
128	2014/08/18	07:35:30	476.0000	3535.79	32.94	476.0000	3538.14	33.32	-2.35
129	2014/08/18	11:35:30	480.0000	3534.15	32.94	480.0000	3536.62	33.32	-2.47
130	2014/08/18	15:35:30	484.0000	3532.46	32.94	484.0000	3533.76	33.32	-1.30
131	2014/08/18	19:35:30	488.0000	3530.57	32.94	488.0000	3532.78	33.32	-2.21
132	2014/08/18	23:35:30	492.0000	3528.86	32.94	492.0000	3530.21	33.32	-1.35
133	2014/08/19	03:35:30	496.0000	3526.96	32.93	496.0000	3528.97	33.31	-2.01
134	2014/08/19	07:35:30	500.0000	3525.07	32.93	500.0000	3526.89	33.31	-1.82
135	2014/08/19	11:35:30	504.0000	3523.35	32.93	504.0000	3525.49	33.31	-2.14
136	2014/08/19	15:35:30	508.0000	3521.67	32.93	508.0000	3523.90	33.31	-2.23
137	2014/08/19	19:35:30	512.0000	3519.81	32.93	512.0000	3522.08	33.31	-2.26
138	2014/08/19	23:35:30	516.0000	3518.31	32.93	516.0000	3519.93	33.30	-1.61
139	2014/08/20	03:35:30	520.0000	3516.43	32.93	520.0000	3518.17	33.30	-1.74
140	2014/08/20	07:35:30	524.0000	3514.40	32.92	524.0000	3516.36	33.30	-1.96
141	2014/08/20	11:35:30	528.0000	3512.96	32.92	528.0000	3515.28	33.30	-2.32
142	2014/08/20	15:35:30	532.0000	3511.45	32.92	532.0000	3513.54	33.30	-2.09
143	2014/08/20	19:35:30	536.0000	3510.01	32.92	536.0000	3511.47	33.30	-1.46
144	2014/08/20	23:35:30	540.0000	3508.47	32.92	540.0000	3509.77	33.29	-1.30
145	2014/08/21	03:35:30	544.0000	3506.57	32.92	544.0000	3508.51	33.29	-1.95
146	2014/08/21	07:35:30	548.0000	3505.39	32.91	548.0000	3506.68	33.29	-1.29
147	2014/08/21	11:35:30	552.0000	3503.64	32.91	552.0000	3505.34	33.29	-1.70
148	2014/08/21	15:35:30	556.0000	3502.27	32.91	556.0000	3504.20	33.29	-1.93
149	2014/08/21	19:35:30	560.0000	3501.13	32.91	560.0000	3502.92	33.29	-1.79
150	2014/08/21	23:35:30	564.0000	3499.48	32.91	564.0000	3501.25	33.29	-1.78
151	2014/08/22	03:35:30	568.0000	3498.01	32.91	568.0000	3499.52	33.28	-1.51
152	2014/08/22	07:35:30	572.0000	3496.25	32.90	572.0000	3498.58	33.28	-2.33
153	2014/08/22	11:35:30	576.0000	3494.89	32.90	576.0000	3496.63	33.28	-1.74
154	2014/08/22	15:35:30	580.0000	3493.79	32.90	580.0000	3495.36	33.28	-1.58
155	2014/08/22	19:35:30	584.0000	3492.41	32.90	584.0000	3494.48	33.28	-2.08
156	2014/08/22	23:35:30	588.0000	3490.95	32.90	588.0000	3492.42	33.28	-1.47
157	2014/08/23	03:35:30	592.0000	3489.32	32.90	592.0000	3491.16	33.27	-1.84
158	2014/08/23	07:35:30	596.0000	3487.92	32.89	596.0000	3490.33	33.27	-2.41
159	2014/08/23	11:35:30	600.0000	3486.61	32.90	600.0000	3488.47	33.27	-1.86
160	2014/08/23	15:35:30	604.0000	3485.08	32.89	604.0000	3487.50	33.27	-2.42

LOWER Serial Number: 40404 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 UPPER Serial Number: 40402 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
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TUNDRA OIL & GAS PARTNERSHIP  
 102/16-34-008-28W1/00  
 Start Test Date: 2014/07/29  
 Final Test Date: 2014/09/07

