

Virden Roselea Unit #2
2016 Annual EOR Report

Executive Summary

In 2016 oil production in the Virden Roselea Unit #2 (VRU #2) averaged 45.5 m³/d (286 bbl/d) totaling 16.6 e³m³ (104.4 mmbbl). Annual production decline was 26.1% from 2015 to 2016, the first time in three years that there has been an overall production decline in the unit, due to a lack of activity. By the end of 2016 cumulative oil production from the VRU #2 was 1 197 e³m³ (7.5 mmbbl). The original forecasted recovery was 270 e³m³ (1.7 mmbbl) on primary recovery and 730 e³m³ (4.6 mmbbl) total primary plus secondary recovery. It should be noted that the pool was expanded slightly after the original waterflood forecast was made; however, the waterflood has made a tremendous increase to the ultimate oil recovery and has exceeded the original expectations. That said, the unit is still at a low recovery and there is still potential to improve the performance and gain incremental reserves.

In December 2016 there were 34 producing oil wells and 10 water injectors active in the unit. In 2016, there was no drilling activity in the unit.

Discussion

The VRU #2 has been under waterflood since 1966, seven years after first production from the pool in 1959. Water injection increased the oil production rate from $\sim 60 \text{ m}^3/\text{d}$ ($\sim 377 \text{ bbl/d}$) to $\sim 150 \text{ m}^3/\text{d}$ (944 bbl/d), equivalent to peak production from the field. Expected ultimate oil recovery was increased by more than four times by the waterflood.

Prior to the operatorship transferring to Corex Resources very little additional development had taken place in the unit. From 1997- 2002, four horizontal wells were drilled in the unit, all with poor results. In 2013, a very successful Virden well was drilled in the unit. 2014 was very active: six horizontal wells, a disposal well, and a vertical producer were drilled and 5 vertical recompletes in the Whitewater formation were executed successfully. In 2015, one well in the Virden formation was drilled. In 2015, a poor producer, 103/16-05-011-25W1/00 was converted to injection. Currently, the pattern is being monitored for response, and some response has been seen. This is the first well to have been converted to injection since 1971. At the end of this year all of the old pipelines in the unit had been replaced, allowing for us to effectively set injection targets. The unit is mainly laid out in 5-spot patterns; however, there are some areas in the unit that have seen little to no waterflood support, mainly on the west side of the unit. There is the possibility of completing the remaining 5-spot patterns, but it was deemed more efficient to implement a horizontal-horizontal waterflood after drilling infill wells. This unit has a low recovery factor and very likely poor sweep efficiency. Changing the established patterns should help to recover incremental reserves, as at this point in time, there is a lot of water cycling. The water injection rate was $902 \text{ m}^3/\text{d}$ ($5,672 \text{ bbl/d}$) in 2016 and the producing WOR was $25 \text{ m}^3/\text{m}^3$. The injected water at VRU #2 is not filtered or treated in any way.

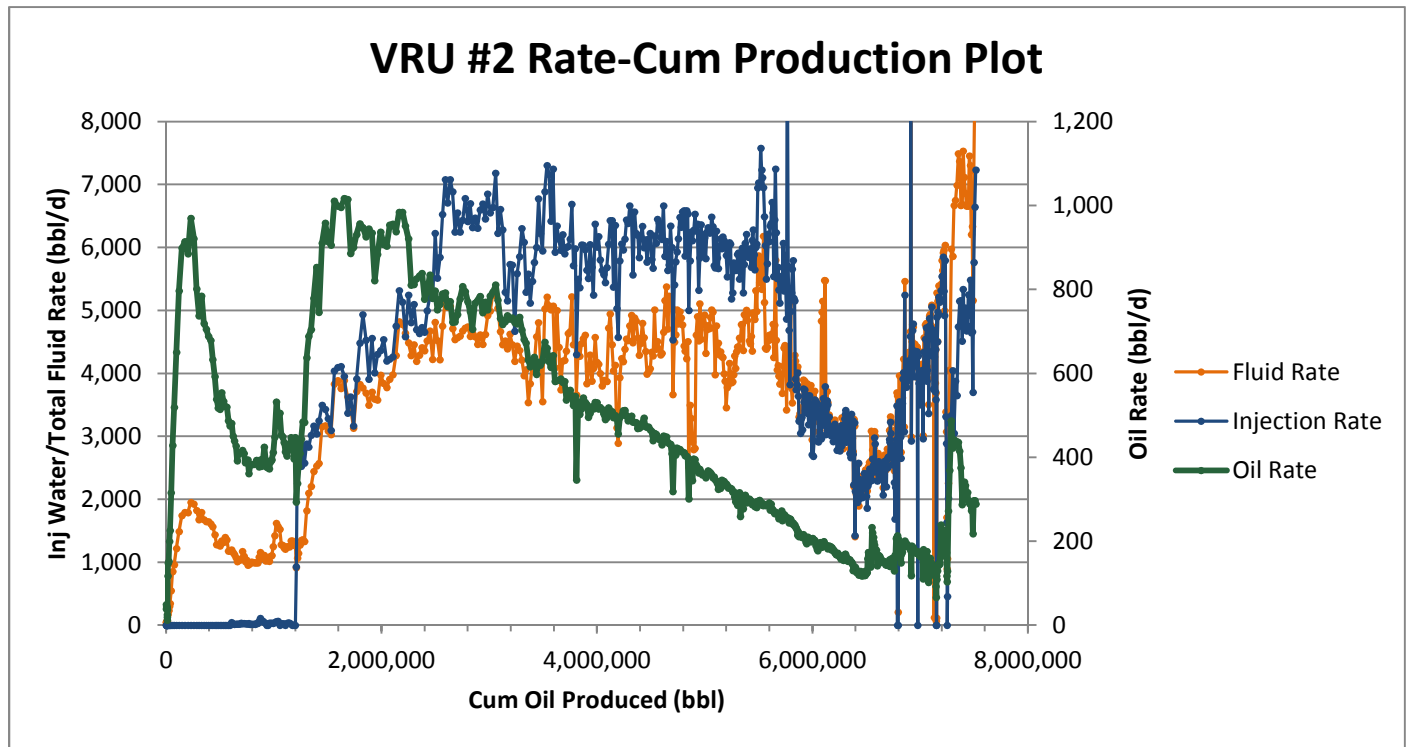
Significant events in 2016 are as follows:

- June 2016, a turnaround was performed.

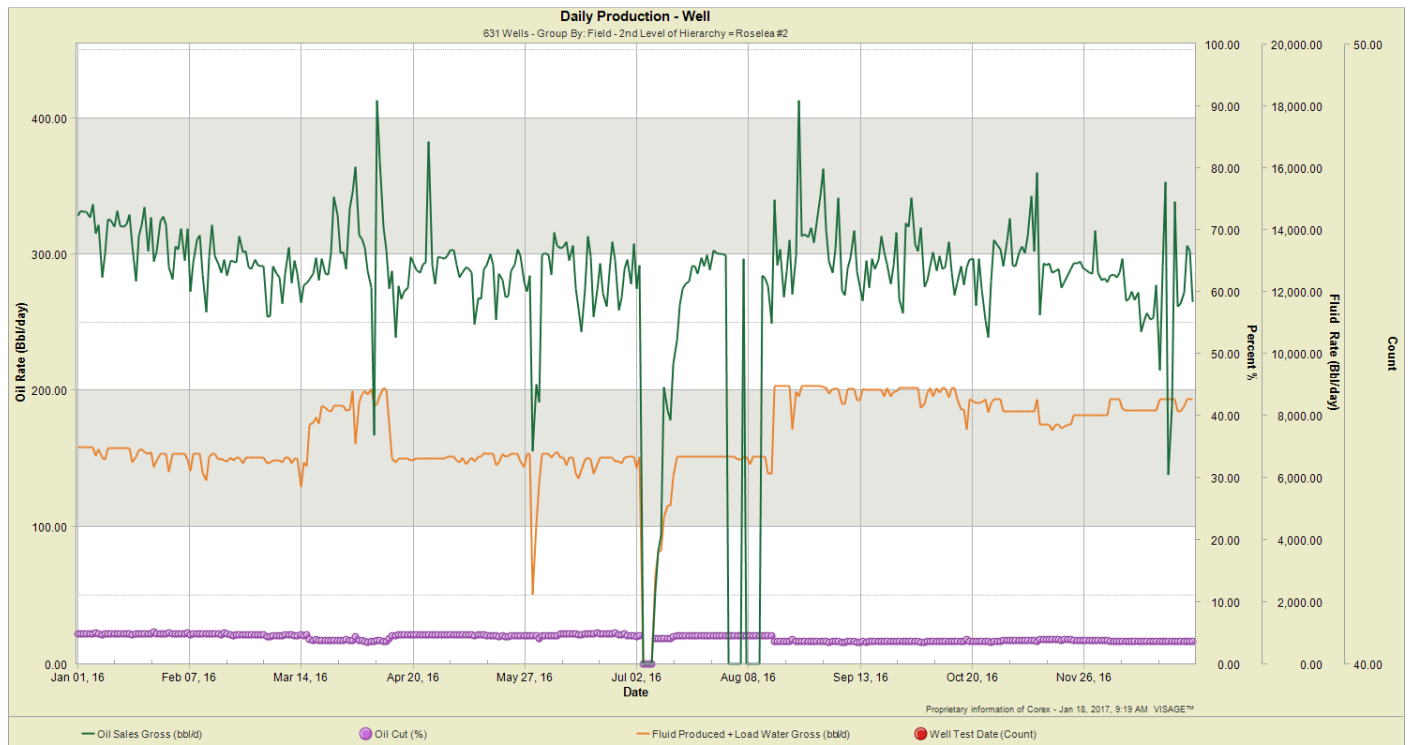
In the composite rate – cumulative oil plot below, waterflood response is clearly demonstrated at a cumulative oil production of $200 \text{ e}^3\text{m}^3$ (1.25 MMbbl).

