

**SINCLAIR UNIT NO. 10
WATERFLOOD EOR PROJECT**

ANNUAL REPORT FOR 2016

June 28, 2017

Tundra Oil and Gas Partnership

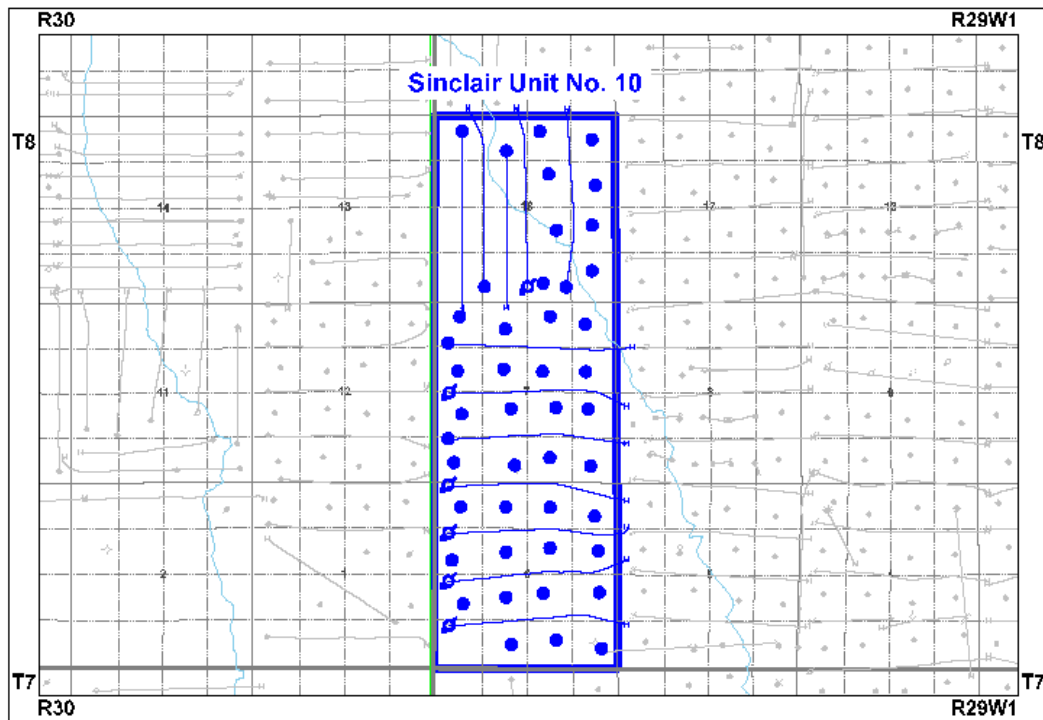
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102/05-06-008-29W1/0	
102/12-06-008-29W1/0	
102/13-06-008-29W1/0	
102/04-07-008-29W1/0	
102/05-07-008-29W1/0	
102/13-07-008-29W1/0	
102/02-18-008-29W1/0	
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102/03-18-008-29W1/0	

INTRODUCTION

Sinclair Unit No. 10 was approved on August 1, 2013 with Tundra Oil and Gas (Tundra) as Operator. The Unit area contains 45 producing wells and 6 injection wells in 48 LSDs in Township 8 Range 29 W1 as shown in the figure below.

Figure 1: Sinclair Unit No. 10 Area Outline



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

DISCUSSION

Production History

For the wells included in Sinclair Unit No. 10, production started in February 2003 with the 02/03-07-008-29W1 well. Average oil production peaked at 5.4 m³/d per well in July 2006. This production was coming from 27 wells and totaled 145.9 m³/d for the whole Unit. In December 2016, the Unit was producing 39.83 m³/d of oil and 23.13 m³/d of

water and had an average WOR of 0.62 m³/m³ in 2016. Water injection commenced in Sinclair Unit No. 10 in October 2014. The oil production rate, injection rate, and WOR for each injection pattern is presented in Appendix D. The rates and WOR are presented in Figure 2.

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

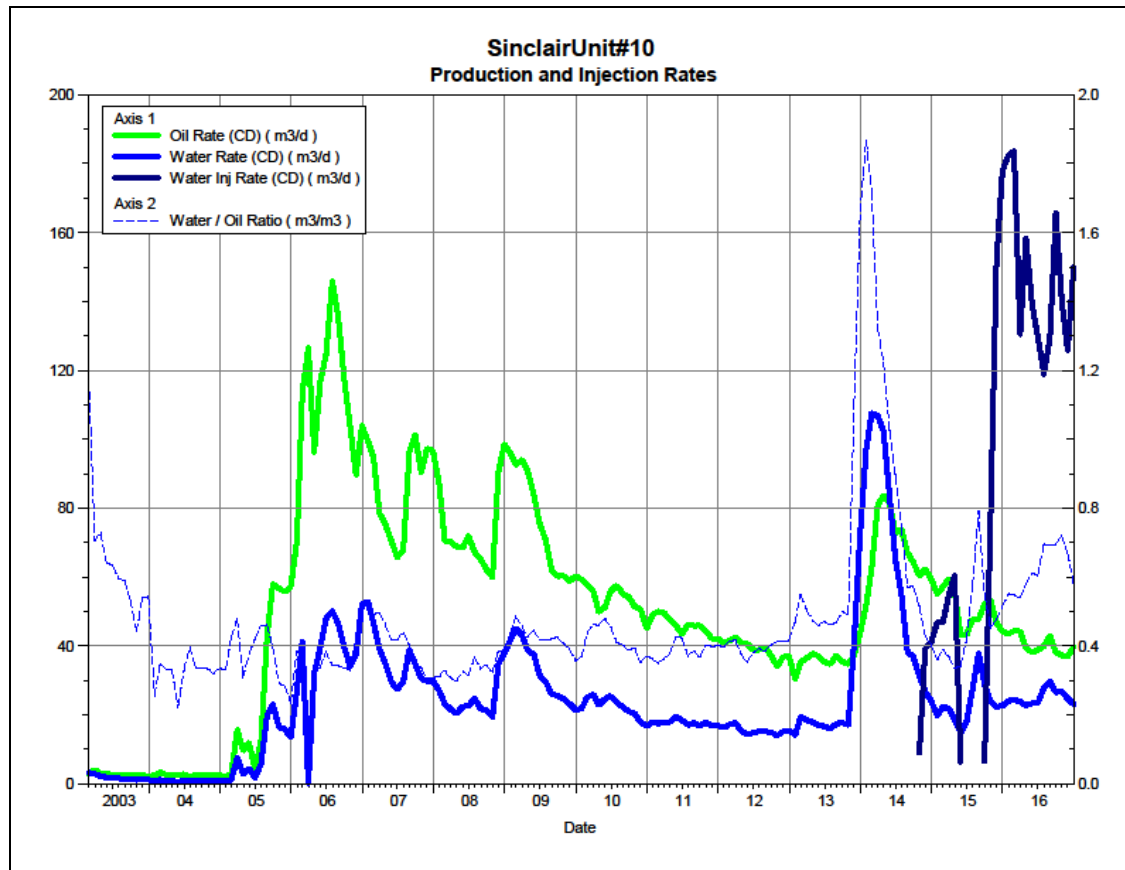
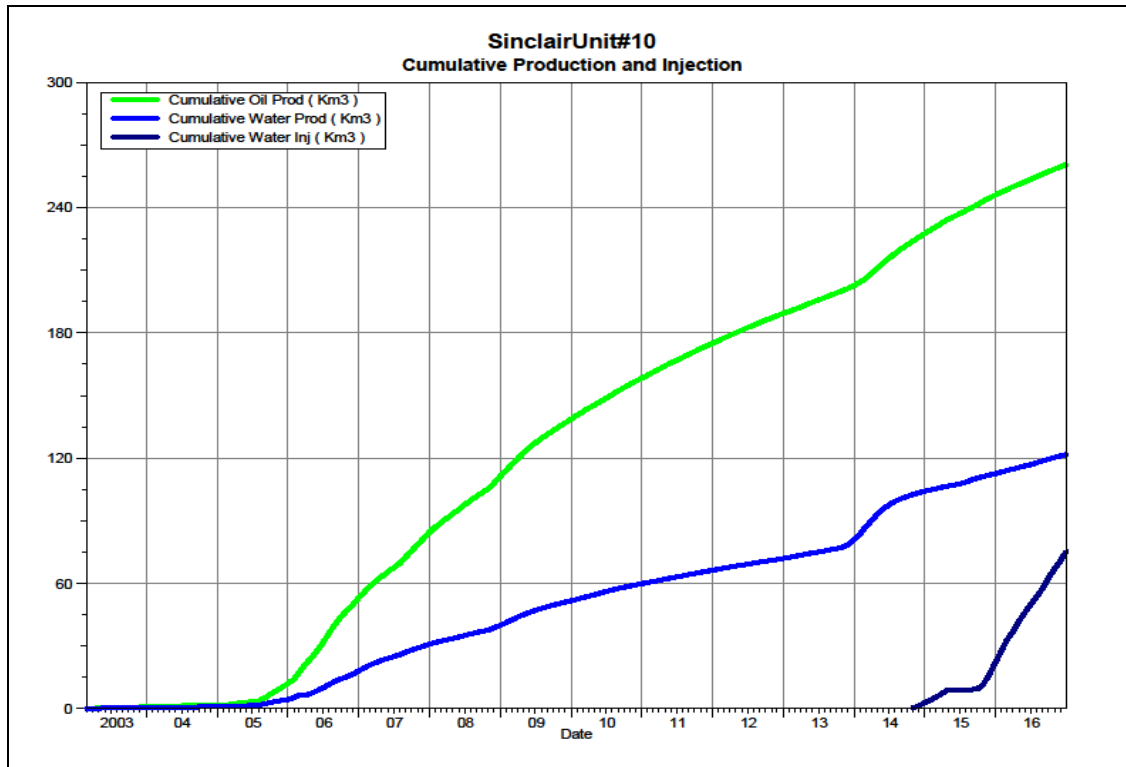


Figure 3 shows the cumulative production for Sinclair Unit No. 10 to the end of December 2016 as 260.7 e³m³ of oil, and 121.8 e³m³ of water, representing a 10.7% recovery factor of the OOIP. The cumulative water injected is 75.2 e³m³. The cumulative volume of oil, and water produced and fluid injected for each injection pattern is presented in Appendix D.

