

**DALY UNIT NO. 6**  
**WATERFLOOD EOR PROJECT**  
**ANNUAL REPORT FOR 2014**

**May 25, 2015**

**Tundra Oil and Gas Partnership**

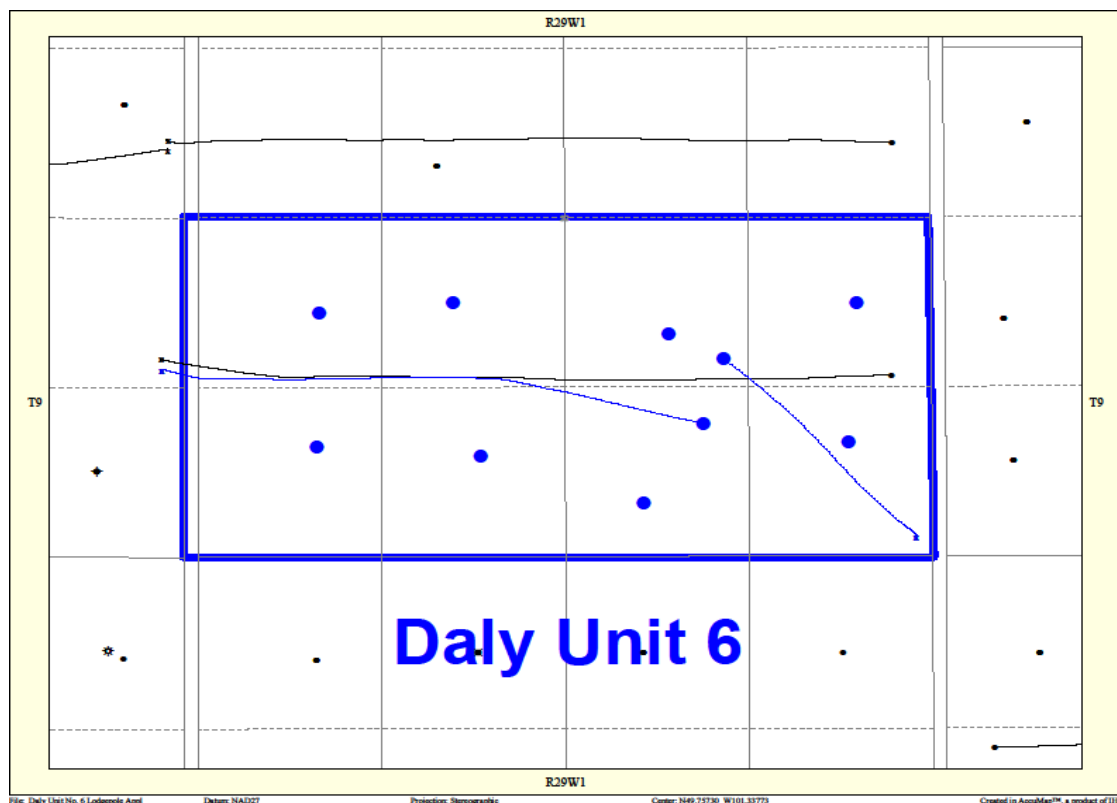
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## **INTRODUCTION**

Daly Unit No. 6 Enhanced Oil Recovery (EOR) Waterflood Project was approved effective January 1st, 2014 with Tundra Oil and Gas as Operator. The EOR project area, outlined in blue in Figure 1, contains 1 abandoned horizontal well, 8 vertical and 1 horizontal producing well in 8 LSDs in Township 9, Range 29W1. Well list and well status is available in Appendix A.

**Figure 1: Daly Unit No. 6 Area Outline**



In accordance with Section 73 of the Manitoba Drilling and Production Regulation, Tundra submits the following 2014 Annual Progress Report for Daly Unit No. 6.

## **DISCUSSION**

### **Production History**

For the wells included in Daly Unit No. 6, production started in October 1993 with the 00/07-22-009-29W1/00 well. Oil production peaked at 22.4 m<sup>3</sup>/d in October of 2014. In 2014, the average production for the unit was 4.74 m<sup>3</sup>/d of oil and 17.54 m<sup>3</sup>/d of water, and the average WOR was 10.51 m<sup>3</sup>/m<sup>3</sup>. There is currently no water injection in Daly Unit No. 6. The rates and WOR are presented in Figure 2.

**Figure 2: Daly Unit No. 6 Production/Injection Rates and WOR vs. Time**

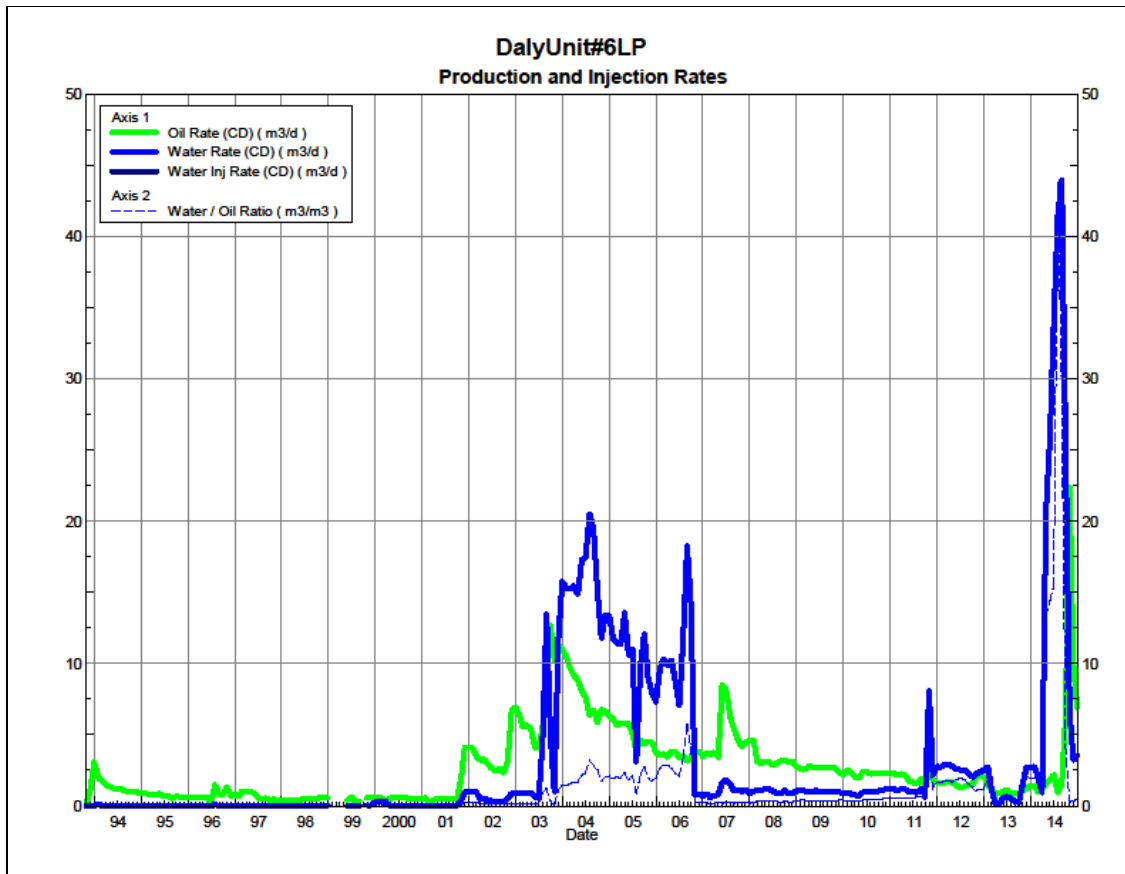
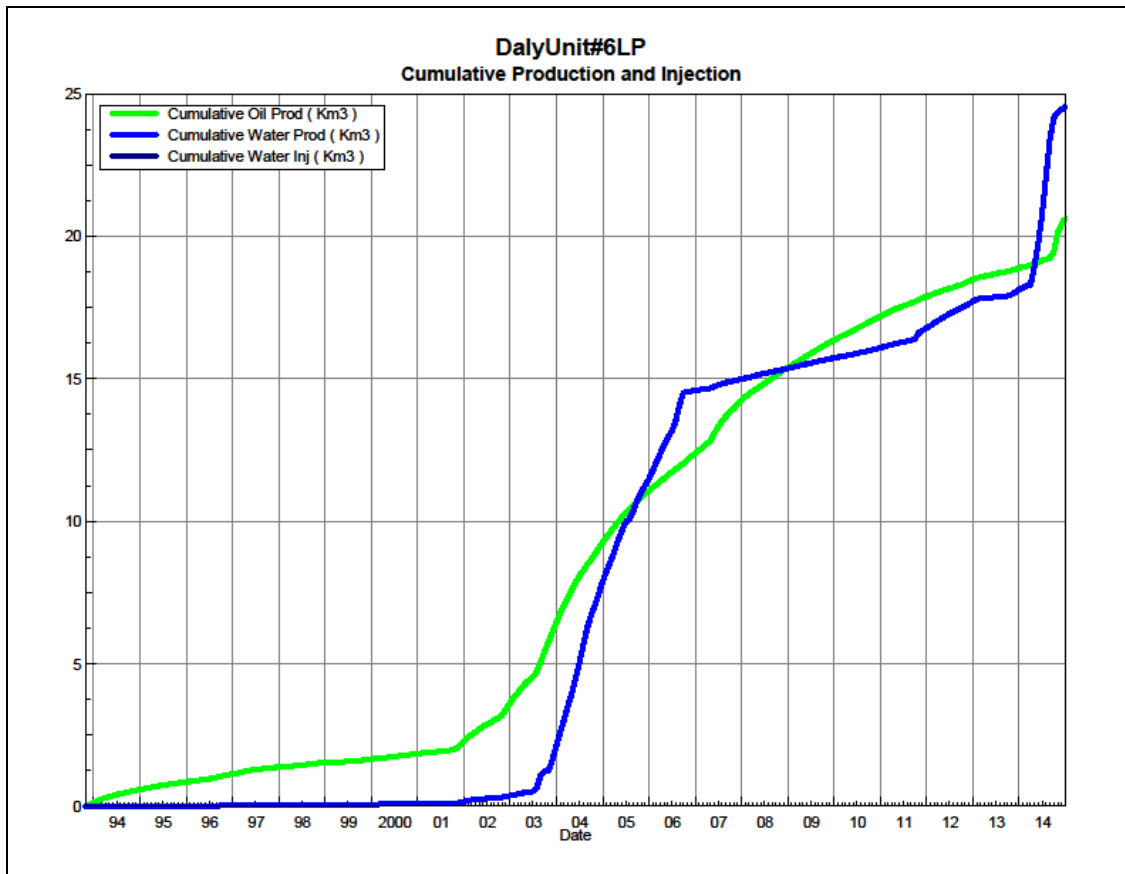


Figure 3 shows the cumulative production for Daly Unit No. 6 to the end of December 2014 as 20.6 e³m³ of oil and 24.6 e³m³ of water, representing a 1.4% recovery factor of the OOIP.

**Figure 3: Daly Unit No. 6 Cumulative Oil, Water and Water Injected vs. Time**



### **Waterflood History**

Daly Unit No. 6 is still in the development phase at the end of 2014. In February 2014, the single proposed horizontal injector (02/02-22-009-29W1) for the unit was drilled between the existing vertical producing wells, completing an effective 40 acre line drive waterflood pattern. In March 2014, the proposed injector was put on production. In order to maximize recovery from this Unit, Tundra expects to produce the future injector for a short period of time to clean-up the reservoir near the wellbore. All 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 Daly Unit No. 6 will be sourced from the 16-32-007-29W1 well (Lodgepole formation). The water is treated at the 03-04-007-29W1 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**

No wellhead injection pressure is available for Daly Unit No. 6.

