

Goodlands Unit No. 2
Waterflood Progress Report 2016
January 1st through December 31st 2016

Prepared for:
Manitoba Industry, Economic Development and Mines
Petroleum Branch

Prepared by:
Tundra Oil and Gas Partnership
July 27, 2017

TABLE OF CONTENTS

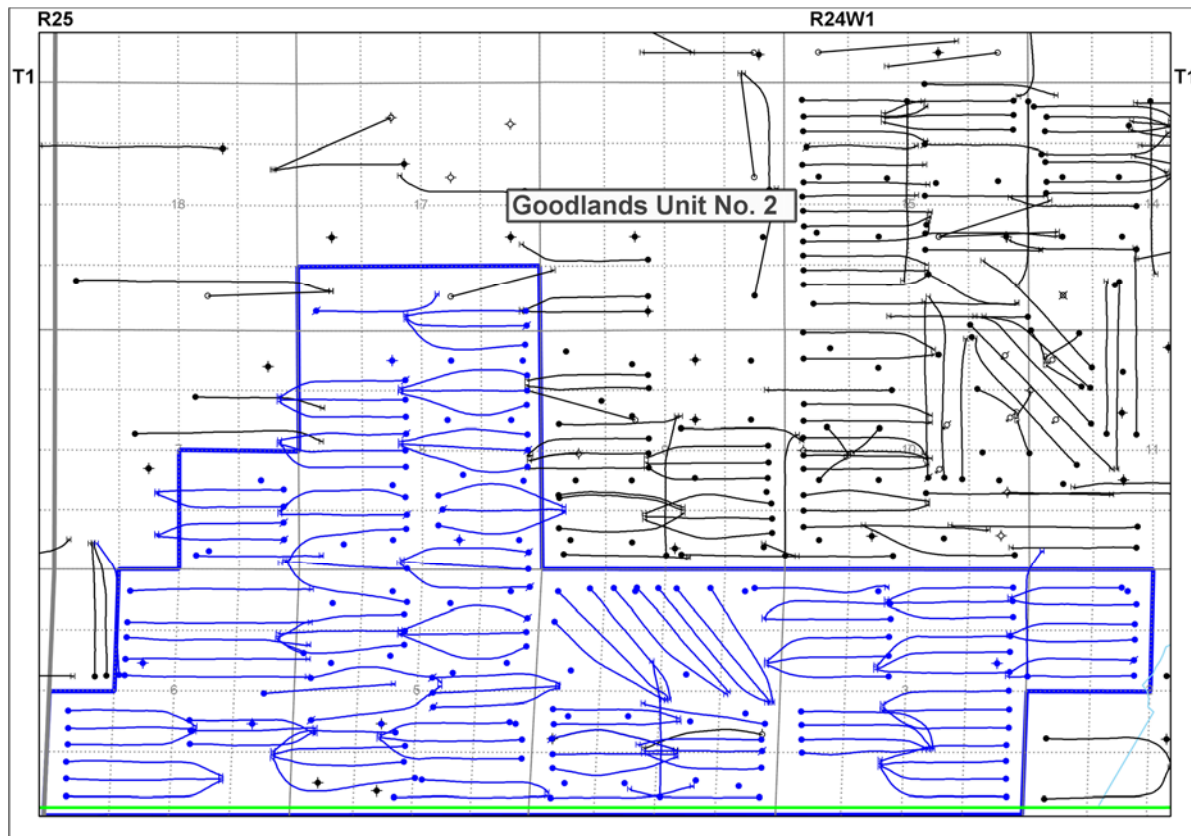
Table of Contents

Introduction	3
Production History	3
Waterflood History	5
Waterflood Performance	6
Injection Wellhead Pressures	7
Reservoir Pressure	7
Well Servicing	7
Corrosion and Scale Prevention	7
Conclusion	7
List of Tables	8
Table 1: Well List and Well Status	
Table 2: Voidage Replacement Ratio Calculation	
Table 3: Summary of Injection Wells	
Table 4: Summary of Producing Wells	
Table 5: Summary of Injection Pressures	

INTRODUCTION

The Waskada Unit No.16 Enhanced Oil Recovery (EOR) Waterflood project was approved on September 29th, 2016 with Tundra Oil and Gas (Tundra) as Operator. THE EOR project area, outlined in blue in [Figure 1](#), contains 160 wells over 90 LSDs in Township 1, Range 24W1 ([Table 1](#)).

Figure 1: Goodlands Unit No. 2 Area Outline



PRODUCTION HISTORY

For the wells included in Goodlands Unit No. 2, production started in October 1985 with the 00/11-06-001-24W1/00 well. From 1985 to 2002, 2 wells were drilled. A second round of drilling followed from 2002 to 2008 with 42 wells being drilled. Lastly, from 2009 to 2013, 115 wells were drilled. Oil production peaked at 521.6 m³/d in May 2011. There are currently 134 producing wells in Goodlands Unit No. 2.

The average production for the unit was 49.3 m³/d of oil and 267.9 m³/d of water and the average WOR was 5.4 m³/m³ at the end of December 2016 (Table 4). The rates and WOR are presented in Figure 2.

