

**EWART UNIT NO. 10**  
**WATERFLOOD EOR PROJECT**  
**ANNUAL REPORT FOR 2016**

**June 30, 2017**

**Tundra Oil and Gas Partnership**

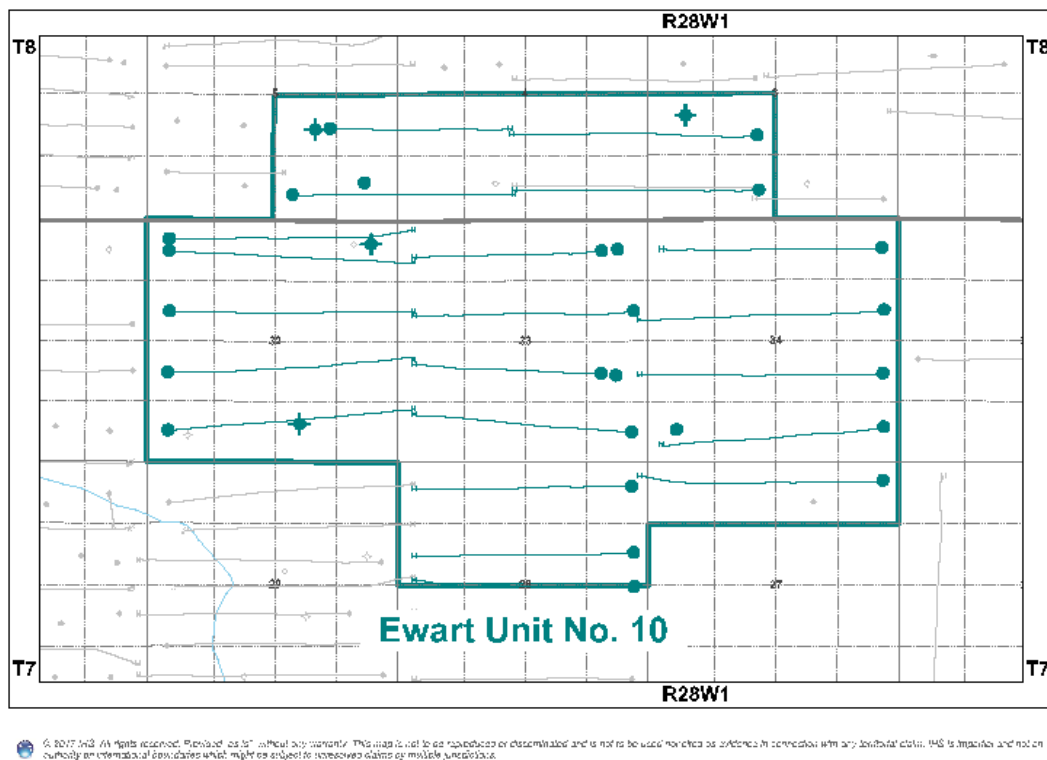
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## **INTRODUCTION**

Ewart Unit No. 10 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 56, effective October 1, 2016 with Tundra Oil and Gas (Tundra) as Operator. The EOR project area, outlined in green in Figure 1, contains 8 vertical (4 abandoned and 4 producing) and 21 horizontal producing wells in 76 LSDs in Township 7, Range 28W1. Well list and well status is available in Appendix A.

**Figure 1: Ewart Unit No. 10 Area Outline**



In accordance with Section 73 of the Manitoba Drilling and Production Regulation, Tundra submits the following 2016 Annual Progress Report for Ewart Unit No. 10.

## **DISCUSSION**

### **Production History**

For the wells included in Ewart Unit No. 10, production started in March 2005 with the 00/02-32 and 00/04-34-007-28W1 wells. Oil production peaked at 4.8 m<sup>3</sup>/d per well in October 2010. This production was coming from 25 wells and totaled 120.2 m<sup>3</sup>/d for the Unit. In December 2016, the Unit was producing 8.56 m<sup>3</sup>/d of oil and 52.16 m<sup>3</sup>/d of water. There is currently no water injection in Ewart Unit No. 10. The rates and WOR are presented in Figure 2.

**Figure 2: Ewart Unit No. 10 Production/Injection Rates and WOR vs. Time**

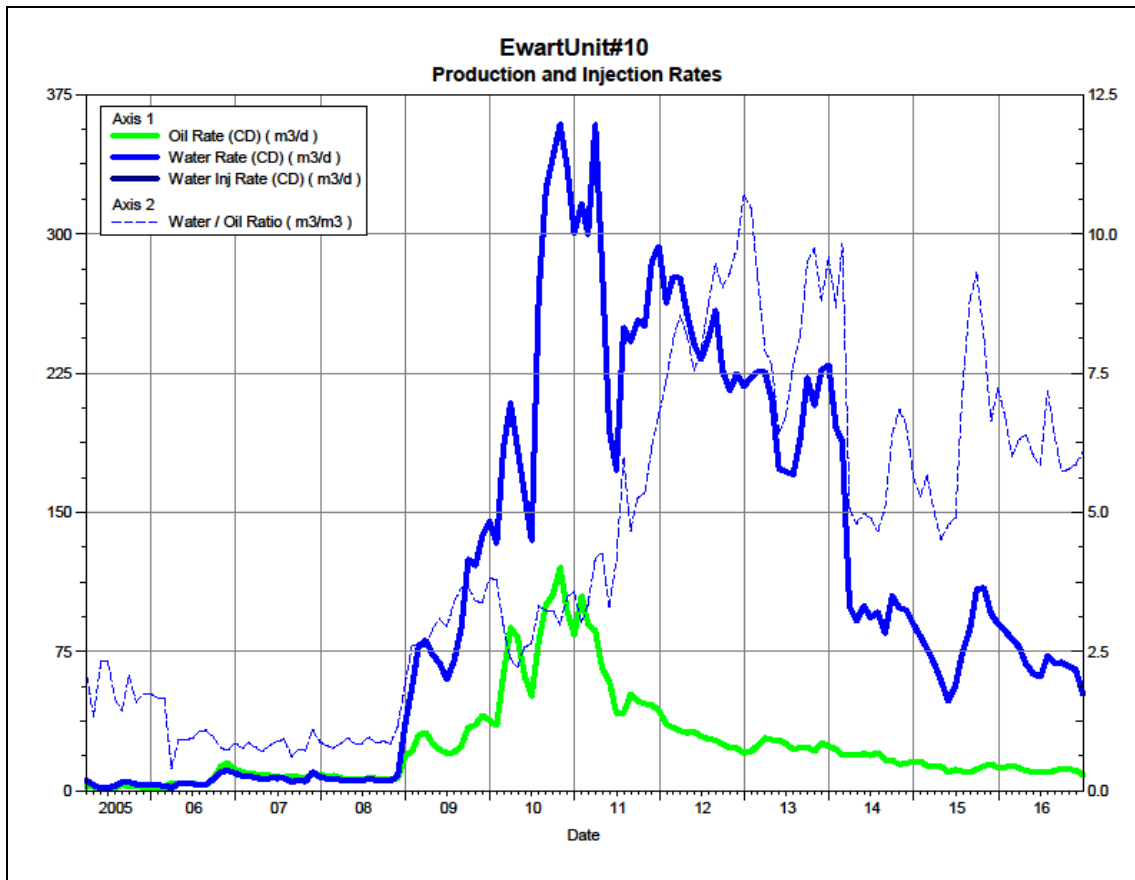
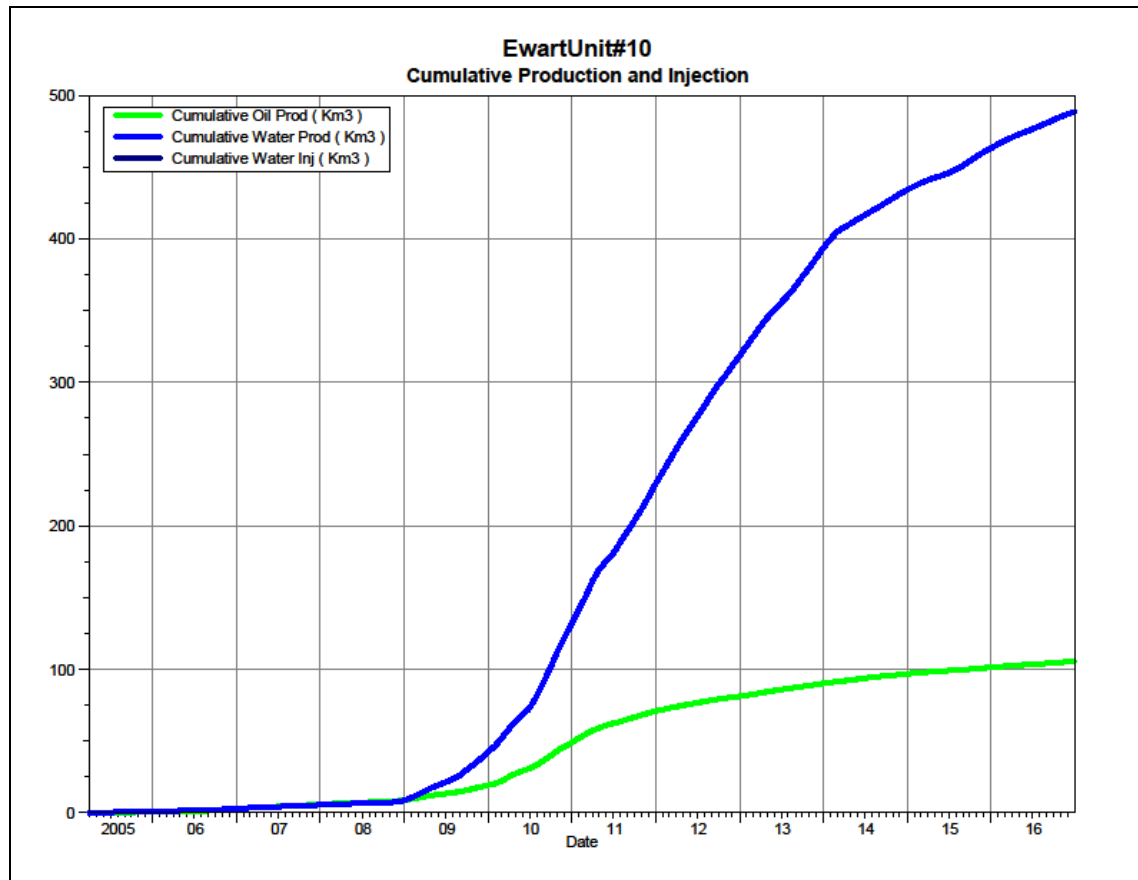


Figure 3 shows the cumulative production for Ewart Unit No. 10 to the end of December 2016 as 105.5 e³m³ of oil and 488.6 e³m³ of water, representing a 3.9% recovery factor of the OOIP.

**Figure 3: Ewart Unit No. 10 Cumulative Oil, Water and Water Injected vs. Time**



### **Waterflood History**

Ewart Unit No. 10 is still in the development phase at the end of 2016. Tundra plans to convert nine (9) of the existing horizontal producing wells to horizontal injection wells which will result in effective 40 acre waterflood patterns within Ewart Unit No. 10. Since the proposed horizontal injection wells have already been on production for a period of time there will not be a need for an additional pre-production period within this unit. In December 2016, the 00/05-32 and 00/01-34-007-28W1 wells were converted to injection. All of the horizontal wells are fracture stimulated to improve the injection rates.