### **Reservoir Pressure**

Where practical, Tundra is committed to collecting pressure data from newly drilled injection wells. For Daly Unit No. 6, pressure data is currently available for the 02/02-22 Lodgepole location (Appendix C).

### **Well Servicing**

Table 1 lists the maintenance that was required in Daly Unit No. 6 in 2014.

**Table 1: Service and Maintenance in Daly Unit No. 6**

02/07-22-009-29W1/0	Pump Change/TBG Repair	2/11/2014
02/02-22-009-29W1/0	Lodgepole Frac Completion	3/10/2014
02/02-22-009-29W1/0	Water Shut Off	9/24/2014

### **Waterflood Performance Discussion**

At the end of 2014, there is currently no water injection in Daly Unit No. 6. The waterflood area had 1 injection well drilled in 2014 that is currently on production. Water injection is anticipated to begin in Q4 2015, after the expected conversion of the 02/02-22 producer to an injector.

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: Well List and Well Status

Appendix B: Daly Unit No. 6 Injection Pattern Summary

Appendix C: Reservoir Pressure Survey Data For 02/02-22-009-29W1/0 (Lodgepole)

Appendix D: Injector Pattern Production/Injection Rates, Cumulative and VRR  
Plot and Table

## Appendix A

UWI	Well Status
100/01-22-009-29W1/00	Capable of OIL Prod
100/02-22-009-29W1/02	Capable of OIL Prod
100/03-22-009-29W1/00	Capable of OIL Prod
100/04-22-009-29W1/00	Capable of OIL Prod
100/05-22-009-29W1/02	Capable of OIL Prod
100/06-22-009-29W1/00	Capable of OIL Prod
100/07-22-009-29W1/00	Abandoned
100/08-22-009-29W1/00	Capable of OIL Prod
102/02-22-009-29W1/00	Capable of OIL Prod
102/07-22-009-29W1/00	Capable of OIL Prod

Appendix B

Daily Unit No. 6 Pattern Summary as of December 2014

Pattern Name	Injector Location (009-29W1)	Status	Supported Wells (009-29W1)	No. of Supported Wells	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 (E <sup>3</sup> m <sup>3</sup> )	Cum Water (E <sup>3</sup> m <sup>3</sup> )	Cum Inj Water (E <sup>3</sup> m <sup>3</sup> )	Monthly VRR	Cum VRR
02/02-22-09-29 Injector	02/08-21	Capable of Oil Production	01-22, 02-22, 03-22, 04-22, 05-22, 06-22, 07-22, 02/07-22, 08-22	9	1	Oct 1993	-	6.88	3.53	0.51		20.6	24.6	0.0	0.0	0.00



## TUNDRA OIL & GAS PARTNERSHIP

DALY UNIT No. 6 HZNTL 2D-22-9-29

102/02-22-009-29W1/0

LICENSE #: 9748

LODGEPOLE FORMATION

RESERVOIR PRESSURE SURVEY DATA

FEBRUARY 11<sup>th</sup> - 19<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	CRAIG LANE
e-mail	craig.lane@tundraoilandgas.com
Phone	(204) 748-4409
Site Contact	SHAWN EVENS
Site Phone	(204) 851-5327

## Well Information

Well Name	DALY UNIT No. 6 HZNTL 2D-22-9-29
Unique Well ID	102/02-22-009-29W1/00
Surface Location	8A-21-9-29W1
Well License Number	9748
Well Type	Horizontal
Well Fluid Type	01 Oil
Field	SINCLAIR
KB Elevation (SL)	539.85 m
CF Elevation (SL)	m
GL Elevation (SL)	535.35 m
Distance from KB to CF (Log)	m
KB-GL Offset	4.50 m
Tubing ID	mm
Tubing OD	mm
Tubing Depth(Log KB)	m
Tubing Depth(TVD KB)	m
Casing ID	mm
Casing OD	114.3 mm
Casing Depth(Log KB)	1938.00000 m
Casing Depth(TVD KB)	812.18000 m
PBTD(Log KB)	m
PBTD(TVD KB)	m

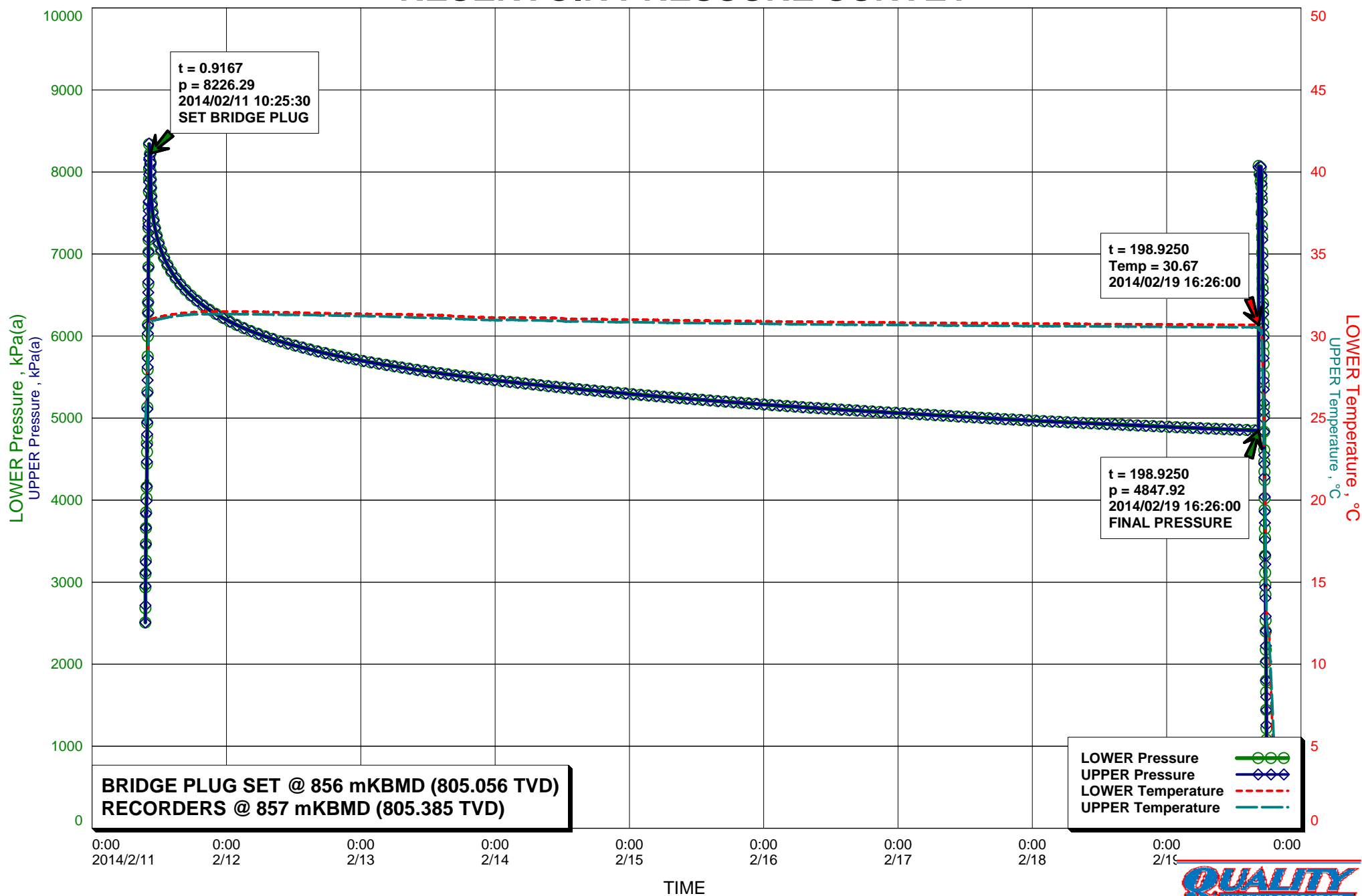
# Pressure Survey Report

## Test Information

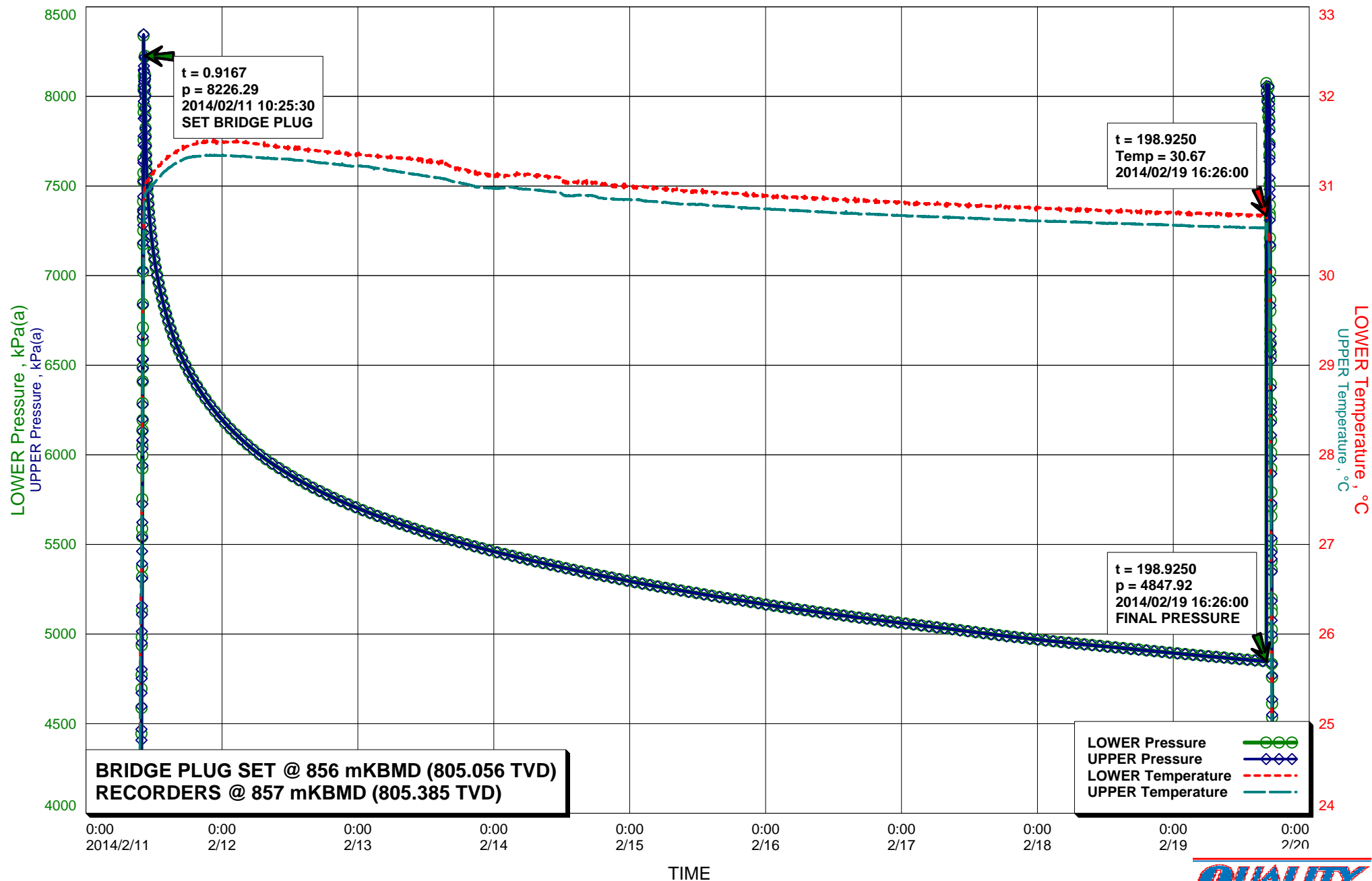
Well Name	DALY UNIT No. 6 HZNTL 2D-22-9-29
Unique Well ID	102/02-22-009-29W1/00
Surface Location	8A-21-9-29W1
Well License Number	9748
Well Fluid Type	01 Oil
Test Purpose	Initial Test
Test Type	RESERVOIR PRESSURE SURVEY
Formation	LODGEPOLE
Well Type	Horizontal
Test/Prod. Interval Top KB (Log)	927.00 m
Test/Prod. Interval Base KB (Log)	1938.00 m
MPP(Log KB)	1432.50 m
Test/Prod Interval Top KB (TVD)	815.43 m
Test/Prod. Interval Base m KB (TVD)	812.18 m
MPP(TVD KB)	813.81 m
Date/Time Gauge on Bottom	2014/02/11 10:21:00
Date/Time Gauge Off Bottom	2014/02/19 16:51:00
Time/Date Well Shut-In	2014/02/11 10:26:00
Tubing Pressure Initial	kPa(a)
Casing Pressure Initial	93.01 kPa(a)
Tubing Pressure: Final	kPa(a)
Casing Pressure: Final	93.01 kPa(a)
Last Measured Pressure at Run Depth	4847.92 kPa(a)
Reservoir Temperature	30.67 °C
Service Company	Quality Wireline Services Ltd.
Representative	NALA TSCHETTER
Prepared By	DOLLCO Well Data Services
Qualified By	RICK DOLL
Report Date	2014/03/10