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



Waterflood Development Plan

Sinclair Unit No. 10 Waterflood (WF) Development Plan

Sinclair Unit No. 10 is still in the development phase at the end of 2016. In 2013, the 10 proposed horizontal injectors were drilled. From October 2014 to December 2016, six (6) horizontal wells were converted to water injection. All of the horizontal wells are fracture stimulated to improve the injection rates. In 2017, Tundra anticipates converting the 02/02-18 and 00/03-18 existing horizontal producers to injectors.

Production performance by injector pattern are summarized in Appendix A.

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 Sinclair Unit No. 10 will be sourced from the 16-32-007-29W1 well (Lodgepole formation). The water is treated at the 03-04-008-29W1 battery where it is filtered to 0.5 microns and has scale inhibitor added. The injection water is then distributed to the injectors through the dedicated infrastructure system.

Injection Wellhead Pressures

Injection started in this Unit in October 2014. The 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 injection wells. For Sinclair Unit No. 10, pressure data taken in 2013 from 7 locations is available. A summary table is presented in Appendix B. Pressures are corrected to a common datum of -450 m SS for comparison with other units in the area.

Well Servicing

The following table summarizes the well servicing performed within Sinclair Unit No. 10 during 2016:

Table 1: Sinclair Unit No. 10 Well Servicing

100.08-18-008-29W1.00	BHP Change	1/6/2016
100.14-18-008-29W1.00	Packer Plus Drill Out	9/3/2016

Waterflood Performance Discussion

At the end of 2016, the waterflood area had 6 of the proposed horizontal injection wells on injection and 4 wells still on production. Conversion of the remaining horizontal wells to water injection wells is expected to take place in 2017/2018.

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: Sinclair Unit No. 10 Injection Pattern Summary

Appendix B: Sinclair Unit No. 10 Reservoir Pressure Summary

Appendix C: Sinclair Unit No. 10 Monthly Injection Pressures

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

100/04-06-008-29W1/0

102/05-06-008-29W1/0

102/12-06-008-29W1/0

102/13-06-008-29W1/0

102/04-07-008-29W1/0

102/05-07-008-29W1/0

102/13-07-008-29W1/0

102/02-18-008-29W1/0

100/03-18-008-29W1/0

102/03-18-008-29W1/0

Appendix A

Sinclair Unit No. 10 Injection Pattern Summary as of December 2016

Pattern Name	Injector BH Location (008-29W1)	Injector Surf. Location (008-29W1)	Status	No. of Supported Wells	Supported Wells (008-29W1)	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
00/04-06-008-29W1 Injector	00/04-06	04-05-008-29W1	Water Injection	7	02/01-06, 02-06, 03-06, 05-06, 06-06, 07-06, 08-06	0.5	Jul 2005	Apr 2015	1.39	1.96	1.42	13.7	12.5	13.3	9.8	3.969	1.663
02/05-06-008-29W1 Injector	02/05-06	02/12-05-008-29W1	Water Injection	8	05-06, 06-06, 07-06, 08-06, 09-06, 10-06, 11-06, 12-06	0.5	Dec 2005	Oct 2014	2.28	2.21	0.97	25.1	15.7	14.4	15.7	5.408	2.217
02/12-06-008-29W1 Injector	02/12-06	02/13-05-008-29W1	Water Injection	8	09-06, 10-06, 11-06, 12-06, 13-06, 14-06, 15-06, 16-06	0.5	Jan 2006	Oct 2014	2.65	2.31	0.87	29.1	17.0	13.4	17.5	5.649	4.178
02/13-06-008-29W1 Injector	02/13-06	02/13-05-008-29W1	Water Injection	8	13-06, 14-06, 15-06, 16-06, 01-07, 02-07, 02/03-07, 04-07	0.5	Feb 2003	Nov 2015	2.15	1.81	0.84	31.3	23.4	11.8	14.4	7.607	2.943
02/04-07-008-29W1 Injector	02/04-07	02/04-08-008-29W1	Capable of OIL Prod	8	01-07, 02-07, 02/03-07, 04-07, 05-07, 06-07, 07-07, 08-07	0.5	Feb 2003	-	7.06	5.50	0.78	-	31.1	11.8	0.0	0.000	0.000
02/05-07-008-29W1 Injector	02/05-07	02/05-08-008-29W1	Water Injection	8	05-07, 06-07, 07-07, 08-07, 09-07, 10-07, 11-07, 12-07	0.5	Mar 2005	Dec 2014	2.71	1.30	0.48	30.2	24.1	6.1	17.3	7.186	2.904
02/13-07-008-29W1 Injector	02/13-07	02/12-08-008-29W1	Capable of OIL Prod	8	09-07, 10-07, 11-07, 12-07, 13-07, 14-07, 15-07, 16-07	0.5	Feb 2005	-	7.38	2.09	0.28	-	31.2	8.1	0.0	0.000	0.000
02/02-18-008-29W1 Injector	02/02-18	02/02-19-008-29W1	Capable of OIL Prod	8	01-18, 02-18, 07-18, 08-18, 09-18, 10-18, 15-18, 16-18	0.5	Mar 2005	-	4.67	1.58	0.34	-	26.4	7.8	0.0	0.000	0.000
00/03-18-008-29W1 Injector	00/03-18	04-19-008-29W1	Capable of OIL Prod	2	13-18, 14-18	0.5	Oct 2008	-	3.32	2.39	0.72	-	20.3	11.2	0.0	0.000	0.000
02/03-18-008-29W1 Injector	02/03-18	02/03-19-008-29W1	Capable of OIL Prod	5	02-18, 07-18, 10-18, 14-18, 15-18	0.5	Mar 2005	Nov 2016	0.93	0.65	0.70	20.7	18.8	10.3	0.7	12.586	0.076

APPENDIX B

Sinclair Unit No. 10 - Pressure Summary

Location	Test Date	Final Pressure (kPaa)	MPP (mTVD)	KB	Datum Depth	Gradient	Pressure @ -450 masl
02/12-06-008-29W1/0	Sept 19 - 24, 2013	3788.1	1008.75	529.81	-450	8.25	3549
02/13-06-008-29W1/0	Sept 10 - 22, 2013	2646.1	1003.49	529.59	-450	8.25	2449
02/04-07-008-29W1/0	Oct 16 - 26, 2013	2593.0	1003.8	529.06	-450	8.25	2389
02/05-07-008-29W1/0	Nov 23 - 25, 2013	2325.1	995.54	528.58	-450	8.25	2185
02/13-07-008-29W1/0	Nov 15 - 24, 2013	2447.0	997.5	530.4	-450	8.25	2306
02/02-18-008-29W1/0	Oct 24 - 31, 2013	2381.6	1004.15	541.14	-450	8.25	2274
00/03-18-008-29W1/0	Nov 8 - 15, 2013	2333.0	995.31	534.32	-450	8.25	2242

Appendix C

	Average Monthly Injection Pressure					
Month	100/04-06	102/05-06	102/12-06	102/13-06	102/05-07	102/03-18
Jan-14	-	-	-	-	-	-
Feb-14	-	-	-	-	-	-
Mar-14	-	-	-	-	-	-
Apr-14	-	-	-	-	-	-
May-14	-	-	-	-	-	-
Jun-14	-	-	-	-	-	-
Jul-14	-	-	-	-	-	-
Aug-14	-	-	-	-	-	-
Sep-14	-	-	-	-	-	-
Oct-14	0	-76	-76	0	0	0
Nov-14	0	-83	-82	0	0	0
Dec-14	0	-82	-82	0	671	0
Jan-15	0	-50	-81	0	83	0
Feb-15	0	-42	-81	0	-78	0
Mar-15	0	-86	-84	0	-80	0
Apr-15	-32	40	-83	0	-78	0
May-15	-24	35	-86	0	-79	0
Jun-15	-24	-86	-86	0	-79	0
Jul-15	-24	-86	-86	0	-79	0
Aug-15	-24	-86	-86	0	-79	0
Sep-15	16	-42	-34	0	-79	0
Oct-15	-71	-81	-75	0	-63	0
Nov-15	-83	-62	-83	-10	-81	0
Dec-15	492	955	340	-79	-78	0
Jan-16	2061	2283	793	-85	422	0
Feb-16	2943	2967	1415	-83	1521	0
Mar-16	1780	2751	1636	-82	859	0
Apr-16	2977	2986	2905	18	2540	0
May-16	2987	2984	2985	1036	2985	0
Jun-16	2891	2983	2966	1906	3120	0
Jul-16	2939	2985	2985	3017	2985	0
Aug-16	3586	3026	3858	3160	3423	0
Sep-16	4970	4539	4796	4106	4967	0
Oct-16	4982	4975	4974	4737	4974	0
Nov-16	4955	4973	4973	4974	4977	100
Dec-16	5633	5116	5277	4973	5095	-59

Appendix D

Rates and VRR Plots

Pattern: 00/04-06-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 1.91 m3/m3