Figure 2: Goodlands Unit No. 2 Production/Injection Rates and WOR vs Time

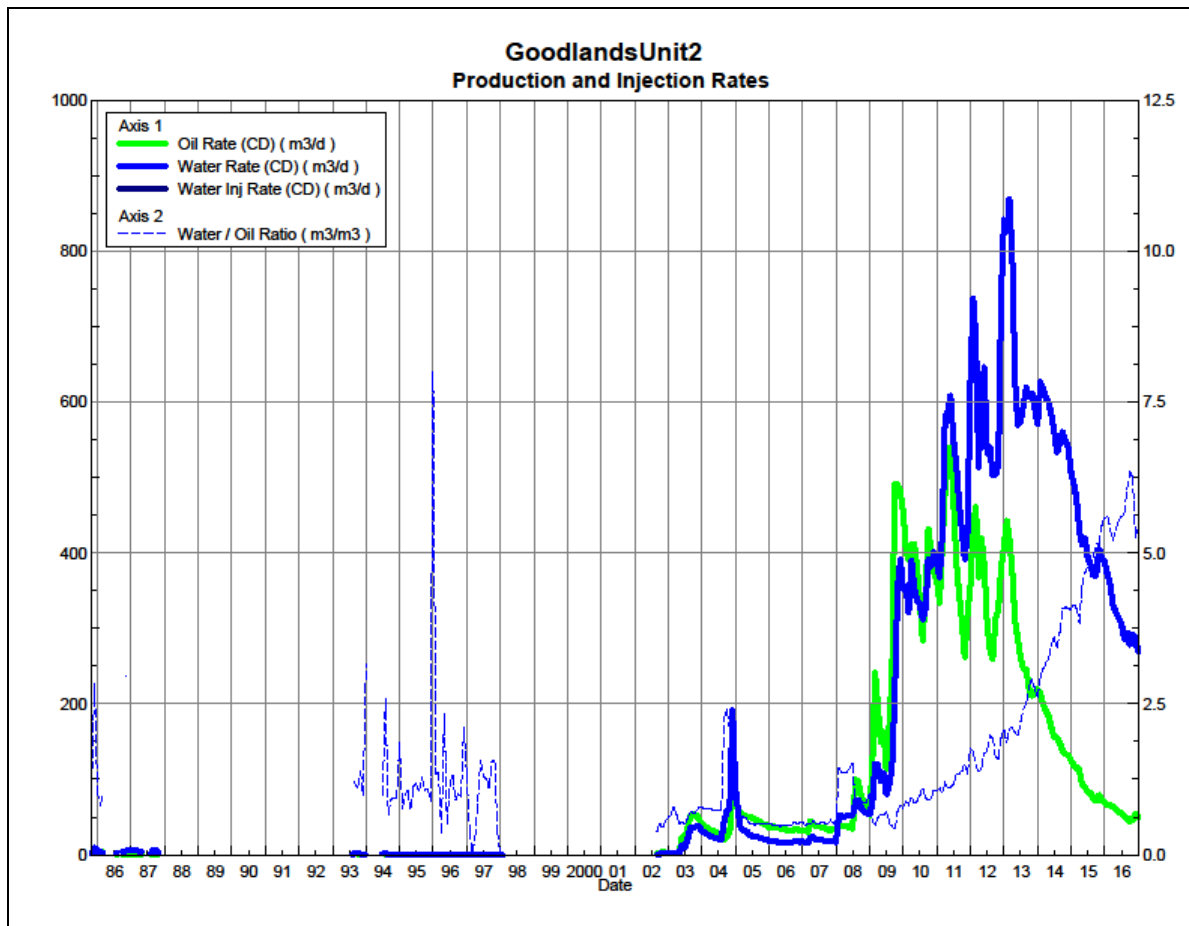
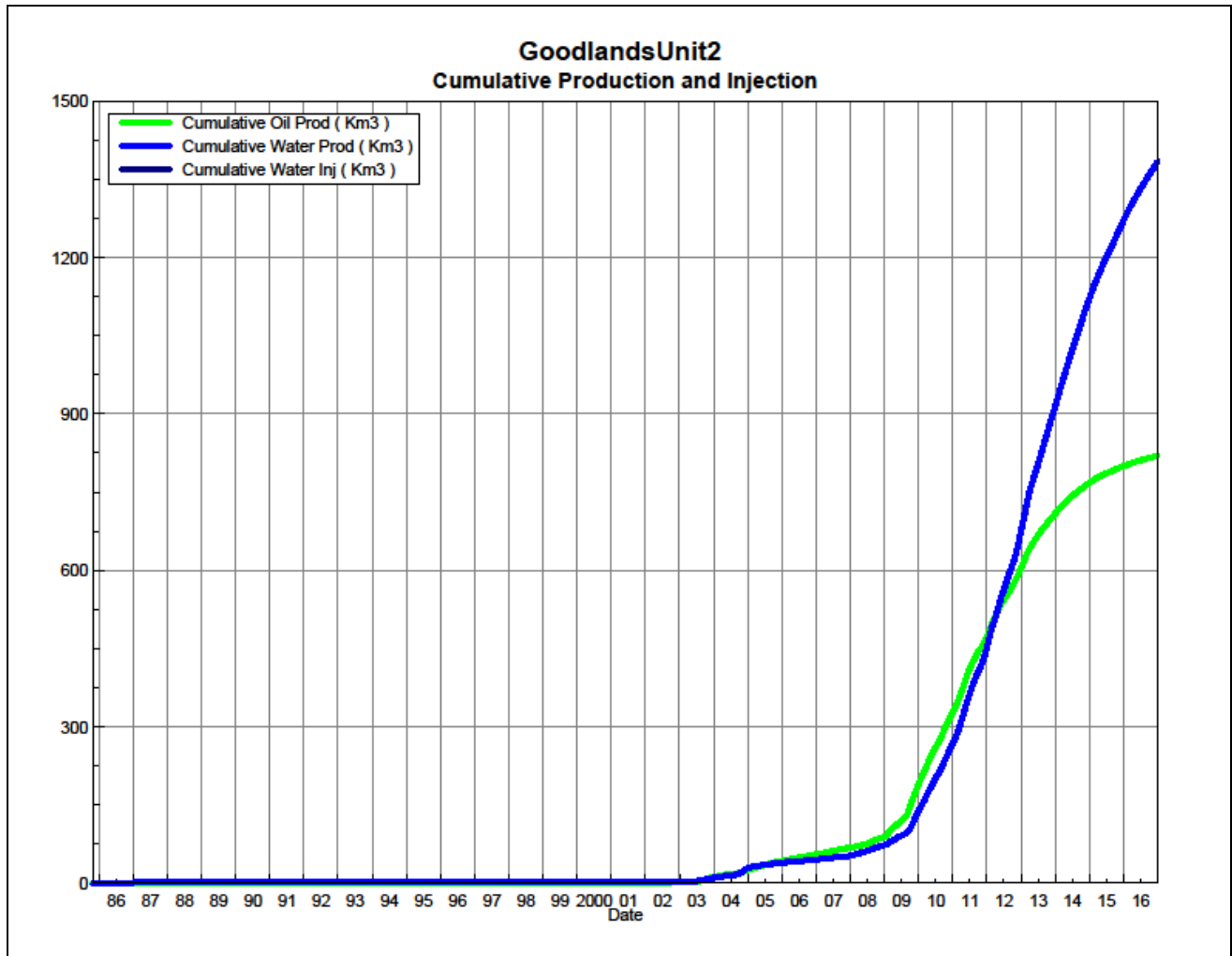