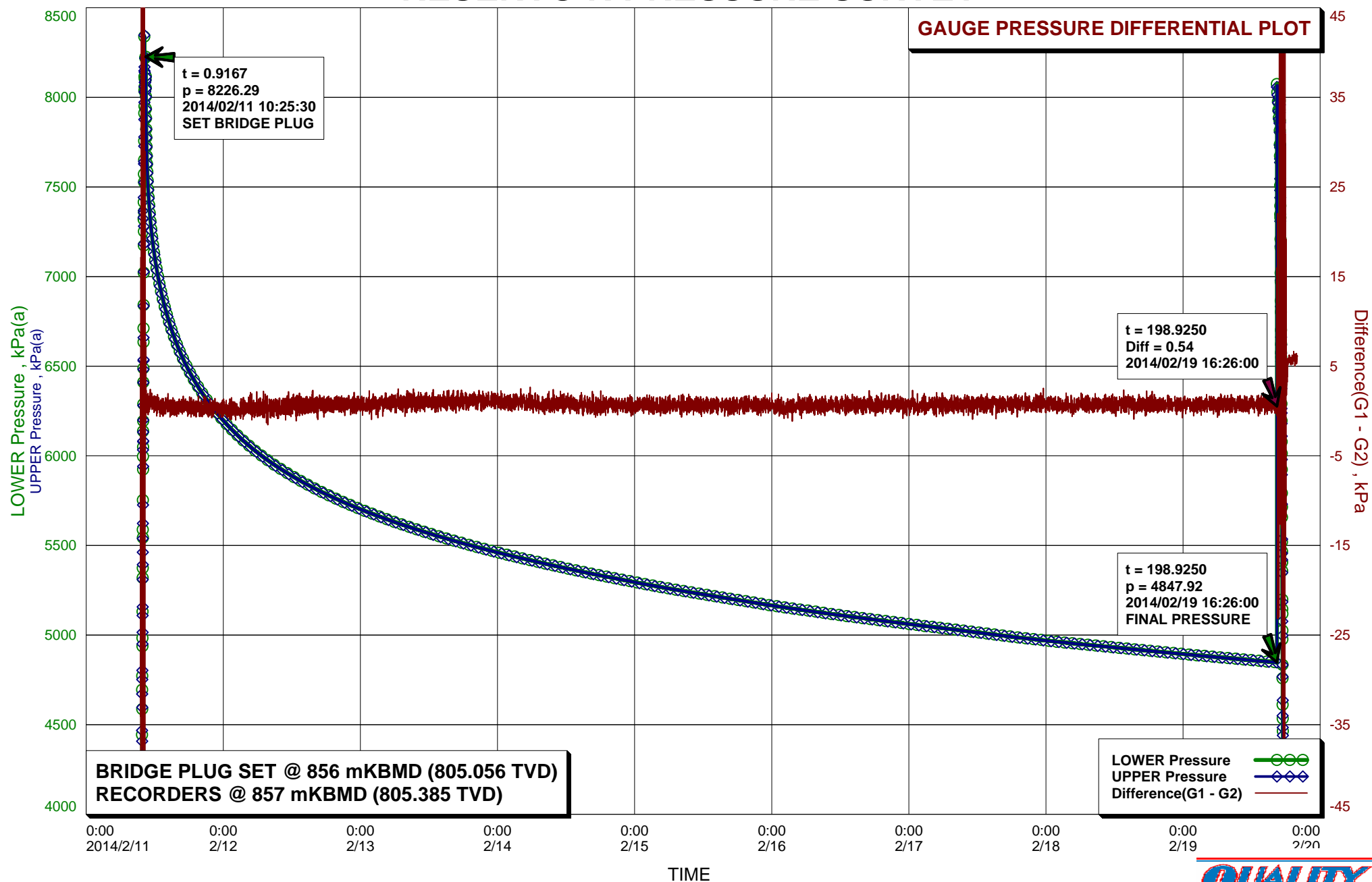
## RESERVOIR PRESSURE SURVEY



# RESERVOIR PRESSURE SURVEY



## RESERVOIR PRESSURE SURVEY



# Recorder Information

Company Name	TUNDRA OIL & GAS PARTNERSHIP
Unique Well ID	102/02-22-009-29W1/00
Well Name	DALY UNIT No. 6 HZNTL 2D-22-9-29
Formation	LODGEPOLE

Start Test Date	2014/02/11
Final Test Date	2014/02/19

## Gauge 1

Gauge Name	LOWER	Gauge Type	ELECTRONIC
Gauge Serial Number	VNK	Gauge Manufacturer	REAL TIME MEASUREMENTS
Run Depth (Log KB)	857.00 m	Gauge Model	KC3 STRAIN
Date of Last Calibration	2012/10/21	Maximum Recorder Range	20680.00 kPa
Gauge Start Date	2014/02/11	Gauge Start Time	09:30:30
Gauge Stop Date	2014/02/19	Gauge Stop Time	20:00:00
Date Gauge On Bottom	2014/02/11	Time Gauge On Bottom	10:21:00
Date Gauge Off Bottom	2014/02/19	Time Gauge Off Bottom	16:51:00

## Gauge 2

Gauge Name	UPPER	Gauge Type	ELECTRONIC
Gauge Serial Number	VNI	Gauge Manufacturer	REAL TIME MEASUREMENTS
Run Depth (Log KB)	857.00 m	Gauge Model	KC3 STRAIN
Date of Last Calibration	2012/10/21	Maximum Recorder Range	20680.00 kPa
Gauge Start Date	2014/02/11	Gauge Start Time	09:30:30
Gauge Stop Date	2014/02/19	Gauge Stop Time	20:00:00
Date Gauge On Bottom	2014/02/11	Time Gauge On Bottom	10:21:00
Date Gauge Off Bottom	2014/02/19	Time Gauge Off Bottom	16:51:00

## 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	2014/02/11	09:30:30	0.0000	2507.91	24.94	0.0000	2508.25	24.72	-0.35
2	2014/02/11	09:30:30	0.0000	RIH, ACTIVATE RECORDERS S/N: VNK(L) & VNI(U)					
3	2014/02/11	09:31:00	0.0083	2682.42	24.95	0.0083	2716.50	24.74	-34.08
4	2014/02/11	10:21:00	0.8417	8220.78	31.02	0.8417	8217.97	30.89	2.81
5	2014/02/11	10:21:00	0.8417	RECORDERS AT 857 mKBMD (805.385 TVD)					
6	2014/02/11	10:21:30	0.8500	8225.77	31.01	0.8500	8225.34	30.88	0.44
7	2014/02/11	10:25:30	0.9167	8226.29	31.02	0.9167	8222.08	30.91	4.21
8	2014/02/11	10:25:30	0.9167	BRIDGE PLUG SET @ 856 mKBMD (805.056 TVD)					
9	2014/02/11	10:26:00	0.9250	8117.08	31.02	0.9250	8114.24	30.91	2.84
10	2014/02/11	10:30:30	1.0000	7822.74	31.03	1.0000	7821.55	30.92	1.19
11	2014/02/11	11:30:30	2.0000	7228.75	31.12	2.0000	7227.87	30.99	0.88
12	2014/02/11	12:30:30	3.0000	7011.29	31.20	3.0000	7010.33	31.07	0.97
13	2014/02/11	13:30:30	4.0000	6862.26	31.26	4.0000	6861.82	31.14	0.45
14	2014/02/11	14:30:30	5.0000	6747.19	31.33	5.0000	6746.62	31.20	0.57
15	2014/02/11	15:30:30	6.0000	6652.90	31.37	6.0000	6652.47	31.24	0.43
16	2014/02/11	16:30:30	7.0000	6573.30	31.40	7.0000	6573.41	31.28	-0.11
17	2014/02/11	17:30:30	8.0000	6504.30	31.43	8.0000	6503.83	31.31	0.47
18	2014/02/11	18:30:30	9.0000	6443.85	31.45	9.0000	6443.34	31.32	0.52
19	2014/02/11	19:30:30	10.0000	6389.69	31.47	10.0000	6389.47	31.33	0.22
20	2014/02/11	20:30:30	11.0000	6340.73	31.49	11.0000	6340.42	31.34	0.31
21	2014/02/11	21:30:30	12.0000	6295.53	31.49	12.0000	6295.51	31.34	0.02
22	2014/02/11	22:30:30	13.0000	6253.84	31.49	13.0000	6253.60	31.34	0.24
23	2014/02/11	23:30:30	14.0000	6215.49	31.49	14.0000	6215.19	31.34	0.30
24	2014/02/12	00:30:30	15.0000	6180.51	31.49	15.0000	6179.32	31.34	1.19
25	2014/02/12	01:30:30	16.0000	6145.91	31.49	16.0000	6145.63	31.34	0.29
26	2014/02/12	02:30:30	17.0000	6114.28	31.49	17.0000	6114.16	31.33	0.12
27	2014/02/12	03:30:30	18.0000	6084.78	31.49	18.0000	6084.35	31.33	0.43
28	2014/02/12	04:30:30	19.0000	6056.83	31.48	19.0000	6055.92	31.33	0.92
29	2014/02/12	05:30:30	20.0000	6030.42	31.47	20.0000	6030.06	31.32	0.36
30	2014/02/12	06:30:30	21.0000	6005.43	31.47	21.0000	6004.99	31.32	0.44
31	2014/02/12	07:30:30	22.0000	5982.76	31.46	22.0000	5981.29	31.31	1.47
32	2014/02/12	08:30:30	23.0000	5959.50	31.45	23.0000	5959.11	31.31	0.39
33	2014/02/12	09:30:30	24.0000	5937.91	31.44	24.0000	5937.67	31.30	0.24
34	2014/02/12	10:30:30	25.0000	5917.61	31.43	25.0000	5917.03	31.30	0.58
35	2014/02/12	11:30:30	26.0000	5897.91	31.42	26.0000	5897.53	31.30	0.39
36	2014/02/12	12:30:30	27.0000	5879.28	31.43	27.0000	5878.45	31.29	0.83
37	2014/02/12	13:30:30	28.0000	5860.95	31.42	28.0000	5860.24	31.29	0.72
38	2014/02/12	14:30:30	29.0000	5843.26	31.41	29.0000	5842.62	31.28	0.64
39	2014/02/12	15:30:30	30.0000	5826.30	31.40	30.0000	5825.51	31.28	0.79
40	2014/02/12	16:30:30	31.0000	5809.81	31.40	31.0000	5809.16	31.27	0.65