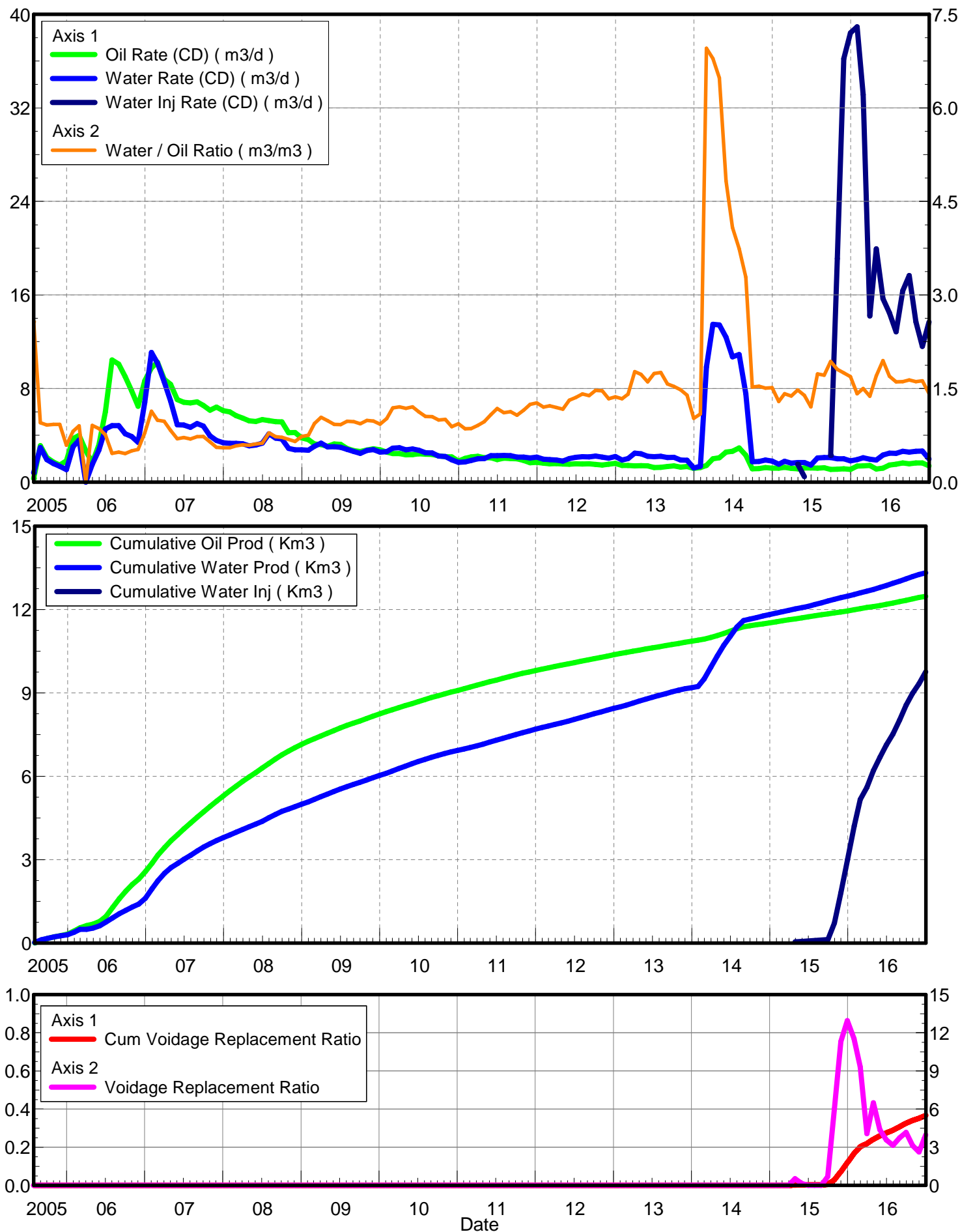
June 27, 2017

Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 1.36 m3/d

Water Rate (CD) : 2.97 m3/d

Water Inj Rate (CD) : 12.52 m3/d



Pattern: 02/05-06-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 1.56 m3/m3

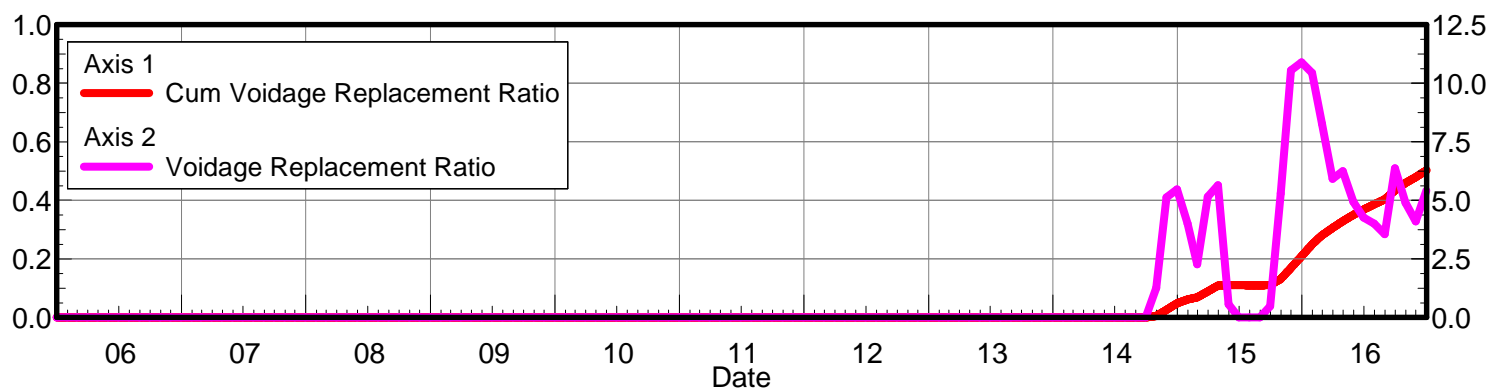
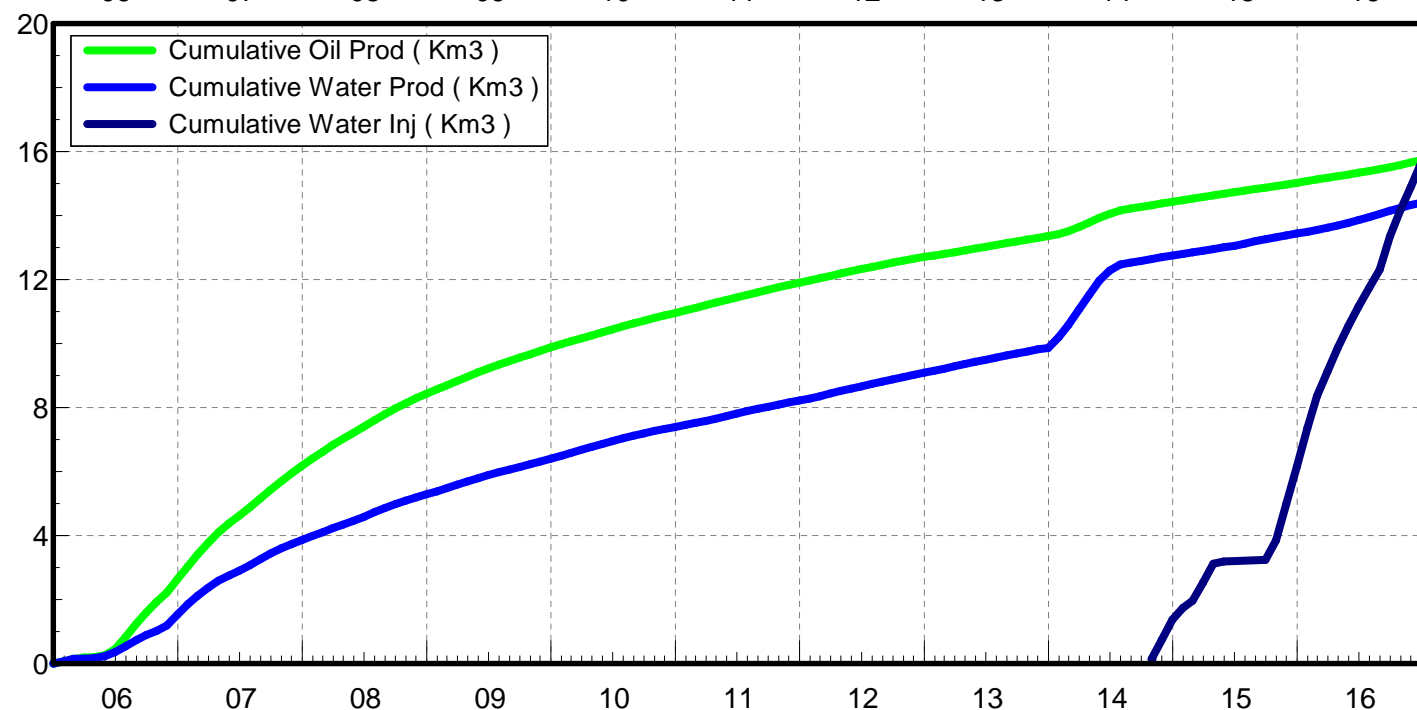
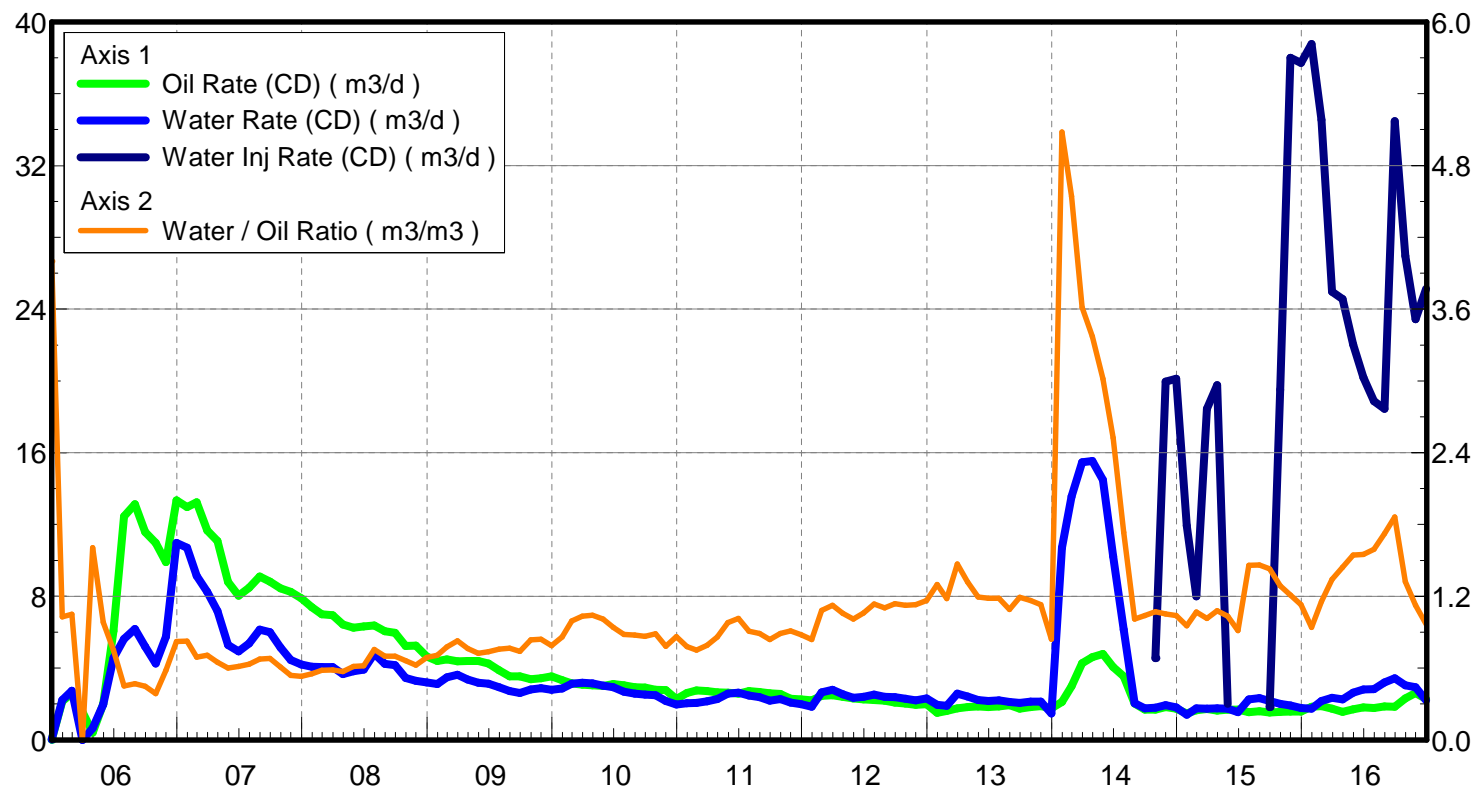
June 27, 2017

Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 2.34 m3/d

Water Rate (CD) : 4.01 m3/d

Water Inj Rate (CD) : 22.94 m3/d



Pattern: 02/12-06-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 1.46 m3/m3

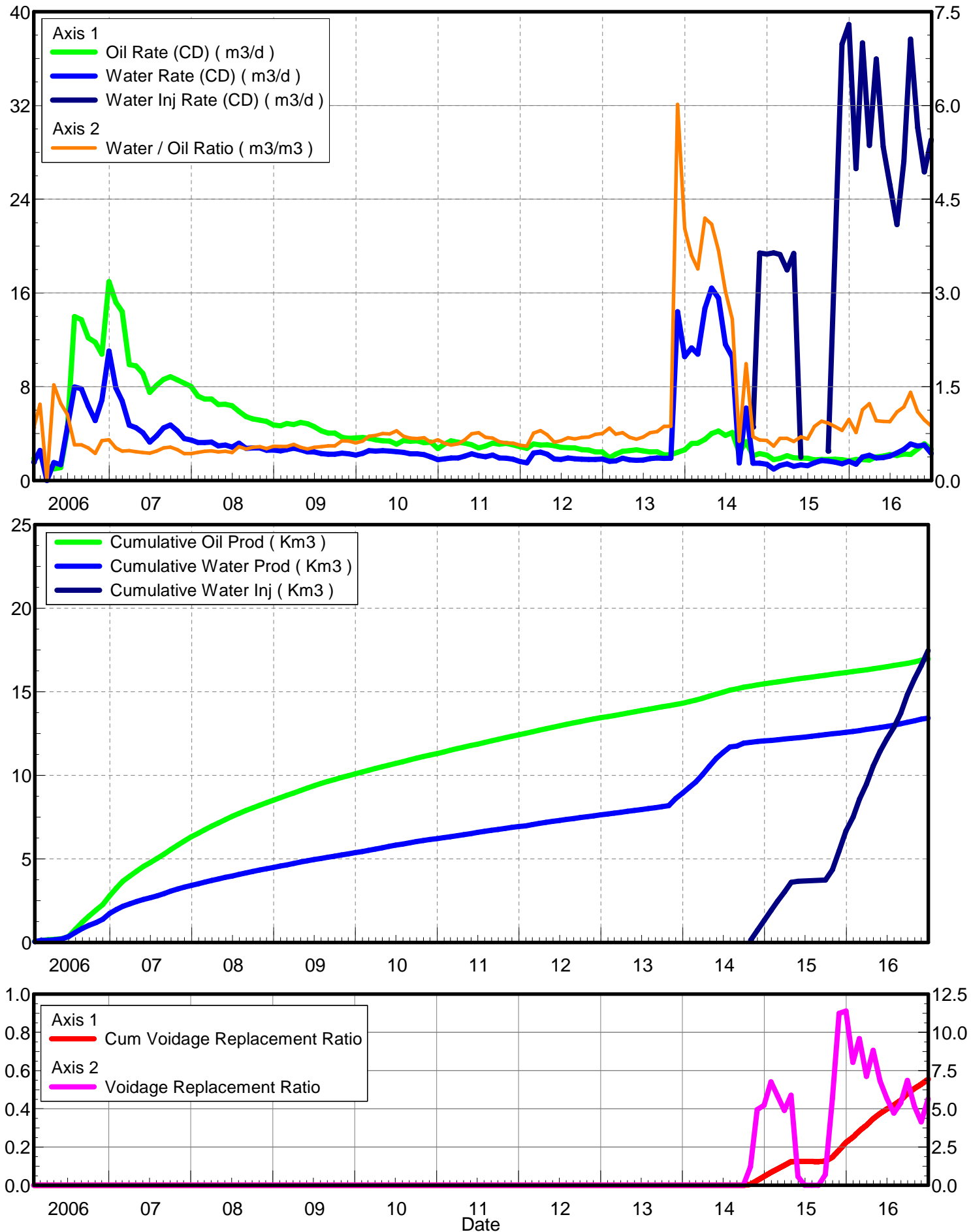
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Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 2.86 m3/d

Water Rate (CD) : 4.34 m3/d

Water Inj Rate (CD) : 26.42 m3/d



Pattern: 02/13-06-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 1.16 m3/m3

