

Daly Unit #14
2018 Annual EOR Report

Executive Summary

In 2018, oil production from the Daly Unit #14 was 11.3 m³/d (71 bbl/d), totaling 4.1 10³m³ (25.7 mbbbl). Annual production inclined 47.9% from 2017 to 2018, with the drilling of a new horizontal well. Cumulative oil production from Daly Unit #14 was 57.8 10³m³ (363 mbbbl) at the end of 2018.

In December 2018, there were 15 active oil producers and one active injection well.

Discussion

The first development in this unit occurred in 1994 with the deepening of existing vertical producers in the Lodgepole, Daly Unit #13, into the Bakken formation. Further wells were deepened to the Bakken throughout the years, continuing until 2009 where there were a maximum of 11 wells in the unit. In 2014, Corex continued to develop the unit through horizontal multistage fractured wells, drilling two wells in the Bakken formation in the southern portion of the unit. In 2017, Corex drilled one horizontal Bakken well within the unit. With continued development and primary production, it was determined that it would be beneficial to implement a waterflood, with further conversions as development continues.

In September 2018, the 104/04-25-009-29W1/00 well was converted to injection. Thus far, it is too early to see any response to the conversion. The waterflood may have a more muted response as there is only one well under injection.

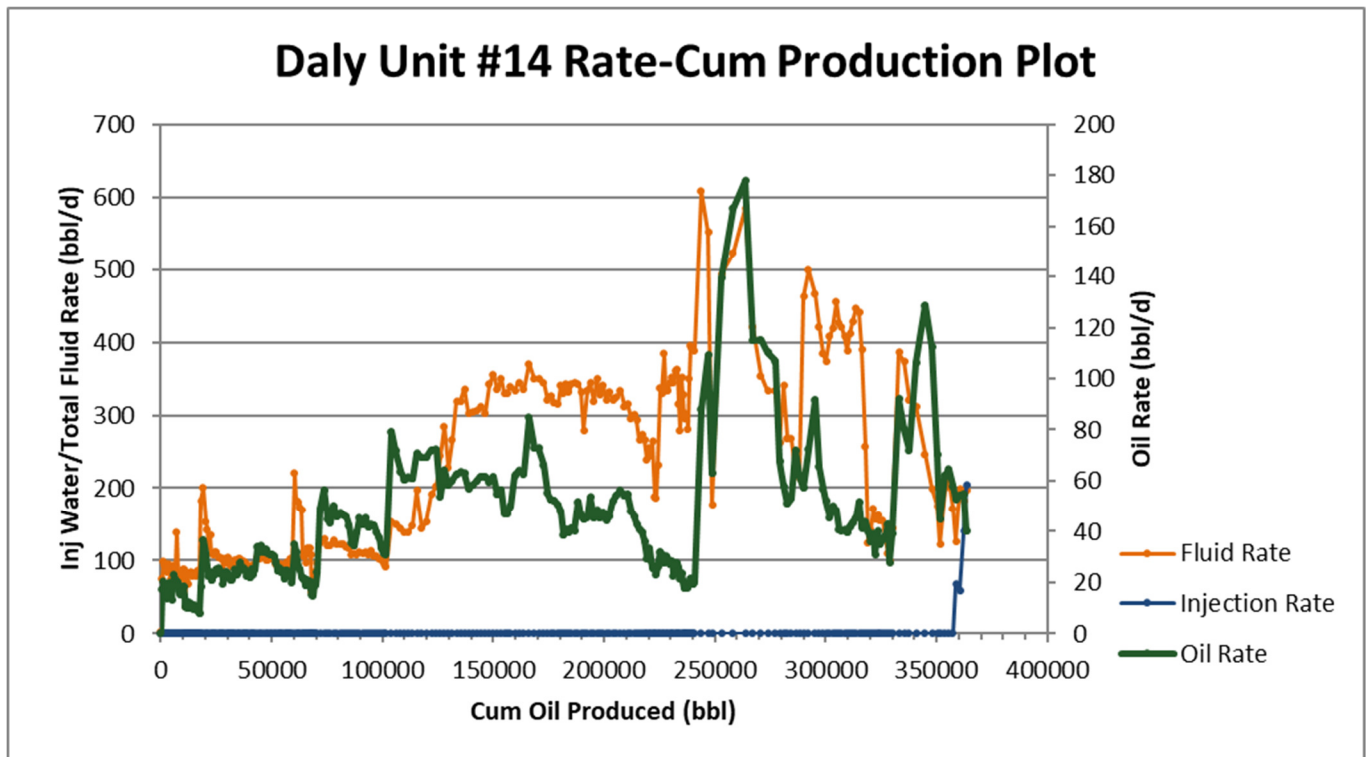
All produced water from the Daly Unit #14 was disposed through the use of a disposal well outside of the unit. Source water from outside the unit is used for all injection. The average injection rate within the unit is 18.8 m³/d (118 bbl/d). The producing WOR of the unit is 4 m³/m³.