LOWER Serial Number: VNK Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

UPPER Serial Number: VNI Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

Print Filter: Print every 1 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
41	2014/02/12	17:30:30	32.0000	5793.90	31.39	32.0000	5793.16	31.26	0.74
42	2014/02/12	18:30:30	33.0000	5778.68	31.38	33.0000	5777.89	31.25	0.80
43	2014/02/12	19:30:30	34.0000	5763.87	31.37	34.0000	5762.96	31.25	0.90
44	2014/02/12	20:30:30	35.0000	5749.54	31.37	35.0000	5748.75	31.24	0.79
45	2014/02/12	21:30:30	36.0000	5735.56	31.36	36.0000	5734.74	31.23	0.82
46	2014/02/12	22:30:30	37.0000	5722.03	31.35	37.0000	5721.28	31.23	0.76
47	2014/02/12	23:30:30	38.0000	5708.12	31.35	38.0000	5708.14	31.23	-0.01
48	2014/02/13	00:30:30	39.0000	5695.96	31.35	39.0000	5695.28	31.22	0.69
49	2014/02/13	01:30:30	40.0000	5683.49	31.34	40.0000	5683.24	31.22	0.25
50	2014/02/13	02:30:30	41.0000	5671.54	31.34	41.0000	5670.62	31.21	0.92
51	2014/02/13	03:30:30	42.0000	5659.48	31.33	42.0000	5658.62	31.20	0.86
52	2014/02/13	04:30:30	43.0000	5647.92	31.33	43.0000	5646.96	31.19	0.96
53	2014/02/13	05:30:30	44.0000	5636.59	31.32	44.0000	5635.67	31.18	0.93
54	2014/02/13	06:30:30	45.0000	5625.62	31.32	45.0000	5624.57	31.17	1.04
55	2014/02/13	07:30:30	46.0000	5614.66	31.32	46.0000	5613.54	31.16	1.11
56	2014/02/13	08:30:30	47.0000	5603.99	31.30	47.0000	5602.74	31.15	1.25
57	2014/02/13	09:30:30	48.0000	5593.74	31.30	48.0000	5592.49	31.13	1.25
58	2014/02/13	10:30:30	49.0000	5583.02	31.29	49.0000	5582.16	31.13	0.86
59	2014/02/13	11:30:30	50.0000	5573.03	31.29	50.0000	5571.97	31.12	1.06
60	2014/02/13	12:30:30	51.0000	5563.21	31.28	51.0000	5562.28	31.11	0.93
61	2014/02/13	13:30:30	52.0000	5553.54	31.27	52.0000	5552.55	31.10	0.99
62	2014/02/13	14:30:30	53.0000	5544.04	31.26	53.0000	5543.00	31.09	1.04
63	2014/02/13	15:30:30	54.0000	5534.81	31.25	54.0000	5533.68	31.08	1.13
64	2014/02/13	16:30:30	55.0000	5525.30	31.21	55.0000	5523.99	31.05	1.31
65	2014/02/13	17:30:30	56.0000	5516.51	31.20	56.0000	5515.40	31.04	1.11
66	2014/02/13	18:30:30	57.0000	5507.62	31.19	57.0000	5506.66	31.03	0.96
67	2014/02/13	19:30:30	58.0000	5499.03	31.17	58.0000	5497.90	31.02	1.13
68	2014/02/13	20:30:30	59.0000	5490.31	31.15	59.0000	5489.27	31.00	1.04
69	2014/02/13	21:30:30	60.0000	5482.07	31.14	60.0000	5480.87	30.99	1.20
70	2014/02/13	22:30:30	61.0000	5473.96	31.14	61.0000	5472.79	30.98	1.17
71	2014/02/13	23:30:30	62.0000	5466.22	31.13	62.0000	5465.12	30.98	1.09
72	2014/02/14	00:30:30	63.0000	5457.90	31.13	63.0000	5456.69	30.97	1.21
73	2014/02/14	01:30:30	64.0000	5449.92	31.12	64.0000	5449.02	30.98	0.90
74	2014/02/14	02:30:30	65.0000	5442.04	31.12	65.0000	5441.32	30.99	0.72
75	2014/02/14	03:30:30	66.0000	5434.51	31.13	66.0000	5433.31	30.98	1.20
76	2014/02/14	04:30:30	67.0000	5427.64	31.13	67.0000	5425.93	30.97	1.71
77	2014/02/14	05:30:30	68.0000	5419.83	31.13	68.0000	5418.11	30.97	1.72
78	2014/02/14	06:30:30	69.0000	5411.63	31.14	69.0000	5411.19	30.96	0.44
79	2014/02/14	07:30:30	70.0000	5404.57	31.11	70.0000	5404.06	30.95	0.52
80	2014/02/14	08:30:30	71.0000	5397.23	31.11	71.0000	5396.54	30.95	0.69

LOWER Serial Number: VNK Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

UPPER Serial Number: VNI Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

Print Filter: Print every 1 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
81	2014/02/14	09:30:30	72.0000	5390.01	31.10	72.0000	5389.26	30.94	0.75
82	2014/02/14	10:30:30	73.0000	5383.06	31.10	73.0000	5382.13	30.94	0.94
83	2014/02/14	11:30:30	74.0000	5376.14	31.10	74.0000	5375.43	30.93	0.71
84	2014/02/14	12:30:30	75.0000	5369.13	31.06	75.0000	5368.35	30.89	0.78
85	2014/02/14	13:30:30	76.0000	5362.74	31.04	76.0000	5361.88	30.89	0.87
86	2014/02/14	14:30:30	77.0000	5355.67	31.04	77.0000	5354.89	30.90	0.78
87	2014/02/14	15:30:30	78.0000	5348.97	31.04	78.0000	5348.21	30.90	0.76
88	2014/02/14	16:30:30	79.0000	5342.44	31.04	79.0000	5341.78	30.89	0.66
89	2014/02/14	17:30:30	80.0000	5336.02	31.03	80.0000	5335.24	30.89	0.78
90	2014/02/14	18:30:30	81.0000	5329.92	31.03	81.0000	5328.76	30.87	1.16
91	2014/02/14	19:30:30	82.0000	5323.20	31.02	82.0000	5322.35	30.86	0.85
92	2014/02/14	20:30:30	83.0000	5317.01	31.01	83.0000	5316.26	30.86	0.74
93	2014/02/14	21:30:30	84.0000	5310.26	31.01	84.0000	5310.29	30.85	-0.02
94	2014/02/14	22:30:30	85.0000	5304.83	31.01	85.0000	5304.23	30.85	0.60
95	2014/02/14	23:30:30	86.0000	5298.46	31.00	86.0000	5297.84	30.85	0.62
96	2014/02/15	00:30:30	87.0000	5292.25	31.00	87.0000	5290.70	30.85	1.55
97	2014/02/15	01:30:30	88.0000	5286.23	31.00	88.0000	5285.97	30.85	0.27
98	2014/02/15	02:30:30	89.0000	5280.18	31.00	89.0000	5279.43	30.83	0.75
99	2014/02/15	03:30:30	90.0000	5274.45	30.99	90.0000	5273.68	30.83	0.77
100	2014/02/15	04:30:30	91.0000	5268.22	30.98	91.0000	5267.66	30.83	0.56
101	2014/02/15	05:30:30	92.0000	5262.60	30.97	92.0000	5262.08	30.82	0.52
102	2014/02/15	06:30:30	93.0000	5257.01	30.96	93.0000	5256.32	30.82	0.69
103	2014/02/15	07:30:30	94.0000	5251.64	30.96	94.0000	5250.88	30.81	0.76
104	2014/02/15	08:30:30	95.0000	5246.19	30.95	95.0000	5245.49	30.80	0.70
105	2014/02/15	09:30:30	96.0000	5240.87	30.95	96.0000	5240.12	30.80	0.76
106	2014/02/15	10:30:30	97.0000	5236.10	30.95	97.0000	5234.82	30.79	1.28
107	2014/02/15	11:30:30	98.0000	5230.17	30.95	98.0000	5229.62	30.80	0.55
108	2014/02/15	12:30:30	99.0000	5224.98	30.94	99.0000	5224.24	30.80	0.74
109	2014/02/15	13:30:30	100.0000	5219.16	30.94	100.0000	5219.22	30.79	-0.06
110	2014/02/15	14:30:30	101.0000	5214.18	30.93	101.0000	5213.39	30.78	0.80
111	2014/02/15	15:30:30	102.0000	5208.87	30.93	102.0000	5208.35	30.78	0.51
112	2014/02/15	16:30:30	103.0000	5203.57	30.92	103.0000	5203.14	30.78	0.43
113	2014/02/15	17:30:30	104.0000	5198.92	30.92	104.0000	5198.12	30.77	0.80
114	2014/02/15	18:30:30	105.0000	5193.54	30.92	105.0000	5192.99	30.77	0.55
115	2014/02/15	19:30:30	106.0000	5188.63	30.91	106.0000	5187.69	30.76	0.94
116	2014/02/15	20:30:30	107.0000	5183.36	30.91	107.0000	5182.82	30.76	0.54
117	2014/02/15	21:30:30	108.0000	5178.07	30.90	108.0000	5177.64	30.75	0.43
118	2014/02/15	22:30:30	109.0000	5172.36	30.89	109.0000	5172.51	30.75	-0.16
119	2014/02/15	23:30:30	110.0000	5167.82	30.89	110.0000	5167.62	30.75	0.19
120	2014/02/16	00:30:30	111.0000	5162.78	30.89	111.0000	5162.34	30.74	0.44

