

Daly Unit No. 14
2020 Annual EOR Report

Executive Summary

In 2020, oil production from Daly Unit No. 14 was $9.7 \text{ m}^3/\text{d}$ (60.8 bbl/d), totaling $3.5 \times 10^3 \text{ m}^3$ (22.2 mbbl). Annual production inclined by 20.8% from 2019 to 2020 based on average yearly production. If you compare December 2019 to December 2020 the unit would have a decline in production of 50%, due to the drilling of two new horizontal wells in the latter part of 2019. Cumulative oil production from Daly Unit No. 14 was $64.2 \times 10^3 \text{ m}^3$ (404 mbbl) at the end of 2020.

In December 2020, there were 8 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 No. 13, into the Bakken formation. Further wells were deepened to the Bakken throughout the years, continuing until 2009 where there was 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. In 2019, two wells were drilled in 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.

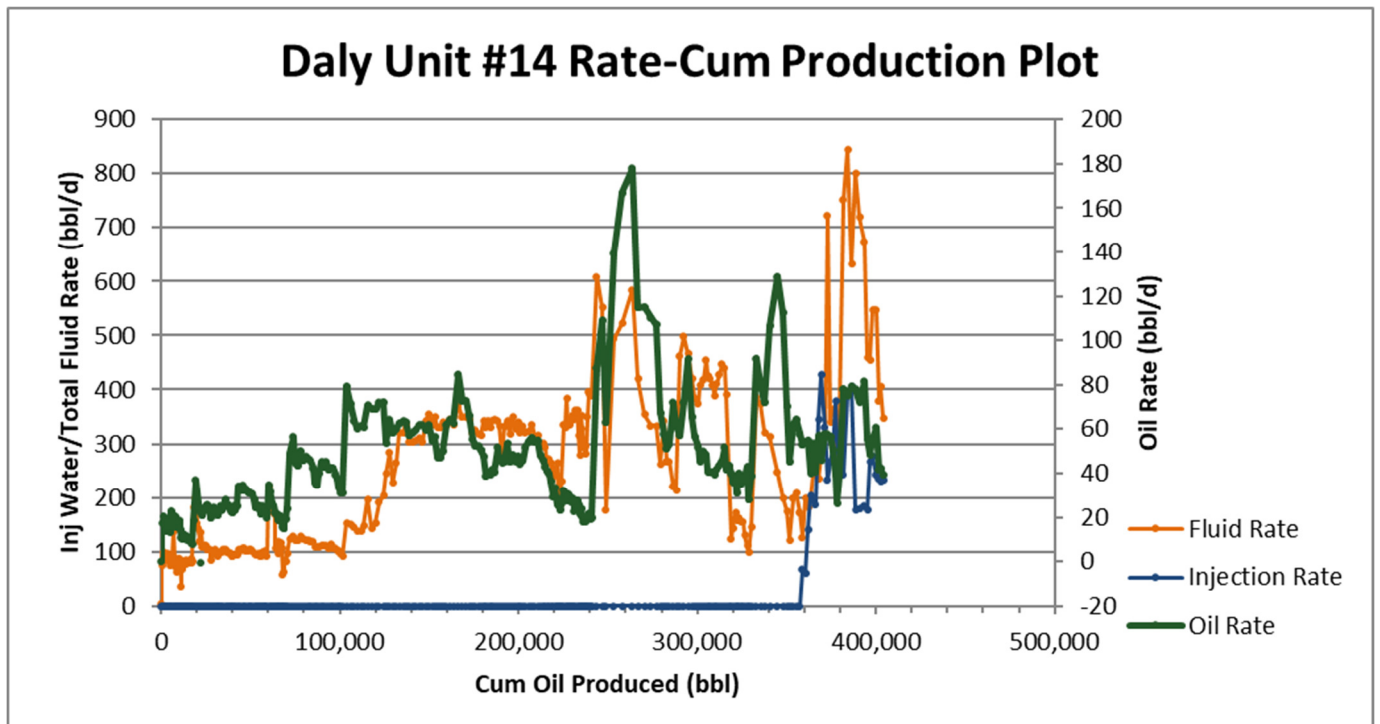
In September 2018, the 104/04-25-009-29W1/00 well was converted to injection. Thus far, we have not seen any response from the conversion. The waterflood may have a more muted response as there is only one well under injection. In 2020, the 104/05-25-009-29W1/00 well was converted to injection to provide additional support, however, it was not injecting within 2020.