Production performance by injector pattern are 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**

### **Water Source and Quality**

The injection water for Ewart Unit No. 10 will be sourced from the 02/14-30-007-28W1 well (Mannville formation). The water is treated at the 04-01-008-29W1 filtration plant where it is filtered to 0.1 microns and has scale inhibitor and biocide 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. 10.

### **Reservoir Pressure**

Where practical, Tundra is committed to collecting pressure data from newly drilled wells. For Ewart Unit No. 10, pressure data taken in 2013 is currently available for the 02/13-32-007-28W1 location (Appendix C). The reservoir pressure is 6351 kPa(a), corrected to a common datum of -450m SS for comparison with other units in the area.

### **Well Servicing**

Table 1 lists the maintenance that was required in Ewart Unit No. 10 in 2016.

**Table 1: Service and Maintenance in Ewart Unit No. 10**

100.01-34-007-28W1.00	WIW Conversion	12/16/2016
100.05-32-007-28W1.00	WIW Conversion	12/13/2016

### **Waterflood Performance Discussion**

At the end of 2016, Ewart Unit No. 10 had 2 injection patterns in place, however, water injection is not anticipated to start until early 2017.

Plots of the production and injection data along with the VRR information is presented in Appendix D for each of the injection patterns.

## **List of Appendices**

Appendix A: Well List and Well Status

Appendix B: Injection Pattern Summary

Appendix C: Reservoir Pressure Summary

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

00/05-32-007-28W1/0

00/01-34-007-28W1/0

## Appendix A

<i>UWI</i>	<i>Surface Location</i>	<i>Type</i>	<i>Well Status</i>
100/16-27-007-28W1/0	100/16-28-007-28W1/0	Horizontal	Capable of OIL Prod
100/09-28-007-28W1/0	100/12-28-007-28W1/0	Horizontal	Capable of OIL Prod
102/09-28-007-28W1/0	102/12-28-007-28W1/0	Horizontal	Capable of OIL Prod
100/16-28-007-28W1/0	100/13-28-007-28W1/0	Horizontal	Capable of OIL Prod
100/02-32-007-28W1/0		Vertical	Abandoned
102/04-32-007-28W1/0	102/04-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/05-32-007-28W1/0	100/05-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/12-32-007-28W1/0	100/12-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/13-32-007-28W1/0	100/13-33-007-28W1/0	Horizontal	Capable of OIL Prod
102/13-32-007-28W1/0	102/13-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/16-32-007-28W1/0		Vertical	Abandoned
100/01-33-007-28W1/0	100/04-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/08-33-007-28W1/0		Vertical	Capable of OIL Prod
102/08-33-007-28W1/0	102/05-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/09-33-007-28W1/0	100/12-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/16-33-007-28W1/0		Vertical	Capable of OIL Prod
102/16-33-007-28W1/0	102/13-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/01-34-007-28W1/0	100/04-34-007-28W1/0	Horizontal	Capable of OIL Prod
100/04-34-007-28W1/0		Vertical	Capable of OIL Prod
100/08-34-007-28W1/0	100/08-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/09-34-007-28W1/0	100/09-33-007-28W1/0	Horizontal	Capable of OIL Prod
100/16-34-007-28W1/0	100/13-34-007-28W1/0	Horizontal	Capable of OIL Prod
100/03-03-008-28W1/0	100/03-04-008-28W1/0	Horizontal	Capable of OIL Prod
100/05-03-008-28W1/0		Vertical	Abandoned
100/06-03-008-28W1/0	100/06-04-008-28W1/0	Horizontal	Capable of OIL Prod
100/01-05-008-28W1/0		Vertical	Capable of OIL Prod
100/02-05-008-28W1/0	100/03-04-008-28W1/0	Horizontal	Capable of OIL Prod
100/07-05-008-28W1/0		Vertical	Abandoned
102/07-05-008-28W1/0	102/06-04-008-28W1/0	Horizontal	Capable of OIL Prod



## Appendix B

### Ewart Unit No. 10 Pattern Summary as of December 2016

Pattern Name	Injector BH Location (007-28W1)	Status	No. of Supported Wells	Supported Wells (007-28W1)	Allocation Factor	Pattern Prod Start Month	Inj Start Month	Oil Rate (m³/d)	Water Rate (m³/d)	WOR (m³/m³)	Water Injection (m³/d)	Cum Oil (E³m³)	Cum Water (E³m³)	Cum Inj Water (E³m³)	Monthly VRR	Cum VRR
00/05-32-007-28 Injector	00/05-32	Capable of OIL Prod	3	02-32 02/04-32, 12-32	0.3 0.5	Mar 2005	-	0.86	3.52	4.09	-	9.5	29.2	0.0	0.000	0.000
00/01-34-007-28 Injector	00/01-34	Capable of OIL Prod	3	16-27, 08-34 04-34	0.5 1.0	Mar 2005	-	1.14	8.28	7.26	-	12.3	45.2	0.0	0.000	0.000

## APPENDIX C

### Ewart Unit No. 10 - Pressure Summary

Location	Test Date	Final Pressure (kPaa)	MPP (mTVD)	KB	Datum Depth	Gradient	Pressure @ -450 masl
102/13-32-007-28W1/00	July 23 - Sept 18, 2013	6349.2	952.4	502.6	-450	8.25	6351



## TUNDRA OIL & GAS PARTNERSHIP

TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28

102/13-32-007-28W1/0

LICENSE #: 9354

BAKKEN FORMATION

Perfs: 1604.32 – 2445.41 mKBMD  
(949.278 – 955.455 TVD)

RESERVOIR PRESSURE SURVEY  
JULY 23<sup>rd</sup> – SEPTEMBER 18<sup>th</sup>, 2013

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

PO Box 326  
417A Mississippian Drive  
Esteron, 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  
Contact  
e-mail  
Phone  
Site Contact  
Site Phone

TUNDRA OIL & GAS PARTNERSHIP  
TYLER ROUTLEDGE  
tyler.routledge@tundraoilandgas.com  
(204) 851-1947  
GORD NYKOLIATION  
(204) 851-2658

## Well Information

Well Name TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Unique Well ID 102/13-32-007-28W1/00  
Surface Location 13C-33 / 13C-32-7-28W1  
Well License Number 9354  
Well Type Horizontal  
Well Fluid Type 01 Oil  
Field DALY SINCLAIR

KB Elevation (SL) 502.57 m  
CF Elevation (SL) 498.62 m  
GL Elevation (SL) 498.47 m  
Distance from KB to CF (Log) 3.95 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 mm  
Casing OD 139.7 mm  
Casing Depth(Log KB) 2467.50 m  
Casing Depth(TVD KB) 955.44 m  
PBTD(Log KB) m  
PBTD(TVD KB) m



# Pressure Survey Report

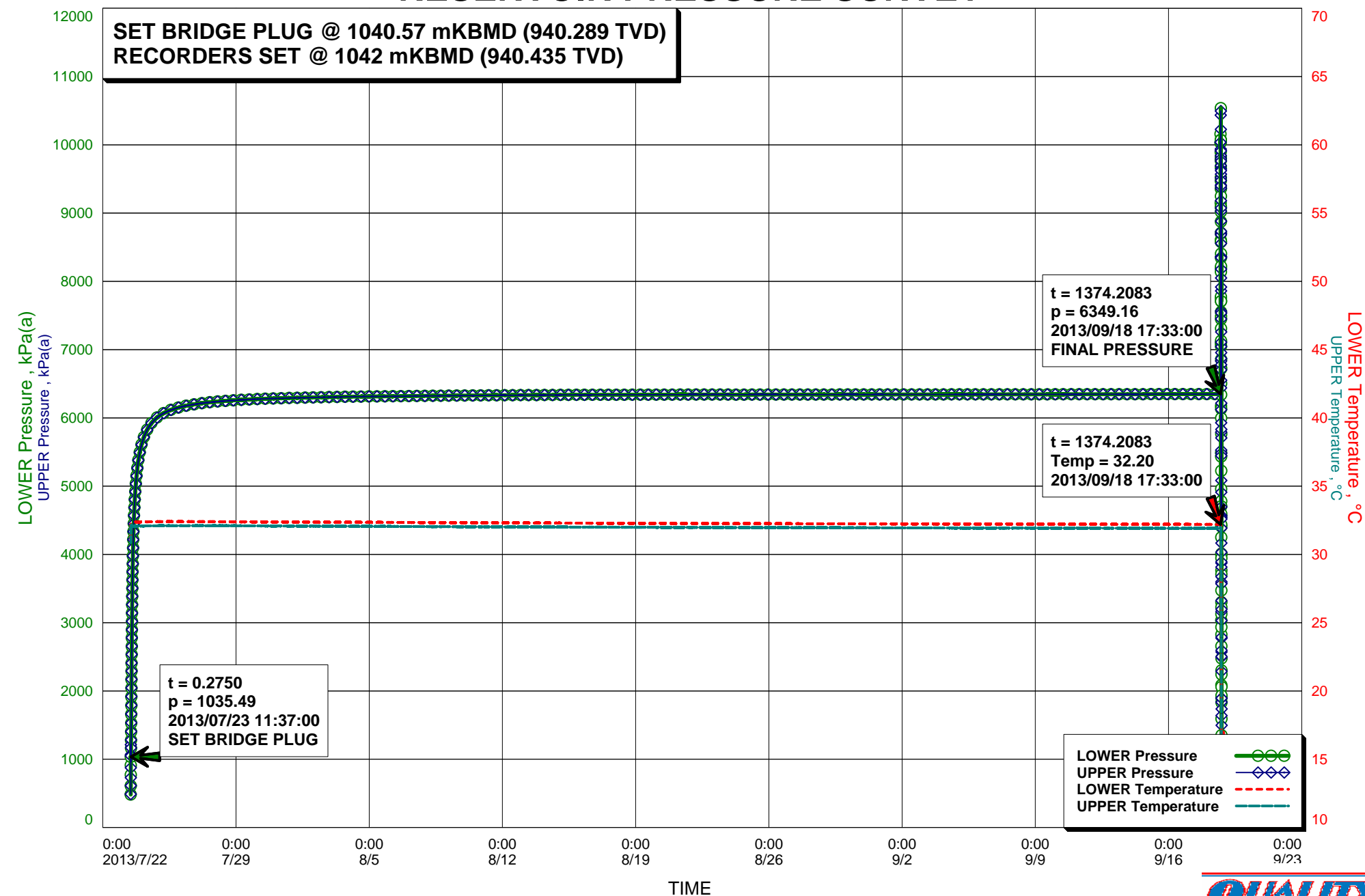
## Test Information

Well Name	TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28
Unique Well ID	102/13-32-007-28W1/00
Surface Location	13C-33 / 13C-32-7-28W1
Well License Number	9354
Well Fluid Type	01 Oil
Test Purpose	Initial Test
Test Type	RESERVOIR PRESSURE SURVEY
Formation	BAKKEN
Well Type	Horizontal
Test/Prod. Interval Top KB (Log)	1604.32 m
Test/Prod. Interval Base KB (Log)	2445.41 m
MPP(Log KB)	2024.86 m
Test/Prod Interval Top KB (TVD)	949.28 m
Test/Prod. Interval Base m KB (TVD)	955.46 m
MPP(TVD KB)	952.37 m
Date/Time Gauge on Bottom	2013/07/23 11:29:00
Date/Time Gauge Off Bottom	2013/09/18 17:33:00
Time/Date Well Shut-In	2013/07/23 11:37:00
Tubing Pressure Initial	93.01 kPa(a)
Casing Pressure Initial	93.01 kPa(a)
Tubing Pressure: Final	93.01 kPa(a)
Casing Pressure: Final	93.01 kPa(a)
Last Measured Pressure at Run Depth	6349.16 kPa(a)
Reservoir Temperature	32.20 °C
Service Company	Quality Wireline Services Ltd.
Representative	MIKE MUIR
Prepared By	DOLLCO Well Data Services
Qualified By	RICK DOLL
Report Date	2013/09/19