LOWER Serial Number: VNK Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

UPPER Serial Number: VNI Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

Print Filter: Print every 1 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
121	2014/02/16	01:30:30	112.0000	5157.99	30.88	112.0000	5157.50	30.74	0.49
122	2014/02/16	02:30:30	113.0000	5153.36	30.88	113.0000	5152.91	30.74	0.44
123	2014/02/16	03:30:30	114.0000	5148.49	30.87	114.0000	5148.08	30.73	0.41
124	2014/02/16	04:30:30	115.0000	5144.14	30.88	115.0000	5143.55	30.73	0.59
125	2014/02/16	05:30:30	116.0000	5139.84	30.88	116.0000	5139.02	30.73	0.82
126	2014/02/16	06:30:30	117.0000	5135.08	30.88	117.0000	5134.53	30.72	0.56
127	2014/02/16	07:30:30	118.0000	5130.57	30.87	118.0000	5130.18	30.72	0.39
128	2014/02/16	08:30:30	119.0000	5126.19	30.87	119.0000	5125.61	30.72	0.58
129	2014/02/16	09:30:30	120.0000	5122.16	30.87	120.0000	5121.08	30.71	1.07
130	2014/02/16	10:30:30	121.0000	5117.49	30.86	121.0000	5116.81	30.71	0.68
131	2014/02/16	11:30:30	122.0000	5113.28	30.86	122.0000	5112.58	30.70	0.71
132	2014/02/16	12:30:30	123.0000	5108.98	30.85	123.0000	5108.15	30.70	0.83
133	2014/02/16	13:30:30	124.0000	5104.77	30.85	124.0000	5104.28	30.70	0.49
134	2014/02/16	14:30:30	125.0000	5100.45	30.84	125.0000	5099.73	30.69	0.72
135	2014/02/16	15:30:30	126.0000	5096.40	30.84	126.0000	5095.02	30.69	1.38
136	2014/02/16	16:30:30	127.0000	5092.25	30.84	127.0000	5091.12	30.69	1.13
137	2014/02/16	17:30:30	128.0000	5088.19	30.84	128.0000	5087.55	30.69	0.64
138	2014/02/16	18:30:30	129.0000	5083.99	30.83	129.0000	5083.26	30.69	0.73
139	2014/02/16	19:30:30	130.0000	5080.09	30.81	130.0000	5079.39	30.68	0.70
140	2014/02/16	20:30:30	131.0000	5075.99	30.83	131.0000	5075.03	30.68	0.96
141	2014/02/16	21:30:30	132.0000	5071.97	30.82	132.0000	5071.11	30.68	0.86
142	2014/02/16	22:30:30	133.0000	5067.89	30.83	133.0000	5067.14	30.67	0.75
143	2014/02/16	23:30:30	134.0000	5063.89	30.82	134.0000	5063.38	30.67	0.50
144	2014/02/17	00:30:30	135.0000	5059.97	30.82	135.0000	5059.29	30.67	0.68
145	2014/02/17	01:30:30	136.0000	5056.16	30.80	136.0000	5054.22	30.66	1.94
146	2014/02/17	02:30:30	137.0000	5052.32	30.81	137.0000	5051.51	30.67	0.80
147	2014/02/17	03:30:30	138.0000	5048.32	30.80	138.0000	5047.67	30.66	0.65
148	2014/02/17	04:30:30	139.0000	5045.21	30.80	139.0000	5043.63	30.66	1.58
149	2014/02/17	05:30:30	140.0000	5040.40	30.80	140.0000	5039.71	30.66	0.69
150	2014/02/17	06:30:30	141.0000	5036.52	30.80	141.0000	5036.03	30.66	0.48
151	2014/02/17	07:30:30	142.0000	5032.90	30.80	142.0000	5032.18	30.65	0.72
152	2014/02/17	08:30:30	143.0000	5028.91	30.80	143.0000	5028.19	30.65	0.71
153	2014/02/17	09:30:30	144.0000	5024.98	30.80	144.0000	5024.25	30.65	0.73
154	2014/02/17	10:30:30	145.0000	5020.84	30.79	145.0000	5020.09	30.64	0.75
155	2014/02/17	11:30:30	146.0000	5016.86	30.79	146.0000	5016.24	30.65	0.61
156	2014/02/17	12:30:30	147.0000	5012.95	30.78	147.0000	5012.17	30.64	0.78
157	2014/02/17	13:30:30	148.0000	5008.80	30.78	148.0000	5007.87	30.64	0.93
158	2014/02/17	14:30:30	149.0000	5004.84	30.78	149.0000	5004.25	30.63	0.59
159	2014/02/17	15:30:30	150.0000	5000.14	30.77	150.0000	5000.16	30.63	-0.02
160	2014/02/17	16:30:30	151.0000	4996.79	30.78	151.0000	4996.42	30.63	0.37

LOWER Serial Number: VNK Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

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Print Filter: Print every 1 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
161	2014/02/17	17:30:30	152.0000	4992.86	30.77	152.0000	4992.14	30.63	0.72
162	2014/02/17	18:30:30	153.0000	4989.30	30.77	153.0000	4988.29	30.62	1.01
163	2014/02/17	19:30:30	154.0000	4985.41	30.77	154.0000	4984.17	30.62	1.24
164	2014/02/17	20:30:30	155.0000	4982.15	30.77	155.0000	4980.97	30.62	1.18
165	2014/02/17	21:30:30	156.0000	4978.35	30.76	156.0000	4977.69	30.62	0.66
166	2014/02/17	22:30:30	157.0000	4974.71	30.76	157.0000	4973.86	30.61	0.85
167	2014/02/17	23:30:30	158.0000	4971.23	30.76	158.0000	4970.57	30.61	0.67
168	2014/02/18	00:30:30	159.0000	4967.95	30.76	159.0000	4967.18	30.61	0.77
169	2014/02/18	01:30:30	160.0000	4964.46	30.75	160.0000	4962.96	30.61	1.50
170	2014/02/18	02:30:30	161.0000	4961.19	30.75	161.0000	4960.42	30.60	0.77
171	2014/02/18	03:30:30	162.0000	4957.95	30.75	162.0000	4957.05	30.60	0.90
172	2014/02/18	04:30:30	163.0000	4954.66	30.75	163.0000	4953.32	30.60	1.35
173	2014/02/18	05:30:30	164.0000	4951.52	30.75	164.0000	4950.96	30.60	0.57
174	2014/02/18	06:30:30	165.0000	4948.19	30.74	165.0000	4947.60	30.60	0.59
175	2014/02/18	07:30:30	166.0000	4945.08	30.74	166.0000	4944.37	30.60	0.70
176	2014/02/18	08:30:30	167.0000	4942.13	30.74	167.0000	4941.26	30.60	0.87
177	2014/02/18	09:30:30	168.0000	4938.99	30.74	168.0000	4938.18	30.59	0.82
178	2014/02/18	10:30:30	169.0000	4935.96	30.74	169.0000	4934.89	30.59	1.06
179	2014/02/18	11:30:30	170.0000	4932.76	30.73	170.0000	4932.08	30.59	0.68
180	2014/02/18	12:30:30	171.0000	4928.93	30.72	171.0000	4928.88	30.58	0.05
181	2014/02/18	13:30:30	172.0000	4926.56	30.73	172.0000	4925.98	30.58	0.58
182	2014/02/18	14:30:30	173.0000	4922.63	30.72	173.0000	4922.71	30.58	-0.08
183	2014/02/18	15:30:30	174.0000	4919.42	30.72	174.0000	4919.69	30.58	-0.27
184	2014/02/18	16:30:30	175.0000	4917.17	30.72	175.0000	4916.49	30.58	0.68
185	2014/02/18	17:30:30	176.0000	4914.20	30.72	176.0000	4913.59	30.57	0.61
186	2014/02/18	18:30:30	177.0000	4911.25	30.71	177.0000	4910.22	30.57	1.03
187	2014/02/18	19:30:30	178.0000	4908.07	30.71	178.0000	4907.42	30.57	0.65
188	2014/02/18	20:30:30	179.0000	4905.15	30.72	179.0000	4904.15	30.57	1.00
189	2014/02/18	21:30:30	180.0000	4902.02	30.71	180.0000	4901.21	30.57	0.81
190	2014/02/18	22:30:30	181.0000	4899.00	30.71	181.0000	4898.09	30.57	0.92
191	2014/02/18	23:30:30	182.0000	4896.01	30.71	182.0000	4895.83	30.57	0.18
192	2014/02/19	00:30:30	183.0000	4892.96	30.71	183.0000	4892.25	30.56	0.71
193	2014/02/19	01:30:30	184.0000	4890.02	30.70	184.0000	4889.18	30.56	0.84
194	2014/02/19	02:30:30	185.0000	4886.78	30.70	185.0000	4886.08	30.56	0.70
195	2014/02/19	03:30:30	186.0000	4884.12	30.70	186.0000	4883.61	30.55	0.51
196	2014/02/19	04:30:30	187.0000	4881.18	30.70	187.0000	4880.33	30.55	0.85
197	2014/02/19	05:30:30	188.0000	4878.19	30.71	188.0000	4877.46	30.55	0.73
198	2014/02/19	06:30:30	189.0000	4875.53	30.69	189.0000	4874.58	30.55	0.94
199	2014/02/19	07:30:30	190.0000	4872.50	30.69	190.0000	4871.88	30.54	0.62
200	2014/02/19	08:30:30	191.0000	4869.87	30.69	191.0000	4868.99	30.55	0.87

LOWER Serial Number: VNK Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

UPPER Serial Number: VNI Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

Print Filter: Print every 1 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
201	2014/02/19	09:30:30	192.0000	4867.09	30.69	192.0000	4866.23	30.54	0.86
202	2014/02/19	10:30:30	193.0000	4864.01	30.69	193.0000	4863.51	30.54	0.50
203	2014/02/19	11:30:30	194.0000	4861.08	30.68	194.0000	4860.43	30.54	0.65
204	2014/02/19	12:30:30	195.0000	4858.42	30.68	195.0000	4857.35	30.54	1.06
205	2014/02/19	13:30:30	196.0000	4855.80	30.68	196.0000	4855.12	30.54	0.68
206	2014/02/19	14:30:30	197.0000	4852.99	30.68	197.0000	4852.33	30.54	0.66
207	2014/02/19	15:30:30	198.0000	4849.49	30.67	198.0000	4849.70	30.53	-0.21
208	2014/02/19	16:26:00	198.9250	4847.92	30.67	198.9250	4847.38	30.52	0.54
209	2014/02/19	16:26:00	198.9250	FINAL PRESSURE, PREPARE TO UNSET BRIDGE PLUG					
210	2014/02/19	16:26:30	198.9333	8074.02	30.71	198.9333	8058.03	30.58	15.99
211	2014/02/19	16:27:00	198.9417	8073.62	30.72	198.9417	8064.03	30.56	9.59
212	2014/02/19	16:27:00	198.9417	BRIDGE PLUG IS UNSET.					
213	2014/02/19	16:27:30	198.9500	8066.53	30.67	198.9500	8064.03	30.52	2.50
214	2014/02/19	16:30:30	199.0000	8033.38	30.55	199.0000	8031.74	30.41	1.64
215	2014/02/19	16:51:00	199.3417	8063.27	30.48	199.3417	8062.24	30.36	1.03
216	2014/02/19	16:51:00	199.3417	PULL OUT OF HOLE					
217	2014/02/19	16:51:30	199.3500	8062.72	30.48	199.3500	8061.39	30.36	1.32
218	2014/02/19	17:30:30	200.0000	4021.14	21.33	200.0000	4040.14	21.19	-19.00
219	2014/02/19	17:57:00	200.4417	183.44	12.46	200.4417	179.59	12.24	3.86
220	2014/02/19	17:57:00	200.4417	TOOLS AT SURFACE					
221	2014/02/19	17:57:30	200.4500	137.13	12.44	200.4500	123.73	12.22	13.40
222	2014/02/19	18:30:30	201.0000	113.36	9.63	201.0000	107.76	10.27	5.60
223	2014/02/19	19:30:30	202.0000	111.18	1.18	202.0000	105.52	2.44	5.67
224	2014/02/19	20:00:00	202.4917	110.23	-1.44	202.4917	104.12	-0.71	6.11

LOWER Serial Number: VNK Start Date: 2014/02/11 09:30:30 Run Depth: 857.00

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Print Filter: Print every 1 hour



DATE: February 11 - 19, 2014	COMPANY: Tundra Oil & Gas Partnership
WELLNAME: Daly Unit No 6	ADDRESS: Virden
LOCATION: 02-22-009-29WPM	UWI: 102.02-22-009-29w1.00
FIELD: Sinclair	FORMATION: Lodgepole
CO HQ REP: Craig Lane	PHONE:
FIELD REP: Shawn Evens	PHONE: 1-204-851-5327
REPORTS TO (NAME & EMAIL ADDRESS): Craig Lane - craig.lane@tundraoilandgas.com Shawn Evens - sevens1970@msn.com	

STATUS: Oil Well (completion)		TEST TYPE: build up	
ESTIMATED H2S CONTENT: n/a		ESTIMATED CO2 CONTENT: 0%	
PRODUCING THROUGH: Tubing		SHUT IN TIME/DATE: 10:26 Feb 11/14	
KOP:	TVD: ds included		LICENCE #: 9748
PBTD:	TD: 1938 mKB		WELL TYPE: horizontal
CASING SIZE: 114.3 mm	CSG WEIGHT: 17.26 kg/m		CSG DEPTH: 1938 mKB
TUBING SIZE:	TBG WEIGHT:		TBG DEPTH:
Elevations KB: 539.85 m	GRD: 535.35 m		CF:

#### PRODUCING INTERVAL

TYPE: Open Hole	SIZE: 159 mm	INTERVAL:
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#### RECORDER INFORMATION

TOP S/N: VNI	FILE NAME: 8-21-9-29w1 TP #7563	RANGE: 20,680 kPA
BOTTOM S/N: VNK	FILE NAME: 8-21-9-29w1 BTM #7563	RANGE: 20,680 kPA
TOP BATTERY S/N: n/a	BOTTOM BATTERY S/N: n/a	
CONNECT TIME: 09:30 Feb 11/14	DISCONNECT TIME: 08:44 Feb 19/14	

SURFACE TEMP: -12.5 C	LEASE CONDITION: n/a
WIRELINE OPERATOR: Nala Tschetter	PHONE: 1-306-457-8280
WIRELINE ASSISTANT: n/a	
DIRECTIONS: n/a	

#### DWG WELL HEAD PRESSURES:

TUBING (before survey): n/a	CASING (before survey): 0%
TUBING (after survey): n/a	CASING (after survey): 0%

FLUID LEVEL: n/a	RUN DEPTH: 857 mKB
TIME ON BOTTOM: 10:21 Feb 11/14	TIME OFF BOTTOM: 16:51 Feb 19/14

#### GRADIENT STOPS

DEPTH mKB:	n/a	FROM:	n/a	UNTIL:	n/a
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COMMENTS: These Recorders were ran and pulled below a Bridge Plug with pipe.