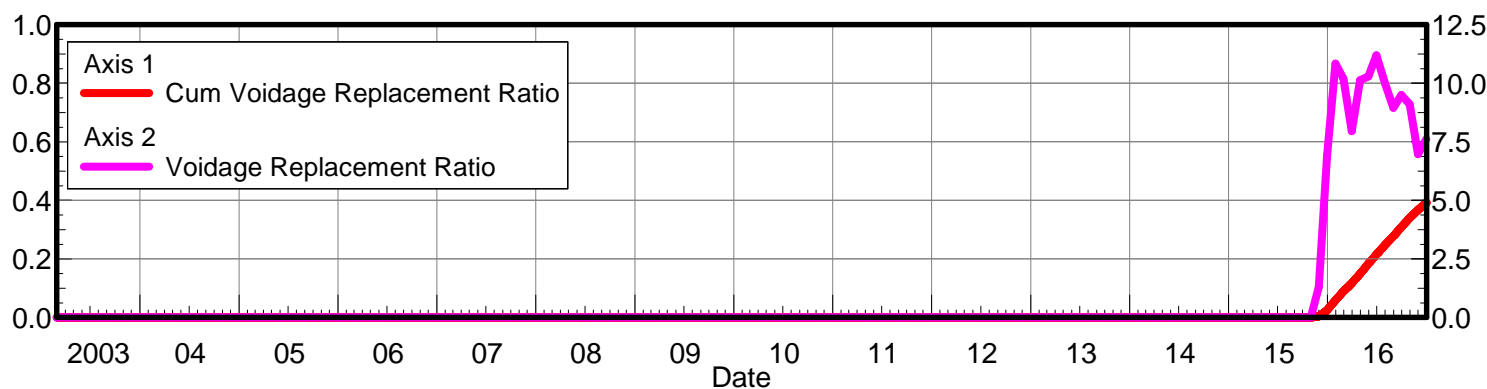
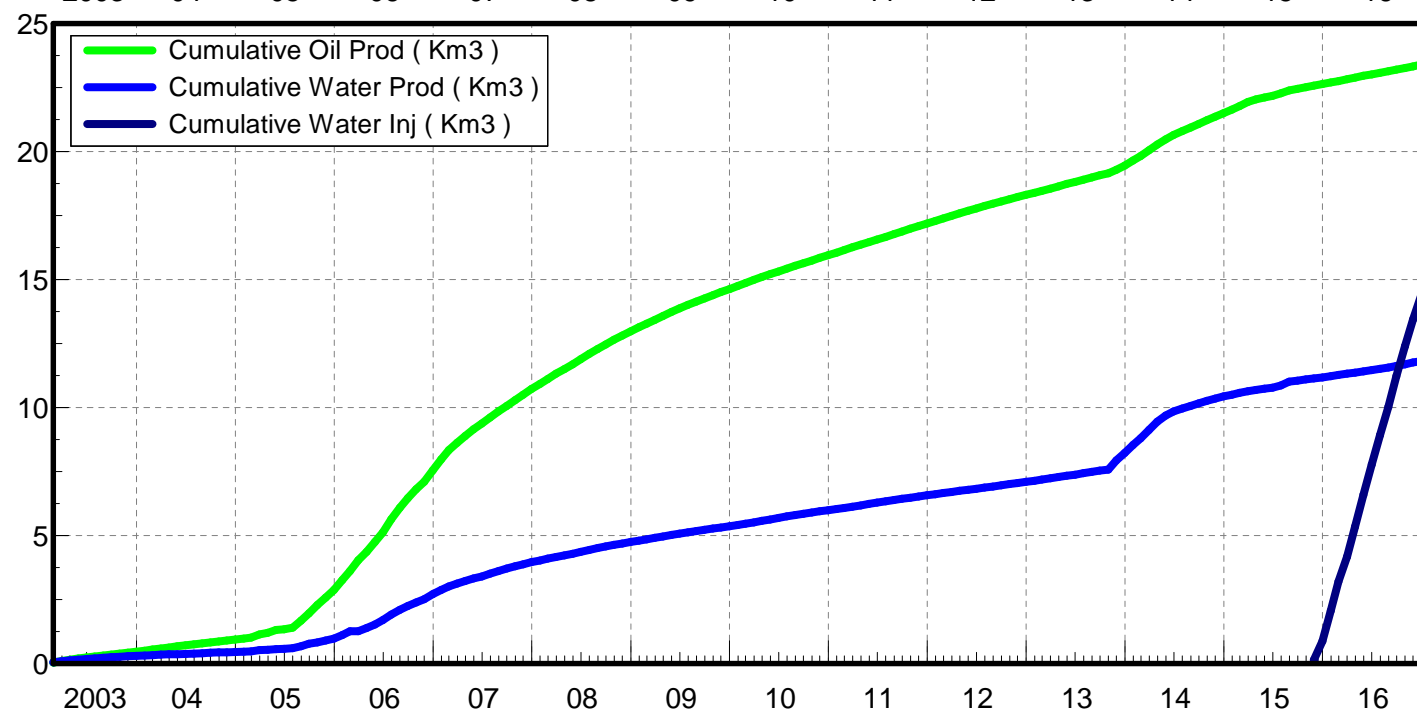
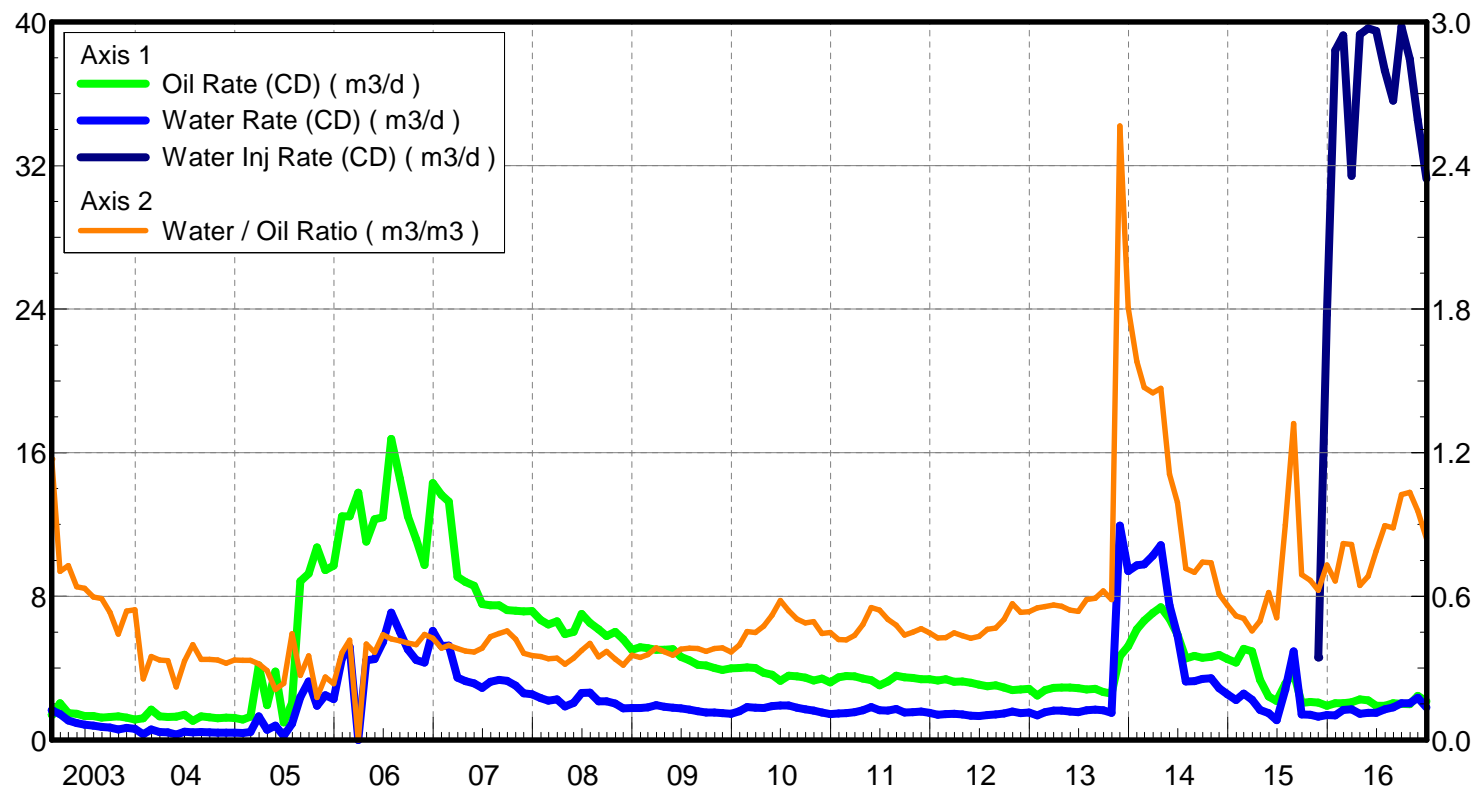
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Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 3.07 m3/d

Water Rate (CD) : 3.08 m3/d

Water Inj Rate (CD) : 34.39 m3/d



Pattern: 02/04-07-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 0.81 m3/m3

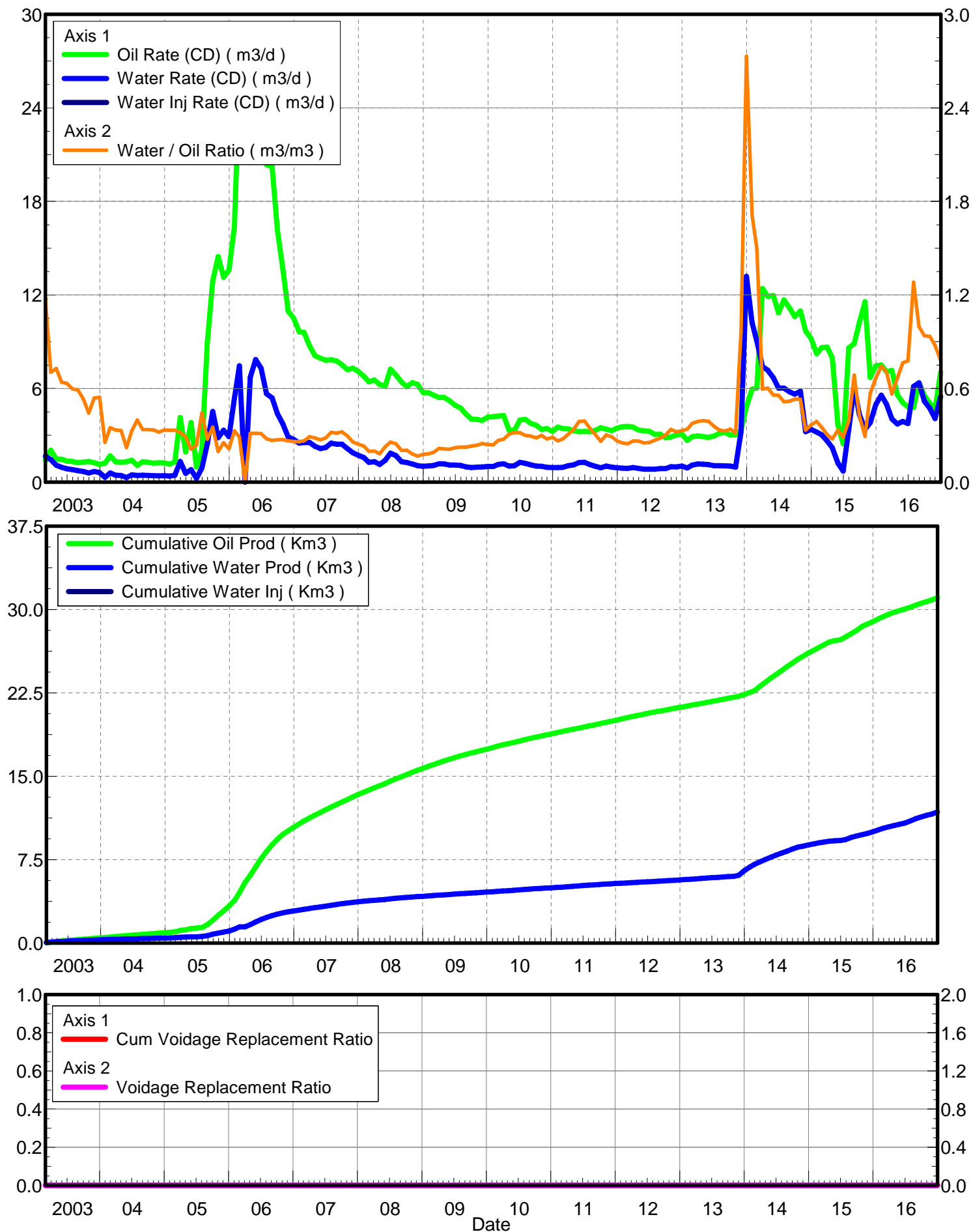
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Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 6.94 m3/d

Water Rate (CD) : 6.38 m3/d

Water Inj Rate (CD) : * m3/d



Pattern: 02/05-07-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 0.79 m3/m3