Detailed production, injection, voidage tables and plots for the total unit and each injection pattern are at the end of this report.

VRU #2 – Rate vs Cum Oil Production



VRU #2 – Rate vs Time



2016 Reservoir Pressure Surveys

Unit	UWI	License	Test Type	Date of Pressure	Duration of SI (days)	Datum BHP (kPaa)
VRU #2	100/06-36-010-26W1/00	2183	FL Shot	7/8/2016	5	7,051
VRU #2	100/12-36-010-26W1/00	1780	FL Shot	7/13/2016	10	1,992
VRU #2	100/05-05-011-25W1/00	1803	FL Shot	7/8/2016	5	5,747
VRU #2	102/09-05-011-25W1/00	5125	FL Shot	7/8/2016	5	4,988
VRU #2	103/09-05-011-25W1/00	10026	FL Shot	7/8/2016	5	7,029
VRU #2	100/11-05-011-25W1/00	2042	FL Shot	7/13/2016	10	5,717
VRU #2	100/12-05-011-25W1/00	1805	FL Shot	7/8/2016	5	6,712
VRU #2	102/13-05-011-25W1/00	9879	FL Shot	7/13/2016	10	4,944
VRU #2	100/15-05-011-25W1/00	2078	FL Shot	7/13/2016	10	6,883
VRU #2	100/16-05-011-25W1/00	2103	FL Shot	7/13/2016	10	4,360
VRU #2	102/16-05-011-25 W1/00	10023	FL Shot	7/13/2016	10	5,818
VRU #2	100/02-06-011-25W1/00	1763	FL Shot	7/8/2016	5	7,481
VRU #2	102/07-06-011-25W1/00	10054	FL Shot	7/8/2016	5	9,846
VRU #2	100/08-06-011-25W1/00	1795	FL Shot	7/8/2016	5	7,214
VRU #2	100/10-06-011-25W1/00	1785	FL Shot	7/8/2016	5	9,425
VRU #2	102/12-06-011-25W1/00	10292	FL Shot	7/8/2016	5	4,943
VRU #2	100/12-06-011-25W1/00	2200	FL Shot	7/8/2016	5	6,917
VRU #2	100/15-06-011-25W1/00	1797	FL Shot	7/8/2016	5	7,142
VRU #2	100/16-06-011-25W1/00	1807	FL Shot	7/8/2016	5	8,616
VRU #2	100/01-07-011-25W1/00	1814	FL Shot	7/8/2016	5	6,238
VRU #2	100/02-07-011-25W1/00	1792	FL Shot	7/8/2016	5	11,242
VRU #2	100/03-07-011-25W1/00	1767	FL Shot	7/8/2016	5	7,541
VRU #2	100/04-07-011-25W1/00	1773	FL Shot	7/8/2016	5	8,306
VRU #2	100/05-07-011-25W1/00	2335	FL Shot	7/13/2016	10	1,053
VRU #2	100/04-08-011-25W1/00	1813	FL Shot	7/8/2016	5	10,437

The pressures, taken in 2016, show that the pool is generally over the original pressure in most areas. The average for 2016 is 6,700 kPaa, which is not largely over pressure; some injection wells have been SI to reduce the pressure in the unit. Also, the attempt to balance the flood by setting injection targets has lowered the overall pressure of the pool. The pool is still over pressured as vertical wells even far away from injection have high pressure and suspended wells can hold fluid to surface for years. It is hoped that the high pressure will help improve production in the new producers. We may also need to reconsider the previous notion that a significant portion of the injected water has gone out of zone. The water still may have gone out of zone, resulting in poor sweep

efficiency and the overall low recovery in the unit, but it did not appear to leave the system and has therefore pressured up the unit.

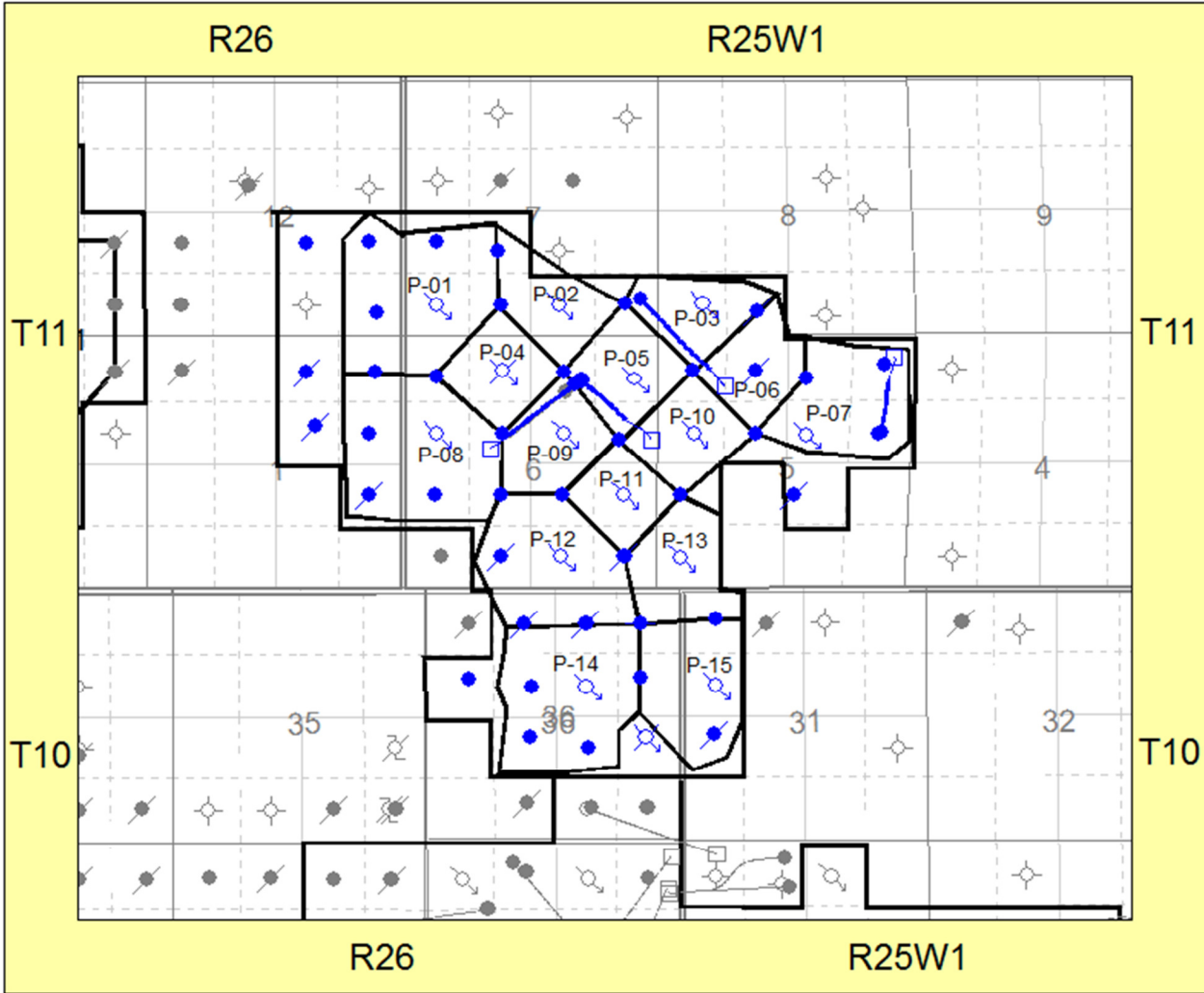
Pressures taken from 2010 and 2011 ranged from 6 000 kPaa to 11 218 kPaa. The pressures for VRU #2 taken over the years are very variable resulting in a large array of pressures and uncertainty in the average pool pressure. As the pressures vary with area, and possibly by formation, it is unlikely we will be able to record consistent pressures. As the voidage replacement ratio (VRR) has been less than one for the year so we may see a decline in the unit pressure. However, individual patterns have been over injecting or under injecting resulting in variable pressures by pattern.