Activities of note within the Daly Unit #14 in 2018:

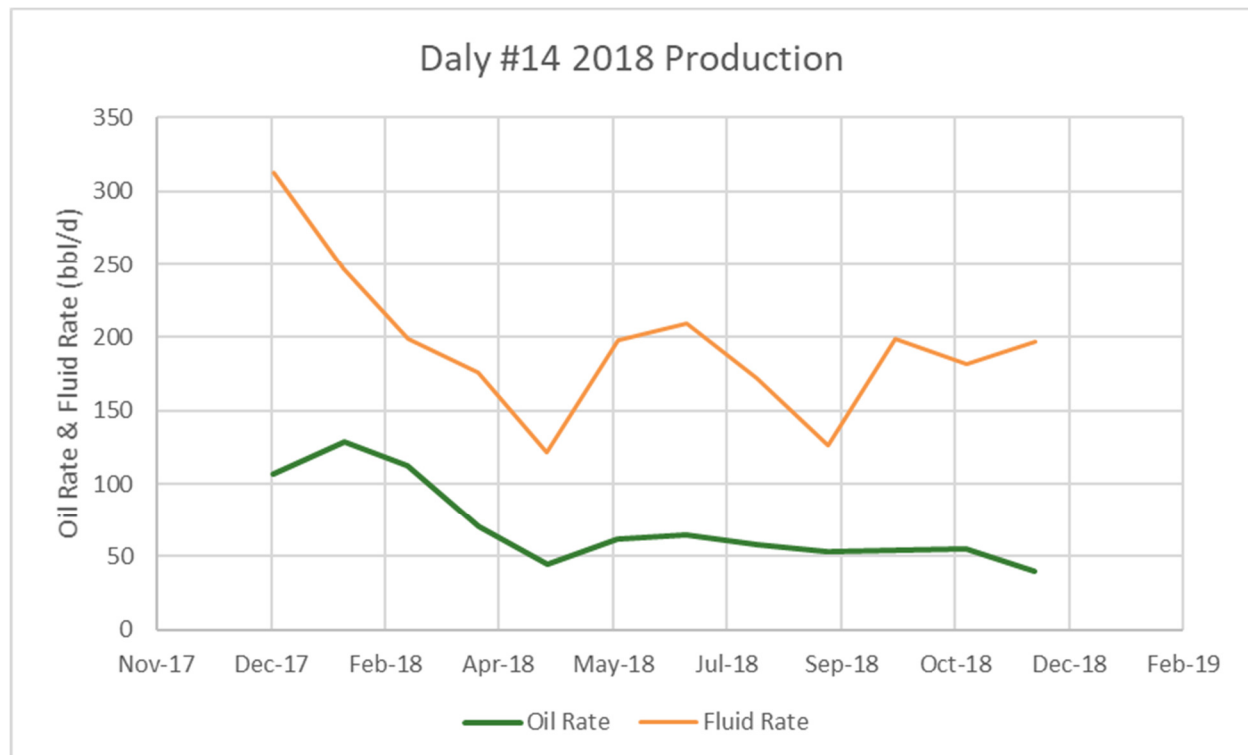
- September 2018, convert 104/04-25-009-29W1/00 to injection.

It is important to note that publicly available production data does not include contribution from the newly drilled wells. Volumes quoted, and unit graphs presented are based on public production data augmented with proprietary data, and consequently should accurately reflect all wells. The pattern data within the tables below is based solely on publicly available production data and therefore missing some production volumes. These tables will be updated in subsequent progress reports.