All produced water from the Daly Unit No. 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 $39.7 \text{ m}^3/\text{d}$ (250 bbl/d). The producing WOR of the unit is $8.3 \text{ m}^3/\text{m}^3$.

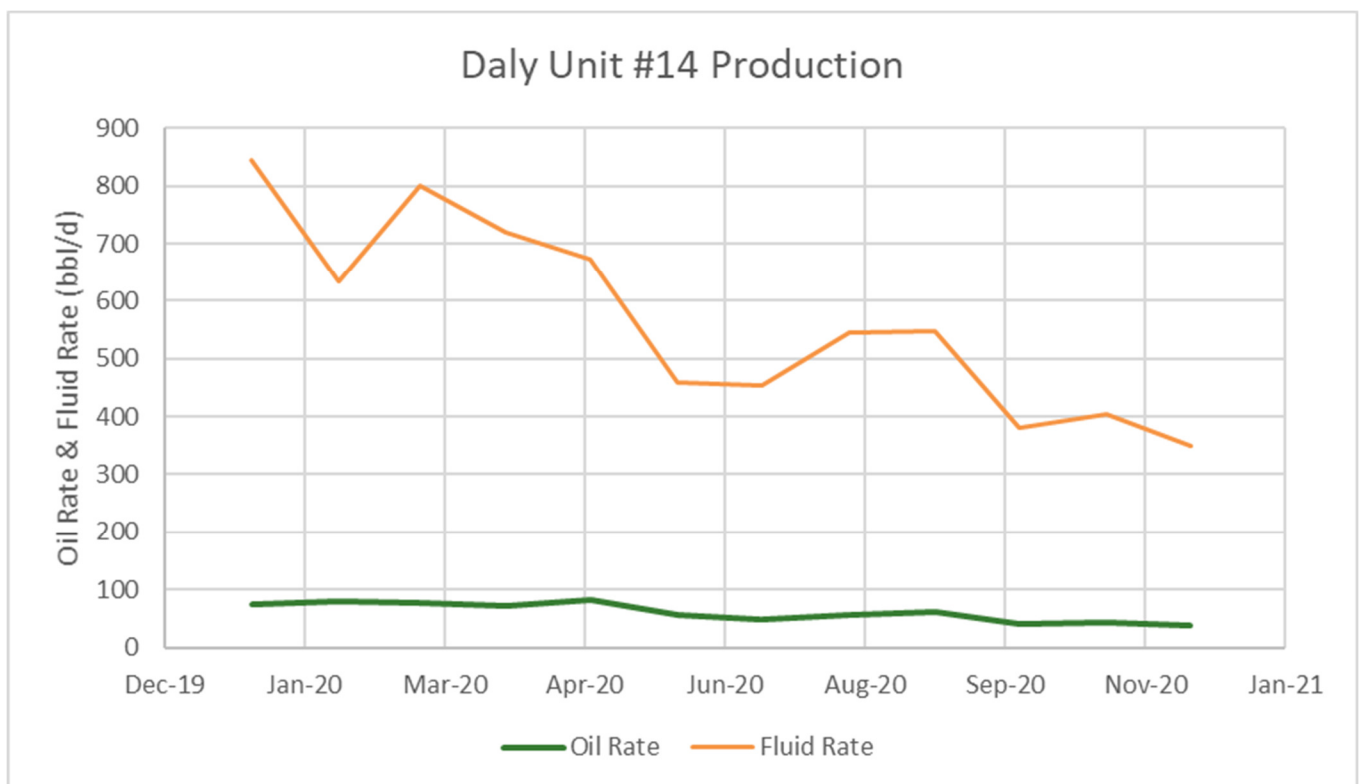
Activities of note within the Daly Unit No. 14 in 2020:

- October 2020, convert the 104/05-25-009-29W1/00 well to injection.