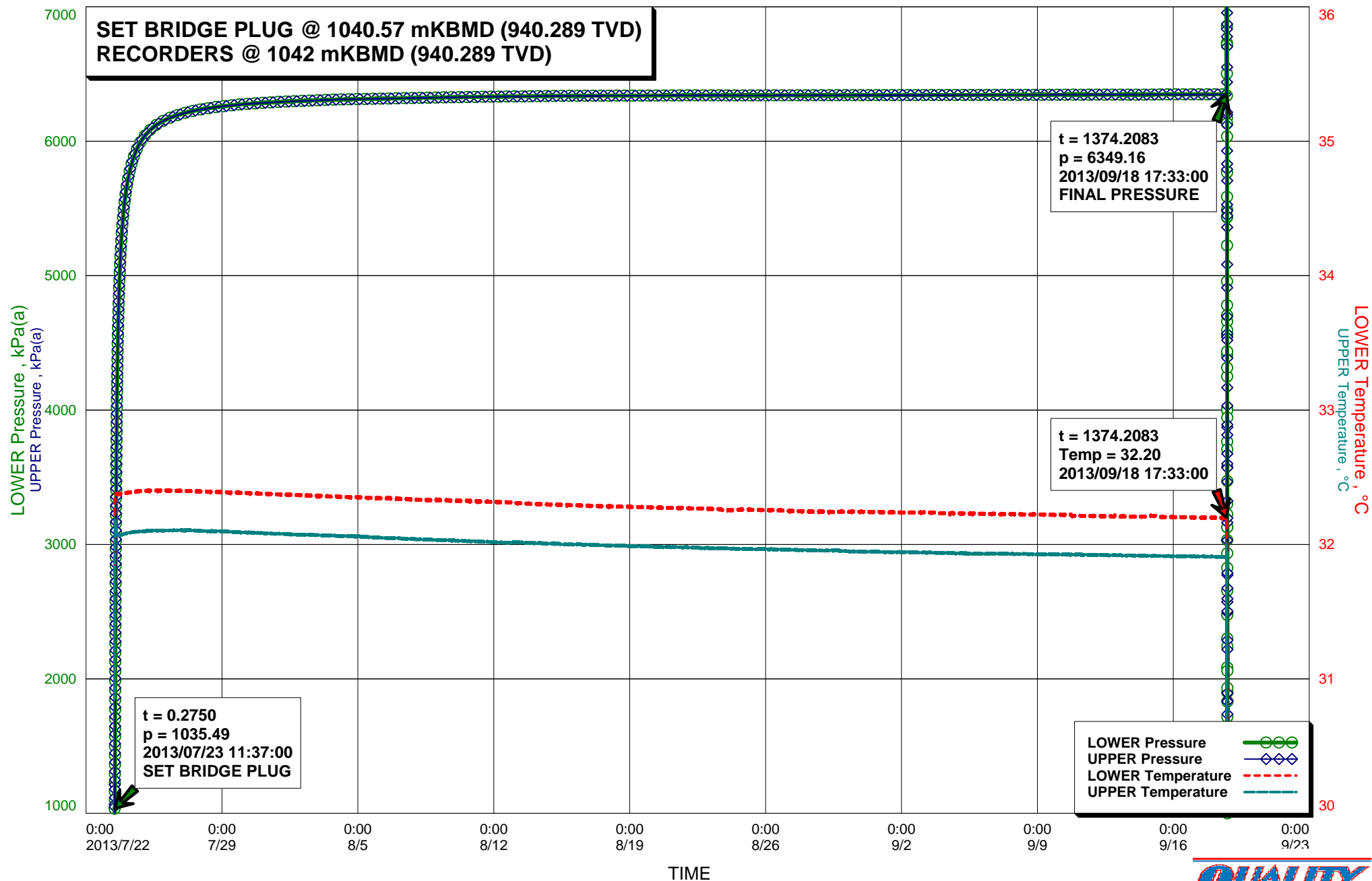
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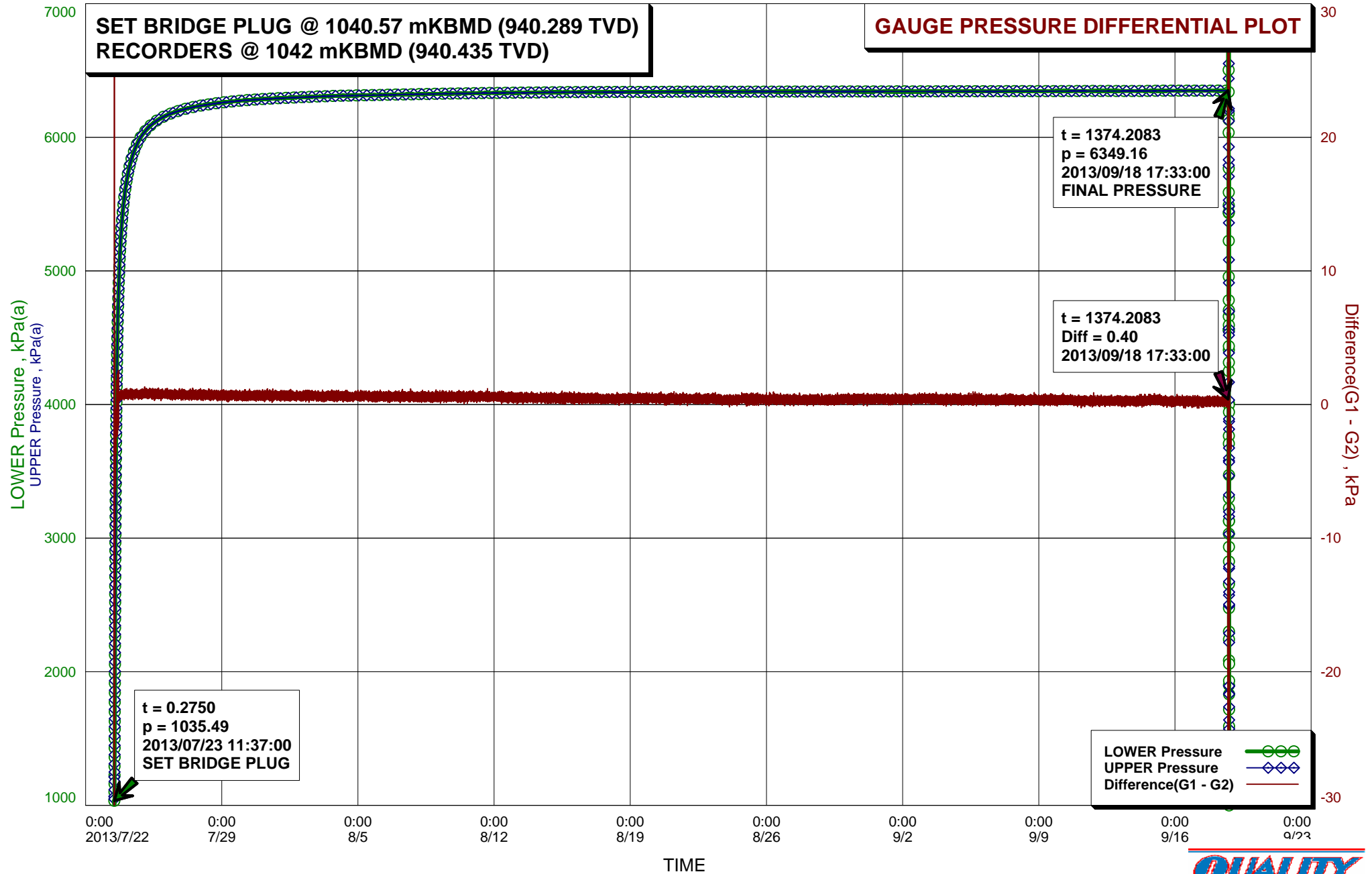
# RESERVOIR PRESSURE SURVEY



# RESERVOIR PRESSURE SURVEY



# RESERVOIR PRESSURE SURVEY





# Recorder Information

Company Name	TUNDRA OIL & GAS PARTNERSHIP
Unique Well ID	102/13-32-007-28W1/00
Well Name	TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28
Formation	BAKKEN
Start Test Date	2013/07/23
Final Test Date	2013/09/18

## Gauge 1

Gauge Name	LOWER	Gauge Type	ELECTRONIC
Gauge Serial Number	40439	Gauge Manufacturer	REAL TIME MEASUREMENTS
Run Depth (Log KB)	1042.00 m	Gauge Model	KC2 STRAIN
Date of Last Calibration	2011/02/12	Maximum Recorder Range	20680.00 kPa
Gauge Start Date	2013/07/23	Gauge Start Time	11:20:30
Gauge Stop Date	2013/09/18	Gauge Stop Time	21:25:00
Date Gauge On Bottom	2013/07/23	Time Gauge On Bottom	11:29:00
Date Gauge Off Bottom	2013/09/18	Time Gauge Off Bottom	17:33:00

## Gauge 2

Gauge Name	UPPER	Gauge Type	ELECTRONIC
Gauge Serial Number	40435	Gauge Manufacturer	REAL TIME MEASUREMENTS
Run Depth (Log KB)	1041.70 m	Gauge Model	KC2 STRAIN
Date of Last Calibration	2011/05/01	Maximum Recorder Range	20680.00 kPa
Gauge Start Date	2013/07/23	Gauge Start Time	11:20:30
Gauge Stop Date	2013/09/18	Gauge Stop Time	21:25:00
Date Gauge On Bottom	2013/07/23	Time Gauge On Bottom	11:29:00
Date Gauge Off Bottom	2013/09/18	Time Gauge Off Bottom	17:33:00

TUNDRA OIL & GAS PARTNERSHIP  
102/13-32-007-28W1/00  
Start Test Date: 2013/07/23  
Final Test Date: 2013/09/18

TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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	2013/07/23	11:20:30	0.0000	481.10	31.01	0.0000	488.32	30.55	-7.22
2	2013/07/23	11:20:30	0.0000	RIH, ACTIVATE RECORDERS S/N: 40439(L) & 40435(U)					
3	2013/07/23	11:21:00	0.0083	553.57	31.25	0.0083	560.67	30.85	-7.10
4	2013/07/23	11:29:00	0.1416	1033.60	32.25	0.1416	1034.55	31.90	-0.94
5	2013/07/23	11:29:00	0.1416	RECORDERS LANDED @ 1042 mKBMD (940.435 TVD)					
6	2013/07/23	11:29:30	0.1500	1034.86	32.27	0.1500	1035.65	31.90	-0.78
7	2013/07/23	11:37:00	0.2750	1035.49	32.30	0.2750	1042.39	31.97	-6.89
8	2013/07/23	11:37:00	0.2750	SET BRIDGE PLUG @ 1040.57 mKBMD (940.289 TVD)					
9	2013/07/23	11:37:30	0.2833	1049.89	32.32	0.2833	1055.96	31.98	-6.07
10	2013/07/23	15:21:00	4.0083	4530.42	32.37	4.0083	4529.38	32.07	1.04
11	2013/07/23	19:21:00	8.0083	5234.39	32.38	8.0083	5233.47	32.07	0.91
12	2013/07/23	23:21:00	12.0083	5530.58	32.38	12.0083	5529.77	32.08	0.81
13	2013/07/24	03:21:30	16.0166	5699.36	32.39	16.0166	5698.40	32.08	0.95
14	2013/07/24	07:21:30	20.0166	5810.31	32.38	20.0166	5809.57	32.09	0.74
15	2013/07/24	11:21:30	24.0166	5889.58	32.39	24.0166	5888.68	32.09	0.90
16	2013/07/24	15:21:30	28.0166	5948.05	32.40	28.0166	5947.22	32.10	0.83
17	2013/07/24	19:22:00	32.0250	5993.89	32.40	32.0166	5993.02	32.10	0.73
18	2013/07/24	23:22:00	36.0250	6030.02	32.40	36.0166	6029.26	32.10	0.50
19	2013/07/25	03:22:00	40.0250	6059.26	32.40	40.0166	6058.26	32.10	1.09
20	2013/07/25	07:22:00	44.0250	6083.97	32.40	44.0166	6083.09	32.10	0.86
21	2013/07/25	11:22:00	48.0250	6104.61	32.40	48.0166	6104.03	32.11	0.64
22	2013/07/25	15:22:00	52.0250	6122.32	32.40	52.0166	6121.47	32.11	0.85
23	2013/07/25	19:22:00	56.0250	6137.82	32.40	56.0166	6136.78	32.10	1.05
24	2013/07/25	23:22:00	60.0250	6151.09	32.40	60.0166	6150.29	32.10	0.81
25	2013/07/26	03:22:00	64.0250	6162.96	32.40	64.0166	6162.11	32.10	1.10
26	2013/07/26	07:22:00	68.0250	6173.74	32.40	68.0166	6172.99	32.10	0.58
27	2013/07/26	11:22:00	72.0250	6182.44	32.40	72.0166	6181.61	32.11	0.78
28	2013/07/26	15:22:00	76.0250	6190.74	32.40	76.0166	6190.06	32.10	0.74
29	2013/07/26	19:22:00	80.0250	6198.66	32.40	80.0166	6197.95	32.11	0.64
30	2013/07/26	23:22:00	84.0250	6206.01	32.40	84.0166	6205.20	32.11	0.83
31	2013/07/27	03:22:00	88.0250	6212.61	32.39	88.0166	6211.87	32.11	0.79
32	2013/07/27	07:22:00	92.0250	6218.69	32.40	92.0166	6218.09	32.11	0.58
33	2013/07/27	11:22:00	96.0250	6224.24	32.39	96.0166	6223.63	32.10	0.78
34	2013/07/27	15:22:00	100.0250	6229.40	32.40	100.0166	6228.74	32.10	0.73
35	2013/07/27	19:22:00	104.0250	6233.92	32.40	104.0166	6233.41	32.10	0.46
36	2013/07/27	23:22:00	108.0250	6238.38	32.39	108.0166	6237.73	32.10	0.66
37	2013/07/28	03:22:00	112.0250	6242.19	32.39	112.0166	6241.63	32.10	0.58
38	2013/07/28	07:22:00	116.0250	6245.93	32.39	116.0166	6245.13	32.10	0.70
39	2013/07/28	11:22:00	120.0250	6249.79	32.39	120.0166	6248.80	32.10	0.84
40	2013/07/28	15:22:00	124.0250	6253.17	32.39	124.0166	6252.41	32.10	0.69

LOWER Serial Number: 40439 Start Date: 2013/07/23 11:20:30 Run Depth: 1042.00  
UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70  
Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
102/13-32-007-28W1/00  
Start Test Date: 2013/07/23  
Final Test Date: 2013/09/18

TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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	2013/07/28	19:22:00	128.0250	6256.24	32.39	128.0166	6255.54	32.10	0.68
42	2013/07/28	23:22:00	132.0250	6259.42	32.39	132.0166	6258.71	32.10	0.75
43	2013/07/29	03:22:00	136.0250	6262.13	32.38	136.0166	6261.44	32.10	0.75
44	2013/07/29	07:22:00	140.0250	6264.74	32.38	140.0166	6263.86	32.10	0.98
45	2013/07/29	11:22:00	144.0250	6267.26	32.38	144.0166	6266.68	32.09	0.67
46	2013/07/29	15:22:00	148.0250	6269.85	32.39	148.0166	6269.07	32.09	0.82
47	2013/07/29	19:22:00	152.0250	6271.90	32.39	152.0166	6271.05	32.09	0.67
48	2013/07/29	23:22:00	156.0250	6273.94	32.38	156.0166	6273.50	32.09	0.52
49	2013/07/30	03:22:00	160.0250	6275.86	32.38	160.0166	6275.18	32.09	0.54
50	2013/07/30	07:22:00	164.0250	6277.89	32.38	164.0166	6277.04	32.09	0.82
51	2013/07/30	11:22:00	168.0250	6279.58	32.38	168.0166	6279.02	32.09	0.47
52	2013/07/30	15:22:00	172.0250	6281.18	32.38	172.0166	6280.57	32.09	0.63
53	2013/07/30	19:22:00	176.0250	6282.93	32.38	176.0166	6282.29	32.08	0.68
54	2013/07/30	23:22:00	180.0250	6284.57	32.38	180.0166	6284.02	32.08	0.57
55	2013/07/31	03:22:00	184.0250	6286.31	32.37	184.0166	6285.50	32.08	0.65
56	2013/07/31	07:22:00	188.0250	6287.51	32.37	188.0166	6286.74	32.08	0.74
57	2013/07/31	11:22:00	192.0250	6288.70	32.37	192.0166	6288.09	32.08	0.56
58	2013/07/31	15:22:00	196.0250	6290.07	32.38	196.0166	6289.53	32.08	0.40
59	2013/07/31	19:22:00	200.0250	6291.65	32.37	200.0166	6290.96	32.08	0.68
60	2013/07/31	23:22:00	204.0250	6292.75	32.37	204.0166	6292.26	32.08	0.56
61	2013/08/01	03:22:00	208.0250	6294.05	32.37	208.0166	6293.34	32.08	0.54
62	2013/08/01	07:22:00	212.0250	6295.13	32.38	212.0166	6294.36	32.08	0.81
63	2013/08/01	11:22:00	216.0250	6296.00	32.37	216.0166	6295.35	32.07	0.69
64	2013/08/01	15:22:00	220.0250	6297.19	32.37	220.0166	6296.67	32.07	0.66
65	2013/08/01	19:22:00	224.0250	6298.35	32.37	224.0166	6297.59	32.08	0.71
66	2013/08/01	23:22:00	228.0250	6299.47	32.37	228.0166	6298.84	32.07	0.50
67	2013/08/02	03:22:00	232.0250	6300.16	32.37	232.0166	6299.96	32.07	0.46
68	2013/08/02	07:22:00	236.0250	6301.23	32.37	236.0166	6300.55	32.07	0.56
69	2013/08/02	11:22:00	240.0250	6302.15	32.36	240.0166	6301.56	32.07	0.66
70	2013/08/02	15:22:00	244.0250	6303.23	32.36	244.0166	6302.50	32.07	0.71
71	2013/08/02	19:22:00	248.0250	6304.27	32.37	248.0166	6303.75	32.07	0.67
72	2013/08/02	23:22:00	252.0250	6305.24	32.36	252.0166	6304.43	32.07	0.67
73	2013/08/03	03:22:30	256.0333	6305.95	32.36	256.0166	6305.32	32.07	0.52
74	2013/08/03	07:22:30	260.0333	6307.18	32.36	260.0166	6306.72	32.07	0.57
75	2013/08/03	11:22:30	264.0333	6307.85	32.36	264.0166	6307.13	32.07	0.65
76	2013/08/03	15:22:30	268.0333	6308.64	32.36	268.0166	6308.00	32.07	0.84
77	2013/08/03	19:22:30	272.0333	6309.49	32.35	272.0166	6308.86	32.07	0.40
78	2013/08/03	23:22:30	276.0333	6310.56	32.36	276.0166	6309.93	32.06	0.66
79	2013/08/04	03:22:30	280.0333	6310.87	32.36	280.0166	6310.15	32.06	0.55
80	2013/08/04	07:22:30	284.0333	6311.47	32.36	284.0166	6310.66	32.06	0.55

LOWER Serial Number: 40439 Start Date: 2013/07/23 11:20:30 Run Depth: 1042.00  
UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70  
Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
102/13-32-007-28W1/00  
Start Test Date: 2013/07/23  
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TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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	2013/08/04	11:22:30	288.0333	6311.72	32.35	288.0166	6311.21	32.06	0.49
82	2013/08/04	15:22:30	292.0333	6312.35	32.35	292.0166	6311.82	32.06	0.36
83	2013/08/04	19:22:30	296.0333	6313.07	32.35	296.0166	6312.31	32.06	0.75
84	2013/08/04	23:22:30	300.0333	6313.45	32.35	300.0166	6313.20	32.06	0.43
85	2013/08/05	03:22:30	304.0333	6314.18	32.35	304.0166	6313.55	32.06	0.42
86	2013/08/05	07:22:30	308.0333	6314.62	32.35	308.0166	6314.09	32.06	0.62
87	2013/08/05	11:22:30	312.0333	6315.08	32.35	312.0166	6314.41	32.05	0.69
88	2013/08/05	15:22:30	316.0333	6315.45	32.35	316.0166	6314.84	32.05	0.64
89	2013/08/05	19:22:30	320.0333	6315.95	32.35	320.0166	6315.44	32.05	0.64
90	2013/08/05	23:22:30	324.0333	6316.28	32.34	324.0166	6315.70	32.05	0.57
91	2013/08/06	03:22:30	328.0333	6316.69	32.34	328.0166	6315.81	32.05	0.64
92	2013/08/06	07:22:30	332.0333	6317.39	32.34	332.0166	6316.69	32.05	0.79
93	2013/08/06	11:22:30	336.0333	6317.67	32.34	336.0166	6317.07	32.05	0.53
94	2013/08/06	15:22:30	340.0333	6318.18	32.34	340.0166	6317.68	32.05	0.49
95	2013/08/06	19:22:30	344.0333	6318.82	32.34	344.0166	6318.44	32.05	0.48
96	2013/08/06	23:22:30	348.0333	6319.54	32.34	348.0166	6318.80	32.05	0.64
97	2013/08/07	03:22:30	352.0333	6319.78	32.34	352.0166	6319.18	32.04	0.54
98	2013/08/07	07:22:30	356.0333	6320.51	32.34	356.0166	6320.00	32.04	0.61
99	2013/08/07	11:22:30	360.0333	6320.73	32.34	360.0166	6320.06	32.04	0.54
100	2013/08/07	15:22:30	364.0333	6321.11	32.33	364.0166	6320.50	32.04	0.56
101	2013/08/07	19:22:30	368.0333	6321.64	32.33	368.0166	6321.18	32.04	0.46
102	2013/08/07	23:22:30	372.0333	6322.21	32.34	372.0166	6321.68	32.04	0.67
103	2013/08/08	03:22:30	376.0333	6322.55	32.34	376.0166	6321.93	32.04	0.60
104	2013/08/08	07:22:30	380.0333	6323.22	32.34	380.0166	6322.61	32.04	0.54
105	2013/08/08	11:22:30	384.0333	6323.38	32.33	384.0166	6322.77	32.04	0.42
106	2013/08/08	15:22:30	388.0333	6323.77	32.33	388.0166	6323.27	32.04	0.39
107	2013/08/08	19:22:30	392.0333	6324.24	32.33	392.0166	6323.82	32.03	0.43
108	2013/08/08	23:22:30	396.0333	6325.07	32.33	396.0166	6324.35	32.03	0.53
109	2013/08/09	03:22:30	400.0333	6325.40	32.33	400.0166	6324.76	32.04	0.53
110	2013/08/09	07:22:30	404.0333	6325.75	32.33	404.0166	6325.27	32.03	0.47
111	2013/08/09	11:22:30	408.0333	6326.45	32.33	408.0166	6325.72	32.04	0.84
112	2013/08/09	15:22:30	412.0333	6326.69	32.33	412.0166	6325.92	32.03	0.68
113	2013/08/09	19:22:30	416.0333	6327.15	32.33	416.0166	6326.50	32.03	0.58
114	2013/08/09	23:22:30	420.0333	6327.51	32.32	420.0166	6326.89	32.03	0.58
115	2013/08/10	03:22:30	424.0333	6327.75	32.33	424.0166	6327.29	32.03	0.34
116	2013/08/10	07:22:30	428.0333	6328.39	32.32	428.0166	6327.81	32.03	0.75
117	2013/08/10	11:22:30	432.0333	6328.65	32.32	432.0166	6328.09	32.03	0.70
118	2013/08/10	15:22:30	436.0333	6329.15	32.32	436.0166	6328.56	32.02	0.49
119	2013/08/10	19:22:30	440.0333	6329.41	32.32	440.0166	6328.98	32.02	0.23
120	2013/08/10	23:22:30	444.0333	6329.93	32.32	444.0166	6329.39	32.03	0.44