Figure 3 shows the cumulative production for Goodlands Unit No. 2 to the end of December 2016 as 819.9 e³m³ of oil, and 1383.5 e³m³ of water. No water has been in injected to date.

Figure 3. Goodlands Unit No. 2 Cumulative Oil, Water and Water Injected vs. Time



WATERFLOOD HISTORY

Goodlands Unit No. 2 is still in the development phase at the end of 2016. Three horizontal wells (102/05-03-001-24W1/0, 102/16-03-001-24W1/0 and 102/09-03-001-24W1/0) were converted to injection on December 2016, so it is expected to start with the waterflood in 2017.

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 PERFORMANCE

At the end of 2016, there is currently no water injection in Goodlands Unit No. 2, therefore, there is no waterflood analysis that can be done at this time.

INJECTION WELLHEAD PRESSURES

No individual injection wellhead pressures were taken in 2016.

RESERVOIR PRESSURE

There have been no pressure surveys done on the reservoir.

WELL SERVICING

The following table illustrates the maintenance done on the Goodlands Unit No. 2 wells in 2016:

UWI	Date	Workover
102.01-03-001-24W1.00	23-Sep-16	Cemented Liner Cleanout
102.05-03-001-24W1.00	10-Dec-16	HZ Spearfish Well WIW Conversion
104.05-03-001-24W1.00	19-Oct-16	Cemented Liner Cleanout
100.08-03-001-24W1.00	11-Oct-16	Cemented Liner Cleanout
102.09-03-001-24W1.00	4-Dec-16	HZ Spearfish Well WIW Conversion
105.09-03-001-24W1.00	10-Sep-16	Cemented Liner Cleanout
100.11-03-001-24W1.00	7-Nov-16	Cemented Liner Cleanout
103.11-03-001-24W1.00	25-Oct-16	Cemented Liner Cleanout
103.14-03-001-24W1.00	11-Sep-16	Cemented Liner Cleanout
102.16-03-001-24W1.00	19-Dec-16	Convert Producer to Water Injection Well
103.16-03-001-24W1.00	20-Sep-16	Cemented Liner Cleanout
102.13-04-001-24W1.00	26-Jul-16	Pump Change
104.14-04-001-24W1.00	3-Oct-16	Cemented Liner Cleanout
103.03-05-001-24W1.00	7-Jan-16	Pump Change
103.06-05-001-24W1.00	1-Dec-16	Pump Change
102.11-05-001-24W1.02	21-Nov-16	Pump Change
100.05-06-001-24W1.00	28-Jul-16	Pump Change
103.05-06-001-24W1.00	27-Jul-16	pump change
103.07-06-001-24W1.00	15-Nov-16	Pump Change
104.16-08-001-24W1.00	29-Oct-16	Cemented Liner Cleanout
102.01-17-001-24W1.00	19-Sep-16	Pump Change