#### DESCRIPTION OF WORK DONE:

February 11, 2014

09:30 - Recorders were set to logging mode by a pressure trigger, while being ran into the well by a Drilling Rig.

10:21 - Recorders at 857 mKB.

10:25 - Bridge Plug at 856 mKB, Recorders at 857 mKB. The Bridge Plug was released and the drill pipe was pulled and laid.

February 19, 2014

16:26 - A Service Rig ran tubing into the well, latched onto, and was preparing to unset the Bridge Plug.

16:27 - The Bridge Plug was unset.

16:51 - The tools were pulled out of the well with the tubing.

17:57 - Recorders at surface.

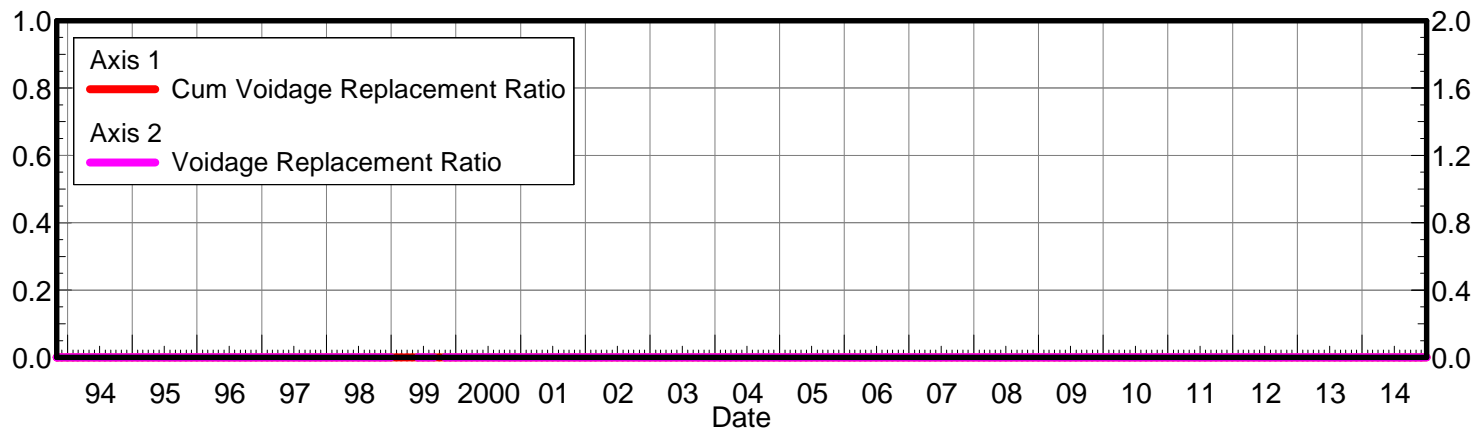
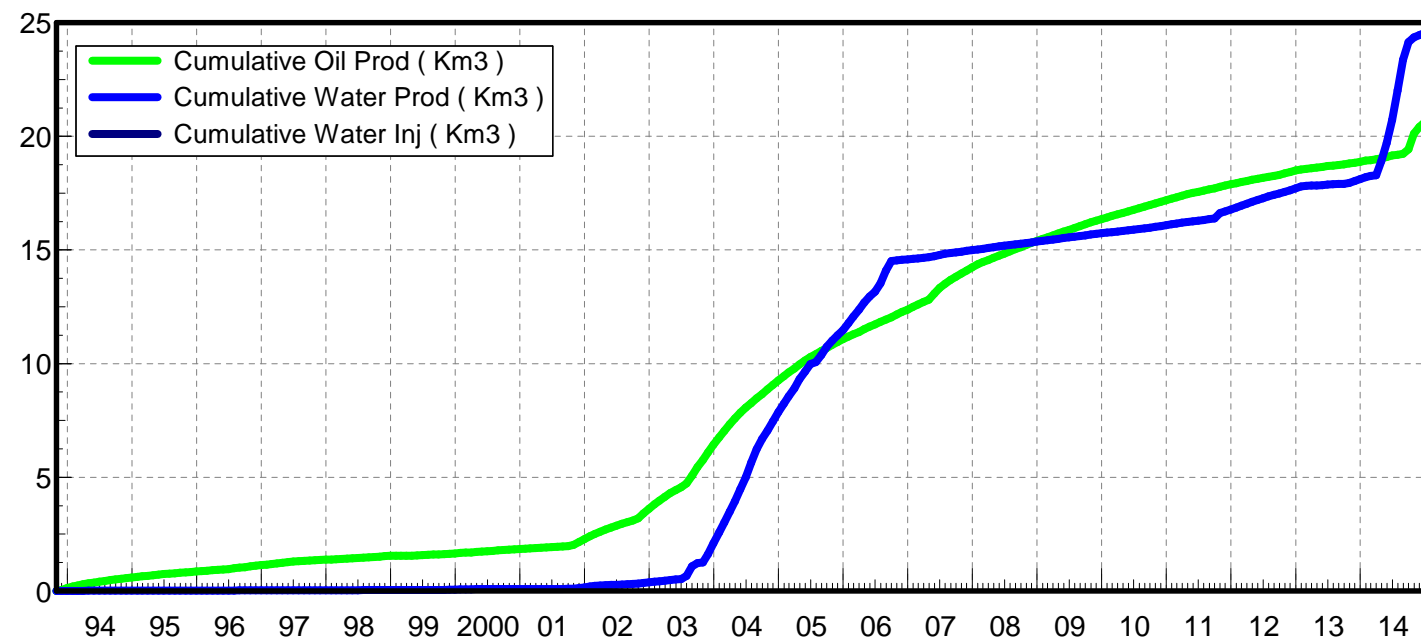
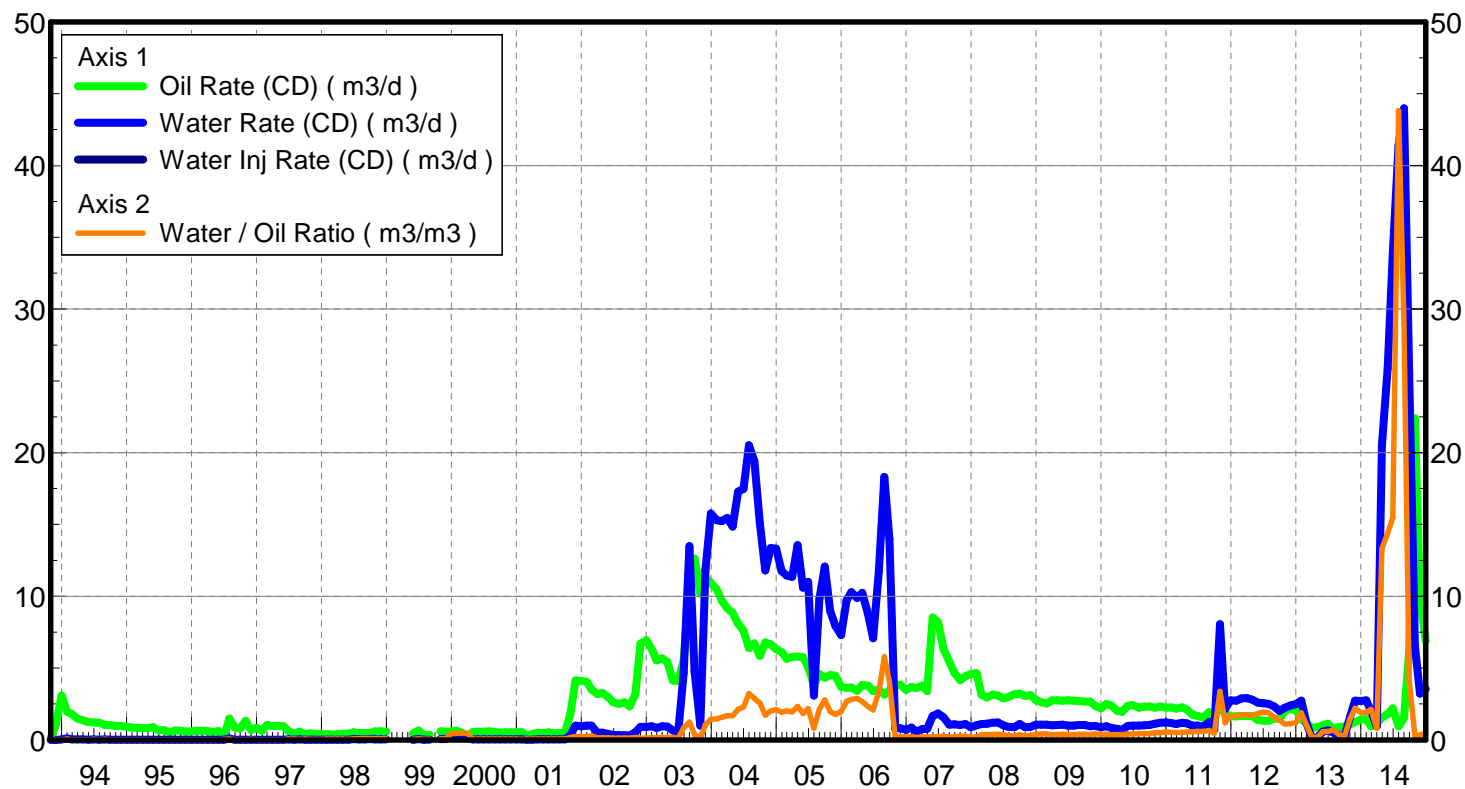
February 25, 2014

08:44 - Downloaded Recorders.