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TUNDRA OIL & GAS PARTNERSHIP  
102/13-32-007-28W1/00  
Start Test Date: 2013/07/23  
Final Test Date: 2013/09/18

TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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	2013/08/11	03:22:30	448.0333	6330.41	32.32	448.0166	6329.63	32.02	0.55
122	2013/08/11	07:22:30	452.0333	6330.82	32.32	452.0166	6330.10	32.02	0.69
123	2013/08/11	11:22:30	456.0333	6331.19	32.31	456.0166	6330.52	32.02	0.62
124	2013/08/11	15:22:30	460.0333	6331.37	32.32	460.0166	6330.66	32.02	0.66
125	2013/08/11	19:22:30	464.0333	6331.50	32.31	464.0166	6330.92	32.02	0.34
126	2013/08/11	23:22:30	468.0333	6331.81	32.31	468.0166	6331.09	32.02	0.63
127	2013/08/12	03:22:30	472.0333	6331.98	32.31	472.0166	6331.32	32.02	0.51
128	2013/08/12	07:22:30	476.0333	6332.41	32.32	476.0166	6331.73	32.02	0.67
129	2013/08/12	11:22:30	480.0333	6332.64	32.32	480.0166	6332.07	32.02	0.42
130	2013/08/12	15:22:30	484.0333	6332.97	32.32	484.0166	6332.54	32.01	0.42
131	2013/08/12	19:22:30	488.0333	6333.41	32.31	488.0166	6332.64	32.01	0.68
132	2013/08/12	23:22:30	492.0333	6333.53	32.31	492.0166	6333.07	32.01	0.37
133	2013/08/13	03:22:30	496.0333	6333.67	32.31	496.0166	6333.24	32.02	0.37
134	2013/08/13	07:22:30	500.0333	6333.68	32.30	500.0166	6333.33	32.01	0.20
135	2013/08/13	11:22:30	504.0333	6334.30	32.30	504.0166	6333.79	32.02	0.53
136	2013/08/13	15:22:30	508.0333	6334.44	32.31	508.0166	6333.90	32.01	0.59
137	2013/08/13	19:23:00	512.0416	6334.47	32.30	512.0250	6334.19	32.01	0.24
138	2013/08/13	23:23:00	516.0416	6334.92	32.30	516.0250	6334.37	32.01	0.67
139	2013/08/14	03:23:00	520.0416	6335.17	32.30	520.0250	6334.55	32.01	0.47
140	2013/08/14	07:23:00	524.0416	6335.22	32.30	524.0250	6334.80	32.01	0.46
141	2013/08/14	11:23:00	528.0416	6335.53	32.30	528.0250	6335.09	32.01	0.36
142	2013/08/14	15:23:00	532.0416	6335.74	32.30	532.0250	6335.12	32.01	0.43
143	2013/08/14	19:23:00	536.0416	6336.65	32.30	536.0250	6335.95	32.01	0.84
144	2013/08/14	23:23:00	540.0416	6336.91	32.29	540.0250	6336.33	32.01	0.65
145	2013/08/15	03:23:00	544.0416	6337.00	32.29	544.0250	6336.61	32.00	0.48
146	2013/08/15	07:23:00	548.0416	6336.87	32.29	548.0250	6336.31	32.00	0.46
147	2013/08/15	11:23:00	552.0416	6337.55	32.29	552.0250	6336.71	32.00	0.88
148	2013/08/15	15:23:00	556.0416	6337.65	32.30	556.0250	6337.13	32.00	0.39
149	2013/08/15	19:23:00	560.0416	6337.92	32.29	560.0250	6337.50	32.00	0.60
150	2013/08/15	23:23:00	564.0416	6338.05	32.29	564.0250	6337.56	32.00	0.57
151	2013/08/16	03:23:00	568.0416	6337.94	32.29	568.0250	6337.60	32.00	0.25
152	2013/08/16	07:23:00	572.0416	6337.99	32.29	572.0250	6337.34	32.00	0.56
153	2013/08/16	11:23:00	576.0416	6338.08	32.29	576.0250	6337.53	32.00	0.56
154	2013/08/16	15:23:00	580.0416	6338.28	32.29	580.0250	6337.85	32.00	0.36
155	2013/08/16	19:23:00	584.0416	6338.33	32.29	584.0250	6338.27	32.00	0.20
156	2013/08/16	23:23:00	588.0416	6338.60	32.29	588.0250	6338.21	31.99	0.48
157	2013/08/17	03:23:00	592.0416	6338.80	32.28	592.0250	6338.12	32.00	0.61
158	2013/08/17	07:23:00	596.0416	6338.60	32.29	596.0250	6338.20	31.99	0.42
159	2013/08/17	11:23:00	600.0416	6338.64	32.28	600.0250	6337.91	32.00	0.65
160	2013/08/17	15:23:00	604.0416	6338.62	32.28	604.0250	6338.24	32.00	0.25

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TUNDRA OIL & GAS PARTNERSHIP  
102/13-32-007-28W1/00  
Start Test Date: 2013/07/23  
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TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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	2013/08/17	19:23:00	608.0416	6338.71	32.29	608.0250	6338.49	31.99	0.28
162	2013/08/17	23:23:00	612.0416	6338.78	32.29	612.0250	6338.48	31.99	0.54
163	2013/08/18	03:23:00	616.0416	6338.81	32.28	616.0250	6338.40	31.99	0.47
164	2013/08/18	07:23:00	620.0416	6339.02	32.29	620.0250	6338.39	31.99	0.60
165	2013/08/18	11:23:00	624.0416	6338.79	32.29	624.0250	6338.55	31.99	0.19
166	2013/08/18	15:23:00	628.0416	6339.27	32.28	628.0250	6338.76	31.99	0.61
167	2013/08/18	19:23:00	632.0416	6339.25	32.28	632.0250	6338.88	31.99	0.40
168	2013/08/18	23:23:00	636.0416	6339.31	32.28	636.0250	6339.04	31.99	0.29
169	2013/08/19	03:23:00	640.0416	6339.42	32.28	640.0250	6339.05	31.99	0.37
170	2013/08/19	07:23:00	644.0416	6339.33	32.27	644.0250	6339.06	31.99	0.40
171	2013/08/19	11:23:00	648.0416	6339.11	32.28	648.0250	6338.71	31.99	0.43
172	2013/08/19	15:23:00	652.0416	6339.41	32.28	652.0250	6339.02	31.98	0.58
173	2013/08/19	19:23:00	656.0416	6339.62	32.28	656.0250	6339.21	31.99	0.50
174	2013/08/19	23:23:00	660.0416	6339.72	32.27	660.0250	6339.14	31.99	0.66
175	2013/08/20	03:23:00	664.0416	6339.84	32.28	664.0250	6339.41	31.98	0.53
176	2013/08/20	07:23:00	668.0416	6340.19	32.28	668.0250	6339.55	31.98	0.49
177	2013/08/20	11:23:00	672.0416	6340.00	32.27	672.0250	6339.61	31.98	0.50
178	2013/08/20	15:23:00	676.0416	6340.08	32.27	676.0250	6339.56	31.98	0.58
179	2013/08/20	19:23:00	680.0416	6340.44	32.28	680.0250	6339.99	31.98	0.40
180	2013/08/20	23:23:00	684.0416	6340.71	32.27	684.0250	6340.18	31.98	0.66
181	2013/08/21	03:23:00	688.0416	6340.69	32.27	688.0250	6340.15	31.98	0.44
182	2013/08/21	07:23:00	692.0416	6341.07	32.27	692.0250	6340.54	31.98	0.61
183	2013/08/21	11:23:00	696.0416	6341.00	32.27	696.0250	6340.36	31.98	0.54
184	2013/08/21	15:23:00	700.0416	6340.94	32.27	700.0250	6340.36	31.98	0.62
185	2013/08/21	19:23:00	704.0416	6341.24	32.27	704.0250	6340.75	31.98	0.49
186	2013/08/21	23:23:00	708.0416	6341.48	32.27	708.0250	6340.88	31.98	0.71
187	2013/08/22	03:23:00	712.0416	6341.37	32.27	712.0250	6340.94	31.97	0.44
188	2013/08/22	07:23:00	716.0416	6341.65	32.27	716.0250	6341.22	31.98	0.46
189	2013/08/22	11:23:00	720.0416	6341.69	32.27	720.0250	6341.17	31.98	0.53
190	2013/08/22	15:23:00	724.0416	6341.55	32.27	724.0250	6341.04	31.98	0.51
191	2013/08/22	19:23:00	728.0416	6341.63	32.26	728.0250	6341.15	31.97	0.44
192	2013/08/22	23:23:00	732.0416	6341.53	32.27	732.0250	6341.24	31.97	0.27
193	2013/08/23	03:23:00	736.0416	6341.52	32.26	736.0250	6341.06	31.97	0.33
194	2013/08/23	07:23:00	740.0416	6341.07	32.27	740.0250	6340.65	31.97	0.29
195	2013/08/23	11:23:00	744.0416	6341.82	32.26	744.0250	6341.33	31.97	0.21
196	2013/08/23	15:23:00	748.0416	6341.60	32.26	748.0250	6341.15	31.97	0.20
197	2013/08/23	19:23:00	752.0416	6341.33	32.26	752.0250	6341.12	31.97	0.42
198	2013/08/23	23:23:00	756.0416	6340.65	32.25	756.0250	6340.40	31.97	0.10
199	2013/08/24	03:23:00	760.0416	6340.56	32.25	760.0250	6340.20	31.97	0.38
200	2013/08/24	07:23:00	764.0416	6340.51	32.25	764.0250	6340.09	31.97	0.08

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UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70  
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**RESERVOIR PRESSURE SURVEY**