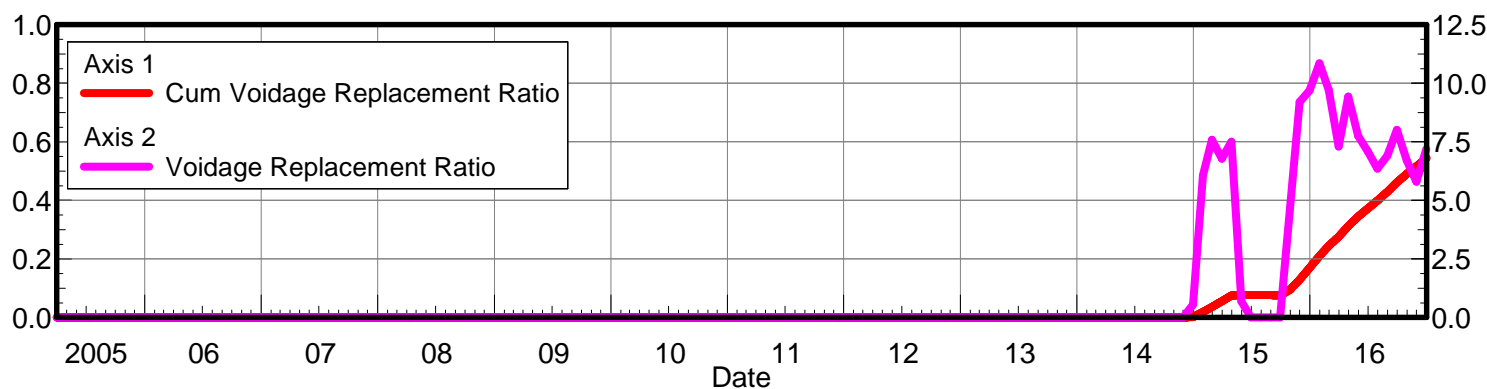
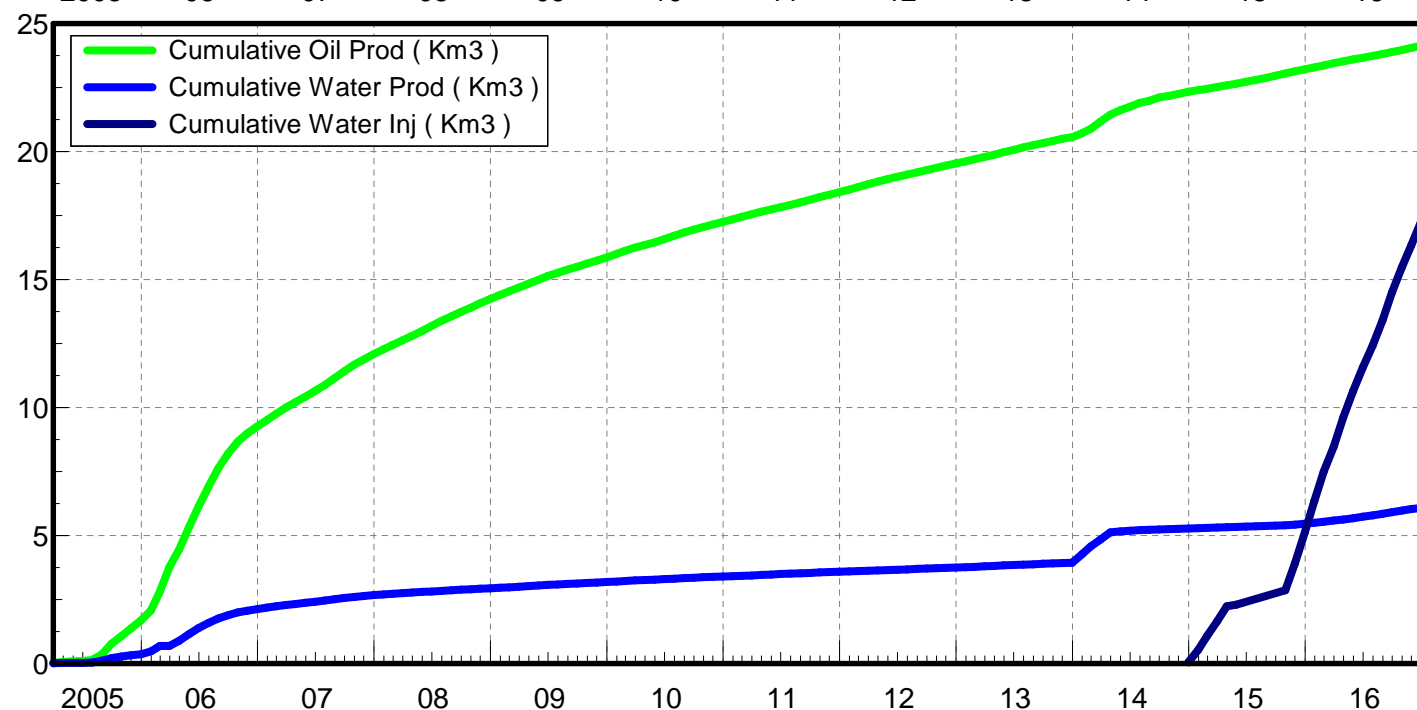
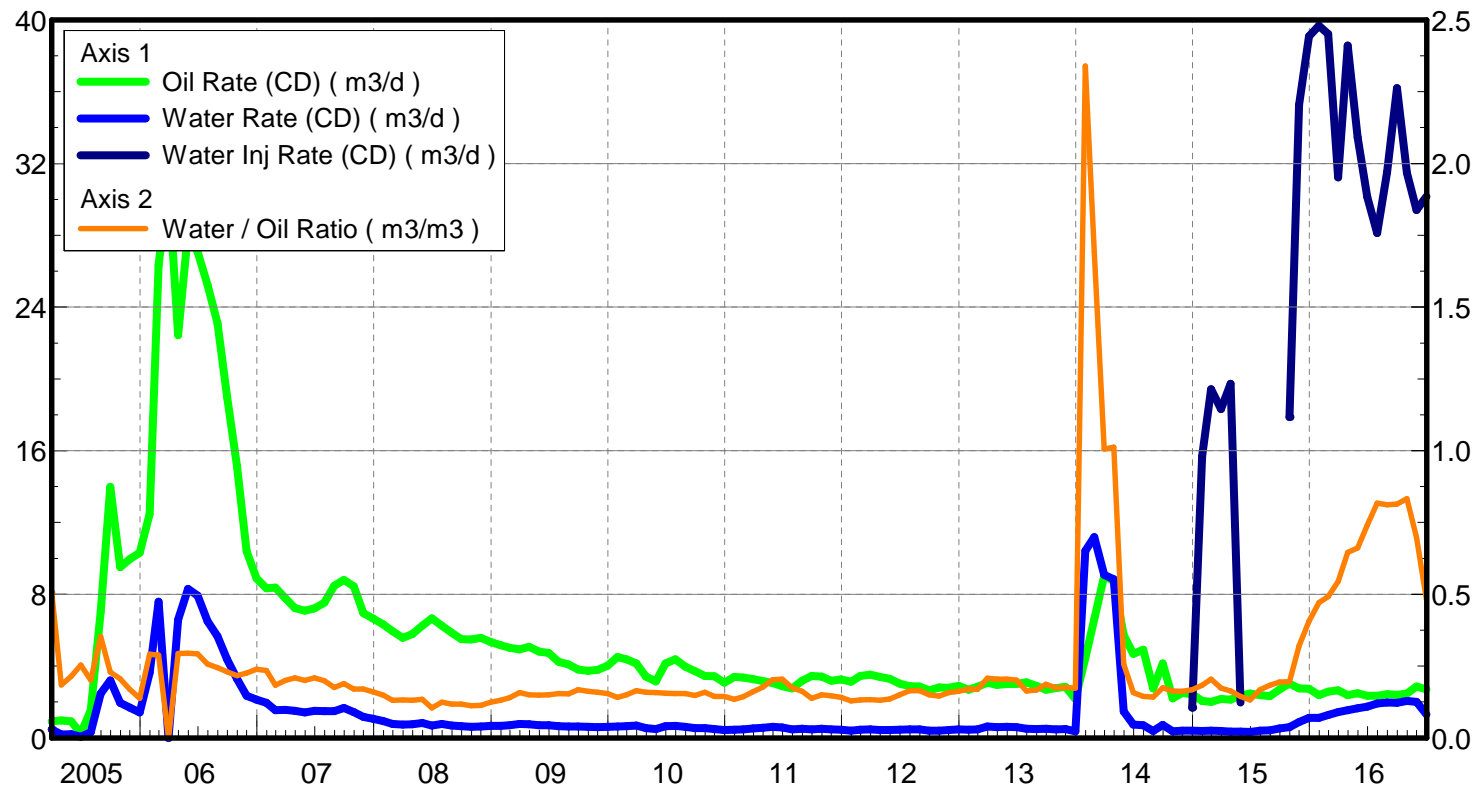
June 27, 2017

Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 3.53 m3/d

Water Rate (CD) : 2.48 m3/d

Water Inj Rate (CD) : 29.16 m3/d



Pattern: 02/13-07-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 0.27 m3/m3

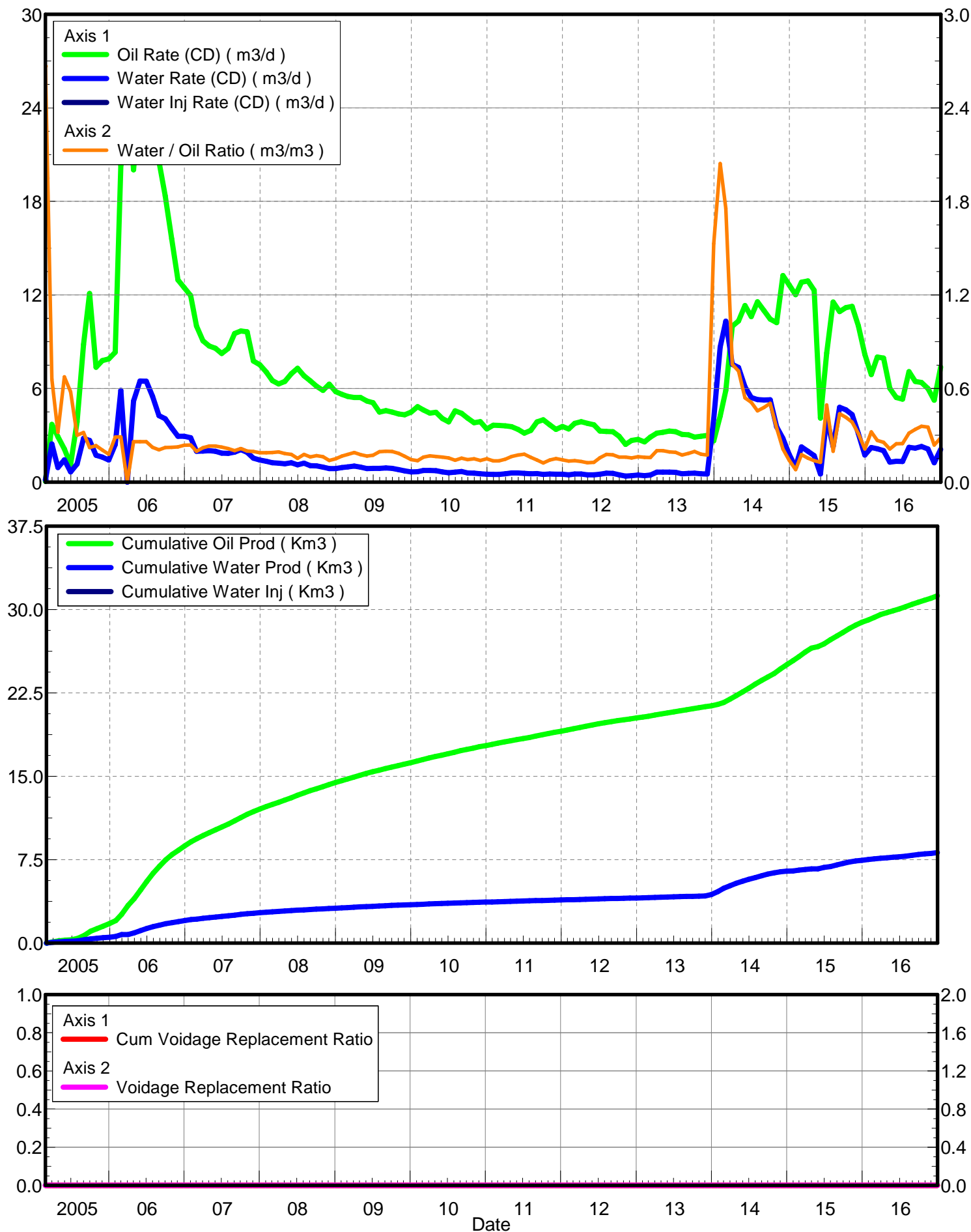
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Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 8.16 m3/d