Daly #14 – Rate vs Cum Oil Production



Daly #14 – Rate vs Time



2020 Reservoir Pressure Surveys

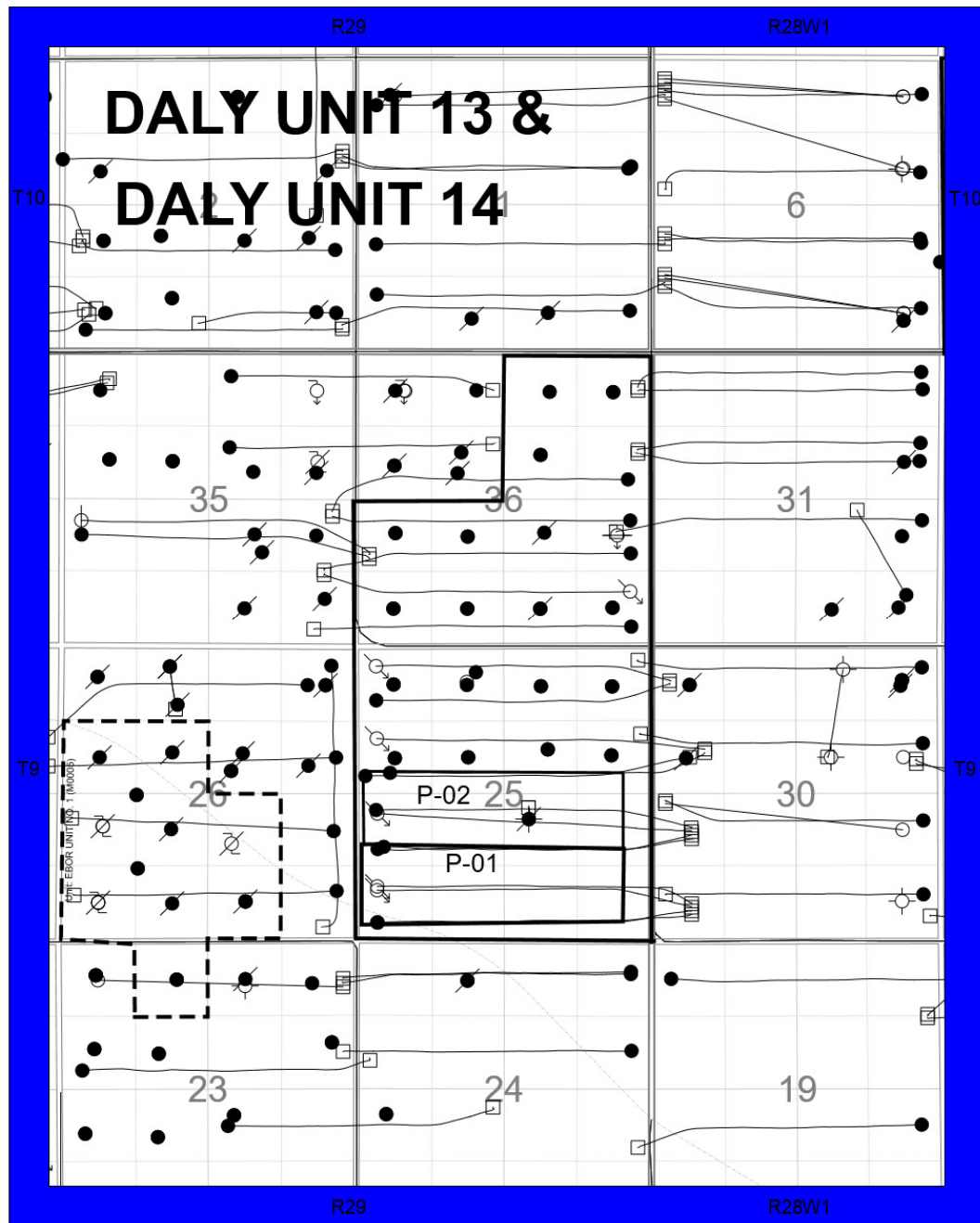
In 2020, no pressure surveys were conducted in Daly Unit #14. There are also no recent recorded pressures within the unit. The estimated initial reservoir pressure for the Bakken is 9,500 kPaa. Thus far, due to minimal production out of the Bakken for the majority of the unit it is likely that most of 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 conversion of wells to injection the pressure in the depleted area will be increasing from its current state.

The VRR within the one pattern in 2020 averaged 3.24, indicating that voidage is being replaced. The cumulative VRR for the pattern at year end was 0.69. Although, no response has been seen to date. An oil formation volume factor of $1.06 \text{ rm}^3/\text{sm}^3$ and a water formation volume factor of $1.04 \text{ rm}^3/\text{sm}^3$ were used in the VRR calculations.