	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	2013/08/24	11:23:00	768.0416	6340.76	32.25	768.0250	6340.32	31.97	0.44
202	2013/08/24	15:23:00	772.0416	6340.67	32.26	772.0250	6340.11	31.97	0.22
203	2013/08/24	19:23:00	776.0416	6341.15	32.26	776.0250	6340.58	31.97	0.60
204	2013/08/24	23:23:00	780.0416	6341.27	32.27	780.0250	6340.75	31.97	0.57
205	2013/08/25	03:23:00	784.0416	6341.13	32.26	784.0250	6340.61	31.97	0.28
206	2013/08/25	07:23:00	788.0416	6341.25	32.26	788.0250	6340.84	31.97	0.37
207	2013/08/25	11:23:00	792.0416	6341.20	32.26	792.0250	6340.86	31.96	0.34
208	2013/08/25	15:23:00	796.0416	6341.30	32.26	796.0250	6341.05	31.97	0.43
209	2013/08/25	19:23:00	800.0416	6341.36	32.26	800.0250	6341.04	31.97	0.22
210	2013/08/25	23:23:00	804.0416	6341.54	32.26	804.0250	6341.05	31.97	0.47
211	2013/08/26	03:23:00	808.0416	6341.44	32.26	808.0250	6341.16	31.97	0.36
212	2013/08/26	07:23:00	812.0416	6341.46	32.25	812.0250	6341.20	31.97	0.22
213	2013/08/26	11:23:00	816.0416	6341.61	32.26	816.0250	6341.04	31.96	0.43
214	2013/08/26	15:23:00	820.0416	6341.87	32.25	820.0250	6341.37	31.97	0.50
215	2013/08/26	19:23:00	824.0416	6341.61	32.25	824.0250	6341.37	31.96	0.16
216	2013/08/26	23:23:00	828.0416	6341.80	32.25	828.0250	6341.53	31.96	0.25
217	2013/08/27	03:23:00	832.0416	6341.77	32.25	832.0250	6341.46	31.96	0.21
218	2013/08/27	07:23:00	836.0416	6341.78	32.25	836.0250	6341.32	31.96	0.23
219	2013/08/27	11:23:00	840.0416	6341.82	32.25	840.0250	6341.43	31.96	0.39
220	2013/08/27	15:23:00	844.0416	6341.90	32.25	844.0250	6341.67	31.96	0.30
221	2013/08/27	19:23:00	848.0416	6342.02	32.25	848.0250	6341.81	31.96	0.36
222	2013/08/27	23:23:00	852.0416	6342.17	32.25	852.0250	6341.53	31.96	0.51
223	2013/08/28	03:23:00	856.0416	6342.08	32.25	856.0250	6341.68	31.96	0.31
224	2013/08/28	07:23:00	860.0416	6342.29	32.25	860.0250	6341.64	31.96	0.46
225	2013/08/28	11:23:00	864.0416	6342.29	32.25	864.0250	6341.91	31.96	0.60
226	2013/08/28	15:23:00	868.0416	6342.40	32.25	868.0250	6341.93	31.96	0.39
227	2013/08/28	19:23:00	872.0416	6342.34	32.24	872.0250	6341.94	31.95	0.26
228	2013/08/28	23:23:00	876.0416	6342.20	32.24	876.0250	6342.07	31.95	0.05
229	2013/08/29	03:23:00	880.0416	6342.16	32.24	880.0250	6341.61	31.96	0.37
230	2013/08/29	07:23:00	884.0416	6342.10	32.25	884.0250	6341.93	31.96	0.38
231	2013/08/29	11:23:00	888.0416	6342.17	32.24	888.0250	6341.82	31.95	0.40
232	2013/08/29	15:23:00	892.0416	6342.52	32.24	892.0250	6342.37	31.95	0.15
233	2013/08/29	19:23:00	896.0416	6342.84	32.25	896.0250	6342.30	31.95	0.62
234	2013/08/29	23:23:00	900.0416	6342.96	32.24	900.0250	6342.46	31.95	0.38
235	2013/08/30	03:23:00	904.0416	6342.85	32.25	904.0250	6342.36	31.95	0.52
236	2013/08/30	07:23:00	908.0416	6342.79	32.25	908.0250	6342.46	31.95	0.29
237	2013/08/30	11:23:00	912.0416	6342.88	32.24	912.0250	6342.36	31.95	0.53
238	2013/08/30	15:23:00	916.0416	6342.83	32.24	916.0250	6342.26	31.95	0.64
239	2013/08/30	19:23:00	920.0416	6342.70	32.24	920.0250	6342.36	31.95	0.34
240	2013/08/30	23:23:00	924.0416	6342.66	32.24	924.0250	6342.45	31.95	0.22

LOWER Serial Number: 40439 Start Date: 2013/07/23 11:20:30 Run Depth: 1042.00

UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70

Print Filter: Print every 4 hour

**RESERVOIR PRESSURE SURVEY**

	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	2013/08/31	03:23:00	928.0416	6342.68	32.24	928.0250	6342.32	31.95	0.52
242	2013/08/31	07:23:00	932.0416	6342.69	32.24	932.0250	6342.19	31.95	0.51
243	2013/08/31	11:23:00	936.0416	6342.67	32.24	936.0250	6342.37	31.94	0.27
244	2013/08/31	15:23:00	940.0416	6342.90	32.24	940.0250	6342.49	31.95	0.37
245	2013/08/31	19:23:00	944.0416	6343.22	32.24	944.0250	6342.64	31.95	0.48
246	2013/08/31	23:23:00	948.0416	6343.21	32.24	948.0250	6342.68	31.94	0.61
247	2013/09/01	03:23:00	952.0416	6343.20	32.24	952.0250	6342.92	31.94	0.44
248	2013/09/01	07:23:00	956.0416	6343.32	32.24	956.0250	6342.97	31.95	0.39
249	2013/09/01	11:23:00	960.0416	6343.13	32.24	960.0250	6342.80	31.94	0.47
250	2013/09/01	15:23:00	964.0416	6343.27	32.24	964.0250	6342.74	31.94	0.37
251	2013/09/01	19:23:00	968.0416	6343.40	32.24	968.0250	6342.84	31.94	0.50
252	2013/09/01	23:23:00	972.0416	6343.55	32.24	972.0250	6343.28	31.94	0.52
253	2013/09/02	03:23:00	976.0416	6343.37	32.24	976.0250	6343.06	31.94	0.30
254	2013/09/02	07:23:00	980.0416	6343.65	32.23	980.0250	6343.02	31.94	0.69
255	2013/09/02	11:23:00	984.0416	6343.30	32.23	984.0250	6342.90	31.94	0.24
256	2013/09/02	15:23:00	988.0416	6343.30	32.24	988.0250	6343.06	31.94	0.35
257	2013/09/02	19:23:00	992.0416	6343.20	32.24	992.0250	6343.13	31.94	0.23
258	2013/09/02	23:23:00	996.0416	6343.39	32.24	996.0250	6343.05	31.94	0.26
259	2013/09/03	03:23:00	1000.0416	6343.55	32.24	1000.0250	6342.90	31.94	0.68
260	2013/09/03	07:23:00	1004.0416	6343.47	32.24	1004.0250	6343.24	31.94	0.25
261	2013/09/03	11:23:00	1008.0416	6343.56	32.24	1008.0250	6343.20	31.94	0.35
262	2013/09/03	15:23:00	1012.0416	6343.83	32.24	1012.0250	6343.21	31.94	0.49
263	2013/09/03	19:23:00	1016.0416	6343.92	32.23	1016.0250	6343.62	31.94	0.26
264	2013/09/03	23:23:00	1020.0416	6344.05	32.23	1020.0250	6343.60	31.94	0.42
265	2013/09/04	03:23:00	1024.0416	6344.02	32.24	1024.0250	6343.59	31.94	0.18
266	2013/09/04	07:23:00	1028.0416	6344.26	32.24	1028.0250	6343.86	31.94	0.37
267	2013/09/04	11:23:00	1032.0416	6344.21	32.24	1032.0250	6343.83	31.94	0.55
268	2013/09/04	15:23:00	1036.0416	6344.10	32.23	1036.0250	6343.75	31.94	0.37
269	2013/09/04	19:23:00	1040.0416	6344.50	32.23	1040.0250	6343.91	31.93	0.72
270	2013/09/04	23:23:00	1044.0416	6344.23	32.23	1044.0250	6343.72	31.93	0.36
271	2013/09/05	03:23:00	1048.0416	6344.38	32.23	1048.0250	6343.81	31.93	0.29
272	2013/09/05	07:23:00	1052.0416	6344.34	32.23	1052.0250	6344.07	31.94	0.12
273	2013/09/05	11:23:00	1056.0416	6344.37	32.23	1056.0250	6343.91	31.93	0.32
274	2013/09/05	15:23:00	1060.0416	6344.28	32.23	1060.0250	6343.90	31.93	0.56
275	2013/09/05	19:23:00	1064.0416	6344.43	32.23	1064.0250	6343.85	31.93	0.39
276	2013/09/05	23:23:00	1068.0416	6344.22	32.23	1068.0250	6344.05	31.93	0.22
277	2013/09/06	03:23:00	1072.0416	6344.30	32.23	1072.0250	6343.95	31.93	0.33
278	2013/09/06	07:23:00	1076.0416	6344.48	32.23	1076.0250	6344.11	31.93	0.35
279	2013/09/06	11:23:00	1080.0416	6344.43	32.23	1080.0250	6344.00	31.93	0.57
280	2013/09/06	15:23:00	1084.0416	6344.52	32.23	1084.0250	6343.99	31.93	0.47

LOWER Serial Number: 40439 Start Date: 2013/07/23 11:20:30 Run Depth: 1042.00

UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70

Print Filter: Print every 4 hour



TUNDRA OIL & GAS PARTNERSHIP  
102/13-32-007-28W1/00  
Start Test Date: 2013/07/23  
Final Test Date: 2013/09/18

TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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
281	2013/09/06	19:23:00	1088.0416	6344.62	32.22	1088.0250	6344.29	31.93	0.54
282	2013/09/06	23:23:00	1092.0416	6344.77	32.23	1092.0250	6344.38	31.93	0.41
283	2013/09/07	03:23:00	1096.0416	6344.60	32.22	1096.0250	6344.42	31.93	0.34
284	2013/09/07	07:23:00	1100.0416	6345.03	32.22	1100.0250	6344.68	31.93	0.47
285	2013/09/07	11:23:00	1104.0416	6345.03	32.23	1104.0250	6344.74	31.93	0.17
286	2013/09/07	15:23:00	1108.0416	6345.16	32.22	1108.0250	6344.73	31.93	0.49
287	2013/09/07	19:23:00	1112.0416	6345.16	32.22	1112.0250	6344.97	31.93	0.14
288	2013/09/07	23:23:00	1116.0416	6345.20	32.23	1116.0250	6345.01	31.93	0.30
289	2013/09/08	03:23:00	1120.0416	6345.12	32.23	1120.0250	6344.74	31.93	0.29
290	2013/09/08	07:23:00	1124.0416	6345.29	32.22	1124.0250	6344.83	31.93	0.38
291	2013/09/08	11:23:00	1128.0416	6345.15	32.22	1128.0250	6344.95	31.93	0.15
292	2013/09/08	15:23:00	1132.0416	6344.93	32.22	1132.0250	6344.78	31.93	0.04
293	2013/09/08	19:23:00	1136.0416	6345.03	32.22	1136.0250	6344.89	31.93	0.23
294	2013/09/08	23:23:00	1140.0416	6345.23	32.22	1140.0250	6344.77	31.93	0.25
295	2013/09/09	03:23:00	1144.0416	6345.12	32.22	1144.0250	6344.77	31.93	0.32
296	2013/09/09	07:23:00	1148.0416	6345.12	32.22	1148.0250	6345.06	31.93	0.22
297	2013/09/09	11:23:00	1152.0416	6345.58	32.22	1152.0250	6345.15	31.92	0.49
298	2013/09/09	15:23:00	1156.0416	6345.43	32.23	1156.0250	6345.00	31.92	0.48
299	2013/09/09	19:23:00	1160.0416	6345.50	32.22	1160.0250	6345.22	31.93	0.31
300	2013/09/09	23:23:00	1164.0416	6345.73	32.22	1164.0250	6345.36	31.92	0.31
301	2013/09/10	03:23:00	1168.0416	6345.73	32.22	1168.0250	6345.21	31.92	0.38
302	2013/09/10	07:23:00	1172.0416	6345.88	32.22	1172.0250	6345.37	31.93	0.39
303	2013/09/10	11:23:00	1176.0416	6345.92	32.22	1176.0250	6345.71	31.92	0.28
304	2013/09/10	15:23:00	1180.0416	6345.99	32.22	1180.0250	6345.49	31.93	0.51
305	2013/09/10	19:23:00	1184.0416	6346.11	32.21	1184.0250	6345.76	31.92	0.16
306	2013/09/10	23:23:00	1188.0416	6346.10	32.21	1188.0250	6345.94	31.92	0.07
307	2013/09/11	03:23:00	1192.0416	6345.99	32.22	1192.0250	6345.92	31.92	0.24
308	2013/09/11	07:23:00	1196.0416	6346.13	32.21	1196.0250	6345.88	31.93	0.35
309	2013/09/11	11:23:00	1200.0416	6346.29	32.22	1200.0250	6345.93	31.92	0.20
310	2013/09/11	15:23:00	1204.0416	6346.30	32.21	1204.0250	6346.13	31.93	0.13
311	2013/09/11	19:23:00	1208.0416	6346.29	32.21	1208.0250	6346.23	31.92	0.02
312	2013/09/11	23:23:00	1212.0416	6346.57	32.21	1212.0250	6346.36	31.92	0.20
313	2013/09/12	03:23:00	1216.0416	6346.60	32.21	1216.0250	6346.26	31.92	0.29
314	2013/09/12	07:23:00	1220.0416	6346.50	32.21	1220.0250	6346.26	31.92	0.34
315	2013/09/12	11:23:00	1224.0416	6346.70	32.21	1224.0250	6346.26	31.92	0.50
316	2013/09/12	15:23:00	1228.0416	6346.70	32.21	1228.0250	6346.42	31.92	0.21
317	2013/09/12	19:23:00	1232.0416	6346.53	32.21	1232.0250	6346.42	31.92	0.17
318	2013/09/12	23:23:00	1236.0416	6346.64	32.21	1236.0250	6346.25	31.92	0.48
319	2013/09/13	03:23:00	1240.0416	6346.35	32.21	1240.0250	6345.95	31.92	0.19
320	2013/09/13	07:23:00	1244.0416	6346.27	32.21	1244.0250	6346.00	31.92	0.48

LOWER Serial Number: 40439 Start Date: 2013/07/23 11:20:30 Run Depth: 1042.00  
UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70  
Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
102/13-32-007-28W1/00  
Start Test Date: 2013/07/23  
Final Test Date: 2013/09/18

TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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
321	2013/09/13	11:23:00	1248.0416	6346.04	32.21	1248.0250	6345.93	31.92	0.12
322	2013/09/13	15:23:00	1252.0416	6346.01	32.21	1252.0250	6345.86	31.92	0.11
323	2013/09/13	19:23:00	1256.0416	6346.27	32.20	1256.0250	6345.89	31.92	0.48
324	2013/09/13	23:23:00	1260.0416	6346.33	32.21	1260.0250	6345.93	31.92	0.40
325	2013/09/14	03:23:00	1264.0416	6346.17	32.21	1264.0250	6345.95	31.92	0.27
326	2013/09/14	07:23:00	1268.0416	6346.25	32.21	1268.0250	6345.92	31.91	0.40
327	2013/09/14	11:23:00	1272.0416	6346.57	32.20	1272.0250	6346.39	31.92	0.22
328	2013/09/14	15:23:00	1276.0416	6347.05	32.21	1276.0250	6346.85	31.91	0.26
329	2013/09/14	19:23:00	1280.0416	6347.32	32.21	1280.0250	6346.98	31.91	0.26
330	2013/09/14	23:23:00	1284.0416	6347.71	32.21	1284.0250	6347.35	31.92	0.51
331	2013/09/15	03:23:00	1288.0416	6348.15	32.21	1288.0250	6347.88	31.91	0.32
332	2013/09/15	07:23:00	1292.0416	6348.14	32.21	1292.0250	6348.15	31.92	0.11
333	2013/09/15	11:23:00	1296.0416	6348.14	32.21	1296.0250	6348.09	31.91	0.24
334	2013/09/15	15:23:00	1300.0416	6348.62	32.20	1300.0250	6348.36	31.91	0.24
335	2013/09/15	19:23:00	1304.0416	6348.69	32.20	1304.0250	6348.41	31.91	0.36
336	2013/09/15	23:23:00	1308.0416	6348.71	32.21	1308.0250	6348.36	31.91	0.25
337	2013/09/16	03:23:00	1312.0416	6348.83	32.20	1312.0250	6348.56	31.91	0.24
338	2013/09/16	07:23:00	1316.0416	6349.02	32.20	1316.0250	6348.52	31.91	0.41
339	2013/09/16	11:23:00	1320.0416	6348.81	32.21	1320.0250	6348.42	31.91	0.41
340	2013/09/16	15:23:00	1324.0416	6348.69	32.20	1324.0250	6348.56	31.91	0.38
341	2013/09/16	19:23:00	1328.0416	6348.64	32.20	1328.0250	6348.46	31.91	0.01
342	2013/09/16	23:23:00	1332.0416	6348.73	32.20	1332.0250	6348.31	31.91	0.28
343	2013/09/17	03:23:00	1336.0416	6348.67	32.20	1336.0250	6348.54	31.91	0.25
344	2013/09/17	07:23:00	1340.0416	6348.78	32.20	1340.0250	6348.46	31.91	0.47
345	2013/09/17	11:23:00	1344.0416	6348.68	32.20	1344.0250	6348.24	31.91	0.20
346	2013/09/17	15:23:00	1348.0416	6348.52	32.20	1348.0250	6348.41	31.91	0.14
347	2013/09/17	19:23:00	1352.0416	6348.80	32.20	1352.0250	6348.60	31.91	0.28
348	2013/09/17	23:23:00	1356.0416	6348.88	32.20	1356.0250	6348.56	31.91	0.39
349	2013/09/18	03:23:00	1360.0416	6349.09	32.20	1360.0250	6348.62	31.91	0.45
350	2013/09/18	07:23:00	1364.0416	6349.09	32.20	1364.0250	6348.84	31.91	0.35
351	2013/09/18	11:23:00	1368.0416	6348.79	32.20	1368.0250	6348.49	31.91	0.26
352	2013/09/18	15:23:00	1372.0416	6349.01	32.20	1372.0250	6348.59	31.91	0.26
353	2013/09/18	17:33:00	1374.2083	6349.16	32.20	1374.2083	6348.77	31.91	0.40
354	2013/09/18	17:33:00	1374.2083	FINAL PRESSURE, UNSETTING BRIDGE PLUG					
355	2013/09/18	17:33:30	1374.2166	10157.85	32.27	1374.2166	6348.82	31.91	3809.03
356	2013/09/18	17:34:00	1374.2250	10027.59	32.27	1374.2250	6348.84	31.91	3678.75
357	2013/09/18	17:34:00	1374.2250	BRIDGE PLUG IS UNSET					
358	2013/09/18	17:34:30	1374.2333	10028.60	32.27	1374.2333	6348.78	31.91	3679.82
359	2013/09/18	17:54:00	1374.5583	9986.83	32.15	1374.5583	9997.61	31.83	-10.78
360	2013/09/18	17:54:00	1374.5583	PULL OUT OF HOLE WITH THE TUBING					

LOWER Serial Number: 40439 Start Date: 2013/07/23 11:20:30 Run Depth: 1042.00  
UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70  
Print Filter: Print every 4 hour

TUNDRA OIL & GAS PARTNERSHIP  
 102/13-32-007-28W1/00  
 Start Test Date: 2013/07/23  
 Final Test Date: 2013/09/18

TUNDRA DALY SINCLAIR PROV HZNTL A13C-32-7-28  
 Formation: BAKKEN

**RESERVOIR PRESSURE SURVEY**

	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
361	2013/09/18	17:54:30	1374.5666	9986.64	32.14	1374.5666	10435.14	31.86	-448.50
362	2013/09/18	19:09:00	1375.8083	97.14	7.37	1375.8083	96.71	6.65	0.43
363	2013/09/18	19:09:00	1375.8083	TOOLS AT SURFACE					
364	2013/09/18	19:09:30	1375.8166	97.06	7.45	1375.8166	96.82	6.65	0.24
365	2013/09/18	19:23:00	1376.0416	97.93	11.55	1376.0250	99.27	8.03	-1.50
366	2013/09/18	21:25:00	1378.0750	98.20	16.99	1378.0750	101.24	16.70	-3.04

LOWER Serial Number: 40439 Start Date: 2013/07/23 11:20:30 Run Depth: 1042.00  
 UPPER Serial Number: 40435 Start Date: 2013/07/23 11:20:30 Run Depth: 1041.70  
 Print Filter: Print every 4 hour



DATE: July 23 - September 18, 2013	COMPANY: Tundra Oil & Gas Partnership
WELLNAME: Tundra Daly Sinclair Prov Hzntl A 13c-32-7-28 WPM	ADDRESS: Virden, MB
LOCATION: (13c-33) 13c-32-7-28 W1M	UWI: 102/13-32-007-28 W1/00
FIELD: Daly Sinclair	FORMATION: Bakken
CO HQ REP: Tyler Rutledge	PHONE: 204-851-1947
FIELD REP: Gord Nykoliation	PHONE: 204-851-2658
REPORTS TO (NAME & EMAIL ADDRESS): Eric [REDACTED] - eric.bjornsson@tundraoilandgas.com Tyler [REDACTED] - tyler.routledge@tundraoilandgas.com Tim [REDACTED] - tim.howell@tundraoilandgas.com Craig [REDACTED] - craig.lane@tundraoilandgas.com Bill [REDACTED] - bill.jenkins@tundraoilandgas.com Adam [REDACTED] - adam.berke@tundraoilandgas.com Chris [REDACTED] - chris.perkins@tundraoilandgas.com	

STATUS: oil well		TEST TYPE: build up
ESTIMATED H2S CONTENT: 0%		ESTIMATED CO2 CONTENT: 0%
PRODUCING THROUGH: tubing		SHUT IN TIME/DATE: 11:37 July 23, 2013
KOP: 756 mKB	TVD: ds included	LICENCE #: 9354
PBTD: n/a	TD: 2467.50 mKB	WELL TYPE: horizontal
CASING SIZE: 139 & 114 mm	CSG WEIGHT: n/a	CSG DEPTH: 2467.50 mKB
TUBING SIZE: none	TBG WEIGHT: none	TBG DEPTH: none
Elevations KB: 502.57 m	GRD: 498.47 m	CF: 498.62 m

#### PRODUCING INTERVAL

TYPE: perf	SIZE: n/a	INTERVAL: 2445.41-2444.41, 2380.85-2379.85, 2316.57-2315.57, 2249.79-2248.79, 2184.34-2183.34, 2120.57-2119.57, 2055.48-2054.48, 1991.17-1990.17, 1927.62-1926.62, 1862.93-1861.93, 1799.05-1798.05, 1734.69-1733.69, 1669.74-1668.74, 1605.32-1604.32mKB
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#### RECORDER INFORMATION

TOP S/N: 40435	FILE NAME: 13-33-13-32-7-28W1	RANGE: 20,680 kPa
BOTTOM S/N: 40439	FILE NAME: 13-33-13-32-7-28W1	RANGE: 20,680 kPa
TOP BATTERY S/N: n/a	BOTTOM BATTERY S/N: n/a	
CONNECT TIME: 11:20 Jul 23/13	DISCONNECT TIME: 21:54 Sep 18/13	

SURFACE TEMP: 7 C	LEASE CONDITION: n/a
WIRELINE OPERATOR: Mike [REDACTED]	PHONE: 306-421-7330
WIRELINE ASSISTANT: n/a	
DIRECTIONS: n/a	

#### 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: 1042 mKB
TIME ON BOTTOM: 11:29 Jul 23/13	TIME OFF BOTTOM: 17:54 Sep 18/13

#### GRADIENT STOPS

DEPTH mKB:	n/a	FROM:	n/a	UNTIL:	n/a
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COMMENTS: These recorders were run and pulled below a bridge plug with pipe.  
The 139.7 mm casing crossed over to 114.3 mm casing at 1042.85 mKB.