The VRR in 2015 varied from 0.65 to 0.84 for a maximum. Currently, the disposal well is taking large volumes of water, enabling us to balance the flood in other areas. It is hoped that the ability to balance the patterns will result in improved sweep efficiency. The cumulative VRR at year end dropped slightly to 1.08. An oil formation volume factor of $1.06 \text{ m}^3/\text{m}^3$ and a water formation volume factor of $1.04 \text{ m}^3/\text{m}^3$ were used in the VRR calculations.

2016 Well Servicing

UWI	Unit	Licence	Operation	Date	Objective
TURNAROUND	VRU#2	T16VIR001	Turnaround	1-Jun-16	
102/07-06-011-25W1/00	VRU#2	10054	Cathodic	15-Sep-16	
102/16-05-011-25W1/00	VRU#2	10023	Cathodic	15-Sep-16	
PIPELINE REPLACEMENT	VRU#2	P16VIR006	Pipelines	20-Jul-16	
103/09-05-011-25W1/00	VRU#2	10026	Pump Repair	19-Dec-16	
100/13-06-011-25W1/00	VRU#2	002238	Workover	19-Jan-16	
100/13-05-011-25W1/00	VRU#2	001808	Pump Repair	1-Sep-16	
100/05-05-011-25W1/00	VRU#2	001803	Pump Repair	7-Nov-16	

Waterflood Pattern Map

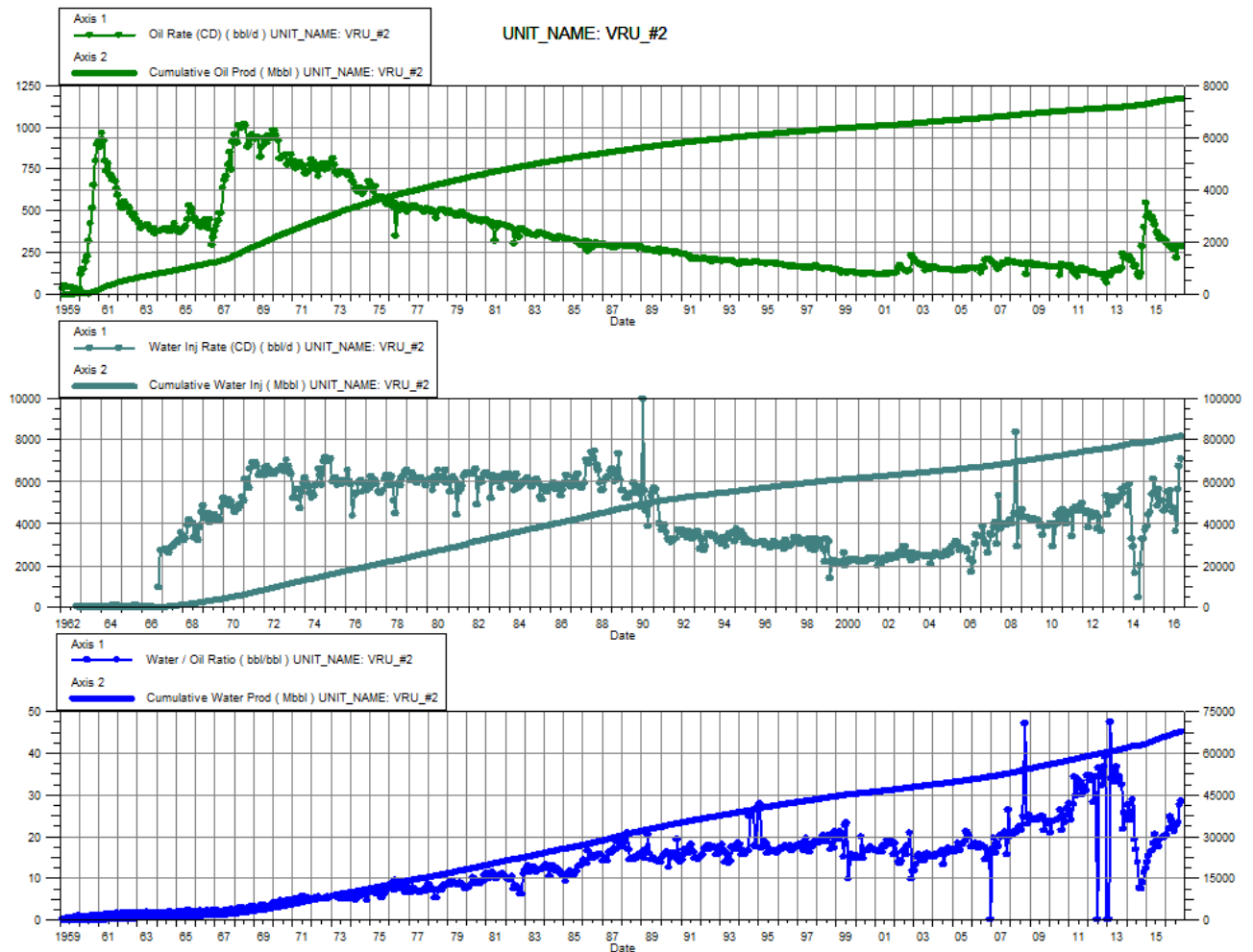


Waterflood Patterns and Corresponding Injectors

Pattern	Injection Well
P-01	100/04-07-011-25W1/00
P-02	100/02-07-011-25W1/00
P-03	100/04-08-011-25W1/00
P-04	100/14-06-011-25W1/00
P-05	100/16-06-011-25W1/00
P-06	100/14-05-011-25W1/00
P-07	100/10-05-011-25W1/00, 103/16-05-011-25W1/00
P-08	100/12-06-011-25W1/00
P-09	100/10-06-011-25W1/00
P-10	100/12-05-011-25W1/00
P-11	100/08-06-011-25W1/00
P-12	100/02-06-011-25W1/00
P-13	100/04-05-011-25W1/00
P-14	100/10-36-010-26W1/00
P-15	100/12-31-010-25W1/00

Total for Virden Roselea Unit #2

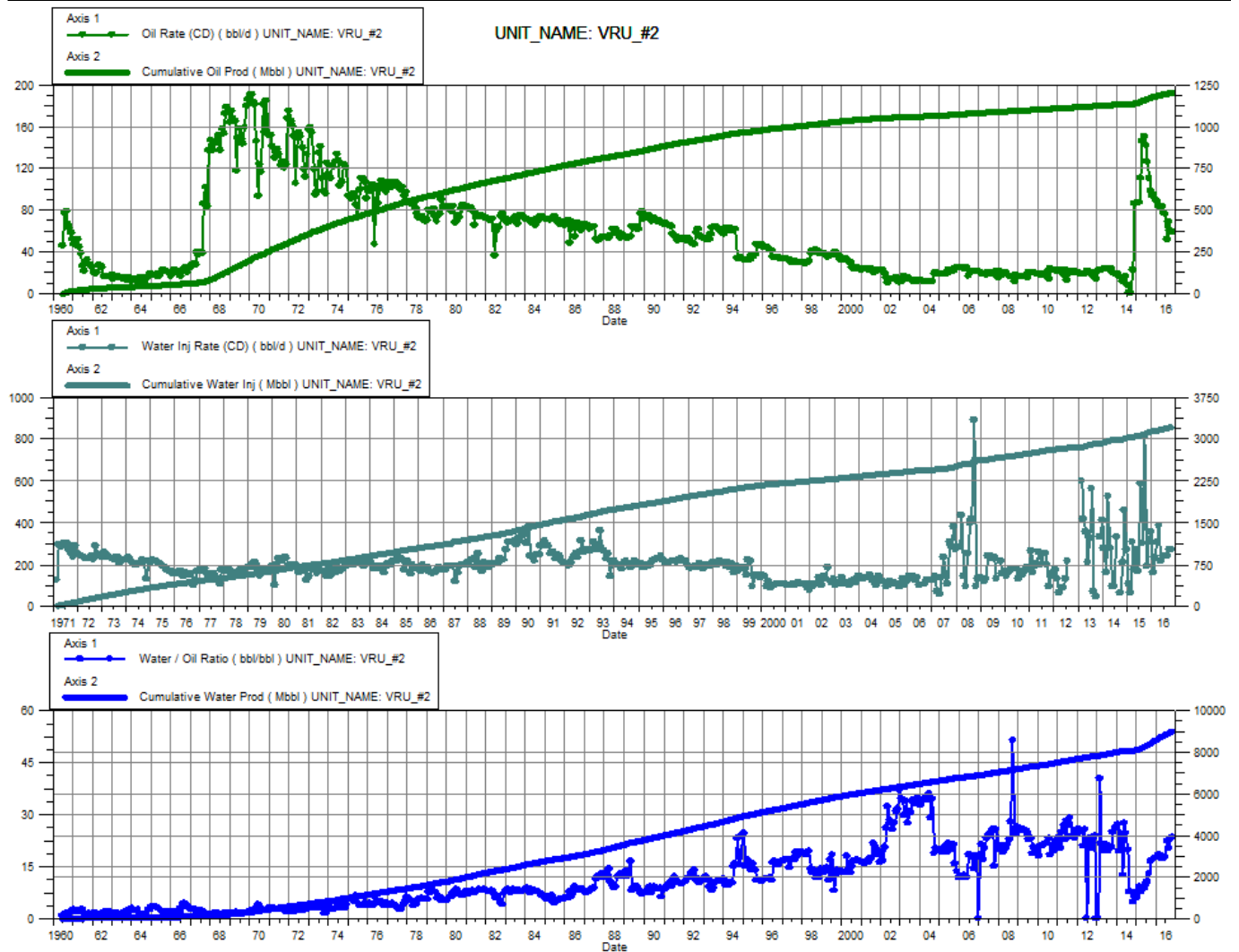
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	50.3	1183.47	1010.1	10520	741.91	12810.4	20.09	0.70	1.09	4,825.35
2/29/2016	46.9	1184.83	1011.4	10549.33	875.43	12835.8	21.58	0.83	1.09	4,727.83
3/31/2016	46.1	1186.26	1139.8	10584.67	767.47	12859.6	24.73	0.65	1.09	4,714.52
4/30/2016	47.0	1187.67	1114.1	10618.09	883.91	12886.1	23.72	0.76	1.09	5,262.86
5/31/2016	43.4	1189.01	943.6	10647.34	724.20	12908.6	21.74	0.73	1.09	5,009.45
6/30/2016	45.5	1190.38	961.2	10676.18	750.58	12931.1	21.14	0.75	1.09	4,866.67
7/31/2016	34.7	1191.45	785.8	10700.54	576.62	12949.0	22.66	0.70	1.09	4,941.71
8/31/2016	47.2	1192.91	1100.5	10734.65	898.91	12976.8	23.32	0.78	1.09	5,129.72
9/30/2016	47.2	1194.33	1295.2	10773.51	1070.44	13008.9	27.43	0.80	1.09	5,383.81
10/31/2016	46.0	1195.76	1302.0	10813.87	1127.77	13043.9	28.33	0.84	1.08	5,535.94
11/30/2016	47.1	1197.17	1381.3	10855.31	1176.68	13079.2	29.31	0.82	1.08	5,545.71
12/31/2016	42.8	1198.50	1406.7	10898.92	1204.34	13116.5	32.86	0.83	1.08	5,629.95



