

EWART UNIT NO. 6

WATERFLOOD EOR PROJECT

ANNUAL REPORT FOR 2017

May 3, 2018

Tundra Oil and Gas Partnership

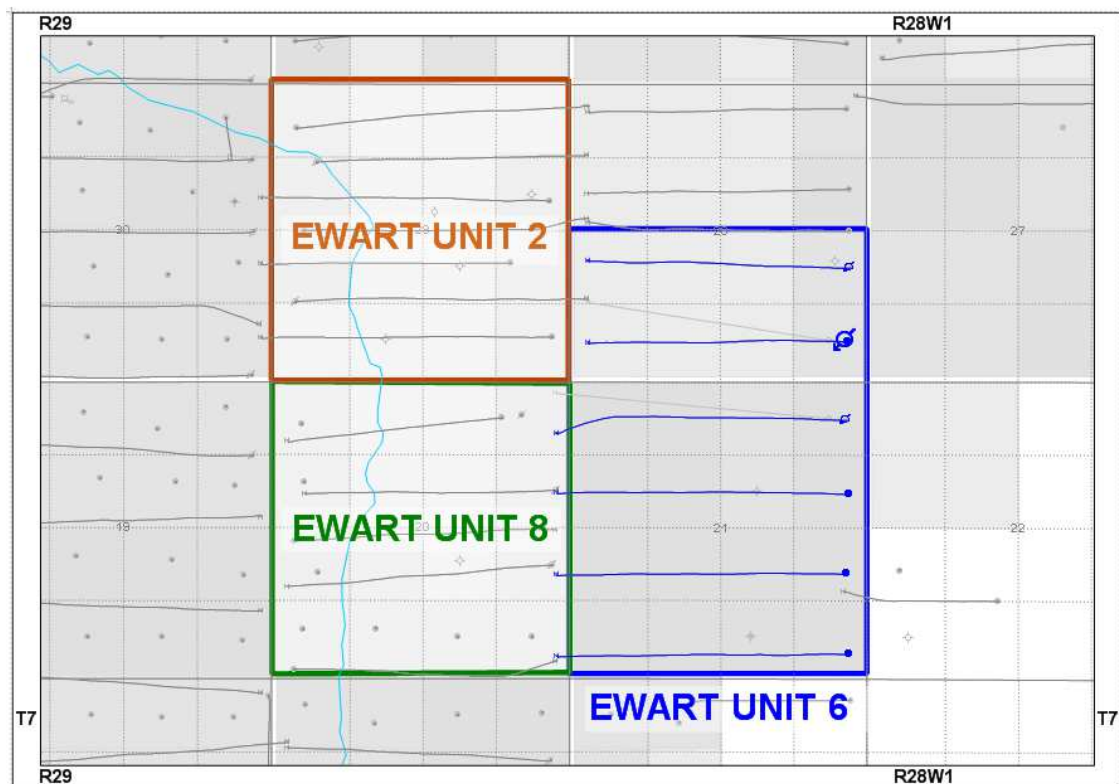
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INTRODUCTION

Ewart Unit No. 6 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 42, effective January 1, 2015 with Tundra Oil and Gas (Tundra) as Operator. The EOR Unit area, outlined in blue, contains 3 producing horizontal wells and 3 water injection wells in 24 LSDs in Township 7 Range 28 W1 as shown in Figure 1. Well list and well status is available in Appendix A.

Figure 1: Ewart Unit No. 6 Area Outline



In accordance with Section 73 of the Manitoba Drilling and Production Regulation, Tundra hereby submits the following 2017 Annual Progress Report for Ewart Unit No. 6.

DISCUSSION

Production History

For the wells included in Ewart Unit No. 6, production started in August 2009 with the 02/08-28-007-28W1 well. Average oil production peaked at 10.39 m³/d per well in March 2012. This production was coming from 6 wells and totaled 62.36 m³/d for the Unit. In

December 2017, the Unit was producing 10.47 m³/d of oil and 13.15 m³/d of water. Water injection commenced in Ewart Unit No. 6 in April 2015. The rates and WOR are presented in Figure 2.