Daly #14 – Rate vs Cum Oil Production



Daly #14 – Rate vs Time



2018 Reservoir Pressure Surveys

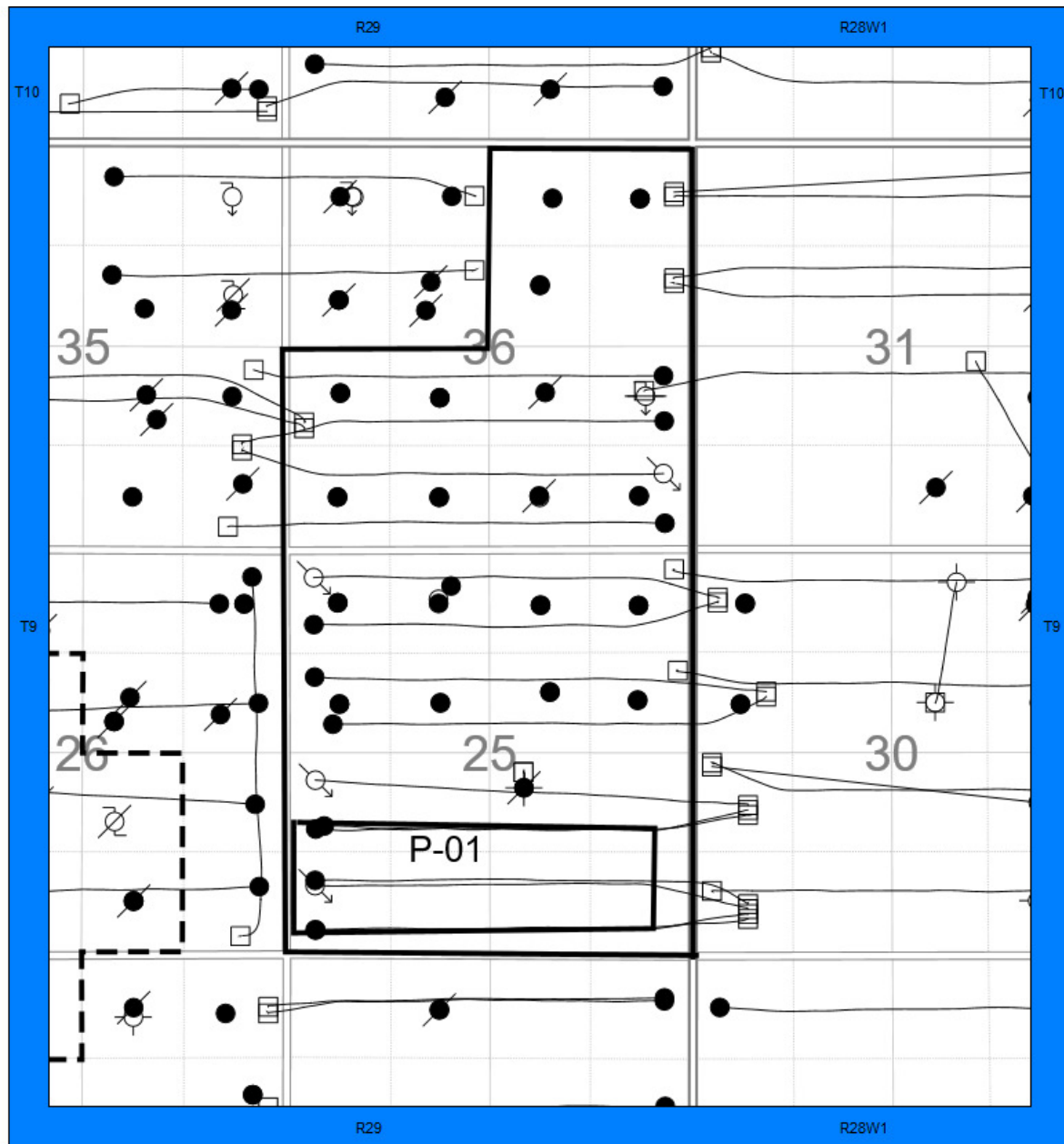
In 2018, no pressure surveys were conducted in Daly Unit #14. There are also no recent recorded pressures within the unit. The estimated initial reservoir pressure for the Bakken is 9,500 kPaa. Thus far, due to minimal production out of the Bakken for the majority of the unit it is likely that most of the unit is near initial reservoir pressure. With further development, due to the inter well spacing it is likely that the average reservoir pressure will drop below the initial reservoir pressure relatively quickly. Therefore, implementing a waterflood will be advantageous. With the recent conversion of a well to injection the pressure in the depleted area will be increasing from its current state.