Virden Roselea Unit No. 2

Pattern P-01 - 00/04-07-011-25W1/0

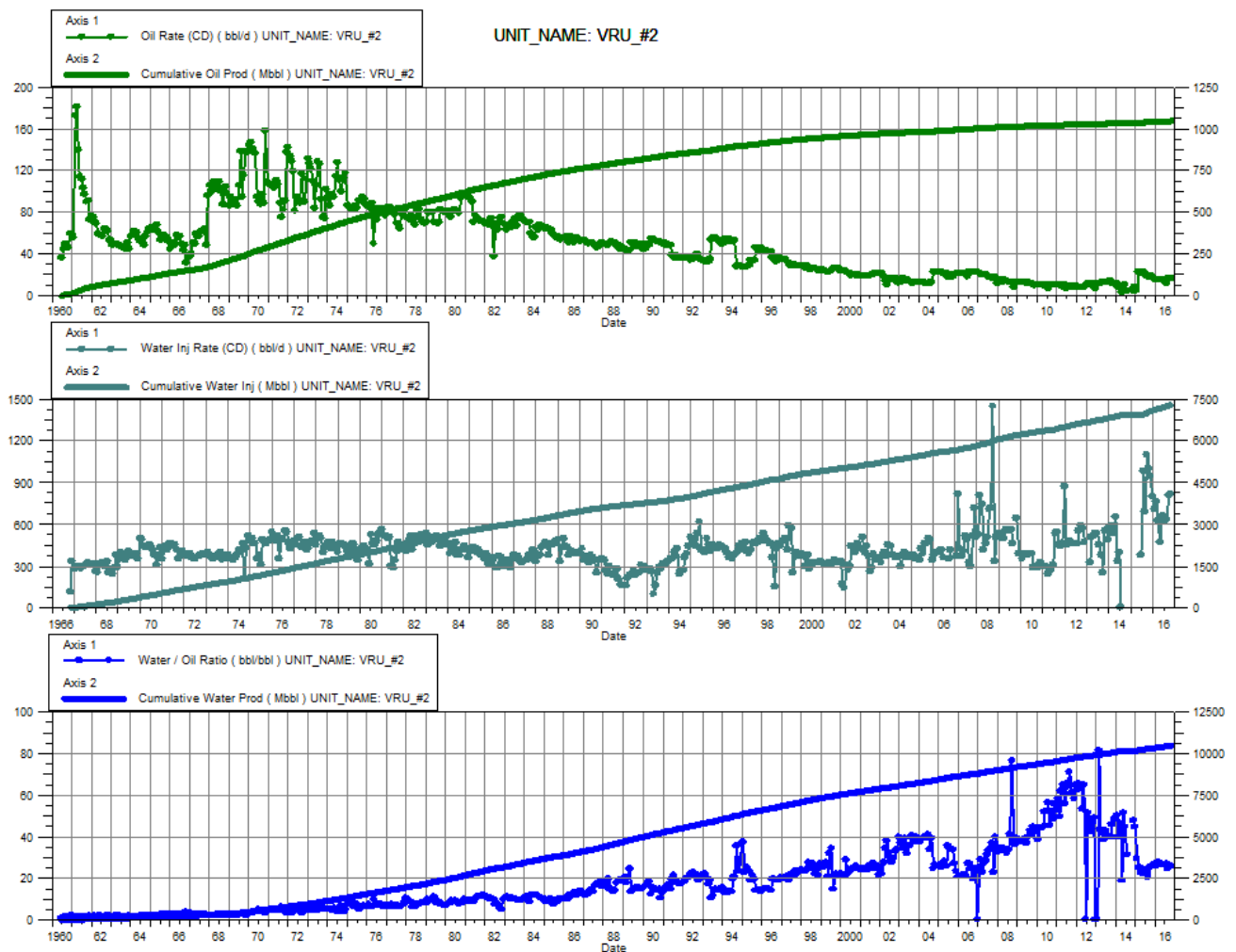
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	14.1	188.46	245.06	1370.78	25.75	499.3	17.45	0.10	0.32	5,029.03
2/29/2016	13.4	188.84	248.64	1377.99	37.20	500.34	18.52	0.14	0.32	5,903.45
3/31/2016	13.3	189.26	246.55	1385.64	48.51	501.84	18.48	0.19	0.32	6,032.26
4/30/2016	13.3	189.66	228.66	1392.50	61.77	503.70	17.22	0.26	0.32	6,966.67
5/31/2016	12.4	190.04	211.13	1399.04	34.80	504.78	17.09	0.16	0.32	6,000.00
6/30/2016	12.2	190.40	215.61	1405.51	38.41	505.93	17.74	0.17	0.32	6,013.33
7/31/2016	8.3	190.66	186.31	1411.28	38.33	507.12	22.44	0.20	0.32	6,387.10
8/31/2016	11.0	191.00	223.78	1418.22	38.15	508.30	20.34	0.16	0.32	6,032.26
9/30/2016	9.6	191.29	218.66	1424.78	42.98	509.59	22.68	0.19	0.32	7,000.00
10/31/2016	9.4	191.58	222.28	1431.67	43.05	510.9	23.56	0.19	0.31	7,000.00
11/30/2016	10.4	191.90	266.01	1439.65	43.98	512.24	25.67	0.16	0.31	7,000.00
12/31/2016	9.5	192.19	258.52	1447.67	36.60	513.4	27.35	0.14	0.31	7,000.00