## **Appendix D**

### **Rates and VRR Plots**

Pattern: 02/02-22-009-29 Inj Set: Daly Unit#6LP  
 Oil Formation Vol Factor : 1.00000 m3/m3  
 Water Formation Vol Factor : 1.00000 m3/m3  
 Water / Oil Ratio : 0.51 m3/m3  
 May 22, 2015  
 Operator: Tundra\_O&G\_Prtshp  
 Oil Rate (CD) : 6.88 m3/d  
 Water Rate (CD) : 3.53 m3/d  
 Water Inj Rate (CD) : \* m3/d



Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
10/31/1993	0.14	0.02	0.17		0.00	0.00	0.00	0.000	0.000
11/30/1993	1.08	0.00	0.00		0.04	0.00	0.00	0.000	0.000
12/31/1993	3.08	0.03	0.01		0.13	0.00	0.00	0.000	0.000
1/31/1994	1.97	0.10	0.05		0.19	0.00	0.00	0.000	0.000
2/28/1994	1.80	0.03	0.01		0.24	0.01	0.00	0.000	0.000
3/31/1994	1.48	0.03	0.02		0.29	0.01	0.00	0.000	0.000
4/30/1994	1.37	0.03	0.02		0.33	0.01	0.00	0.000	0.000
5/31/1994	1.23	0.02	0.02		0.37	0.01	0.00	0.000	0.000
6/30/1994	1.22	0.03	0.03		0.41	0.01	0.00	0.000	0.000
7/31/1994	1.18	0.02	0.02		0.44	0.01	0.00	0.000	0.000
8/31/1994	1.04	0.04	0.04		0.47	0.01	0.00	0.000	0.000
9/30/1994	1.04	0.02	0.02		0.51	0.01	0.00	0.000	0.000
10/31/1994	0.96	0.01	0.01		0.54	0.01	0.00	0.000	0.000
11/30/1994	0.96	0.01	0.01		0.56	0.01	0.00	0.000	0.000
12/31/1994	0.90	0.01	0.01		0.59	0.01	0.00	0.000	0.000
1/31/1995	0.86	0.01	0.01		0.62	0.01	0.00	0.000	0.000
2/28/1995	0.85	0.01	0.01		0.64	0.01	0.00	0.000	0.000
3/31/1995	0.81	0.01	0.02		0.67	0.01	0.00	0.000	0.000
4/30/1995	0.82	0.01	0.02		0.69	0.01	0.00	0.000	0.000
5/31/1995	0.88	0.01	0.01		0.72	0.01	0.00	0.000	0.000
6/30/1995	0.65	0.01	0.02		0.74	0.01	0.00	0.000	0.000
7/31/1995	0.68	0.01	0.01		0.76	0.01	0.00	0.000	0.000
8/31/1995	0.52	0.01	0.02		0.78	0.01	0.00	0.000	0.000
9/30/1995	0.67	0.01	0.01		0.80	0.02	0.00	0.000	0.000
10/31/1995	0.65	0.01	0.01		0.82	0.02	0.00	0.000	0.000
11/30/1995	0.56	0.01	0.02		0.83	0.02	0.00	0.000	0.000
12/31/1995	0.60	0.01	0.02		0.85	0.02	0.00	0.000	0.000
1/31/1996	0.64	0.01	0.02		0.87	0.02	0.00	0.000	0.000
2/29/1996	0.64	0.01	0.02		0.89	0.02	0.00	0.000	0.000
3/31/1996	0.61	0.01	0.02		0.91	0.02	0.00	0.000	0.000
4/30/1996	0.56	0.01	0.02		0.93	0.02	0.00	0.000	0.000
5/31/1996	0.62	0.01	0.02		0.95	0.02	0.00	0.000	0.000
6/30/1996	0.19	0.01	0.03		0.95	0.02	0.00	0.000	0.000
7/31/1996	1.48	0.09	0.06		1.00	0.02	0.00	0.000	0.000
8/31/1996	0.86	0.01	0.02		1.02	0.02	0.00	0.000	0.000
9/30/1996	0.78	0.02	0.02		1.05	0.02	0.00	0.000	0.000
10/31/1996	1.34	0.02	0.01		1.09	0.02	0.00	0.000	0.000
11/30/1996	0.68	0.02	0.02		1.11	0.02	0.00	0.000	0.000
12/31/1996	0.85	0.02	0.02		1.14	0.02	0.00	0.000	0.000
1/31/1997	0.63	0.01	0.02		1.16	0.02	0.00	0.000	0.000
2/28/1997	1.03	0.02	0.02		1.18	0.02	0.00	0.000	0.000
3/31/1997	0.96	0.02	0.02		1.21	0.02	0.00	0.000	0.000
4/30/1997	0.98	0.02	0.02		1.24	0.03	0.00	0.000	0.000
5/31/1997	0.94	0.02	0.02		1.27	0.03	0.00	0.000	0.000
6/30/1997	0.62	0.03	0.05		1.29	0.03	0.00	0.000	0.000
7/31/1997	0.45	0.02	0.05		1.30	0.03	0.00	0.000	0.000
8/31/1997	0.57	0.03	0.05		1.32	0.03	0.00	0.000	0.000
9/30/1997	0.39	0.02	0.05		1.33	0.03	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
10/31/1997	0.46	0.02	0.04		1.35	0.03	0.00	0.000	0.000
11/30/1997	0.41	0.02	0.04		1.36	0.03	0.00	0.000	0.000
12/31/1997	0.38	0.02	0.04		1.37	0.03	0.00	0.000	0.000
1/31/1998	0.40	0.02	0.05		1.39	0.03	0.00	0.000	0.000
2/28/1998	0.36	0.02	0.05		1.40	0.03	0.00	0.000	0.000
3/31/1998	0.39	0.02	0.05		1.41	0.03	0.00	0.000	0.000
4/30/1998	0.42	0.02	0.05		1.42	0.03	0.00	0.000	0.000
5/31/1998	0.43	0.02	0.05		1.43	0.03	0.00	0.000	0.000
6/30/1998	0.52	0.05	0.09		1.45	0.04	0.00	0.000	0.000
7/31/1998	0.48	0.04	0.09		1.46	0.04	0.00	0.000	0.000
8/31/1998	0.47	0.05	0.10		1.48	0.04	0.00	0.000	0.000
9/30/1998	0.48	0.05	0.10		1.49	0.04	0.00	0.000	0.000
10/31/1998	0.59	0.05	0.08		1.51	0.04	0.00	0.000	0.000
11/30/1998	0.60	0.04	0.07		1.53	0.04	0.00	0.000	0.000
12/31/1998	0.56	0.05	0.08		1.55	0.04	0.00	0.000	0.000
5/31/1999	0.43	0.02	0.05		1.56	0.04	0.00	0.000	0.000
6/30/1999	0.65	0.05	0.07		1.58	0.05	0.00	0.000	0.000
7/31/1999	0.32	0.01	0.04		1.59	0.05	0.00	0.000	0.000
8/31/1999	0.34	0.02	0.06		1.60	0.05	0.00	0.000	0.000
10/31/1999	0.59	0.05	0.09		1.62	0.05	0.00	0.000	0.000
11/30/1999	0.56	0.05	0.08		1.64	0.05	0.00	0.000	0.000
12/31/1999	0.59	0.26	0.44		1.65	0.06	0.00	0.000	0.000
1/31/2000	0.64	0.29	0.45		1.67	0.07	0.00	0.000	0.000
2/29/2000	0.51	0.24	0.47		1.69	0.07	0.00	0.000	0.000
3/31/2000	0.26	0.12	0.45		1.70	0.08	0.00	0.000	0.000
4/30/2000	0.56	0.03	0.05		1.71	0.08	0.00	0.000	0.000
5/31/2000	0.57	0.03	0.06		1.73	0.08	0.00	0.000	0.000
6/30/2000	0.56	0.03	0.05		1.75	0.08	0.00	0.000	0.000
7/31/2000	0.59	0.03	0.05		1.77	0.08	0.00	0.000	0.000
8/31/2000	0.55	0.04	0.06		1.78	0.08	0.00	0.000	0.000
9/30/2000	0.51	0.03	0.05		1.80	0.08	0.00	0.000	0.000
10/31/2000	0.52	0.03	0.05		1.81	0.08	0.00	0.000	0.000
11/30/2000	0.52	0.03	0.05		1.83	0.08	0.00	0.000	0.000
12/31/2000	0.53	0.03	0.06		1.85	0.09	0.00	0.000	0.000
1/31/2001	0.56	0.03	0.05		1.86	0.09	0.00	0.000	0.000
2/28/2001	0.28	0.01	0.05		1.87	0.09	0.00	0.000	0.000
3/31/2001	0.41	0.02	0.05		1.88	0.09	0.00	0.000	0.000
4/30/2001	0.51	0.03	0.05		1.90	0.09	0.00	0.000	0.000
5/31/2001	0.45	0.03	0.06		1.91	0.09	0.00	0.000	0.000
6/30/2001	0.52	0.03	0.05		1.93	0.09	0.00	0.000	0.000
7/31/2001	0.46	0.03	0.06		1.94	0.09	0.00	0.000	0.000
8/31/2001	0.49	0.03	0.06		1.96	0.09	0.00	0.000	0.000
9/30/2001	0.47	0.03	0.07		1.97	0.09	0.00	0.000	0.000
10/31/2001	1.84	0.32	0.18		2.03	0.10	0.00	0.000	0.000
11/30/2001	4.13	1.00	0.24		2.15	0.13	0.00	0.000	0.000
12/31/2001	4.12	0.95	0.23		2.28	0.16	0.00	0.000	0.000
1/31/2002	4.04	0.99	0.25		2.41	0.19	0.00	0.000	0.000
2/28/2002	3.51	0.99	0.28		2.50	0.22	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/2002	3.20	0.50	0.16		2.60	0.24	0.00	0.000	0.000
4/30/2002	3.27	0.51	0.15		2.70	0.25	0.00	0.000	0.000
5/31/2002	2.97	0.41	0.14		2.79	0.26	0.00	0.000	0.000
6/30/2002	2.61	0.34	0.13		2.87	0.27	0.00	0.000	0.000
7/31/2002	2.50	0.32	0.13		2.95	0.28	0.00	0.000	0.000
8/31/2002	2.62	0.32	0.12		3.03	0.29	0.00	0.000	0.000
9/30/2002	2.33	0.31	0.13		3.10	0.30	0.00	0.000	0.000
10/31/2002	3.17	0.53	0.17		3.20	0.32	0.00	0.000	0.000
11/30/2002	6.70	0.89	0.13		3.40	0.35	0.00	0.000	0.000
12/31/2002	6.94	0.90	0.13		3.62	0.37	0.00	0.000	0.000
1/31/2003	6.35	0.96	0.15		3.81	0.40	0.00	0.000	0.000
2/28/2003	5.54	0.85	0.15		3.97	0.43	0.00	0.000	0.000
3/31/2003	5.67	0.95	0.17		4.14	0.46	0.00	0.000	0.000
4/30/2003	5.42	0.92	0.17		4.31	0.48	0.00	0.000	0.000
5/31/2003	4.14	0.67	0.16		4.43	0.50	0.00	0.000	0.000
6/30/2003	4.12	0.55	0.13		4.56	0.52	0.00	0.000	0.000
7/31/2003	5.55	4.67	0.84		4.73	0.67	0.00	0.000	0.000
8/31/2003	10.81	13.49	1.25		5.06	1.08	0.00	0.000	0.000
9/30/2003	12.63	4.77	0.38		5.44	1.23	0.00	0.000	0.000
10/31/2003	10.20	0.99	0.10		5.76	1.26	0.00	0.000	0.000
11/30/2003	11.26	11.82	1.05		6.10	1.61	0.00	0.000	0.000
12/31/2003	10.94	15.76	1.44		6.44	2.10	0.00	0.000	0.000
1/31/2004	10.49	15.30	1.46		6.76	2.58	0.00	0.000	0.000
2/29/2004	9.71	15.24	1.57		7.04	3.02	0.00	0.000	0.000
3/31/2004	9.16	15.45	1.69		7.33	3.50	0.00	0.000	0.000
4/30/2004	8.85	14.86	1.68		7.59	3.94	0.00	0.000	0.000
5/31/2004	8.09	17.27	2.13		7.84	4.48	0.00	0.000	0.000
6/30/2004	7.62	17.49	2.30		8.07	5.00	0.00	0.000	0.000