The VRR within the one pattern in 2018 was started at 1.96, indicating that voidage is being replaced. The cumulative VRR at year end was 0.05, leaving a lot of time until 1.00 is reached. An oil formation volume factor of 1.06 rm^3/sm^3 and a water formation volume factor of 1.04 rm^3/sm^3 were used in the VRR calculations.

2018 Well Servicing

UWI	Unit	Licence	Operation	Date	Objective
100/04-36-009-29W1/00	DALY UNIT 13 & 14	3302	Pump Repair	2018-06-19	
100/10-36-009-29W1/02	DALY UNIT 13 & 14	3707	Pump Repair	2018-12-05	
100/05-25-009-29W1/00	DU#14	9542	Pump Repair	2018-10-01	
100/15-25-009-29W1/02	DALY UNIT 13 & 14	3271	Pump Repair	2018-03-07	
104/04-25-009-29W1/00	DU#14	10718	Injection Conversion	2018-08-17	
100/13-25-009-29W1/02	DU#14	3285	Pump Repair	2018-07-23	
100/04-25-009-29W1/00	DU#14	9658	Pump Repair	2018-08-30	

Daly #14 Waterflood Pattern Map

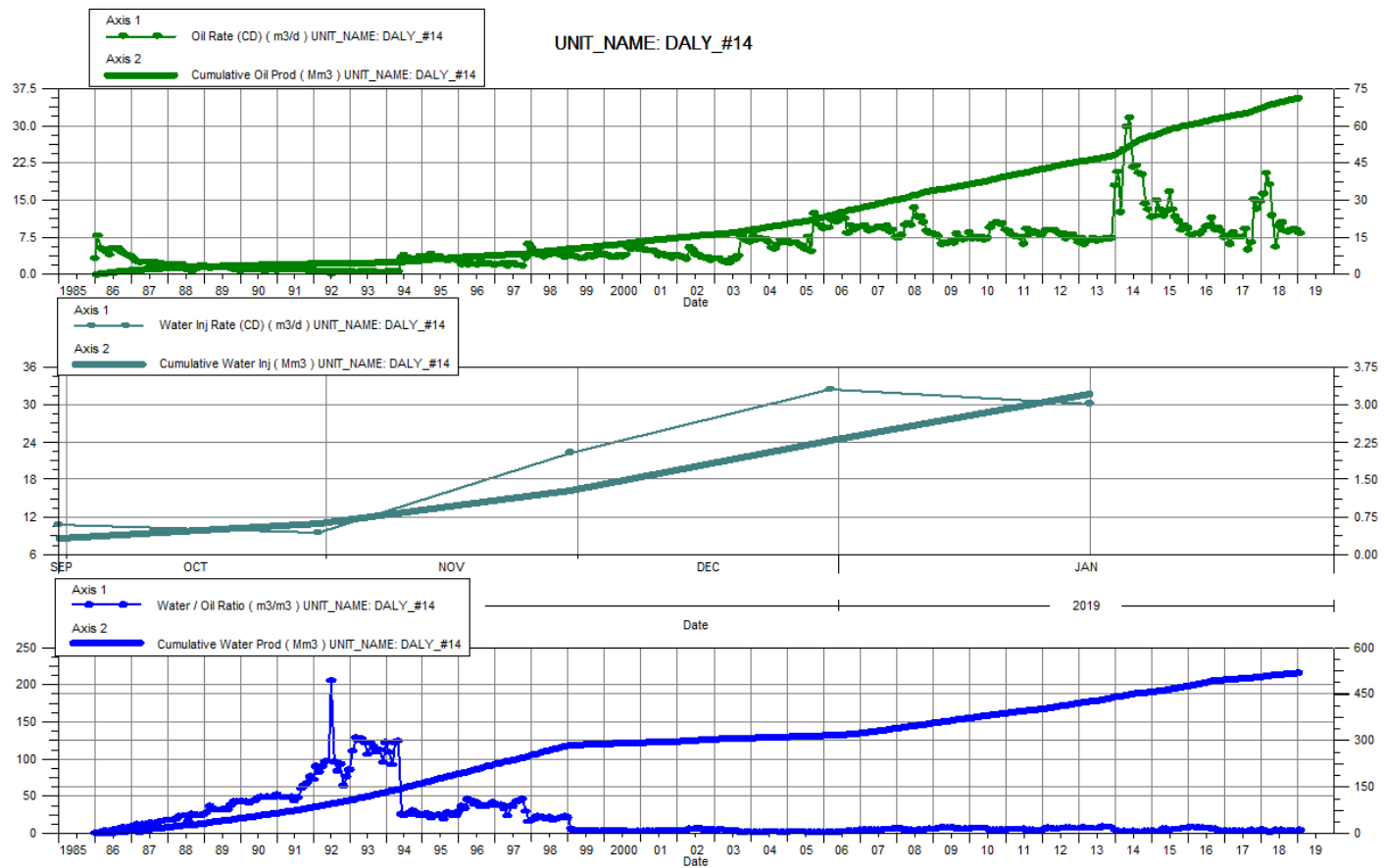


Daly #14 Waterflood Pattern Table

Pattern	Well
P-01	104/04-25-009-29W1/00

Total for Daly #14

Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1-31-2018	16.23	67.47	63.17	506.88		0.00	3.89		0.00	-
2-28-2018	20.49	68.05	31.27	507.75		0.00	1.53		0.00	-
3-31-2018	18.22	68.61	23.03	508.46		0.00	1.26		0.00	-
4-30-2018	11.95	68.97	21.97	509.12		0.00	1.84		0.00	-