Virden Roselea Unit No. 2

Pattern P-02 - 00/02-07-011-25W1/0

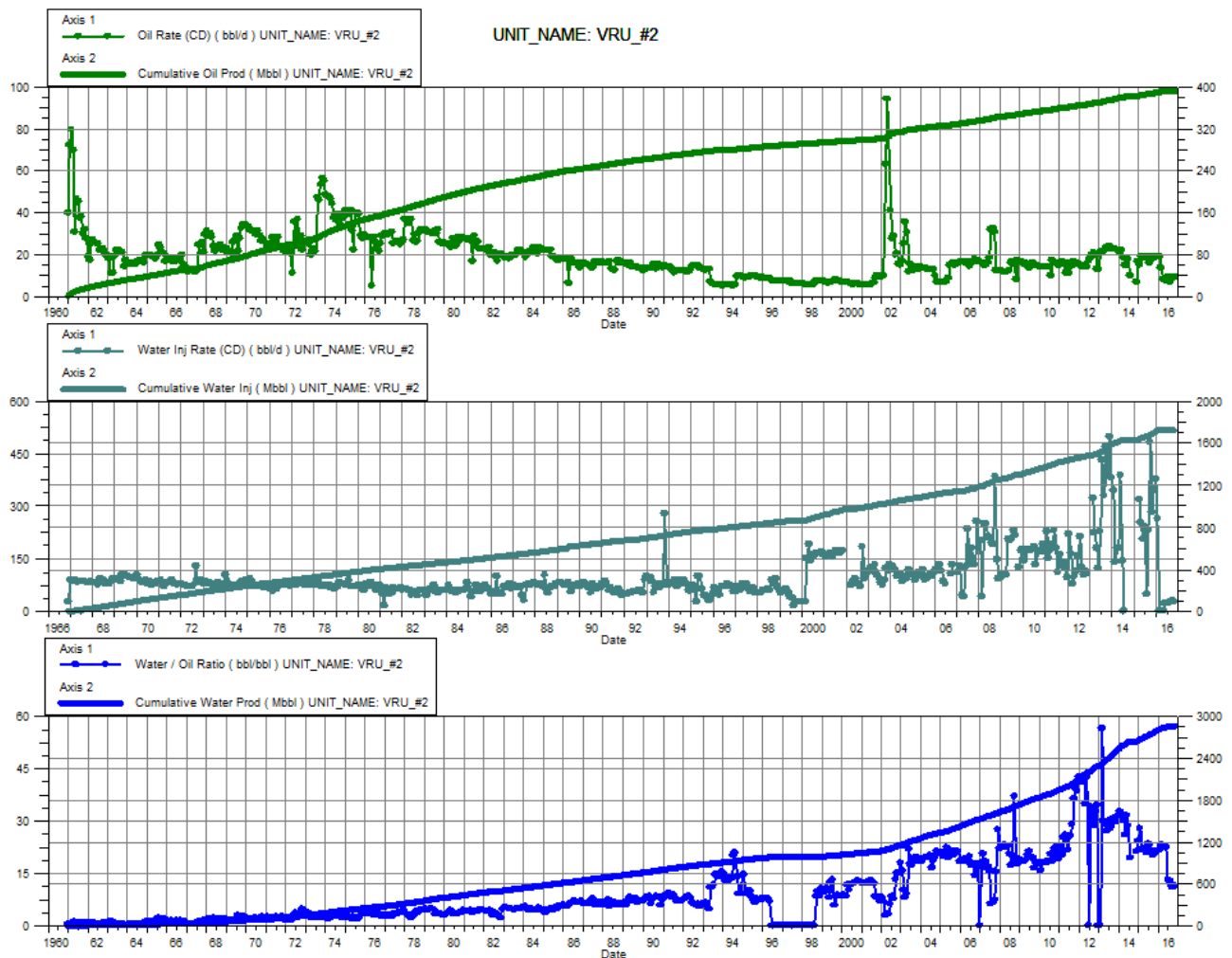
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	2.54	165.87	65.72	1647.15	112.03	1132.42	25.86	1.64	0.62	4,400.00
2/29/2016	2.43	165.94	67.03	1649.10	122.13	1135.96	27.54	1.76	0.63	4,413.79
3/31/2016	2.45	166.02	66.99	1651.18	100.08	1139.07	27.29	1.44	0.63	4,787.10
4/30/2016	2.54	166.10	66.81	1653.18	74.62	1141.30	26.27	1.08	0.63	4,456.67
5/31/2016	2.42	166.17	62.95	1655.13	103.33	1144.51	26.06	1.58	0.63	6,054.84
6/30/2016	2.44	166.24	64.82	1657.08	105.79	1147.68	26.53	1.57	0.63	4,710.00
7/31/2016	1.79	166.30	48.61	1658.58	99.67	1150.77	27.15	1.98	0.63	5,006.45
8/31/2016	2.55	166.38	62.42	1660.52	101.70	1153.92	24.53	1.56	0.63	5,206.45
9/30/2016	2.56	166.46	64.32	1662.45	128.74	1157.78	25.09	1.92	0.63	5,380.00
10/31/2016	2.57	166.54	65.94	1664.49	130.08	1161.82	25.65	1.90	0.63	4,793.55
11/30/2016	2.68	166.62	74.56	1666.73	131.45	1165.76	27.82	1.70	0.64	4,586.67
12/31/2016	2.44	166.69	72.46	1668.97	136.84	1170.00	29.67	1.83	0.64	4,200.00



Virden Roselea Unit No. 2

Pattern P-03 - 00/04-08-011-25W1/0

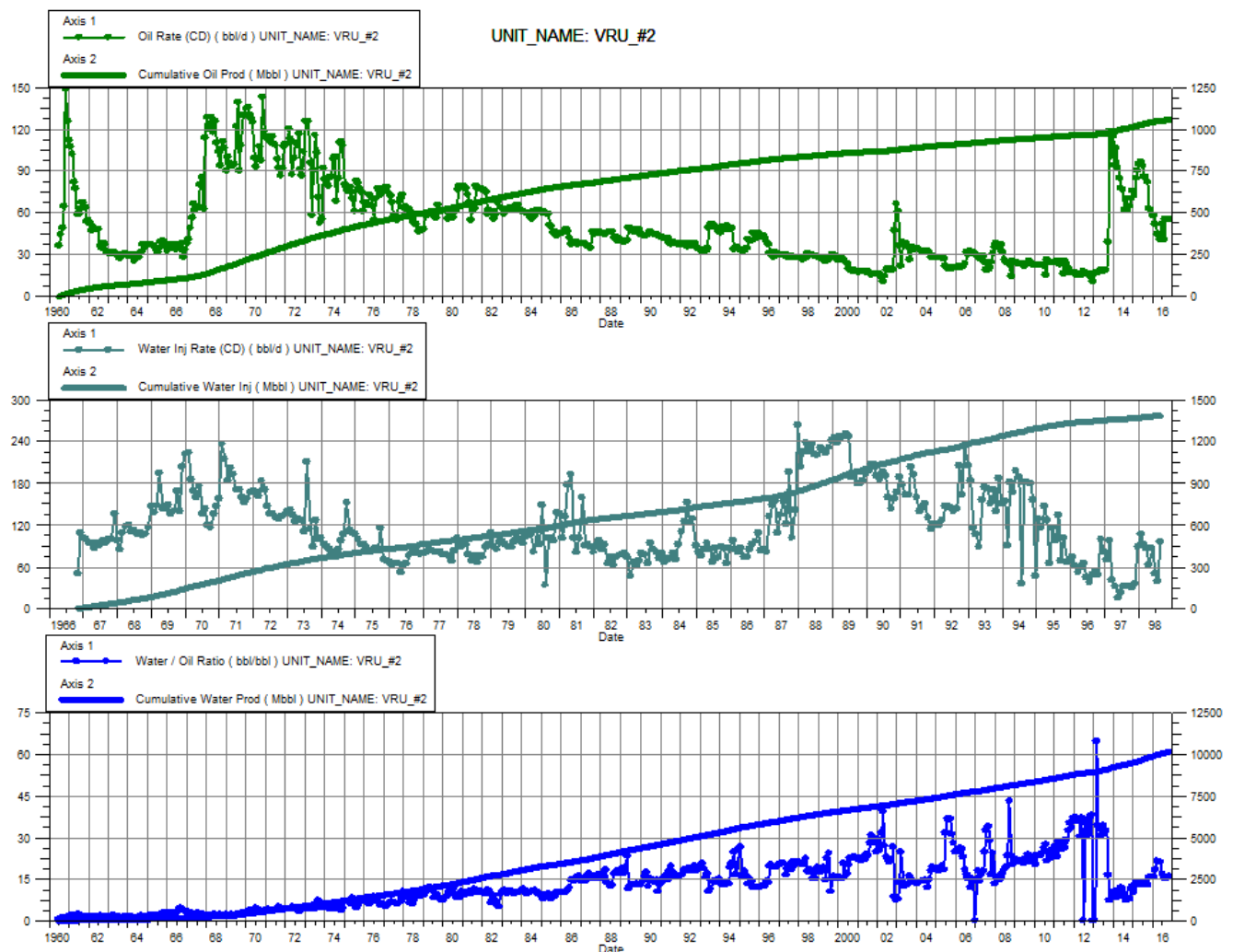
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	3.08	62.16	66.64	448.36	42.07	274.41	21.63	0.60	0.54	5,580.65
2/29/2016	2.24	62.23	51.46	449.85	0.11	274.42	23.00	0.00	0.54	5,000.00
3/31/2016	1.38	62.27	31.90	450.84	0.10	274.42	23.16	0.00	0.53	4,935.48
4/30/2016	1.30	62.31	29.36	451.72	0.36	274.43	22.59	0.01	0.53	5,033.33
5/31/2016	1.28	62.35	28.68	452.61	3.93	274.55	22.39	0.13	0.53	6,000.00
6/30/2016	1.48	62.39	19.78	453.20	3.88	274.67	13.37	0.18	0.53	6,006.67
7/31/2016	1.10	62.43	14.29	453.65	3.89	274.79	12.99	0.25	0.53	6,200.00
8/31/2016	1.33	62.47	15.81	454.14	4.07	274.91	11.93	0.24	0.53	6,206.45
9/30/2016	1.52	62.52	16.93	454.64	4.68	275.05	11.11	0.25	0.53	6,406.67
10/31/2016	1.55	62.56	17.67	455.19	4.41	275.19	11.41	0.23	0.53	6,600.00
11/30/2016	1.61	62.61	20.13	455.80	6.28	275.38	12.48	0.29	0.53	6,606.67
12/31/2016	1.47	62.66	19.57	456.40	4.95	275.53	13.30	0.24	0.53	6,800.00