Water Rate (CD) : 2.43 m3/d

Water Inj Rate (CD) : * m3/d



Pattern: 02/02-18-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 0.22 m3/m3

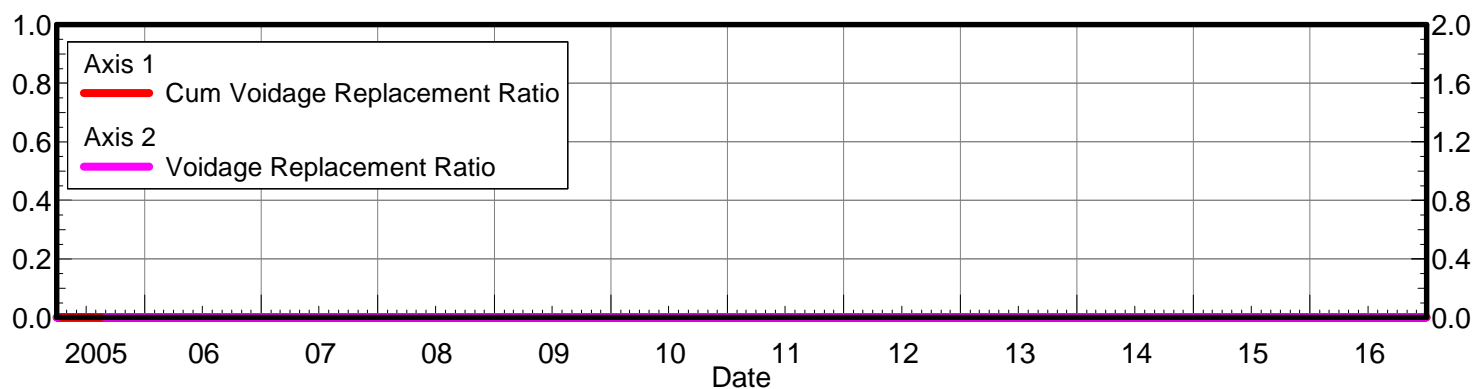
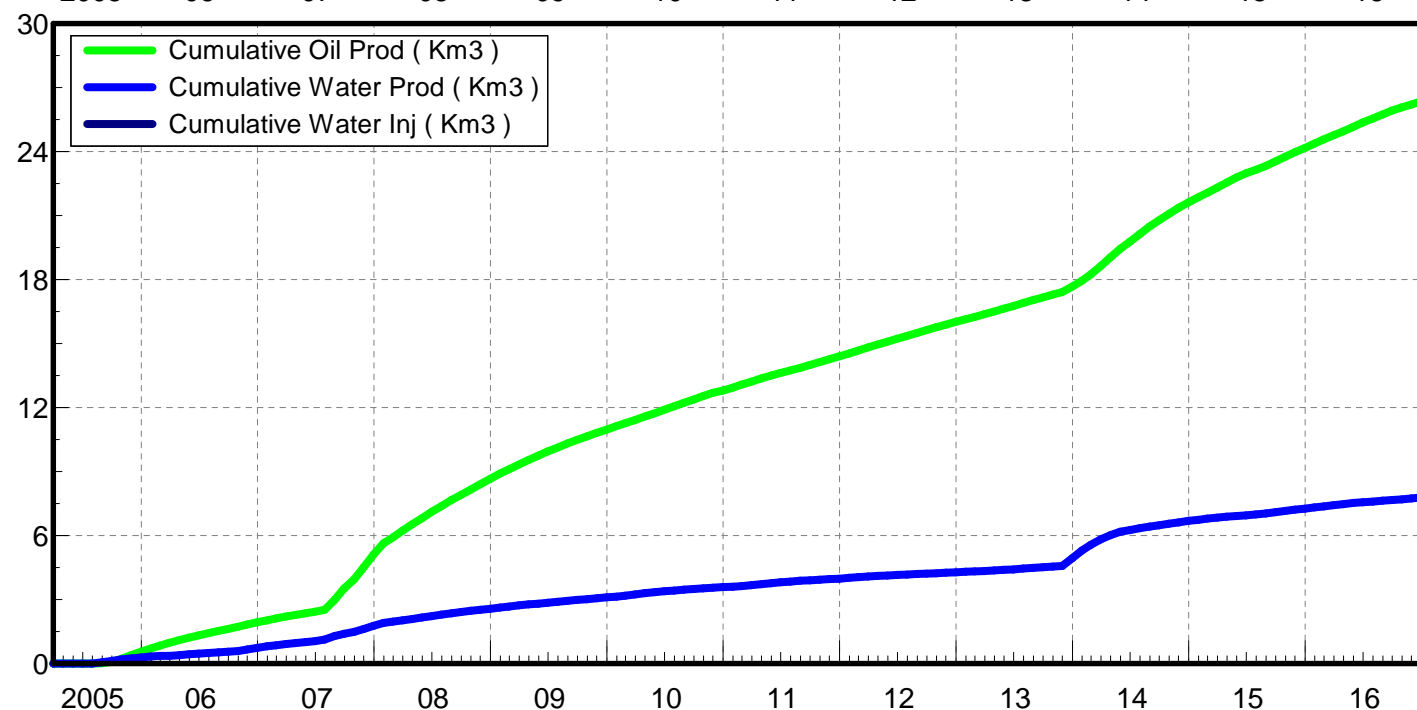
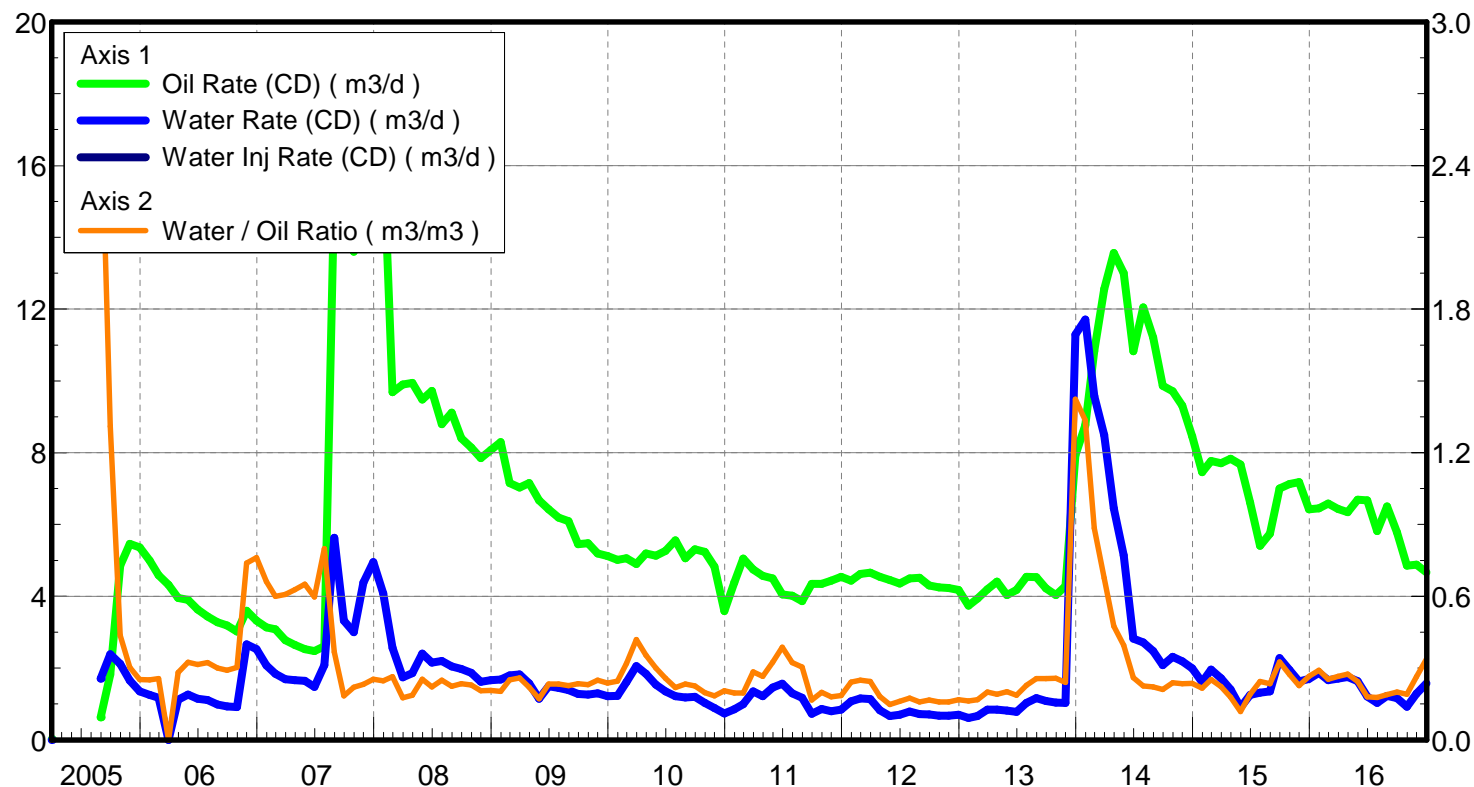
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Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 3.02 m3/d