TABLE NO. 1: GOODLANDS UNIT NO. 2 WELL SUMMARY

UWI	Type	Status	On Prod Date	Cum Prd Oil (m3)	Cum Prd Water (m3)	Last Prod Date	On Inj Date	Cum Inj Water (m3)	Last Inj Date
100/11-02-001-24W1/0	Horizontal	Producing	9/22/2010	5288.4	8566.9	12/31/2016			
102/11-02-001-24W1/0	Horizontal	Suspended	3/14/2011	3668.4	5798.9	4/30/2016			
103/11-02-001-24W1/0	Horizontal	Producing	3/14/2011	4225.1	20130.4	12/31/2016			
100/14-02-001-24W1/0	Vertical	Pumping	5/2/2003	490.6	991.3	3/31/2008			
102/14-02-001-24W1/0	Horizontal	Producing	3/14/2011	5392.8	8787.8	12/31/2016			
103/14-02-001-24W1/0	Horizontal	Producing	3/10/2011	3909.9	29534.7	12/31/2016			
104/14-02-001-24W1/0	Horizontal	Producing	3/10/2011	4708.9	7023.1	12/31/2016			
100/01-03-001-24W1/0	Horizontal	Producing	4/13/2011	7971.9	5853.7	12/31/2016			
102/01-03-001-24W1/0	Horizontal	Producing	4/9/2011	6521.1	5730.8	12/31/2016			
103/01-03-001-24W1/0	Horizontal	Producing	11/18/2013	4628.2	5048.8	12/31/2016			
100/05-03-001-24W1/0	Horizontal	Producing	10/8/2010	4723.0	24631.2	12/31/2016			
102/05-03-001-24W1/0	Horizontal	Producing	1/13/2012	4814.2	8623.1	4/30/2015			
103/05-03-001-24W1/0	Horizontal	Producing	1/13/2012	4715.6	16390.7	12/31/2016			
104/05-03-001-24W1/0	Horizontal	Producing	1/13/2012	5534.0	11750.8	12/31/2016			
100/08-03-001-24W1/0	Horizontal	Producing	1/27/2010	9879.5	9511.5	12/31/2016			
102/08-03-001-24W1/0	Horizontal	Producing	4/9/2011	5324.4	3423.4	5/31/2015			
103/08-03-001-24W1/0	Horizontal	Producing	4/13/2011	5296.8	5021.7	12/31/2016			
100/09-03-001-24W1/0	Vertical	Abandoned	8/4/1993	736.7	794.9	1/31/1998			
102/09-03-001-24W1/0	Horizontal	Producing	4/4/2011	4834.5	5121.1	8/31/2015			
103/09-03-001-24W1/0	Horizontal	Producing	4/7/2011	8087.4	4754.1	12/31/2016			
104/09-03-001-24W1/0	Horizontal	Producing	4/2/2011	6558.9	3322.0	12/31/2016			
105/09-03-001-24W1/0	Horizontal	Producing	4/7/2011	5416.6	4234.7	12/31/2016			
106/09-03-001-24W1/0	Horizontal	Producing	12/11/2013	3121.3	3695.0	12/31/2016			
100/11-03-001-24W1/0	Horizontal	Producing	12/20/2010	6513.2	5547.9	12/31/2016			
102/11-03-001-24W1/0	Horizontal	Producing	12/20/2010	5831.9	4437.0	12/31/2016			
103/11-03-001-24W1/0	Horizontal	Producing	12/20/2010	3043.7	3974.3	12/31/2016			
100/14-03-001-24W1/0	Vertical	Pumping	5/1/2003	1358.9	1679.2	3/31/2014			
102/14-03-001-24W1/0	Horizontal	Producing	8/15/2009	11260.8	31824.7	12/31/2016			
103/14-03-001-24W1/0	Horizontal	Producing	8/15/2009	8636.4	5657.9	12/31/2016			
100/16-03-001-24W1/0	Horizontal	Producing	2/19/2010	6679.6	6612.7	12/31/2016			
102/16-03-001-24W1/0	Horizontal	Producing	2/19/2010	6514.5	6723.7	7/31/2015			
103/16-03-001-24W1/0	Horizontal	Producing	2/19/2010	7219.5	10664.7	12/31/2016			
100/01-04-001-24W1/0	Vertical	Producing	10/9/2004	3097.4	1452.5	12/31/2016			
102/01-04-001-24W1/0	Horizontal	Producing	12/29/2011	5550.7	3899.7	8/31/2016			
103/01-04-001-24W1/0	Horizontal	Producing	11/23/2012	4393.6	2991.9	12/31/2016			
100/02-04-001-24W1/0	Vertical	Producing	8/15/2002	3283.0	1441.6	12/31/2011			
100/03-04-001-24W1/0	Vertical	Producing	10/17/2004	1735.6	956.3	9/30/2012			
102/03-04-001-24W1/0	Horizontal	Producing	9/20/2012	1950.0	1565.2	12/31/2016			
100/04-04-001-24W1/0	Vertical	Producing	10/9/2004	2302.9	900.1	9/30/2011			
102/04-04-001-24W1/0	Horizontal	Producing	12/23/2011	6080.0	3614.7	12/31/2016			
103/04-04-001-24W1/0	Horizontal	Producing	1/10/2012	6839.8	2894.7	12/31/2016			
104/04-04-001-24W1/0	Horizontal	Producing	11/22/2012	5067.8	3134.8	12/31/2016			
100/05-04-001-24W1/0	Vertical	Producing	10/9/2004	2348.1	995.4	10/31/2011			
102/05-04-001-24W1/0	Horizontal	Suspended	1/12/2012	5503.3	3906.9	12/31/2015			
103/05-04-001-24W1/0	Horizontal	Producing	12/14/2012	1920.2	2218.6	12/31/2016			
104/05-04-001-24W1/0	Horizontal	Producing	12/1/2012	1099.8	1802.5	12/31/2016			
100/06-04-001-24W1/0	Vertical	Producing	10/9/2004	649.2	1542.5	11/30/2012			
100/07-04-001-24W1/0	Vertical	Producing	9/4/2004	2561.8	1154.1	9/30/2014			
100/08-04-001-24W1/0	Vertical	Producing	9/4/2004	3271.9	1627.8	12/31/2016			
102/08-04-001-24W1/0	Horizontal	Producing	4/1/2010	8304.8	3900.2	12/31/2016			
104/08-04-001-24W1/0	Horizontal	Suspended	1/3/2012	4234.0	2103.3	8/31/2015			
105/08-04-001-24W1/0	Horizontal	Producing	3/21/2013	2670.7	1456.4	12/31/2016			
100/10-04-001-24W1/0	Vertical	Producing	10/20/2003	2782.8	2962.6	8/31/2014			
100/12-04-001-24W1/0	Vertical	Producing	9/13/2003	3031.9	2815.0	8/31/2013			
100/13-04-001-24W1/0	Horizontal	Producing	2/28/2007	11211.5	7425.3	12/31/2016			
102/13-04-001-24W1/0	Horizontal	Producing	9/20/2009	9912.8	21183.4	12/31/2016			
103/13-04-001-24W1/0	Horizontal	Producing	10/7/2009	8218.4	50300.6	12/31/2016			
100/14-04-001-24W1/0	Vertical	Producing	4/30/2003	3309.9	1862.9	7/31/2013			
102/14-04-001-24W1/0	Horizontal	Producing	12/6/2009	8948.2	22329.1	3/31/2016			
103/14-04-001-24W1/0	Horizontal	Producing	12/6/2009	3446.4	2737.6	12/31/2016			
104/14-04-001-24W1/0	Horizontal	Producing	10/10/2009	7969.5	21529.5	12/31/2016			
100/15-04-001-24W1/0	Horizontal	Producing	10/27/2007	7049.9	41324.2	12/31/2016			
102/15-04-001-24W1/0	Horizontal	Producing	10/9/2009	13495.0	6421.7	1/31/2016			
100/16-04-001-24W1/0	Vertical	Producing	6/27/2003	2758.9	1279.1	6/30/2012			
102/16-04-001-24W1/0	Horizontal	Producing	2/21/2010	7895.3	4537.6	12/31/2016			
100/01-05-001-24W1/0	Horizontal	Producing	3/26/2012	7447.9	4745.6	12/31/2016			
100/02-05-001-24W1/0	Horizontal	Producing	1/16/2013	2821.5	3329.1	10/31/2016			
102/03-05-001-24W1/0	Horizontal	Producing	10/12/2012	7890.0	21479.6	12/31/2016			
103/03-05-001-24W1/0	Horizontal	Producing	1/16/2013	4137.8	6690.4	12/31/2016			
104/03-05-001-24W1/0	Horizontal	Producing	10/13/2012	7502.0	21309.9	12/31/2016			
100/05-05-001-24W1/0	Horizontal	Producing	7/7/2009	8825.3	4089.4	12/31/2016			
102/05-05-001-24W1/0	Horizontal	Suspended	11/13/2010	4443.4	6767.9	5/31/2015			
100/06-05-001-24W1/2	Vertical	Producing	12/8/2003	1219.7	1356.9	10/31/2011			
102/06-05-001-24W1/0	Horizontal	Producing	10/12/2012	4223.6	5487.1	12/31/2016			