Virden Roselea Unit No. 2

Pattern P-04 - 00/14-06-011-25W1/0

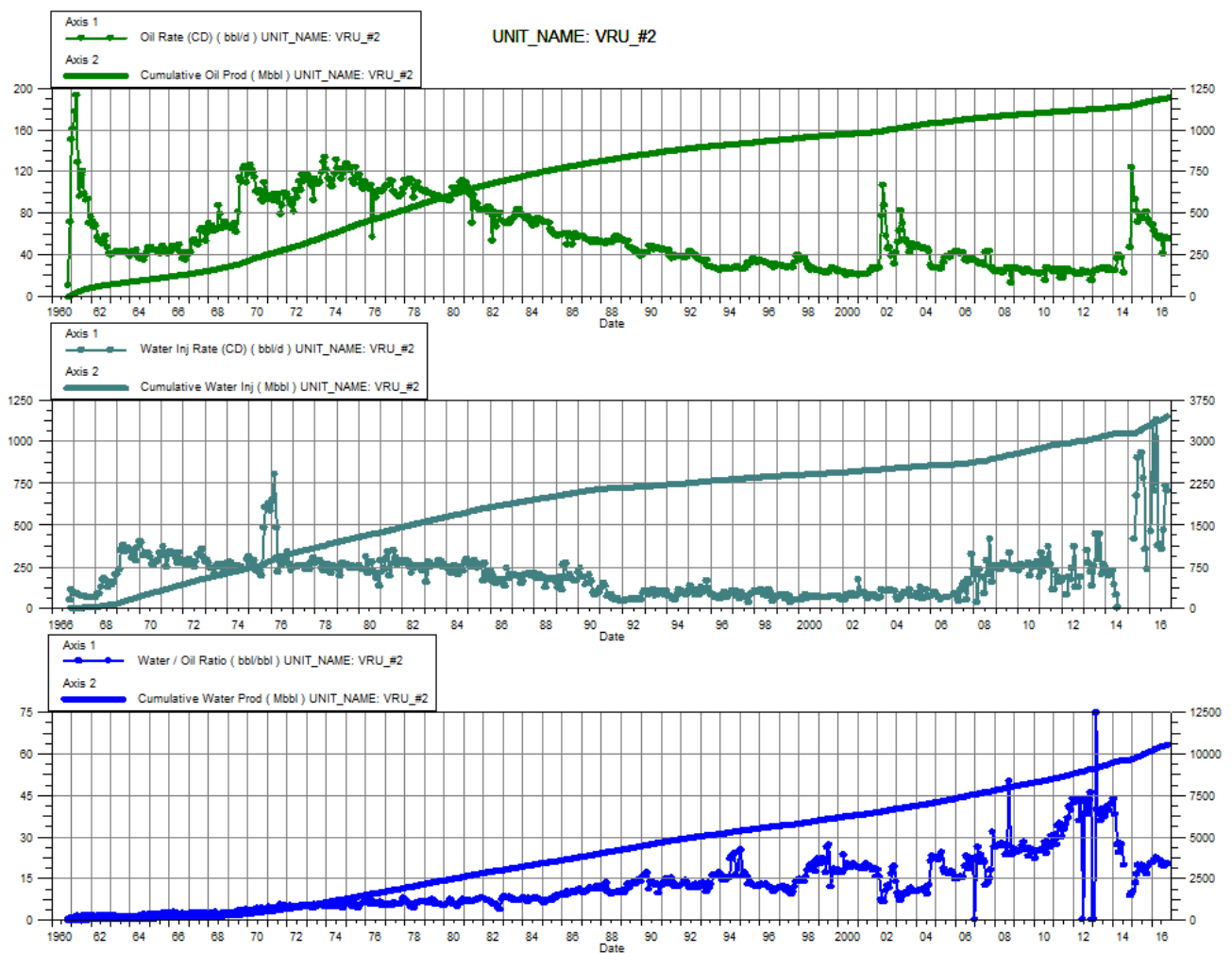
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	9.33	166.26	143.72	1575.72		220.82	15.40		0.13	--
2/29/2016	8.25	166.50	149.61	1580.06		220.82	18.14		0.13	--
3/31/2016	7.06	166.72	153.74	1584.83		220.82	21.77		0.13	--
4/30/2016	7.14	166.93	151.15	1589.36		220.82	21.16		0.13	--
5/31/2016	6.57	167.13	138.85	1593.67		220.82	21.12		0.13	--
6/30/2016	8.21	167.38	140.47	1597.88		220.82	17.11		0.13	--
7/31/2016	6.49	167.58	104.96	1601.13		220.82	16.16		0.13	--
8/31/2016	8.81	167.85	132.67	1605.25		220.82	15.05		0.12	--
9/30/2016	8.88	168.12	138.31	1609.39		220.82	15.58		0.12	--
10/31/2016	8.77	168.39	142.35	1613.81		220.82	16.24		0.12	--
11/30/2016	9.19	168.67	162.38	1618.68		220.82	17.68		0.12	--
12/31/2016	8.38	168.93	157.82	1623.57		220.82	18.84		0.12	--



Virden Roselea Unit No. 2

Pattern P-05 - 00/16-06-011-25W1/0

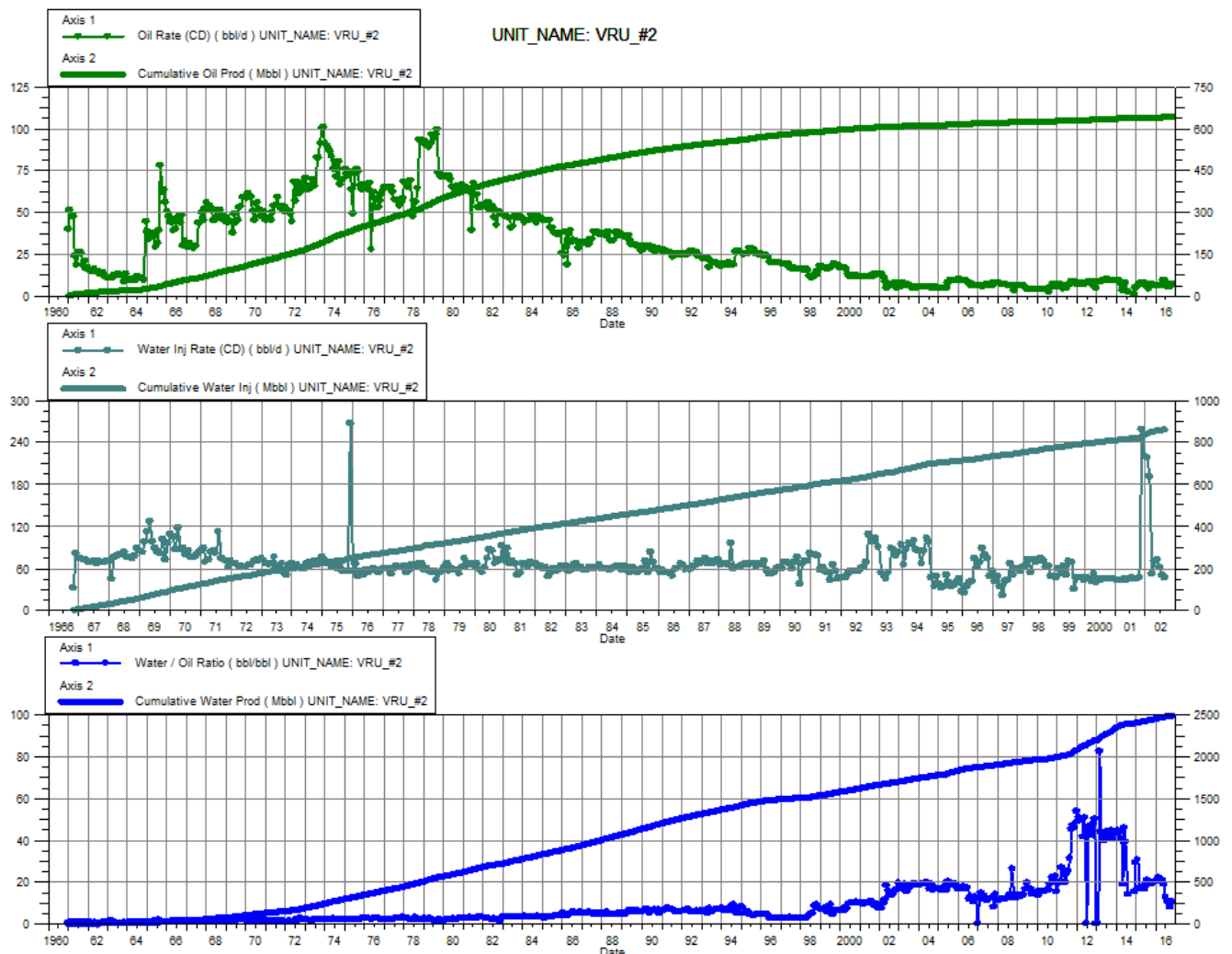
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	11.00	187.29	227.07	1627.29	73.49	522.46	20.64	0.31	0.29	4,812.90
2/29/2016	10.08	187.59	217.18	1633.59	176.99	527.59	21.55	0.78	0.29	5,200.00
3/31/2016	9.29	187.87	207.75	1640.03	111.87	531.06	22.37	0.52	0.29	5,200.00
4/30/2016	9.30	188.15	202.03	1646.09	179.88	536.46	21.73	0.85	0.29	5,196.67
5/31/2016	8.89	188.43	191.39	1652.02	60.05	538.32	21.54	0.30	0.29	5,090.32
6/30/2016	9.20	188.71	179.88	1657.42	60.65	540.14	19.55	0.32	0.29	4,796.67
7/31/2016	6.45	188.91	131.75	1661.50	56.60	541.89	20.43	0.41	0.29	4,716.13
8/31/2016	8.92	189.18	171.44	1666.82	74.34	544.20	19.22	0.41	0.29	5,200.00
9/30/2016	9.05	189.45	177.31	1672.14	117.10	547.71	19.58	0.63	0.29	5,203.33
10/31/2016	8.96	189.73	182.99	1677.81	112.55	551.20	20.42	0.59	0.30	5,300.00
11/30/2016	9.35	190.01	207.94	1684.05	118.14	554.74	22.24	0.54	0.30	5,306.67
12/31/2016	8.34	190.27	196.51	1690.14	135.45	558.94	23.57	0.66	0.30	5,500.00