2020 Well Servicing

UWI	Unit	Licence	Start Date	Job Category	Primary Job Type
100/16-36-009-29W1/02	DU#14	3522	2020-02-23 7:30	Completion/Workover	Pump Repair
100/15-25-009-29W1/02	DALY UNIT 13 & 14	3271	2020-03-13 7:30	Completion/Workover	Pump Repair
104/05-25-009-29W1/00	DU#14	11322	2020-09-03 10:00	Completion/Workover	Injection Conversion
100/04-25-009-29W1/00	DU#14	9658	2020-02-20 13:00	Completion/Workover	Pump Repair
104/12-25-009-29W1/00	DU#14	11331	2020-08-05 7:30	Completion/Workover	Pump Repair
104/12-25-009-29W1/00	DU#14	11331	2020-10-23 15:30	Completion/Workover	Pump Repair
100/04-36-009-29W1/00	DALY UNIT 13 & 14	3302	2020-03-05 7:30	Completion/Workover	Pump Repair
100/05-25-009-29W1/00	DU#14	9542	2020-02-21 10:30	Completion/Workover	Pump Repair
100/05-25-009-29W1/00	DU#14	9542	2020-10-14 14:00	Completion/Workover	Pump Repair

Daly #14 Waterflood Pattern Map

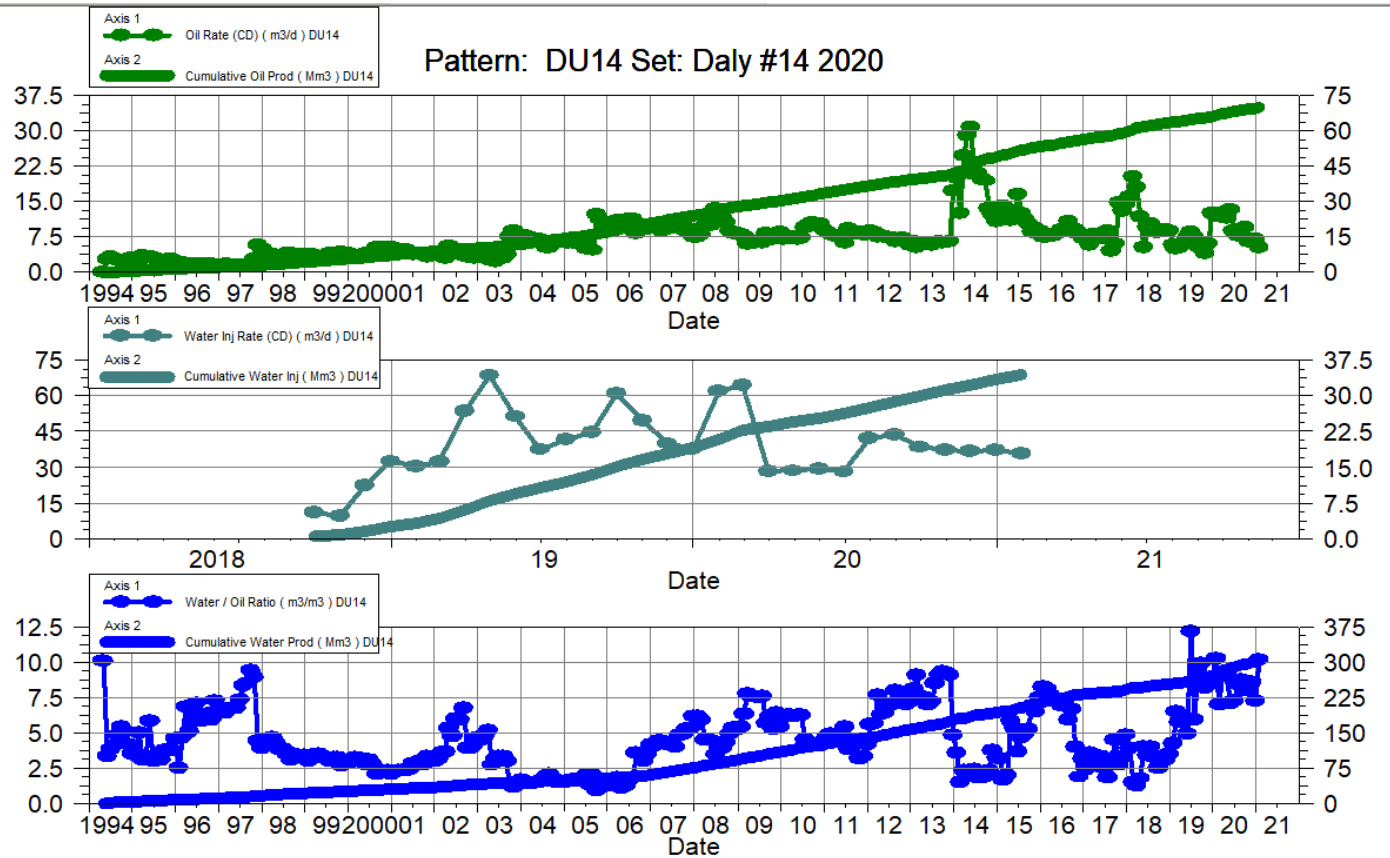


Daly #14 Waterflood Pattern Table

Pattern	Well
P-01	104/04-25-009-29W1/00
P-02	104/05-25-009-29W1/00