103/06-05-001-24W1/0	Horizontal	Producing	10/12/2012	4272.3	16490.4	12/31/2016			
100/07-05-001-24W1/0	Horizontal	Suspended	3/16/2010	5801.0	3721.7	8/31/2015			
100/08-05-001-24W1/0	Vertical	Producing	6/24/2003	2021.5	1724.4	9/30/2013			
102/08-05-001-24W1/0	Horizontal	Producing	3/26/2012	7208.9	5005.0	12/31/2016			
103/08-05-001-24W1/0	Horizontal	Producing	3/26/2012	5504.1	9431.5	12/31/2016			
100/09-05-001-24W1/0	Vertical	Producing	11/10/2004	1932.2	1387.2	3/31/2011			
102/09-05-001-24W1/0	Horizontal	Producing	8/20/2009	5226.4	3461.0	12/31/2016			
100/10-05-001-24W1/0	Vertical	Producing	8/14/2003	1428.0	1444.7	1/31/2013			
102/10-05-001-24W1/0	Horizontal	Suspended	7/4/2009	6386.6	3507.4	12/31/2015			
103/10-05-001-24W1/0	Horizontal	Suspended	3/13/2010	2323.6	3236.4	4/30/2014			
100/11-05-001-24W1/0	Vertical	Producing	11/11/2004	2209.2	1056.7	6/30/2014			
102/11-05-001-24W1/2	Horizontal	Producing	9/11/2012	3531.2	1585.2	12/31/2016			
100/12-05-001-24W1/0	Vertical	Producing	9/10/2003	3866.2	1455.1	7/31/2013			
102/12-05-001-24W1/0	Horizontal	Producing	11/13/2010	6199.7	3809.0	12/31/2016			
103/12-05-001-24W1/0	Dir/Dev	Producing	9/11/2012	0.0	0.0				
100/13-05-001-24W1/0	Vertical	Producing	11/12/2004	2632.7	1383.2	3/31/2014			
100/14-05-001-24W1/0	Vertical	Producing	4/29/2003	5069.4	1833.9	9/30/2014			
102/14-05-001-24W1/0	Horizontal	Suspended	1/12/2009	10632.6	3289.0	6/30/2015			
103/14-05-001-24W1/0	Horizontal	Producing	9/12/2012	5315.1	2082.0	12/31/2016			
104/14-05-001-24W1/0	Horizontal	Producing	8/28/2012	6638.8	3045.5	12/31/2016			
100/15-05-001-24W1/0	Vertical	Producing	11/11/2004	2502.7	1235.8	3/31/2011			
100/16-05-001-24W1/0	Vertical	Producing	7/19/2003	3640.9	2070.8	6/30/2013			
102/16-05-001-24W1/0	Horizontal	Producing	1/8/2009	10160.7	5112.5	12/31/2016			
103/16-05-001-24W1/0	Horizontal	Suspended	9/14/2009	5755.7	3562.1	6/30/2015			
104/16-05-001-24W1/0	Horizontal	Suspended	9/11/2009	8355.4	3643.5	3/31/2015			
100/04-06-001-24W1/0	Horizontal	Producing	10/11/2012	462.4	3772.0	3/31/2013			
102/04-06-001-24W1/0	Horizontal	Producing	10/19/2012	837.1	53782.8	2/28/2015			
103/04-06-001-24W1/0	Horizontal	Producing	10/16/2012	8051.9	19595.1	12/31/2016			
100/05-06-001-24W1/0	Horizontal	Producing	11/22/2011	7733.8	13501.1	12/31/2016			
102/05-06-001-24W1/0	Horizontal	Producing	10/14/2012	5229.8	9222.8	12/31/2016			
103/05-06-001-24W1/0	Horizontal	Producing	10/15/2012	4499.2	30106.8	12/31/2016			
100/07-06-001-24W1/0	Horizontal	Producing	11/22/2011	8074.5	10359.2	12/31/2016			
102/07-06-001-24W1/0	Horizontal	Producing	1/10/2013	4387.7	6739.9	12/31/2016			
103/07-06-001-24W1/0	Horizontal	Producing	1/10/2013	2803.1	58278.6	12/31/2016			
100/08-06-001-24W1/0	Vertical	Abandoned	9/13/2003	572.3	1644.7	12/31/2005			
100/11-06-001-24W1/0	Vertical	Abandoned	10/27/1985	554.3	2441.5	10/31/1987			
102/11-06-001-24W1/0	Horizontal	Producing	12/17/2011	2502.2	59664.9	12/31/2016			
103/11-06-001-24W1/0	Horizontal	Producing	11/26/2011	8280.7	42045.5	12/31/2016			
104/11-06-001-24W1/0	Horizontal	Producing	11/26/2011	10848.8	52382.3	12/31/2016			