Water Rate (CD) : 0.50 m3/d

Water Inj Rate (CD) : 5.07 m3/d



Pattern: 00/03-18-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 0.67 m3/m3

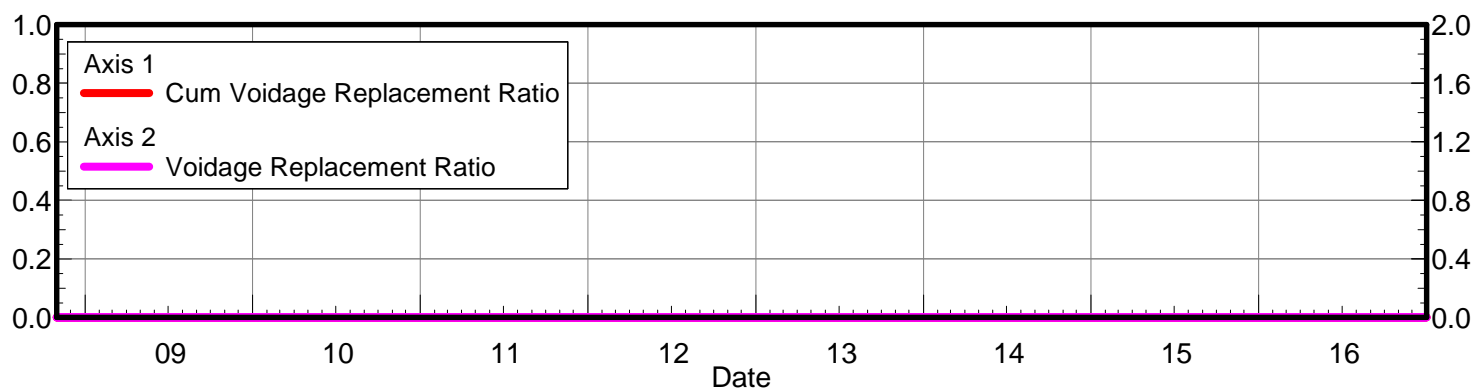
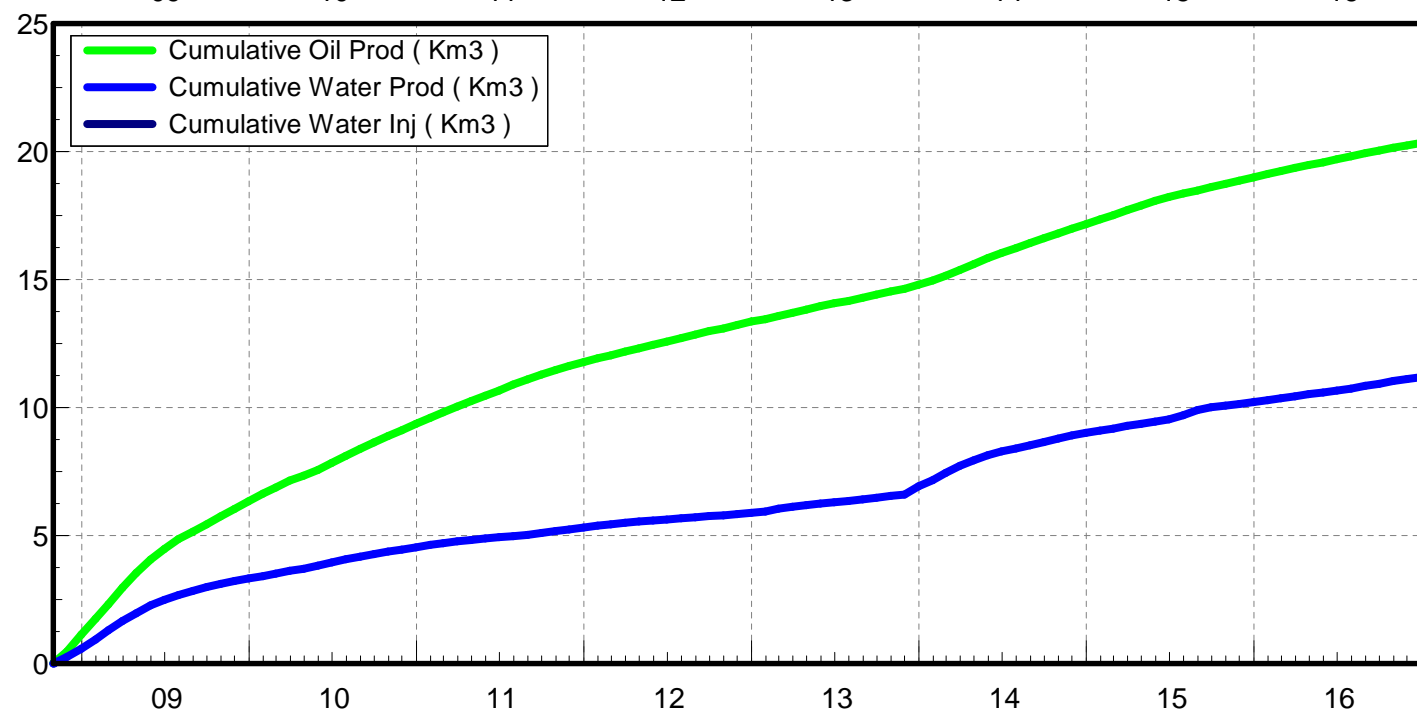
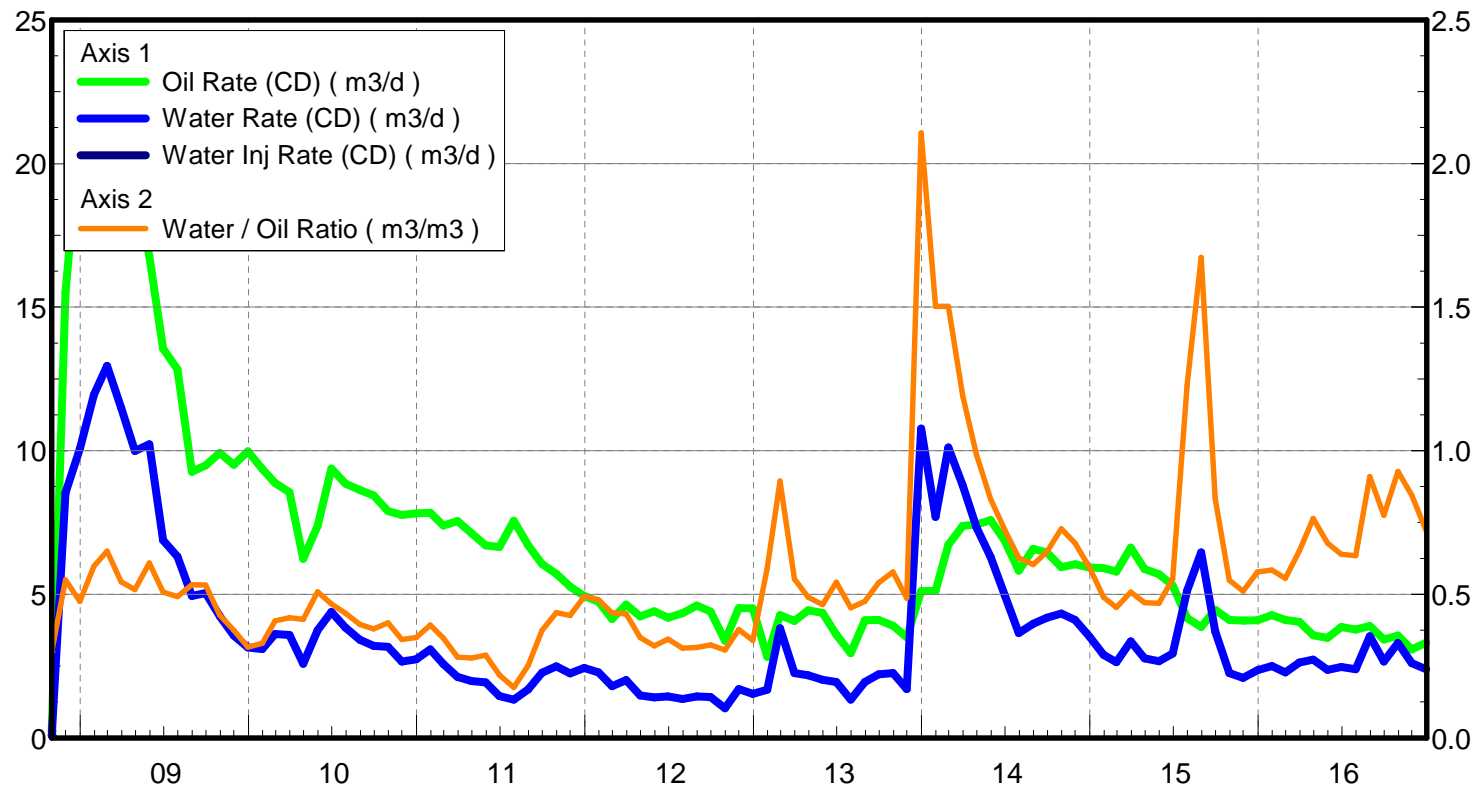
June 27, 2017

Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 1.66 m3/d

Water Rate (CD) : 2.08 m3/d

Water Inj Rate (CD) : 15.03 m3/d



Pattern: 02/03-18-008-29Inj Set: SinclairUnit#10

Oil Formation Vol Factor : 1.07100 m3/m3

Water Formation Vol Factor : 1.00150 m3/m3

Water / Oil Ratio : 0.57 m3/m3

June 27, 2017

Operator: TUNDRA_OIL_&_GAS_LIMITED

Oil Rate (CD) : 1.41 m3/d

Water Rate (CD) : 1.71 m3/d

Water Inj Rate (CD) : 39.02 m3/d