**RESERVOIR PRESSURE SURVEY**  
**RECORDERS @ 931 mKBMD (858.716 TVD)**

EWART UNIT No. 5 HZNTL A16A-34-8-28  
 Formation: BAKKEN

	LOWER Date yyyy/mm/dd	LOWER Clk Time hh:mm:ss	LOWER Time hr	LOWER Pres. kPa(a)	LOWER Temp. °C	UPPER Time hr	UPPER Pres. kPa(a)	UPPER Temp. °C	Diff. G1 - G2 kPa
161	2014/08/23	19:35:30	608.0000	3483.73	32.89	608.0000	3486.28	33.27	-2.56
162	2014/08/23	23:35:30	612.0000	3482.31	32.89	612.0000	3484.47	33.27	-2.16
163	2014/08/24	03:35:30	616.0000	3481.19	32.89	616.0000	3483.45	33.27	-2.26
164	2014/08/24	07:35:30	620.0000	3479.88	32.89	620.0000	3481.56	33.26	-1.68
165	2014/08/24	11:35:30	624.0000	3478.11	32.89	624.0000	3479.61	33.26	-1.49
166	2014/08/24	15:35:30	628.0000	3477.50	32.88	628.0000	3479.48	33.26	-1.98
167	2014/08/24	19:35:30	632.0000	3476.35	32.88	632.0000	3478.08	33.26	-1.74
168	2014/08/24	23:35:30	636.0000	3474.82	32.88	636.0000	3476.34	33.26	-1.53
169	2014/08/25	03:35:30	640.0000	3473.50	32.88	640.0000	3475.64	33.26	-2.14
170	2014/08/25	07:35:30	644.0000	3472.57	32.88	644.0000	3474.17	33.26	-1.59
171	2014/08/25	11:35:30	648.0000	3471.38	32.88	648.0000	3473.36	33.26	-1.97
172	2014/08/25	15:35:30	652.0000	3470.16	32.88	652.0000	3472.01	33.25	-1.86
173	2014/08/25	19:35:30	656.0000	3469.10	32.88	656.0000	3471.55	33.25	-2.45
174	2014/08/25	23:35:30	660.0000	3468.25	32.88	660.0000	3469.75	33.25	-1.50
175	2014/08/26	03:35:30	664.0000	3466.94	32.87	664.0000	3469.02	33.25	-2.08
176	2014/08/26	07:35:30	668.0000	3465.85	32.87	668.0000	3468.18	33.25	-2.33
177	2014/08/26	11:35:30	672.0000	3464.46	32.87	672.0000	3465.89	33.25	-1.43
178	2014/08/26	15:35:30	676.0000	3463.29	32.87	676.0000	3465.24	33.25	-1.96
179	2014/08/26	19:35:30	680.0000	3462.33	32.87	680.0000	3464.49	33.25	-2.16
180	2014/08/26	23:35:30	684.0000	3461.22	32.87	684.0000	3462.73	33.25	-1.51
181	2014/08/27	03:35:30	688.0000	3460.18	32.87	688.0000	3462.67	33.25	-2.49
182	2014/08/27	07:35:30	692.0000	3458.97	32.87	692.0000	3461.09	33.24	-2.13
183	2014/08/27	11:35:30	696.0000	3457.67	32.86	696.0000	3459.58	33.24	-1.90
184	2014/08/27	15:35:30	700.0000	3456.43	32.86	700.0000	3458.62	33.24	-2.19
185	2014/08/27	19:35:30	704.0000	3455.54	32.86	704.0000	3457.95	33.24	-2.41
186	2014/08/27	23:35:30	708.0000	3454.39	32.86	708.0000	3456.18	33.24	-1.79
187	2014/08/28	03:35:30	712.0000	3453.13	32.86	712.0000	3455.71	33.24	-2.58
188	2014/08/28	07:35:30	716.0000	3452.40	32.86	716.0000	3454.11	33.24	-1.71
189	2014/08/28	11:35:30	720.0000	3451.17	32.86	720.0000	3453.18	33.24	-2.01
190	2014/08/28	15:35:30	724.0000	3450.07	32.86	724.0000	3452.01	33.24	-1.94
191	2014/08/28	19:35:30	728.0000	3449.27	32.86	728.0000	3451.15	33.23	-1.88
192	2014/08/28	23:35:30	732.0000	3448.51	32.86	732.0000	3449.76	33.24	-1.25
193	2014/08/29	03:35:30	736.0000	3447.36	32.86	736.0000	3449.06	33.23	-1.70
194	2014/08/29	07:35:30	740.0000	3446.39	32.85	740.0000	3448.00	33.23	-1.62
195	2014/08/29	11:35:30	744.0000	3445.51	32.85	744.0000	3447.02	33.23	-1.51
196	2014/08/29	15:35:30	748.0000	3444.48	32.85	748.0000	3446.85	33.23	-2.37
197	2014/08/29	19:35:30	752.0000	3443.79	32.85	752.0000	3446.08	33.23	-2.29
198	2014/08/29	23:35:30	756.0000	3442.44	32.85	756.0000	3444.16	33.23	-1.73
199	2014/08/30	03:35:30	760.0000	3441.65	32.85	760.0000	3443.90	33.23	-2.25
200	2014/08/30	07:35:30	764.0000	3440.96	32.85	764.0000	3442.27	33.23	-1.31