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

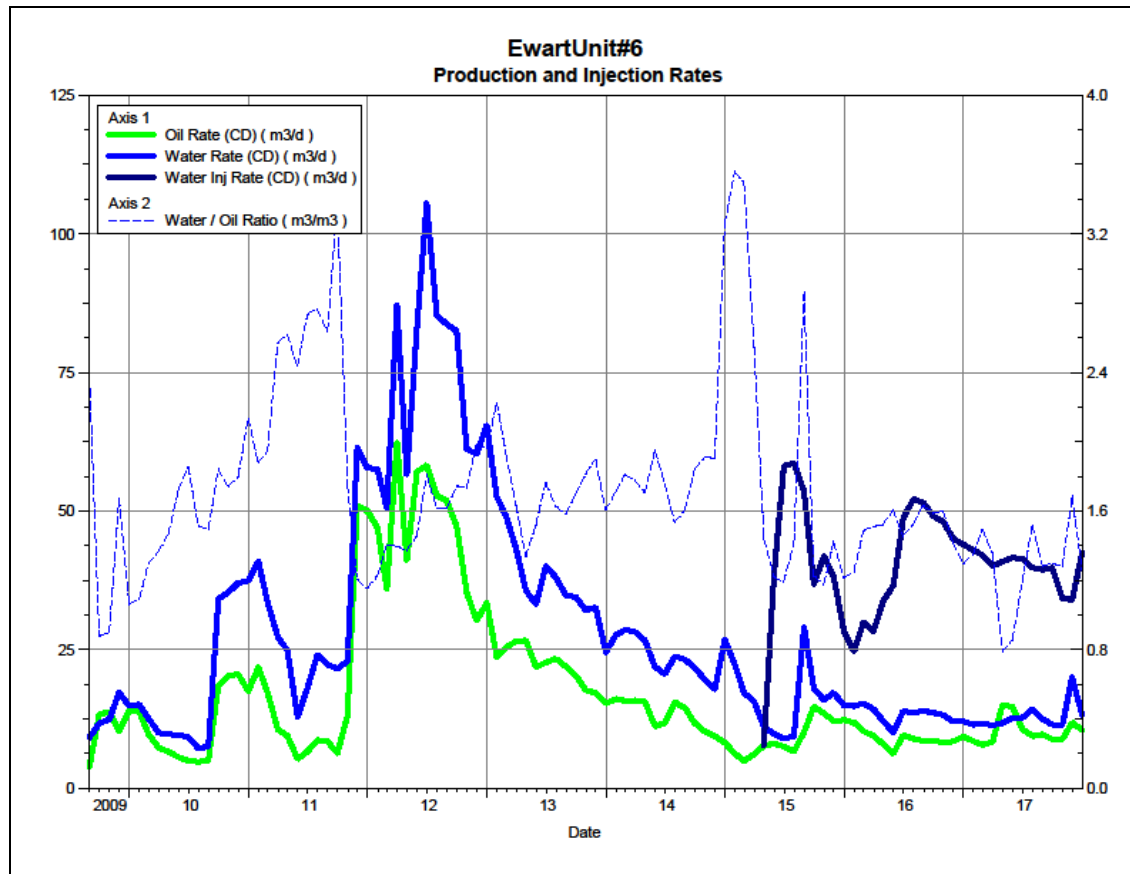
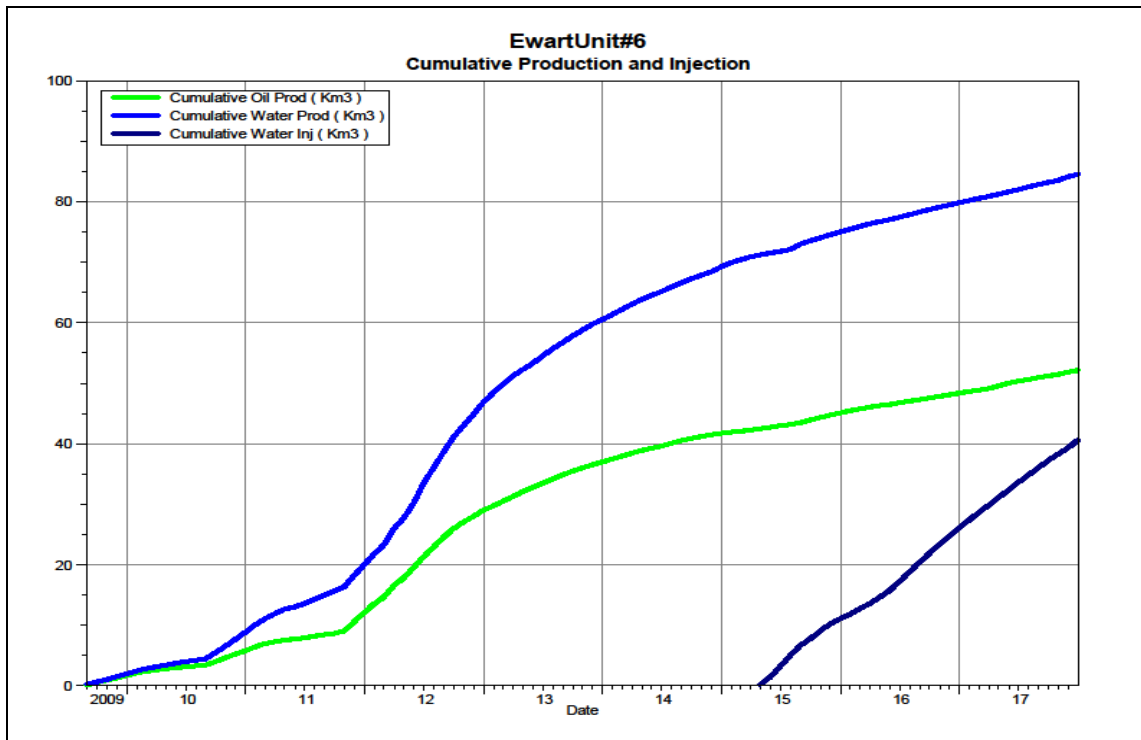