5-31-2018	5.58	69.14	22.51	509.82		0.00	4.03		0.00	-
6-30-2018	9.83	69.44	33.66	510.83		0.00	3.42		0.00	-
7-31-2018	10.51	69.76	42.21	512.14		0.00	4.02		0.00	-
8-31-2018	8.77	70.04	28.87	513.04		0.00	3.29		0.00	-
9-30-2018	8.61	70.30	22.56	513.71	10.73	0.32	2.62	0.34	0.00	62.85
10-31-2018	8.93	70.57	30.67	514.66	9.42	0.61	3.43	0.24	0.00	-
11-30-2018	9.10	70.84	28.86	515.53	22.37	1.28	3.17	0.59	0.00	-
12-31-2018	8.93	71.12	31.98	516.52	32.52	2.29	3.58	0.79	0.00	-



Daly No. 14

Pattern P-01 - 04/04-25-009-29W1/0

Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacement Ratio	Water Inj Pressure kPg
1-31-2018	9.55	10.72	50.21	27.89		0.00	5.25		0.00	-
2-28-2018	13.90	11.11	19.36	28.43		0.00	1.39		0.00	-
3-31-2018	11.55	11.47	12.49	28.82		0.00	1.08		0.00	-
4-30-2018	9.34	11.75	15.60	29.29		0.00	1.67		0.00	-
5-31-2018	2.94	11.84	14.97	29.75		0.00	5.10		0.00	-
6-30-2018	3.87	11.96	18.45	30.30		0.00	4.76		0.00	-
7-31-2018	4.05	12.08	21.80	30.98		0.00	5.38		0.00	-
8-31-2018	2.29	12.15	9.61	31.28		0.00	4.20		0.00	-
9-30-2018	1.36	12.19	4.74	31.42	10.73	0.32	3.48	1.75	0.01	62.85
10-31-2018	2.14	12.26	13.80	31.85	9.42	0.61	6.44	0.59	0.01	-
11-30-2018	2.07	12.32	11.77	32.20	22.37	1.28	5.69	1.61	0.03	-
12-31-2018	2.10	12.39	14.47	32.65	32.52	2.29	6.89	1.96	0.05	-