LOWER Serial Number: 40404 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 UPPER Serial Number: 40402 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
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TUNDRA OIL & GAS PARTNERSHIP  
 102/16-34-008-28W1/00  
 Start Test Date: 2014/07/29  
 Final Test Date: 2014/09/07

EWART UNIT No. 5 HZNTL A16A-34-8-28  
 Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**  
**RECORDERS @ 931 mKBMD (858.716 TVD)**

	LOWER Date yyyy/mm/dd	LOWER Clk Time hh:mm:ss	LOWER Time hr	LOWER Pres. kPa(a)	LOWER Temp. °C	UPPER Time hr	UPPER Pres. kPa(a)	UPPER Temp. °C	Diff. G1 - G2 kPa
201	2014/08/30	11:35:30	768.0000	3439.54	32.85	768.0000	3441.63	33.22	-2.10
202	2014/08/30	15:35:30	772.0000	3438.79	32.85	772.0000	3440.88	33.22	-2.09
203	2014/08/30	19:35:30	776.0000	3437.91	32.85	776.0000	3440.02	33.23	-2.11
204	2014/08/30	23:35:30	780.0000	3436.76	32.85	780.0000	3438.64	33.22	-1.87
205	2014/08/31	03:35:30	784.0000	3435.60	32.84	784.0000	3437.80	33.22	-2.20
206	2014/08/31	07:35:30	788.0000	3434.81	32.84	788.0000	3436.58	33.22	-1.77
207	2014/08/31	11:35:30	792.0000	3434.04	32.84	792.0000	3436.22	33.22	-2.18
208	2014/08/31	15:35:30	796.0000	3433.25	32.84	796.0000	3435.23	33.22	-1.98
209	2014/08/31	19:35:30	800.0000	3432.55	32.84	800.0000	3434.39	33.22	-1.84
210	2014/08/31	23:35:30	804.0000	3431.56	32.84	804.0000	3433.52	33.22	-1.96
211	2014/09/01	03:35:30	808.0000	3430.35	32.84	808.0000	3432.21	33.22	-1.86
212	2014/09/01	07:35:30	812.0000	3429.86	32.84	812.0000	3431.54	33.22	-1.68
213	2014/09/01	11:35:30	816.0000	3429.15	32.84	816.0000	3431.50	33.21	-2.34
214	2014/09/01	15:35:30	820.0000	3427.95	32.84	820.0000	3430.60	33.22	-2.65
215	2014/09/01	19:35:30	824.0000	3427.23	32.84	824.0000	3429.31	33.21	-2.07
216	2014/09/01	23:35:30	828.0000	3426.33	32.84	828.0000	3427.76	33.21	-1.43
217	2014/09/02	03:35:30	832.0000	3425.42	32.83	832.0000	3427.96	33.21	-2.54
218	2014/09/02	07:35:30	836.0000	3424.50	32.83	836.0000	3426.77	33.21	-2.27
219	2014/09/02	11:35:30	840.0000	3423.89	32.83	840.0000	3425.35	33.21	-1.46
220	2014/09/02	15:35:30	844.0000	3423.12	32.83	844.0000	3425.27	33.21	-2.14
221	2014/09/02	19:35:30	848.0000	3421.82	32.83	848.0000	3424.42	33.21	-2.61
222	2014/09/02	23:35:30	852.0000	3421.63	32.83	852.0000	3423.34	33.21	-1.71
223	2014/09/03	03:35:30	856.0000	3420.58	32.83	856.0000	3423.06	33.21	-2.48
224	2014/09/03	07:35:30	860.0000	3419.60	32.83	860.0000	3421.83	33.20	-2.23
225	2014/09/03	11:35:30	864.0000	3419.10	32.83	864.0000	3420.78	33.21	-1.68
226	2014/09/03	15:35:30	868.0000	3418.25	32.83	868.0000	3420.43	33.21	-2.18
227	2014/09/03	19:35:30	872.0000	3417.75	32.83	872.0000	3420.27	33.20	-2.52
228	2014/09/03	23:35:30	876.0000	3416.93	32.83	876.0000	3419.25	33.20	-2.32
229	2014/09/04	03:35:30	880.0000	3415.91	32.83	880.0000	3418.10	33.20	-2.19
230	2014/09/04	07:35:30	884.0000	3414.86	32.82	884.0000	3417.25	33.20	-2.38
231	2014/09/04	11:35:30	888.0000	3414.44	32.82	888.0000	3416.67	33.20	-2.23
232	2014/09/04	15:35:30	892.0000	3414.03	32.82	892.0000	3416.57	33.20	-2.54
233	2014/09/04	19:35:30	896.0000	3413.16	32.82	896.0000	3415.35	33.20	-2.19
234	2014/09/04	23:35:30	900.0000	3412.73	32.82	900.0000	3414.36	33.20	-1.62
235	2014/09/05	03:35:30	904.0000	3412.01	32.82	904.0000	3414.38	33.20	-2.37
236	2014/09/05	07:35:30	908.0000	3410.98	32.82	908.0000	3413.12	33.20	-2.15
237	2014/09/05	11:35:30	912.0000	3410.56	32.82	912.0000	3412.69	33.20	-2.13
238	2014/09/05	15:35:30	916.0000	3409.95	32.82	916.0000	3411.98	33.20	-2.03
239	2014/09/05	19:35:30	920.0000	3409.09	32.82	920.0000	3410.74	33.20	-1.65
240	2014/09/05	23:35:30	924.0000	3408.28	32.82	924.0000	3410.24	33.20	-1.97