Figure 3 shows the cumulative production for Ewart Unit No. 6 to the end of December 2017 as 52.16 e³m³ of oil, and 84.56 e³m³ of water, representing a 8.0% recovery factor of the OOIP (652.0 e³m³). The cumulative water injected is 40.65 e³m³.

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



Waterflood Development Plan

Ewart Unit No. 6 Waterflood (WF) Development Plan

Ewart Unit No. 6 is still in the development phase at the end of 2017. In 2015, Tundra converted the 00/16-21 and 02/08-28-007-28W1 producers to injectors. In December 2017, the 00/01-28-007-28W1 producer was converted to an injector. Tundra anticipates converting the 00/08-21-007-28W1 producer to an injector in Q3 2018. Two (2) infill producers are scheduled to be drilled in Q4 2018, resulting in 200m spaced waterflood patterns in the S/2 of Section 28. This unit will have a combination of waterflood patterns at 20 acre and 40 acre spacing. 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. 6 was sourced from the 02/16-32-007-29W1 well (Lodgepole formation) until June 2016 when it was switched over to the newly recompleted source water well at 02/14-30-007-28W1 (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

Injection started in this Unit in April 2015. The average monthly wellhead injection pressure for each injector is summarized in Appendix C. Since injection in this Unit is still in the early stages, the injectors are still building up to a target injection pressure of 6300 kPaa.

Reservoir Pressure

Where practical, Tundra is committed to collecting pressure data from newly drilled openhole injection wells. For Ewart Unit No. 6, no reservoir pressure measurements were taken in 2017.

Well Servicing

Table 1 lists the maintenance that was required in Ewart Unit No. 6 in 2017.

Table 1: Service and Maintenance in Ewart Unit No. 6

100.01-21-007-28W1.00	Pump Change	5/26/2017
100.08-21-007-28W1.00	Tbg Swap-Lower PSN	3/13/2017
100.09-21-007-28W1.00	Cemented Liner Clean Out	11/3/2017
100.01-28-007-28W1.00	Convert to WIW	12/20/2017

Waterflood Performance Discussion

At the end of 2017, Ewart Unit No. 6 waterflood area had 2 injection patterns in place, 00/16-21 and 02/08-28. Since water injection started in April 2015, there is no waterflood analysis that can be done at this time. In December 2017, the 00/01-28-007-28W1 producer was converted to an injector with plans to drill 2 infill producers in the S/2 of Section 28 in 2018. Tundra also plans to produce the 00/08-21 producer until the latter part of 2018 and then convert it to an injector.