Virden Roselea Unit No. 2

Pattern P-06 - 00/14-05-011-25W1/0

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 Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	1.03	101.99	21.34	390.94		137.03	20.68		0.28	--
2/29/2016	1.00	102.02	21.98	391.58		137.03	22.06		0.28	--
3/31/2016	1.03	102.05	22.28	392.27		137.03	21.72		0.28	--
4/30/2016	1.01	102.08	21.26	392.90		137.03	21.05		0.28	--
5/31/2016	1.48	102.12	28.53	393.79		137.03	19.22		0.28	--
6/30/2016	1.49	102.17	18.99	394.36		137.03	12.77		0.28	--
7/31/2016	0.88	102.20	9.56	394.65		137.03	10.82		0.28	--
8/31/2016	1.15	102.23	12.06	395.03		137.03	10.45		0.27	--
9/30/2016	0.93	102.26	7.39	395.25		137.03	7.97		0.27	--
10/31/2016	1.23	102.30	13.02	395.65		137.03	10.59		0.27	--
11/30/2016	1.28	102.34	14.83	396.10		137.03	11.58		0.27	--
12/31/2016	1.02	102.37	11.02	396.44		137.03	10.85		0.27	--

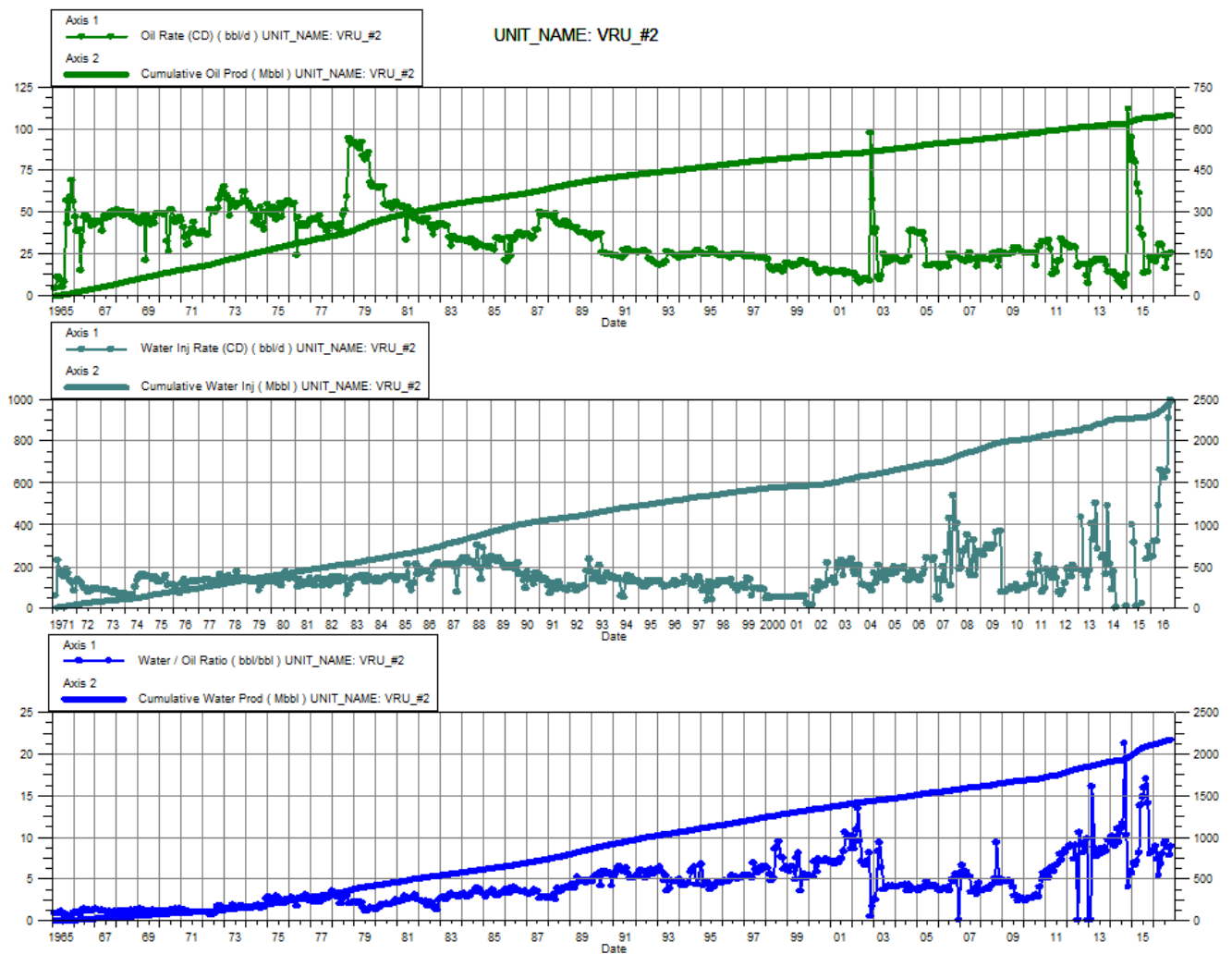


Virden Roselea Unit No. 2

Pattern P-07 - 00/10-05-011-25W1/0 &

03/16-05-011-25W1/0

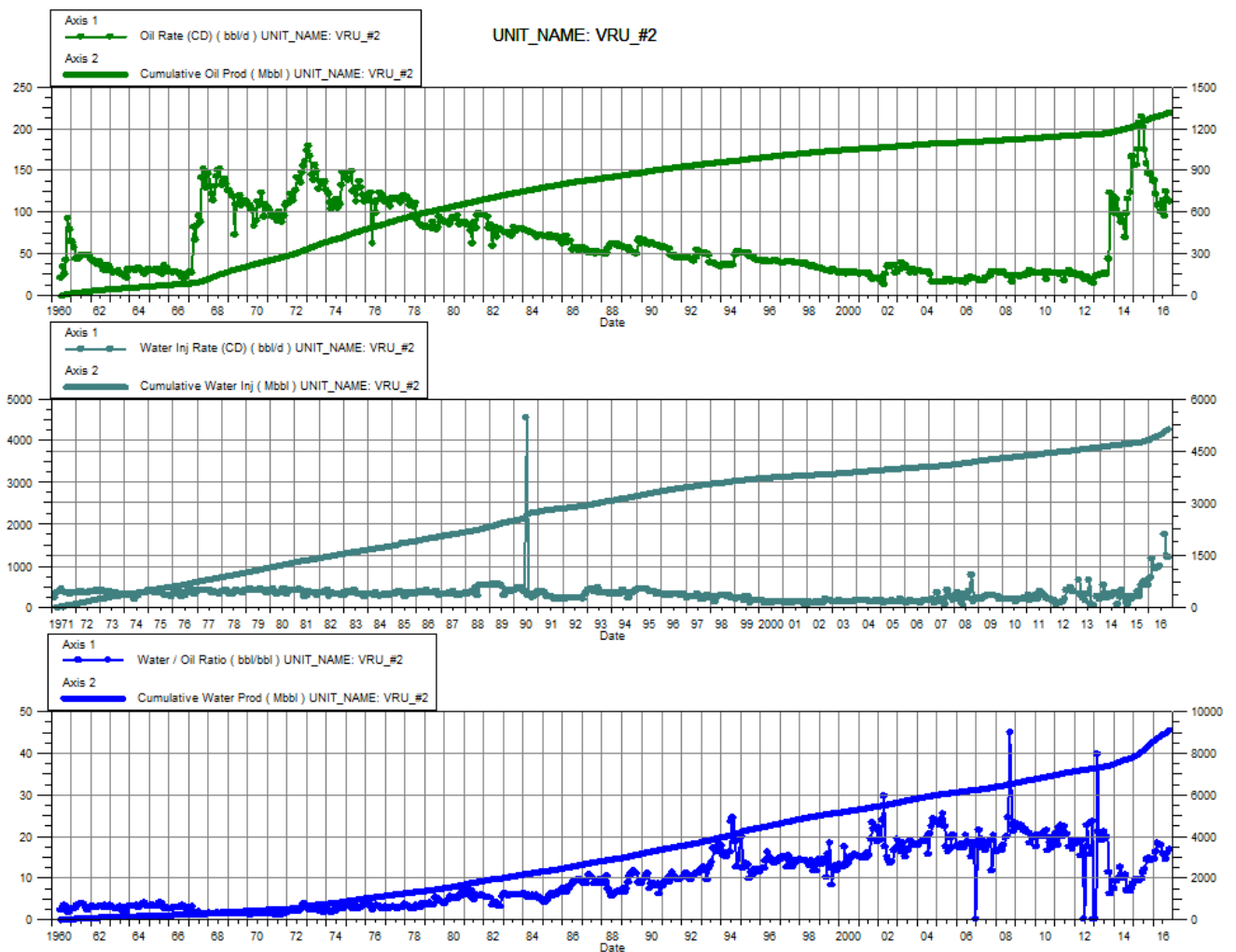
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa	Water Inj Pressure kPa
1/31/2016	3.23	102.05	28.60	336.96	39.52	367.84	8.85	1.24	0.83	5,600.00	4,412.90
2/29/2016	3.76	102.15	27.87	337.77	50.38	369.30	7.41	1.59	0.84	5,600.00	4,793.10
3/31/2016	4.76	102.30	25.28	338.55	50.55	370.87	5.31	1.68	0.84	5,600.00	4,600.00
4/30/2016	4.92	102.45	32.98	339.54	77.70	373.20	6.71	2.05	0.84	5,600.00	4,806.67
5/31/2016	4.87	102.60	38.82	340.75	104.80	376.45	7.97	2.39	0.85	5,600.00	5,000.00
6/30/2016	3.85	102.72	35.36	341.81	102.85	379.53	9.19	2.62	0.85	5,600.00	5,003.33