LOWER Serial Number: 40404 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 UPPER Serial Number: 40402 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
 102/16-34-008-28W1/00  
 Start Test Date: 2014/07/29  
 Final Test Date: 2014/09/07

**RESERVOIR PRESSURE SURVEY**  
**RECORDERS @ 931 mKBMD (858.716 TVD)**

EWART UNIT No. 5 HZNTL A16A-34-8-28  
 Formation: BAKKEN

	LOWER Date yyyy/mm/dd	LOWER Clk Time hh:mm:ss	LOWER Time hr	LOWER Pres. kPa(a)	LOWER Temp. °C	UPPER Time hr	UPPER Pres. kPa(a)	UPPER Temp. °C	Diff. G1 - G2 kPa		
241	2014/09/06	03:35:30	928.0000	3407.59	32.82	928.0000	3409.88	33.20	-2.30		
242	2014/09/06	07:35:30	932.0000	3406.98	32.82	932.0000	3408.66	33.19	-1.68		
243	2014/09/06	11:35:30	936.0000	3405.80	32.82	936.0000	3408.02	33.19	-2.22		
244	2014/09/06	15:35:30	940.0000	3405.35	32.81	940.0000	3407.99	33.19	-2.64		
245	2014/09/06	19:35:30	944.0000	3404.86	32.81	944.0000	3406.72	33.19	-1.86		
246	2014/09/06	23:35:30	948.0000	3404.19	32.81	948.0000	3406.70	33.19	-2.51		
247	2014/09/07	03:35:30	952.0000	3403.60	32.81	952.0000	3405.92	33.19	-2.33		
248	2014/09/07	07:35:30	956.0000	3402.76	32.81	956.0000	3404.84	33.19	-2.08		
249	2014/09/07	08:03:30	956.4667	3402.86	32.81	956.4667	3405.04	33.19	-2.18		
250	2014/09/07	08:03:30	956.4667	FINAL PRESSURE, UNSETTING BRIDGGE PLUG							
251	2014/09/07	08:04:00	956.4750	8187.07	32.87	956.4750	3405.23	33.19	4781.84		
252	2014/09/07	08:04:00	956.4750	BRIDGE PLUG IS UNSET							
253	2014/09/07	08:04:30	956.4833	8855.81	32.82	956.4833	8843.58	33.21	12.23		
254	2014/09/07	08:26:00	956.8417	8713.18	32.62	956.8417	8722.19	32.99	-9.01		
255	2014/09/07	08:26:00	956.8417	TOOLS PULLED FROM WELL BY SERVICE RIG							
256	2014/09/07	08:26:30	956.8500	8642.98	32.56	956.8500	8632.05	32.95	10.93		
257	2014/09/07	09:38:00	958.0417	112.03	16.65	958.0417	111.20	17.06	0.83		
258	2014/09/07	09:38:00	958.0417	RECORDERS AT SURFACE							
259	2014/09/07	09:38:30	958.0500	112.27	16.65	958.0500	111.05	17.06	1.22		
260	2014/09/07	11:35:30	960.0000	114.15	27.08	960.0000	114.97	25.93	-0.82		
261	2014/09/07	12:40:00	961.0750	113.76	29.10	961.0750	114.42	28.97	-0.67		