Total for Daly #14

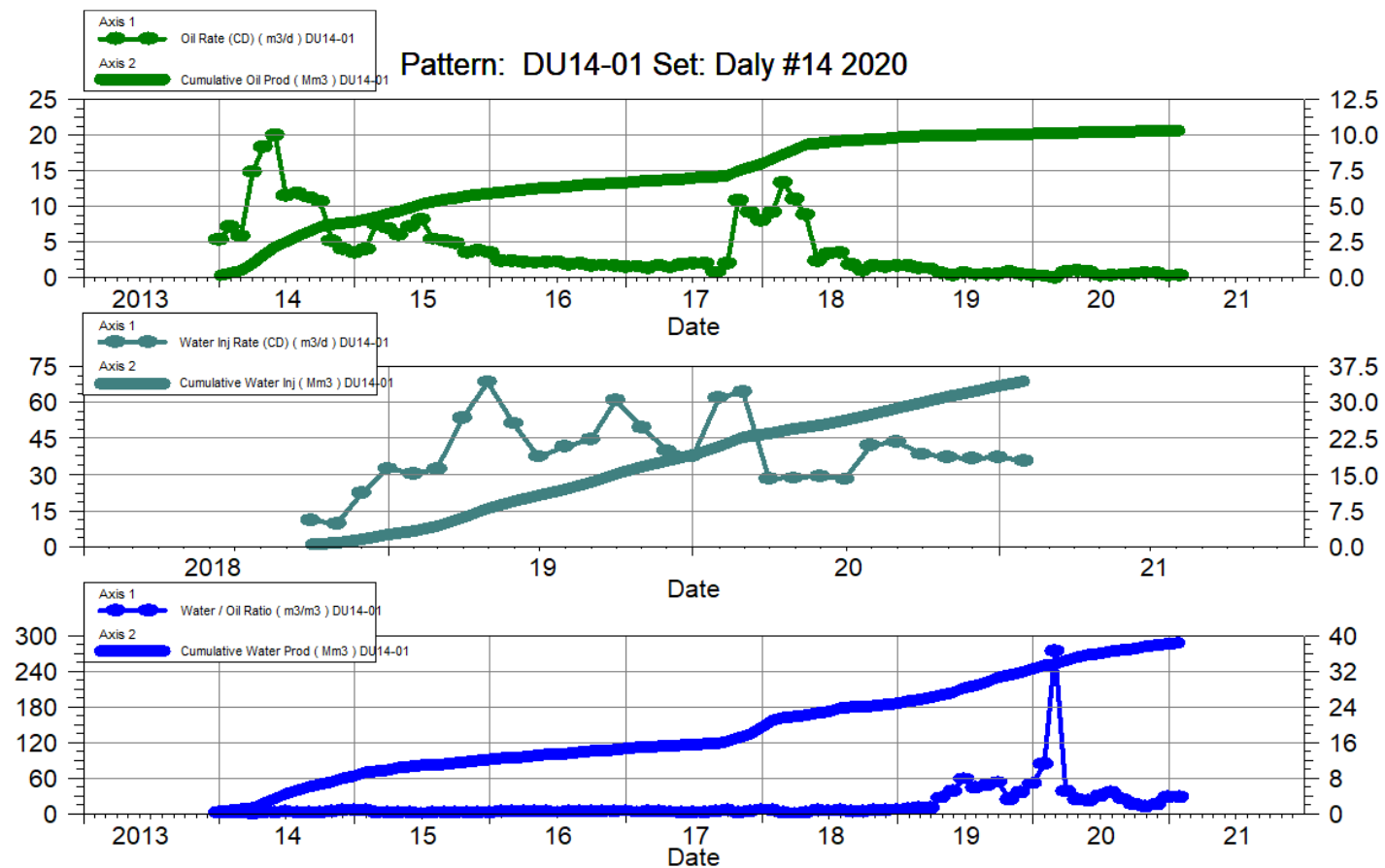
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacement Ratio	Water Inj Pressure kPa
1-31-2020	11.98	66.59	122.41	274.73	62.41	20.95	10.21	0.46	0.06	8,619.00
2-29-2020	12.61	66.96	87.94	277.28	64.60	22.82	6.97	0.64	0.07	8,619.00
3-31-2020	12.36	67.34	115.08	280.85	28.30	23.70	9.31	0.22	0.07	8,619.00
4-30-2020	11.51	67.69	102.95	283.94	28.53	24.56	8.95	0.25	0.07	8,619.00
5-31-2020	13.30	68.10	94.07	286.85	29.23	25.46	7.07	0.27	0.07	8,619.00
6-30-2020	8.83	68.36	64.13	288.78	28.03	26.30	7.26	0.38	0.07	8,619.00
7-31-2020	7.69	68.60	64.62	290.78	42.39	27.62	8.41	0.59	0.08	8,619.00
8-31-2020	8.90	68.88	77.92	293.20	43.90	28.98	8.75	0.51	0.08	8,619.00
9-30-2020	9.65	69.17	77.28	295.52	38.50	30.13	8.01	0.44	0.08	8,619.00
10-31-2020	6.61	69.37	53.75	297.18	37.35	31.29	8.13	0.62	0.09	8,619.00
11-30-2020	6.74	69.57	57.72	298.91	36.83	32.40	8.56	0.57	0.09	8,619.00
12-31-2020	7.02	69.79	50.67	300.48	37.08	33.55	7.22	0.64	0.09	8,619.00