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 Name and Well Status

Appendix B: Injection Pattern Summary

Appendix C: Average Monthly Injection Pressure Summary

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

00/08-21-007-28W1

00/16-21-007-28W1

02/08-28-007-28W1

APPENDIX A

<i>UWI</i>	<i>Surface Hole Location</i>	<i>License Number</i>	<i>Type</i>	<i>Status</i>
100/01-21-007-28W1/0	100/01-20-007-28W1/0	008152	Horizontal	Capable of OIL Prod
100/08-21-007-28W1/0	100/08-20-007-28W1/0	008513	Horizontal	Capable of OIL Prod
100/09-21-007-28W1/0	100/09-20-007-28W1/0	008154	Horizontal	Capable of OIL Prod
100/16-21-007-28W1/0	100/16-20-007-28W1/0	008500	Horizontal	WTR Injection
100/01-28-007-28W1/0	100/04-28-007-28W1/0	007389	Horizontal	WTR Injection
102/08-28-007-28W1/0	102/05-28-007-28W1/0	006971	Horizontal	WTR Injection

Appendix B

Ewart Unit No. 6 Injection Pattern Summary as of December 2017

Pattern Name	Injector BH Location (007-28W1)	Injector Surf. 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
00/08-21-007-28Inj	00/08-21	00/08-20	Capable of OIL Prod	2	01-21, 09-21	0.5	Oct 2011	-	6.9	7.2	1.06	-	22.7	25.8	0.0	0.000	0.000
00/16-21-007-28Inj	00/16-21	00/16-20	WTR Injection	2	09-21, 01-28	0.5	Aug 2010	Apr 2015	1.8	4.4	2.39	8.00	11.4	28.4	16.3	1.257	0.401
02/08-28-007-28Inj	02/08-28	02/05-28	WTR Injection	2	01-28, 09-28 02/09-28	0.5 1.0	Aug 2009	Apr 2015	1.7	14.5	8.72	34.52	12.8	42.7	24.4	2.124	0.432

Appendix C

Average Monthly Injection Pressure (kPag)

Month	100/16-21	102/08-28
Jan-15	-	-
Feb-15	-	-
Mar-15	-	-
Apr-15	105	-28
May-15	195	-79
Jun-15	-85	1019
Jul-15	1020	1694
Aug-15	2687	2260
Sep-15	4361	2449
Oct-15	3486	2881
Nov-15	3459	3256
Dec-15	3465	3453
Jan-16	3485	3492
Feb-16	3728	3717
Mar-16	3992	3750
Apr-16	4801	3846
May-16	5049	4400
Jun-16	5680	4969
Jul-16	6089	5113
Aug-16	6093	5551
Sep-16	6047	5667
Oct-16	6195	5771
Nov-16	6224	5841
Dec-16	6029	5989
Jan-17	6279	5989
Feb-17	6279	5949
Apr-17	6288	6082
Mar-17	6173	5996
May-17	6471	6175
Jun-17	6555	6233
Aug-17	6538	5818
Jul-17	6583	5918
Sep-17	6550	5938
Oct-17	6461	5795
Nov-17	6002	5528
Dec-17	6381	5603