LOWER Serial Number: 40404 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 UPPER Serial Number: 40402 Start Date: 2014/07/29 11:35:30 Run Depth: 931.00  
 Print Filter: Print every 4 hour



DATE: July 29 - September 7, 2014	COMPANY: Tundra Oil & Gas Partnership
WELLNAME: Sinclair (13B-34) Hz 16-34-008-28 WPM	ADDRESS: Virden, MB
LOCATION: 13B-34-16-34-8-28 WPM	UWI: 102.16-34-008-29W1.00
FIELD: Sinclair	FORMATION: Bakken
CO HQ REP: Tyler Routledge	PHONE: 204-522-0864
FIELD REP: Brent Dalziel	PHONE: 204-851-1947
REPORTS TO (NAME & EMAIL ADDRESS): Brett Howell - brett.howell@tundraoilandgas.com Chris Perkins - chris.perkins@tundraoilandgas.com Robert Prefontaine - robert.prefontaine@tundraoilandgas.com Adam Berke - adam.berke@tundraoilandgas.com Shirley Angus - shirley.angus@tundraoilandgas.com Allan Bertram - allan.bertram@tundraoilandgas.com Bill Jenkins - bill.jenkins@tundraoilandgas.com Chris Perkins - chris.perkins@tundraoilandgas.com Craig Lane - craig.lane@tundraoilandgas.com Eric bjornsson - eric.bjornsson@tundraoilandgas.com Jane McTaggart - jane.mctaggart@tundraoilandgas.com Anh Hguyen - anh.hguyen@tundraoilandgas.com Justin Robertson - justin.robertson@tundraoilandgas.com Andrew Taylor - andrew.taylor@tundraoilandgas.com Tim Howell - tim.howell@tundraoilandgas.com Tyler Routledge - tyler.routledge@tundraoilandgas.com	

STATUS: oil well (completion)	TEST TYPE: build up
ESTIMATED H2S CONTENT: 0%	ESTIMATED CO2 CONTENT: 0%
PRODUCING THROUGH: tubing	SHUT IN TIME/DATE: 13:01 July 29, 2014
KOP: 677 mKB	TVD: see survey
PBTD: 2250 mKB	TD: 2250 mKB
CASING SIZE: 177.8 mm	CSG WEIGHT: 34.2*29.7kg/m
TUBING SIZE: none	TBG WEIGHT: n/a
Elevations KB: 484.48 m	GRD: 480.38 m
	LICENCE #: 9956
	WELL TYPE: horizontal
	CSG DEPTH: 992 mKB
	TBG DEPTH: n/a
	CF: n/n

PRODUCING INTERVAL

TYPE: open hole	SIZE: 159 mmm	INTERVAL: 992 - 2250 mKB
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RECORDER INFORMATION

TOP S/N: 40402	FILE NAME: 13-34-16-34-8-28w1,7367.ho	RANGE: 41,360 kPa
BOTTOM S/N: 40404	FILE NAME: 13-34-16-34-8-28w1,7367.ho	RANGE: 41,360 kPa
TOP BATTERY S/N: n/a	BOTTOM BATTERY S/N: n/a	
CONNECT TIME: 11:35 July 29, 2014	DISCONNECT TIME: 12:43 Sept 7, 2014	

SURFACE TEMP: 22 deg C	LEASE CONDITION: good
WIRELINE OPERATOR: Bart Royan	PHONE: 306-421-9700
WIRELINE ASSISTANT: n/a	
DIRECTIONS: From JCT HWY #2 & #256 go 12.8km north on #256, 1.6km east, 1.5km north and east into well.	

DWG WELL HEAD PRESSURES:

TUBING (before survey): 0 kPa	CASING (before survey): 0 kPa
TUBING (after survey): 0 kPa	CASING (after survey): 0 kPa

FLUID LEVEL: n/a	RUN DEPTH: 931 mKB
TIME ON BOTTOM: 12:49 July 29, 2014	TIME OFF BOTTOM: 08:26 Sept 7, 2014

GRADIENT STOPS

DEPTH mKB:	none	FROM:	n/a	UNTIL:	n/a
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COMMENTS: Bridge plug set at 930 mKB COE.

DESCRIPTION OF WORK DONE:

July 29, 2014

11:35 Pressure trigger activated in 41 MPA KC-2 recorders as they were ran into the well below a Tryton bridge plug by the drilling rig.

12:49 Tools are at set depth.

13:01 Bridge plug is set and the well is shut in.

September 7, 2014

08:04 Bridge plug is unset.

08:26 Tools are pulled from the well by the service rig.

09:38 Recorders are at surface.

12:43 Download data from recorders and do a preliminary report.

## **Appendix D**

### **Rates and VRR Plots**