105/11-06-001-24W1/0	Horizontal	Producing	11/27/2011	7201.2	61031.3	12/31/2016			
100/14-06-001-24W1/0	Horizontal	Producing	1/24/2009	13303.1	15435.8	12/31/2016			
102/14-06-001-24W1/0	Horizontal	Producing	9/3/2009	13062.9	76686.8	12/31/2016			
100/01-07-001-24W1/0	Horizontal	Suspended	9/5/2009	5867.0	7670.7	6/30/2016			
102/01-07-001-24W1/0	Horizontal	Suspended	9/7/2009	4511.6	4921.5	7/31/2015			
100/02-07-001-24W1/0	Vertical	Producing	8/10/2003	2352.6	1616.4	1/31/2012			
102/02-07-001-24W1/0	Horizontal	Producing	9/5/2009	7604.2	6035.2	9/30/2016			
100/08-07-001-24W1/0	Vertical	Producing	8/12/2003	1009.4	1977.4	11/30/2009			
102/08-07-001-24W1/0	Horizontal	Suspended	9/4/2009	3854.5	3480.2	10/31/2014			
103/08-07-001-24W1/0	Horizontal	Producing	9/4/2009	3114.6	6616.1	12/31/2016			
100/01-08-001-24W1/0	Vertical	Producing	11/10/2004	3425.4	1666.1	11/30/2011			
102/01-08-001-24W1/0	Horizontal	Producing	7/14/2008	11267.1	4038.4	10/31/2016			
103/01-08-001-24W1/0	Horizontal	Suspended	9/11/2009	7346.6	4138.0	7/31/2014			
100/02-08-001-24W1/0	Vertical	Abandoned Zone	8/9/2003	3998.5	1713.5	8/31/2012			
102/02-08-001-24W1/0	Horizontal	Producing	8/26/2009	8914.8	3318.1	12/31/2016			
100/03-08-001-24W1/0	Vertical	Producing	11/12/2004	2144.2	1113.6	8/31/2013			
102/03-08-001-24W1/0	Horizontal	Producing	1/28/2009	7871.7	3998.6	12/31/2016			
103/03-08-001-24W1/0	Horizontal	Suspended	2/3/2009	7172.5	3876.3	7/31/2015			
104/03-08-001-24W1/0	Horizontal	Producing	9/10/2012	3504.7	2824.0	8/31/2016			
100/04-08-001-24W1/0	Vertical	Producing	8/14/2003	1983.0	1956.0	6/30/2012			
100/06-08-001-24W1/0	Vertical	Producing	7/28/2003	2709.3	2021.2	2/28/2014			
102/06-08-001-24W1/0	Horizontal	Producing	8/7/2010	6574.3	5695.9	12/31/2016			
103/06-08-001-24W1/0	Horizontal	Producing	2/19/2011	6399.0	2994.1	12/31/2016			
100/07-08-001-24W1/0	Vertical	Producing	11/10/2004	2757.0	1471.5	8/31/2014			
102/07-08-001-24W1/0	Horizontal	Suspended	6/29/2008	8837.2	3633.5	7/31/2014			
103/07-08-001-24W1/0	Horizontal	Producing	8/28/2009	8450.3	3446.6	12/31/2016			
100/08-08-001-24W1/0	Vertical	Producing	6/25/2003	2633.5	2309.2	10/31/2013			
102/08-08-001-24W1/0	Horizontal	Producing	9/3/2010	2999.1	1906.5	12/31/2016			
100/09-08-001-24W1/0	Vertical	Producing	11/9/2004	2999.4	1604.4	8/31/2013			
102/09-08-001-24W1/0	Horizontal	Suspended	2/7/2009	8568.5	4437.1	12/31/2014			
103/09-08-001-24W1/0	Horizontal	Producing	9/3/2010	5653.6	3394.2	12/31/2016			
104/09-08-001-24W1/0	Horizontal	Producing	9/3/2010	6190.9	4068.9	12/31/2016			
100/10-08-001-24W1/0	Vertical	Producing	10/19/2003	2695.4	2416.4	8/31/2012			
100/11-08-001-24W1/0	Horizontal	Producing	8/7/2010	6517.2	5040.0	12/31/2016			
102/11-08-001-24W1/0	Horizontal	Suspended	8/7/2010	6201.8	5147.2	1/31/2016			
103/11-08-001-24W1/0	Horizontal	Producing	11/3/2011	1755.4	4625.5	12/31/2016			
104/11-08-001-24W1/0	Horizontal	Producing	11/3/2011	3348.7	6388.6	12/31/2016			
100/14-08-001-24W1/0	Vertical	Abandoned	7/30/2003	530.2	1283.1	5/31/2007			
102/14-08-001-24W1/0	Horizontal	Suspended	11/3/2011	2589.9	9136.0	10/31/2016			
100/15-08-001-24W1/0	Vertical	Producing	11/8/2004	2385.5	2220.5	8/31/2013			