DESCRIPTION OF WORK DONE:

July 23, 2013

11:20 - the 21 mPa KC-2 recorders were set to logging mode while being run into the well, below a bridge plug, on tubing.

11:29 - the recorders were landed at 1042 mKB.

11:37 - the bridge plug was set at 1040.57 mKB (recorders at 1042 mKB), the plug was released and the tubing was pulled and laid down.

September 18, 2013

17:33 - a service rig ran tubing into the well, latched onto, and was preparing to unset the bridge plug.

17:34 - the bridge plug was unset.

17:54 - the tools were pulled from the well with the tubing.

19:09 - the recorders were at surface.

21:54 - the recorders were downloaded.

## **Appendix D**

### **Rates and VRR Plots**

# Pattern: 00/01-34-007-28Inj Set: EwartUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 5.98 m3/m3

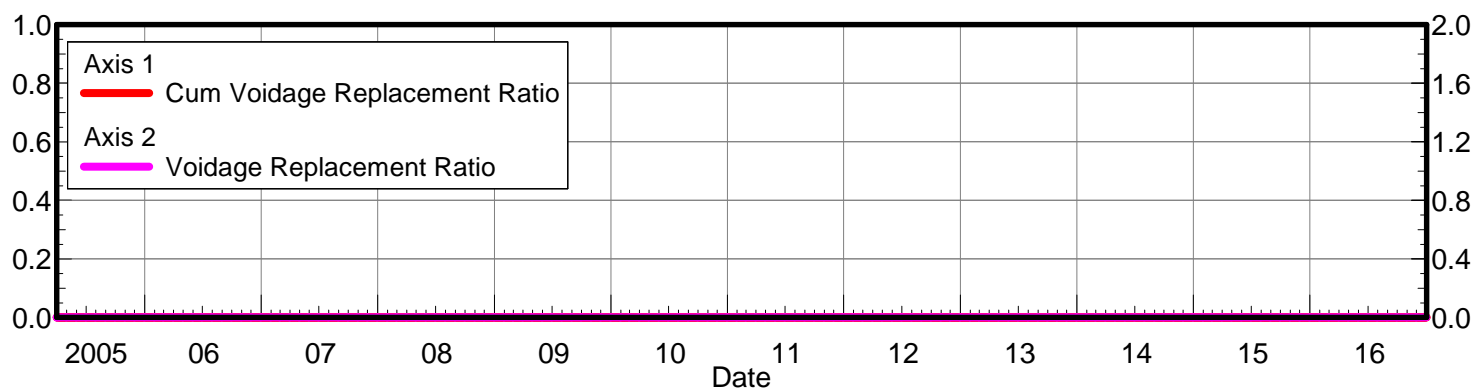
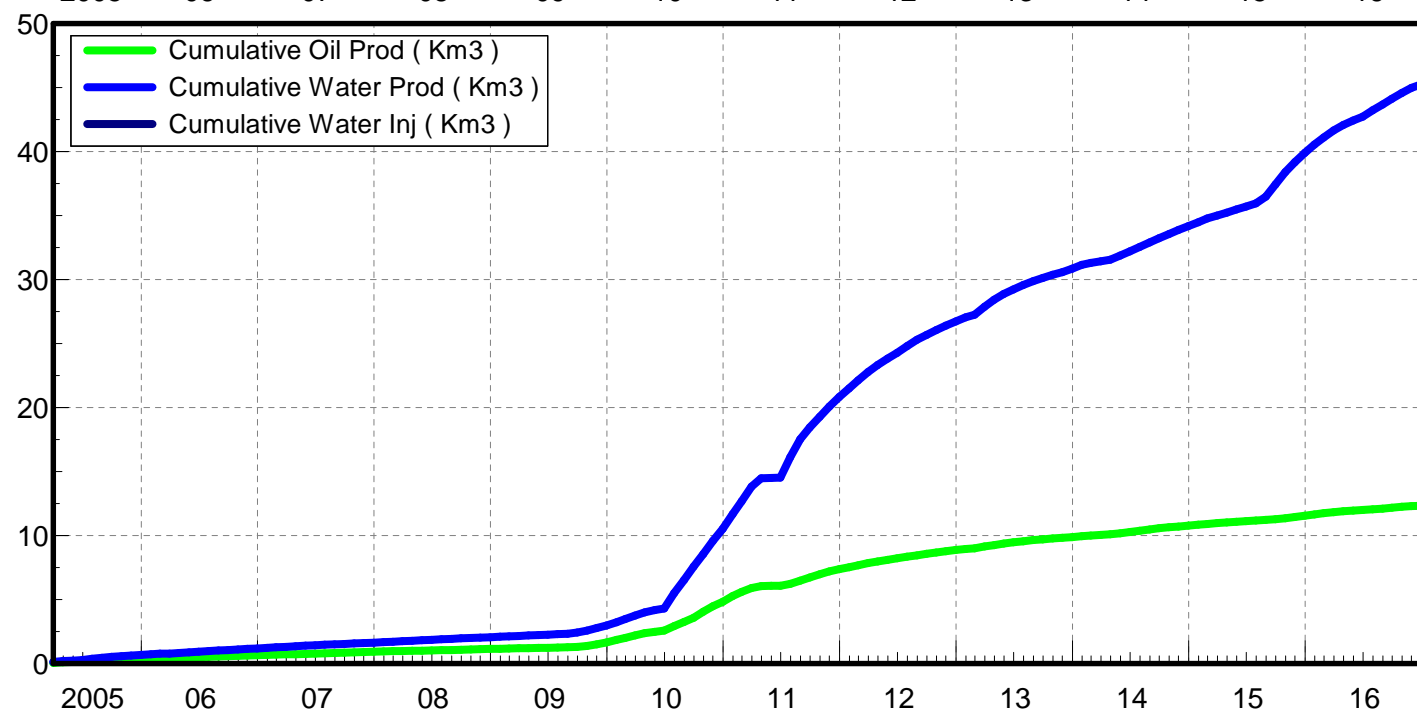
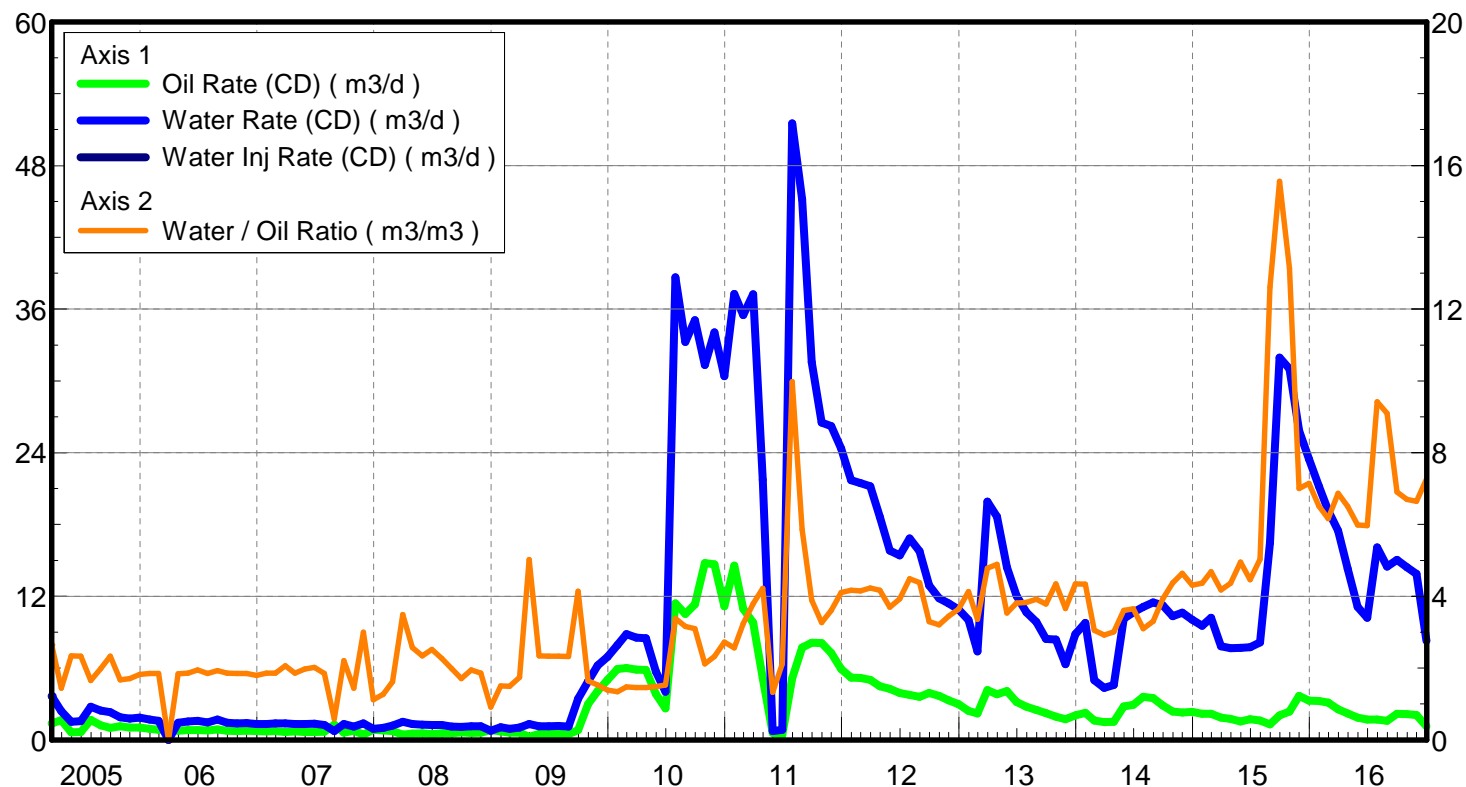
June 30, 2017

Operator: TUNDRA\_OIL\_&\_GAS\_LIMITED

Oil Rate (CD) : 1.17 m3/d

Water Rate (CD) : 5.22 m3/d

Water Inj Rate (CD) : 14.47 m3/d



# Pattern: 00/05-32-007-28Inj Set: EwartUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 5.32 m3/m3

June 30, 2017

Operator: TUNDRA\_OIL\_&\_GAS\_LIMITED

Oil Rate (CD) : 0.67 m3/d

Water Rate (CD) : 4.13 m3/d

Water Inj Rate (CD) : 7.33 m3/d