Appendix D

Rates and VRR Plots

Pattern: 00/08-21-007-28Inj Set: EwartUnit#6

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 1.23 m3/m3

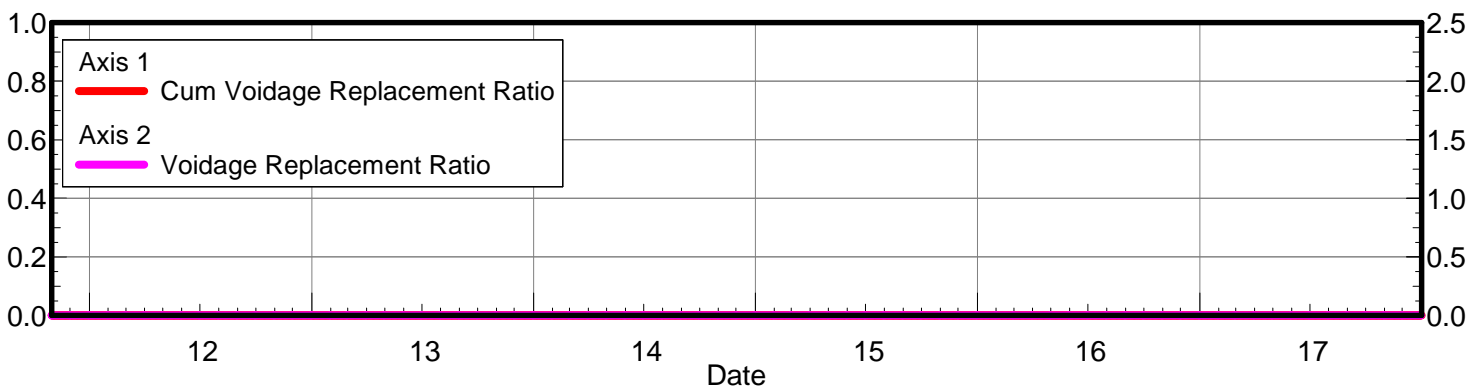
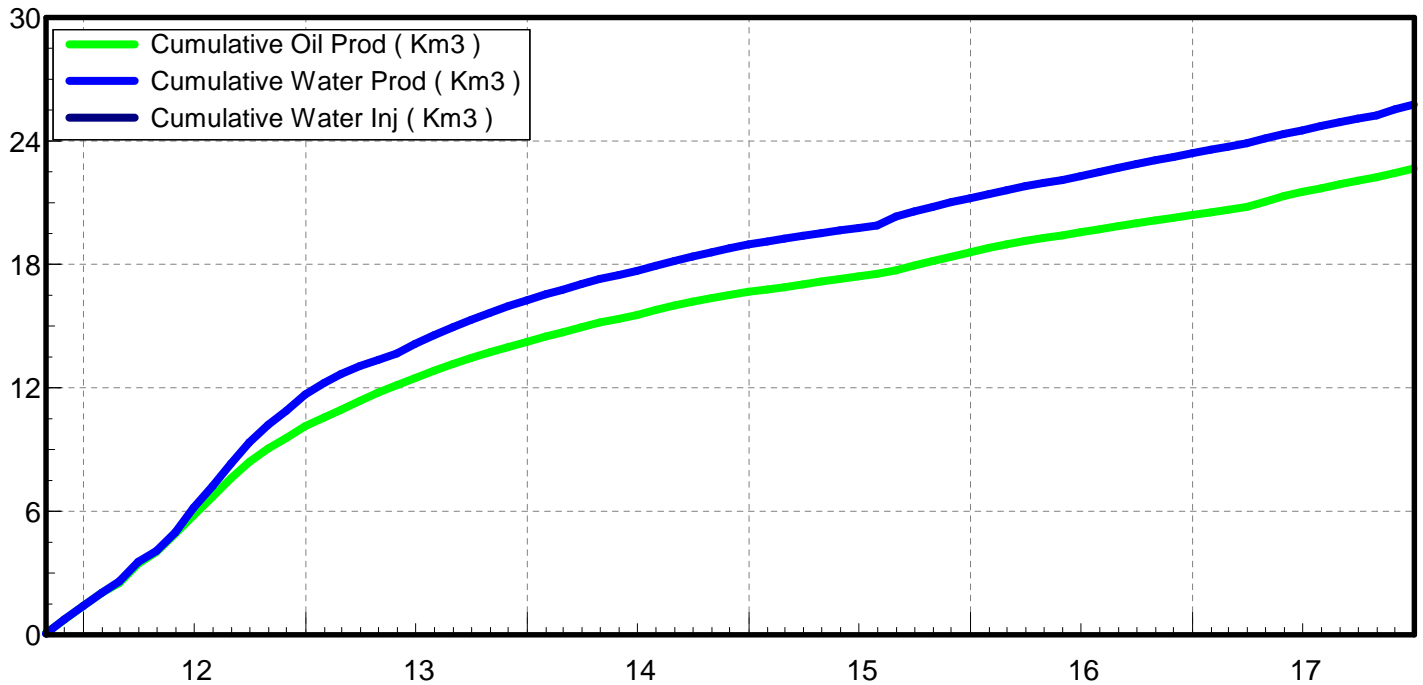
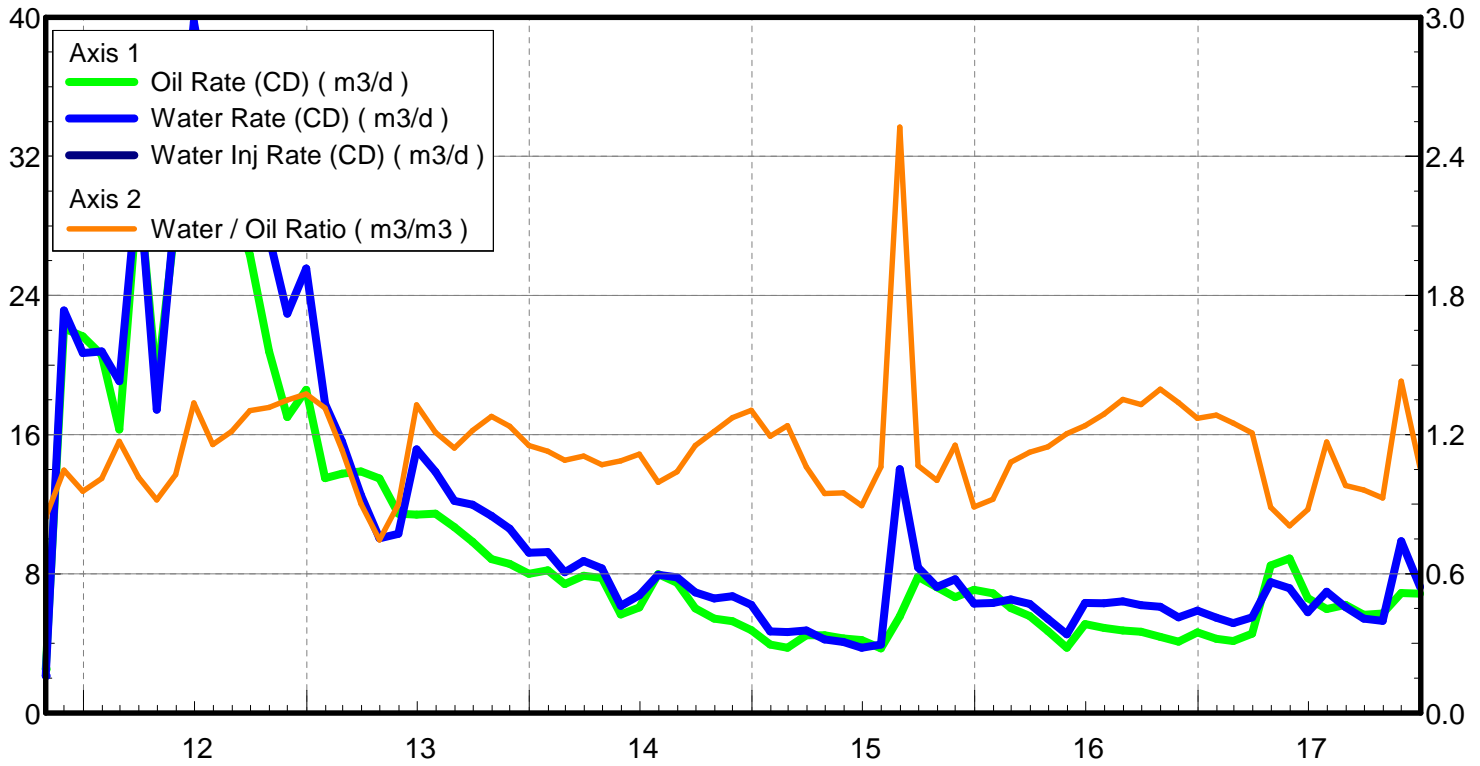
March 05, 2018