100/16-08-001-24W1/0	Vertical	Producing	6/26/2003	3488.8	2253.9	6/30/2014			
102/16-08-001-24W1/0	Horizontal	Producing	7/2/2009	8559.1	4387.7	12/31/2016			
103/16-08-001-24W1/0	Horizontal	Producing	9/1/2010	7189.2	6182.0	11/30/2014			
104/16-08-001-24W1/0	Horizontal	Producing	2/8/2011	6659.7	4193.8	12/31/2016			
100/01-17-001-24W1/0	Horizontal	Suspended	2/8/2011	7231.0	20826.2	11/30/2016			
102/01-17-001-24W1/0	Horizontal	Producing	2/8/2011	6520.4	23315.6	12/31/2016			
100/04-17-001-24W1/0	Horizontal	Suspended	2/18/2011	2198.2	5448.3	6/30/2016			
				819917.9	1383459.5				
								0.0	

TABLE NO. 2 - VRR Calculations

Date	Mth Oil Prod m3	Cum Oil Prod Km3	Mth Water Prod m3	Cum Water Prod Km3	Water Oil Ratio m3/m3	Mth Water Inj m3	Cum Water Inj Km3	VRR	Cum VRR
1985	280	279.500	484	483.500	1.73	0	0.000	0.000	0.000
1986	271	550.800	892	1375.500	3.29	0	0.000	0.000	0.000
1987	4	554.300	1066	2441.500	304.57	0	0.000	0.000	0.000
1988	0	554.300	0	2441.500	0.00	0	0.000	0.000	0.000
1989	0	554.300	0	2441.500	0.00	0	0.000	0.000	0.000
1990	0	554.300	0	2441.500	0.00	0	0.000	0.000	0.000
1991	0	554.300	0	2441.500	0.00	0	0.000	0.000	0.000
1992	0	554.300	0	2441.500	0.00	0	0.000	0.000	0.000
1993	153	707.700	193	2634.200	1.26	0	0.000	0.000	0.000
1994	177	884.400	202	2835.800	1.14	0	0.000	0.000	0.000
1995	171	1054.900	176	3011.600	1.03	0	0.000	0.000	0.000
1996	157	1212.300	167	3178.200	1.06	0	0.000	0.000	0.000
1997	78	1290.700	58	3236.400	0.74	0	0.000	0.000	0.000
1998	0	1291.000	0	3236.400	0.00	0	0.000	0.000	0.000
1999	0	1291.000	0	3236.400	0.00	0	0.000	0.000	0.000
2000	0	1291.000	0	3236.400	0.00	0	0.000	0.000	0.000
2001	0	1291.000	0	3236.400	0.00	0	0.000	0.000	0.000
2002	404	1695.200	206	3442.400	0.51	0	0.000	0.000	0.000
2003	10194	11889.400	7002	10444.100	0.69	0	0.000	0.000	0.000
2004	13755	25644.200	18752	29196.400	1.36	0	0.000	0.000	0.000
2005	17349	42993.200	10202	39398.500	0.59	0	0.000	0.000	0.000
2006	12447	55440.300	6235	45633.800	0.50	0	0.000	0.000	0.000
2007	13070	68510.400	6877	52510.600	0.53	0	0.000	0.000	0.000
2008	20641	89151.400	20797	73307.300	1.01	0	0.000	0.000	0.000
2009	100723	189874.200	64226	137533.400	0.64	0	0.000	0.000	0.000
2010	137906	327779.800	130550	268083.600	0.95	0	0.000	0.000	0.000
2011	144150	471929.500	182048	450131.700	1.26	0	0.000	0.000	0.000
2012	131955	603884.100	224397	674528.300	1.70	0	0.000	0.000	0.000
2013	104671	708555.000	238580	913107.900	2.28	0	0.000	0.000	0.000
2014	59075	767630.100	207510	1120618.100	3.51	0	0.000	0.000	0.000
2015	32172	799802.200	149835	1270453.400	4.66	0	0.000	0.000	0.000
2016	20116	819917.900	113006	1383459.500	5.65	0	0.000	0.000	0.000