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
1-31-2020	0.30	10.14	25.34	33.19	62.41	20.95	84.47	2.43	0.48	8,619.00
2-29-2020	0.03	10.14	7.53	33.41	64.60	22.82	273.06	8.54	0.52	8,619.00
3-31-2020	0.83	10.17	31.86	34.40	28.30	23.70	38.21	0.87	0.53	8,619.00
4-30-2020	1.10	10.20	26.45	35.19	28.53	24.56	24.15	1.04	0.54	8,619.00
5-31-2020	0.81	10.23	18.29	35.76	29.23	25.46	22.50	1.53	0.55	8,619.00
6-30-2020	0.30	10.24	8.94	36.03	28.03	26.30	30.14	3.03	0.57	8,619.00
7-31-2020	0.41	10.25	14.47	36.48	42.39	27.62	35.60	2.85	0.59	8,619.00
8-31-2020	0.46	10.26	11.43	36.83	43.90	28.98	24.78	3.69	0.61	8,619.00
9-30-2020	0.60	10.28	9.61	37.12	38.50	30.13	16.10	3.77	0.63	8,619.00
10-31-2020	0.75	10.30	9.01	37.40	37.35	31.29	11.99	3.82	0.65	8,619.00
11-30-2020	0.70	10.33	11.53	37.74	36.83	32.40	16.40	3.01	0.67	8,619.00
12-31-2020	0.31	10.33	8.41	38.00	37.08	33.55	27.46	4.25	0.69	8,619.00



Daly No. 14

Pattern P-02 - 04/05-25-009-29W1/0

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
1-31-2020	9.20	3.23	89.94	15.28		0.00	9.78		0.00	-
2-29-2020	10.07	3.52	77.57	17.53		0.00	7.71		0.00	-
3-31-2020	9.09	3.81	76.93	19.92		0.00	8.47		0.00	-
4-30-2020	8.96	4.07	75.34	22.18		0.00	8.41		0.00	-
5-31-2020	9.77	4.38	68.29	24.29		0.00	6.99		0.00	-
6-30-2020	6.69	4.58	51.48	25.84		0.00	7.69		0.00	-
7-31-2020	5.06	4.73	44.01	27.20		0.00	8.70		0.00	-
8-31-2020	6.18	4.93	58.60	29.02		0.00	9.48		0.00	-
9-30-2020	6.87	5.13	56.51	30.71		0.00	8.23		0.00	-
10-31-2020	3.91	5.25	37.44	31.87		0.00	9.58		0.00	-
11-30-2020	4.67	5.39	39.83	33.07		0.00	8.52		0.00	-
12-31-2020	3.97	5.52	33.98	34.12		0.00	8.56		0.00	-