Operator: TUNDRA_OIL_AND_GAS_PARTNER

Oil Rate (CD) : 6.86 m3/d

Water Rate (CD) : 7.24 m3/d

Water Inj Rate (CD) : * m3/d



Pattern: 00/16-21-007-28Inj Set: EwartUnit#6

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 2.24 m3/m3

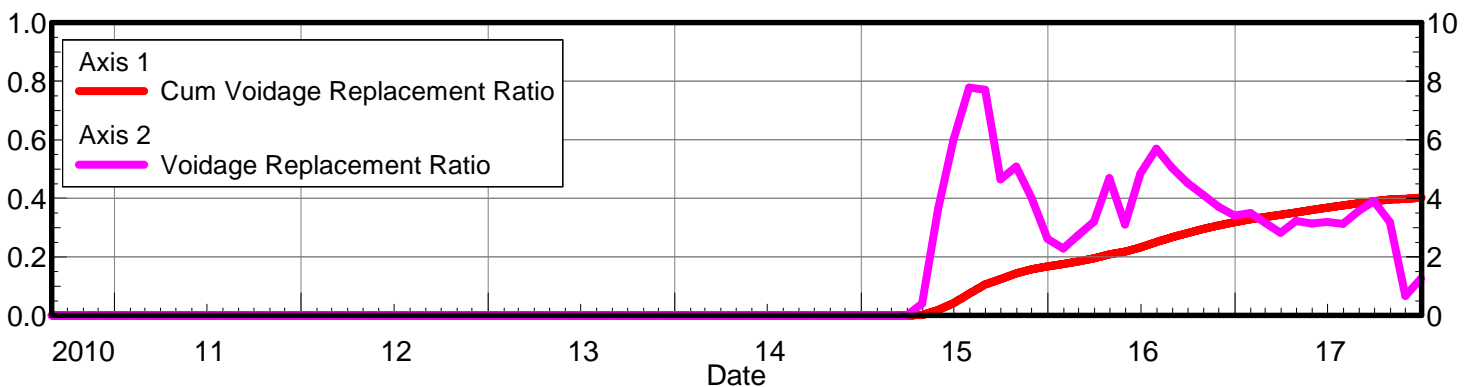
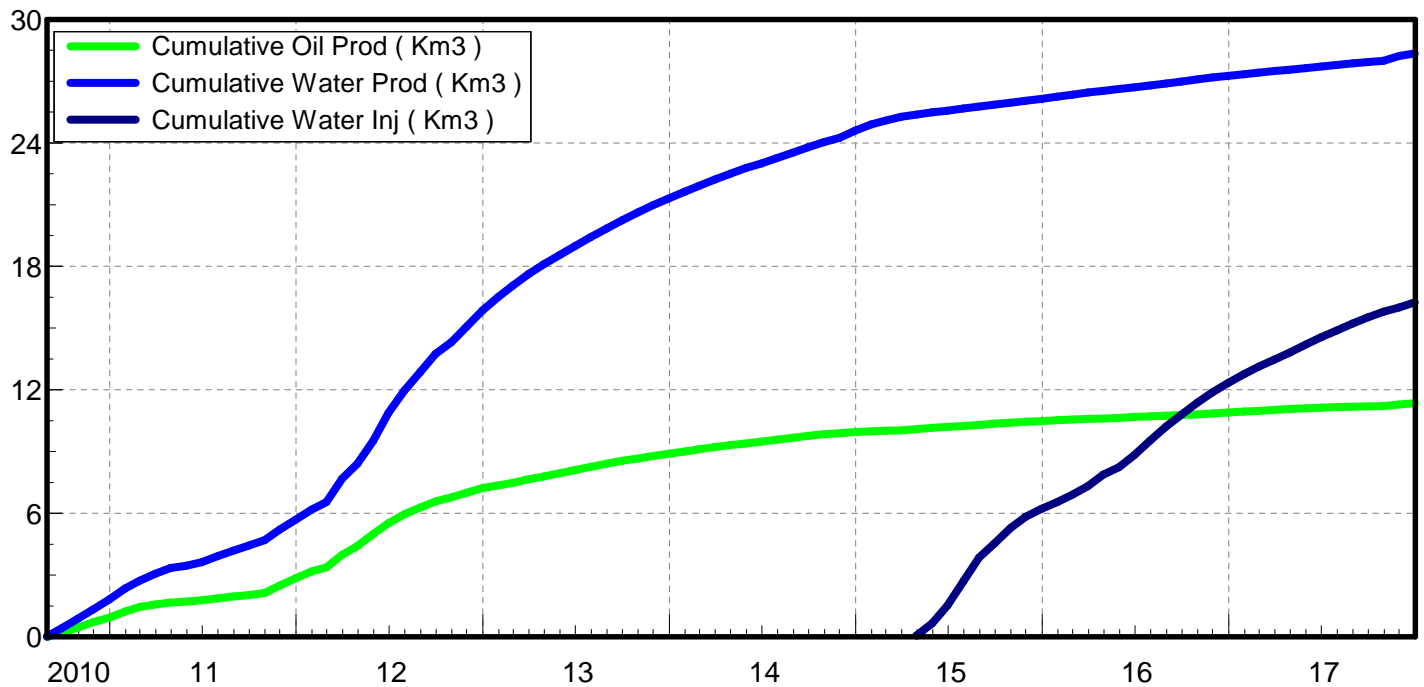
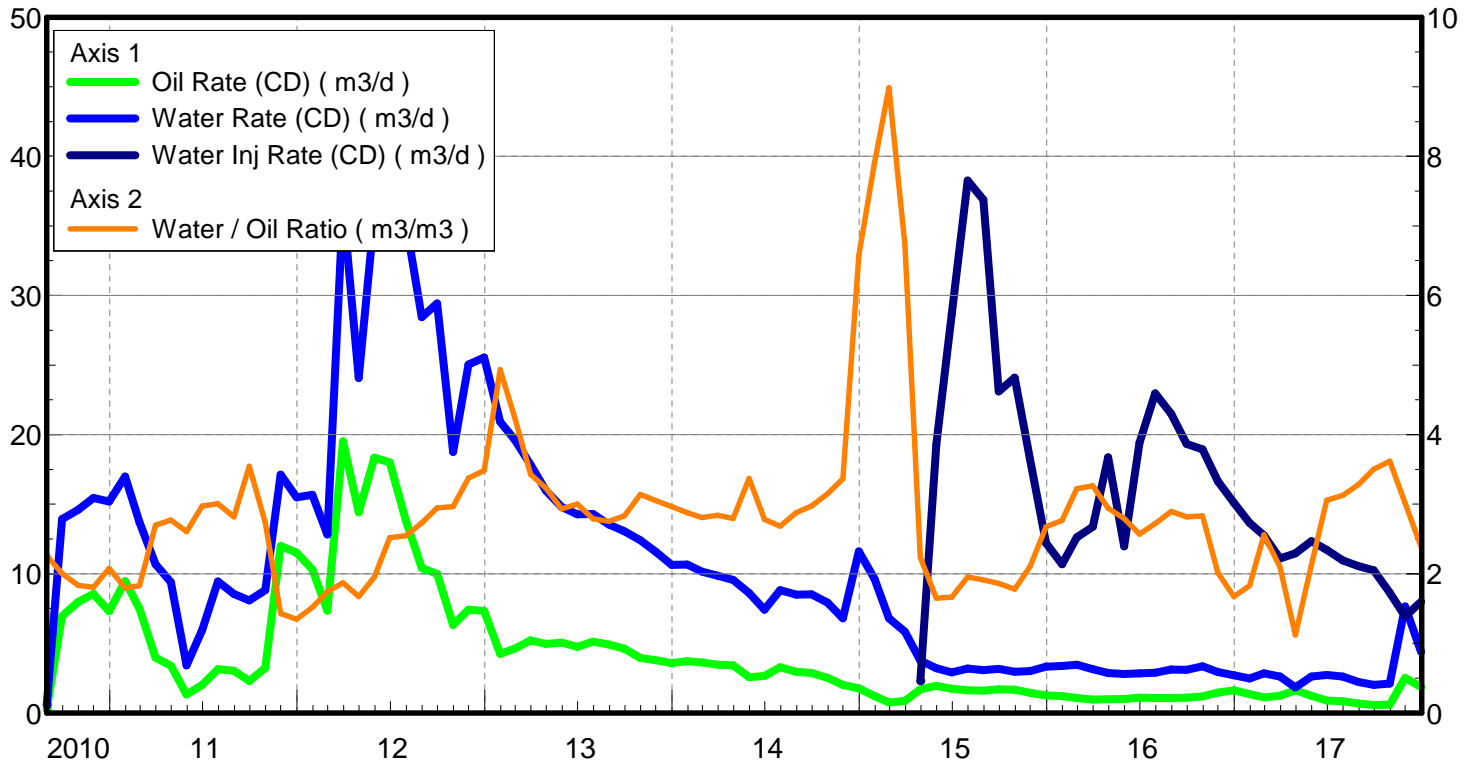
March 05, 2018

Operator: TUNDRA_OIL_AND_GAS_PARTNER

Oil Rate (CD) : 1.84 m3/d

Water Rate (CD) : 4.39 m3/d

Water Inj Rate (CD) : 8.00 m3/d



Pattern: 02/08-28-007-28Inj Set: EwartUnit#6

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 32.65 m3/m3

March 05, 2018

Operator: TUNDRA_OIL_AND_GAS_PARTNER

Oil Rate (CD) : 1.66 m3/d

Water Rate (CD) : 14.47 m3/d

Water Inj Rate (CD) : 34.52 m3/d