TABLE NO. 3

**Tundra Oil and Gas
Goodlands Unit No. 2
2016 Injection Volumes**

Well Location	Date	Hours On	H ₂ O Inj Cal-d avg (m ³ /d)	Monthly Injected H ₂ O (m ³)
Unit No. 2 Total:				
	Jan-16	0	0.0	0.00
	Feb-16	0	0.0	0.00
	Mar-16	0	0.0	0.00
	Apr-16	0	0.0	0.00
	May-16	0	0.0	0.00
	Jun-16	0	0.0	0.00
	Jul-16	0	0.0	0.00
	Aug-16	0	0.0	0.00
	Sep-16	0	0.0	0.00
	Oct-16	0	0.0	0.00
	Nov-16	0	0.0	0.00
	Dec-16	0	0.0	0.00
2016 Group Totals:				0.00

Unit No. 2 Total:

1985	0	0.0	0.00
1986	0	0.0	0.00
1987	0	0.0	0.00
1988	0	0.0	0.00
1989	0	0.0	0.00
1990	0	0.0	0.00
1991	0	0.0	0.00
1992	0	0.0	0.00
1993	0	0.0	0.00
1994	0	0.0	0.00
1995	0	0.0	0.00
1996	0	0.0	0.00
1997	0	0.0	0.00
1998	0	0.0	0.00
1999	0	0.0	0.00
2000	0	0.0	0.00
2001	0	0.0	0.00
2002	0	0.0	0.00
2003	0	0.0	0.00
2004	0	0.0	0.00
2005	0	0.0	0.00
2006	0	0.0	0.00
2007	0	0.0	0.00
2008	0	0.0	0.00
2009	0	0.0	0.00
2010	0	0.0	0.00
2011	0	0.0	0.00
2012	0	0.0	0.00
2013	0	0.0	0.00
2014	0	0	0.00
2015	0	0	0.00
2016	0	0	0.00
			0.00

TABLE NO. 4

**Tundra Oil and Gas
Goodlands Unit No. 2
2016 Production Volumes**

Date	Hours On	Oil Rate (CD) m3/d	Monthly Oil Prod m3	Water Rate (CD) m3/d	Monthly Water Prod m3	Water Oil Ratio m3/m3	Well Count
Jan-16	65,208	66.24	2,054	371.36	11,512	5.61	88
Feb-16	59,880	66.25	1,921	358.21	10,388	5.41	86
Mar-16	64,224	63.66	1,974	331.47	10,276	5.21	86
Apr-16	59,976	59.86	1,796	321.42	9,643	5.37	83
May-16	60,960	56.84	1,762	314.15	9,739	5.53	82
Jun-16	58,800	54.63	1,639	306.79	9,204	5.62	82
Jul-16	58,584	50.65	1,570	286.22	8,873	5.65	79
Aug-16	58,200	48.70	1,510	294.55	9,131	6.05	78
Sep-16	53,976	43.55	1,307	277.74	8,332	6.38	76
Oct-16	54,600	46.31	1,436	291.74	9,044	6.30	74
Nov-16	54,720	53.96	1,619	285.39	8,562	5.29	77
Dec-16	46,680	49.35	1,530	267.85	8,303	5.43	64
	695,808		20,116		113,006		

Date	Hours On	Oil Rate (CD) m3/d	Monthly Oil Prod m3	Water Rate (CD) m3/d	Monthly Water Prod m3	Water Oil Ratio m3/m3	Well Count
1985	1,440	3.04	280	5.30	484	1.70	1
1986	2,301	0.75	271	2.45	892	3.43	1
1987	1,690	0.01	4	2.94	1,066	122.64	1
1988	0	0.00	0	0.00	0	0.00	
1989	0	0.00	0	0.00	0	0.00	
1990	0	0.00	0	0.00	0	0.00	
1991	0	0.00	0	0.00	0	0.00	
1992	0	0.00	0	0.00	0	0.00	
1993	3,168	0.42	153	0.52	193	0.66	1
1994	4,896	0.48	177	0.55	202	0.74	1
1995	6,984	0.47	171	0.48	176	1.61	1
1996	6,120	0.43	157	0.46	167	1.23	1
1997	2,520	0.22	78	0.16	58	0.86	1
1998	24	0.00	0	0.00	0	0.00	0
1999	0	0.00	0	0.00	0	0.00	0
2000	0	0.00	0	0.00	0	0.00	0
2001	0	0.00	0	0.00	0	0.00	0
2002	2,832	1.10	404	0.56	206	0.21	1
2003	90,720	27.75	10,194	19.06	7,002	0.66	10
2004	218,904	37.61	13,755	51.35	18,752	1.30	25
2005	336,984	47.57	17,349	27.98	10,202	0.58	38
2006	323,649	34.12	12,447	17.09	6,235	0.50	37
2007	323,851	35.77	13,070	18.82	6,877	0.53	37
2008	325,514	56.26	20,641	56.77	20,797	1.12	37
2009	404,112	276.03	100,723	175.72	64,226	0.62	46
2010	642,586	378.04	137,906	357.50	130,550	0.95	73
2011	853,245	395.16	144,150	498.17	182,048	1.29	97
2012	953,101	361.02	131,955	613.29	224,397	1.71	109
2013	1,049,789	287.46	104,671	654.81	238,580	2.36	120
2014	983,376	162.06	59,075	568.88	207,510	3.58	112
2015	838,812	88.27	32,172	410.81	149,835	4.75	96
2016	695,808	55.00	20,116	308.91	113,006	5.65	80
	8,072,426		819,918		1,383,460		