7/31/2004	6.38	20.51	3.22		8.27	5.64	0.00	0.000	0.000
8/31/2004	6.72	19.39	2.88		8.48	6.24	0.00	0.000	0.000
9/30/2004	5.85	15.09	2.58		8.65	6.69	0.00	0.000	0.000
10/31/2004	6.79	11.79	1.74		8.86	7.06	0.00	0.000	0.000
11/30/2004	6.66	13.37	2.01		9.06	7.46	0.00	0.000	0.000
12/31/2004	6.33	13.33	2.11		9.26	7.87	0.00	0.000	0.000
1/31/2005	6.12	11.76	1.92		9.45	8.24	0.00	0.000	0.000
2/28/2005	5.65	11.44	2.03		9.61	8.56	0.00	0.000	0.000
3/31/2005	5.79	11.36	1.96		9.79	8.91	0.00	0.000	0.000
4/30/2005	5.81	13.55	2.33		9.96	9.32	0.00	0.000	0.000
5/31/2005	5.76	10.60	1.84		10.14	9.64	0.00	0.000	0.000
6/30/2005	5.07	10.99	2.17		10.29	9.97	0.00	0.000	0.000
7/31/2005	3.83	3.09	0.81		10.41	10.07	0.00	0.000	0.000
8/31/2005	4.59	9.79	2.13		10.55	10.37	0.00	0.000	0.000
9/30/2005	4.35	12.07	2.78		10.68	10.74	0.00	0.000	0.000
10/31/2005	4.52	8.96	1.98		10.82	11.01	0.00	0.000	0.000
11/30/2005	4.48	7.95	1.77		10.96	11.25	0.00	0.000	0.000
12/31/2005	3.70	7.29	1.97		11.07	11.48	0.00	0.000	0.000
1/31/2006	3.63	9.71	2.68		11.19	11.78	0.00	0.000	0.000
2/28/2006	3.65	10.29	2.82		11.29	12.07	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/2006	3.42	9.88	2.89		11.39	12.37	0.00	0.000	0.000
4/30/2006	3.83	10.23	2.67		11.51	12.68	0.00	0.000	0.000
5/31/2006	3.77	8.76	2.32		11.63	12.95	0.00	0.000	0.000
6/30/2006	3.40	7.07	2.08		11.73	13.16	0.00	0.000	0.000
7/31/2006	3.51	11.79	3.36		11.84	13.53	0.00	0.000	0.000
8/31/2006	3.16	18.31	5.79		11.93	14.10	0.00	0.000	0.000
9/30/2006	3.45	13.98	4.05		12.04	14.52	0.00	0.000	0.000
10/31/2006	3.81	0.79	0.21		12.16	14.54	0.00	0.000	0.000
11/30/2006	3.84	0.81	0.21		12.27	14.57	0.00	0.000	0.000
12/31/2006	3.49	0.71	0.20		12.38	14.59	0.00	0.000	0.000
1/31/2007	3.69	0.85	0.23		12.49	14.61	0.00	0.000	0.000
2/28/2007	3.61	0.58	0.16		12.60	14.63	0.00	0.000	0.000
3/31/2007	3.78	0.74	0.20		12.71	14.65	0.00	0.000	0.000
4/30/2007	3.40	0.76	0.22		12.81	14.68	0.00	0.000	0.000
5/31/2007	8.53	1.65	0.19		13.08	14.73	0.00	0.000	0.000
6/30/2007	8.20	1.84	0.22		13.32	14.78	0.00	0.000	0.000
7/31/2007	6.31	1.57	0.25		13.52	14.83	0.00	0.000	0.000
8/31/2007	5.45	1.06	0.19		13.69	14.86	0.00	0.000	0.000
9/30/2007	4.66	1.08	0.23		13.83	14.90	0.00	0.000	0.000
10/31/2007	4.17	1.03	0.25		13.96	14.93	0.00	0.000	0.000
11/30/2007	4.42	1.11	0.25		14.09	14.96	0.00	0.000	0.000
12/31/2007	4.58	0.89	0.19		14.23	14.99	0.00	0.000	0.000
1/31/2008	4.64	1.03	0.22		14.38	15.02	0.00	0.000	0.000
2/29/2008	3.13	1.10	0.35		14.47	15.05	0.00	0.000	0.000
3/31/2008	2.95	1.12	0.38		14.56	15.09	0.00	0.000	0.000
4/30/2008	3.15	1.18	0.38		14.65	15.12	0.00	0.000	0.000
5/31/2008	3.10	1.22	0.39		14.75	15.16	0.00	0.000	0.000
6/30/2008	2.89	1.01	0.35		14.84	15.19	0.00	0.000	0.000
7/31/2008	3.00	0.90	0.30		14.93	15.22	0.00	0.000	0.000
8/31/2008	3.17	0.87	0.27		15.03	15.25	0.00	0.000	0.000
9/30/2008	3.23	1.10	0.34		15.12	15.28	0.00	0.000	0.000
10/31/2008	3.07	0.87	0.28		15.22	15.31	0.00	0.000	0.000
11/30/2008	3.10	0.91	0.29		15.31	15.33	0.00	0.000	0.000
12/31/2008	2.77	1.06	0.38		15.40	15.37	0.00	0.000	0.000
1/31/2009	2.62	1.06	0.40		15.48	15.40	0.00	0.000	0.000
2/28/2009	2.54	1.06	0.42		15.55	15.43	0.00	0.000	0.000
3/31/2009	2.75	1.01	0.37		15.64	15.46	0.00	0.000	0.000
4/30/2009	2.75	1.03	0.38		15.72	15.49	0.00	0.000	0.000
5/31/2009	2.73	1.06	0.39		15.80	15.52	0.00	0.000	0.000
6/30/2009	2.74	0.99	0.36		15.89	15.55	0.00	0.000	0.000
7/31/2009	2.72	0.99	0.36		15.97	15.58	0.00	0.000	0.000
8/31/2009	2.70	1.04	0.38		16.05	15.62	0.00	0.000	0.000
9/30/2009	2.67	1.04	0.39		16.13	15.65	0.00	0.000	0.000
10/31/2009	2.67	0.96	0.36		16.22	15.68	0.00	0.000	0.000
11/30/2009	2.37	0.96	0.41		16.29	15.71	0.00	0.000	0.000
12/31/2009	2.20	0.89	0.40		16.36	15.73	0.00	0.000	0.000
1/31/2010	2.52	0.96	0.38		16.43	15.76	0.00	0.000	0.000
2/28/2010	2.40	0.83	0.34		16.50	15.79	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/2010	2.04	0.77	0.38		16.56	15.81	0.00	0.000	0.000
4/30/2010	1.95	0.71	0.36		16.62	15.83	0.00	0.000	0.000
5/31/2010	2.38	0.96	0.40		16.70	15.86	0.00	0.000	0.000
6/30/2010	2.42	1.00	0.41		16.77	15.89	0.00	0.000	0.000
7/31/2010	2.23	0.99	0.44		16.84	15.92	0.00	0.000	0.000
8/31/2010	2.31	1.02	0.44		16.91	15.95	0.00	0.000	0.000
9/30/2010	2.33	1.03	0.44		16.98	15.98	0.00	0.000	0.000
10/31/2010	2.24	1.12	0.50		17.05	16.02	0.00	0.000	0.000
11/30/2010	2.32	1.19	0.51		17.12	16.05	0.00	0.000	0.000
12/31/2010	2.25	1.22	0.54		17.19	16.09	0.00	0.000	0.000
1/31/2011	2.27	1.17	0.52		17.26	16.13	0.00	0.000	0.000
2/28/2011	2.17	1.11	0.51		17.32	16.16	0.00	0.000	0.000
3/31/2011	2.26	1.19	0.53		17.39	16.20	0.00	0.000	0.000
4/30/2011	2.10	1.16	0.55		17.45	16.23	0.00	0.000	0.000
5/31/2011	1.75	0.99	0.57		17.51	16.26	0.00	0.000	0.000
6/30/2011	1.66	0.99	0.60		17.56	16.29	0.00	0.000	0.000
7/31/2011	1.54	0.93	0.60		17.60	16.32	0.00	0.000	0.000
8/31/2011	1.92	1.25	0.65		17.66	16.36	0.00	0.000	0.000
9/30/2011	1.49	0.70	0.47		17.71	16.38	0.00	0.000	0.000
10/31/2011	2.39	8.05	3.37		17.78	16.63	0.00	0.000	0.000
11/30/2011	1.82	2.16	1.19		17.84	16.69	0.00	0.000	0.000
12/31/2011	1.65	2.75	1.67		17.89	16.78	0.00	0.000	0.000
1/31/2012	1.64	2.74	1.67		17.94	16.86	0.00	0.000	0.000
2/29/2012	1.65	2.90	1.75		17.99	16.95	0.00	0.000	0.000
3/31/2012	1.67	2.90	1.74		18.04	17.04	0.00	0.000	0.000
4/30/2012	1.67	2.80	1.68		18.09	17.12	0.00	0.000	0.000
5/31/2012	1.40	2.60	1.85		18.13	17.20	0.00	0.000	0.000
6/30/2012	1.33	2.55	1.92		18.17	17.28	0.00	0.000	0.000
7/31/2012	1.34	2.52	1.88		18.21	17.36	0.00	0.000	0.000
8/31/2012	1.48	2.33	1.58		18.26	17.43	0.00	0.000	0.000
9/30/2012	1.45	2.01	1.38		18.30	17.49	0.00	0.000	0.000
10/31/2012	2.03	2.23	1.10		18.37	17.56	0.00	0.000	0.000
11/30/2012	2.15	2.40	1.12		18.43	17.63	0.00	0.000	0.000
12/31/2012	2.09	2.49	1.19		18.50	17.71	0.00	0.000	0.000
1/31/2013	1.45	2.74	1.89		18.54	17.79	0.00	0.000	0.000
2/28/2013	1.15	1.19	1.04		18.57	17.83	0.00	0.000	0.000
3/31/2013	0.85	0.15	0.18		18.60	17.83	0.00	0.000	0.000
4/30/2013	0.87	0.16	0.18		18.63	17.84	0.00	0.000	0.000
5/31/2013	1.01	0.57	0.57		18.66	17.85	0.00	0.000	0.000
6/30/2013	1.13	0.66	0.59		18.69	17.87	0.00	0.000	0.000
7/31/2013	0.75	0.51	0.68		18.71	17.89	0.00	0.000	0.000
8/31/2013	0.91	0.33	0.36		18.74	17.90	0.00	0.000	0.000
9/30/2013	0.93	0.25	0.26		18.77	17.91	0.00	0.000	0.000
10/31/2013	1.09	1.56	1.44		18.80	17.96	0.00	0.000	0.000
11/30/2013	1.24	2.74	2.21		18.84	18.04	0.00	0.000	0.000
12/31/2013	1.41	2.71	1.92		18.88	18.12	0.00	0.000	0.000
1/31/2014	1.44	2.75	1.91		18.93	18.21	0.00	0.000	0.000
2/28/2014	0.94	2.01	2.14		18.96	18.26	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/2014	1.19	0.95	0.80		18.99	18.29	0.00	0.000	0.000
4/30/2014	1.54	20.52	13.32		19.04	18.91	0.00	0.000	0.000
5/31/2014	1.80	25.90	14.39		19.09	19.71	0.00	0.000	0.000
6/30/2014	2.19	33.89	15.47		19.16	20.73	0.00	0.000	0.000
7/31/2014	0.95	41.42	43.82		19.19	22.01	0.00	0.000	0.000
8/31/2014	1.52	43.98	28.94		19.24	23.38	0.00	0.000	0.000
9/30/2014	6.14	25.69	4.18		19.42	24.15	0.00	0.000	0.000
10/31/2014	22.38	6.57	0.29		20.11	24.35	0.00	0.000	0.000
11/30/2014	9.90	3.21	0.32		20.41	24.45	0.00	0.000	0.000
12/31/2014	6.88	3.53	0.51		20.62	24.56	0.00	0.000	0.000