7/31/2016	2.62	102.80	24.93	342.58	99.39	382.61	9.51	3.60	0.86	5,600.00	5,100.00
8/31/2016	3.89	102.92	33.86	343.63	104.01	385.84	8.71	2.75	0.86	5,600.00	5,122.58
9/30/2016	4.00	103.04	30.99	344.56	145.36	390.20	7.75	4.15	0.87	5,600.00	5,816.67
10/31/2016	4.09	103.16	36.31	345.69	158.89	395.12	8.88	3.93	0.88	5,600.00	6,303.23
11/30/2016	4.27	103.29	41.44	346.93	162.46	400.00	9.70	3.55	0.89	5,600.00	6,403.33
12/31/2016	3.37	103.40	34.39	347.99	203.58	406.31	10.20	5.38	0.90	5,600.00	6,493.55



Viriden Roselea Unit No. 2

Pattern P-08 - 00/12-06-011-25W1/0

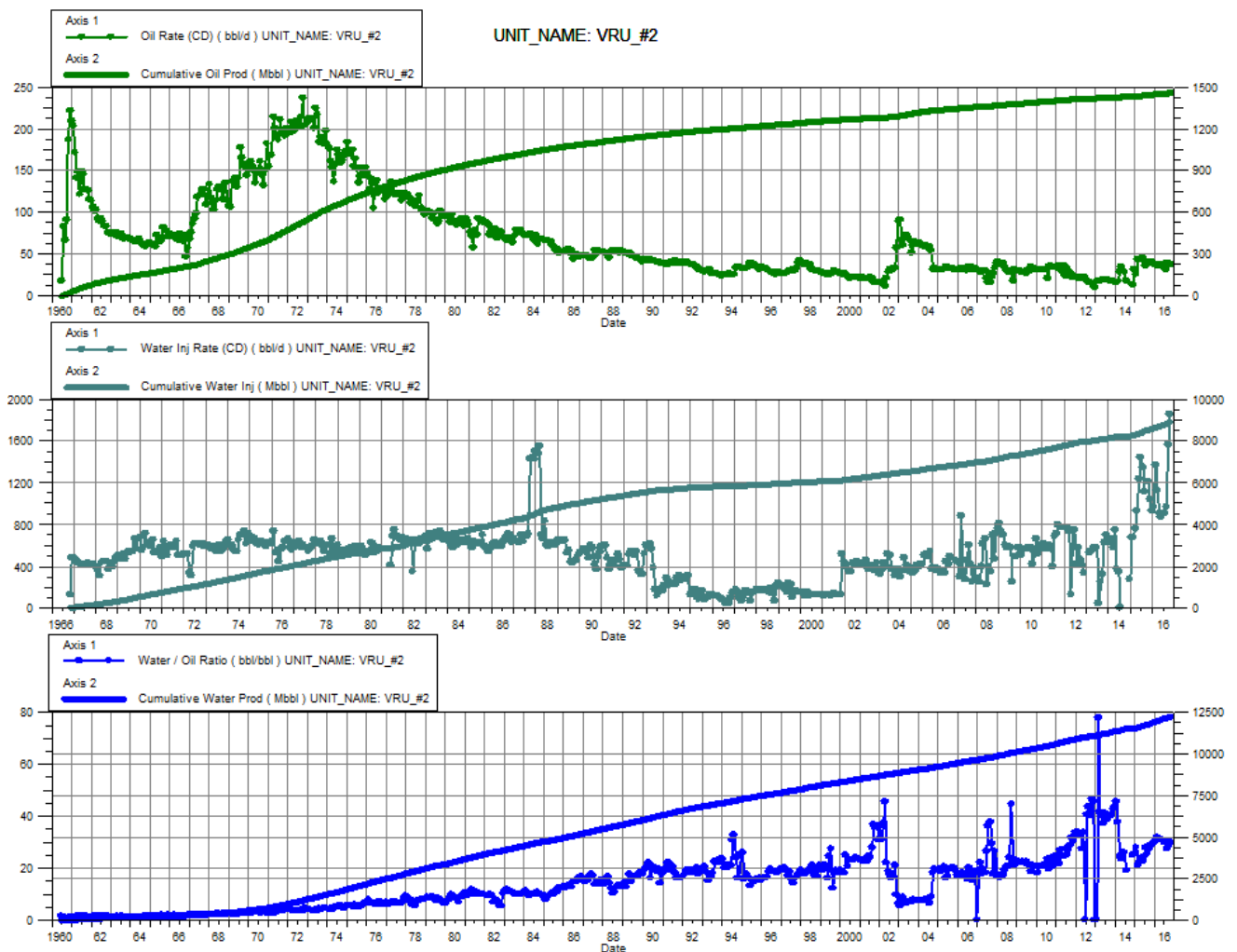
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	22.06	204.26	313.94	1367.49	112.45	770.80	14.23	0.33	0.49	5,419.35
2/29/2016	19.33	204.83	312.33	1376.54	183.98	776.13	16.16	0.55	0.49	6,000.00
3/31/2016	17.15	205.36	313.71	1386.27	154.27	780.91	18.29	0.47	0.49	6,032.26
4/30/2016	17.50	205.88	313.88	1395.68	145.59	785.28	17.93	0.44	0.49	6,963.33
5/31/2016	16.01	206.38	285.22	1404.53	152.93	790.02	17.81	0.51	0.49	5,903.23
6/30/2016	18.19	206.92	291.62	1413.28	156.18	794.71	16.03	0.50	0.49	6,003.33
7/31/2016	15.15	207.39	238.07	1420.66		794.71	15.71		0.49	6,100.00
8/31/2016	19.73	208.01	286.30	1429.53	279.50	803.37	14.51	0.91	0.49	6,119.35
9/30/2016	18.42	208.56	291.31	1438.27	196.03	809.25	15.81	0.63	0.49	6,703.33
10/31/2016	17.94	209.11	299.53	1447.56	189.91	815.14	16.70	0.60	0.49	6,800.00
11/30/2016	19.25	209.69	352.73	1458.14	196.27	821.03	18.33	0.53	0.49	6,800.00
12/31/2016	17.56	210.24	342.81	1468.76	163.32	826.09	19.52	0.45	0.49	6,800.00



Virden Roselea Unit No. 2

Pattern P-09 - 00/10-06-011-25W1/0

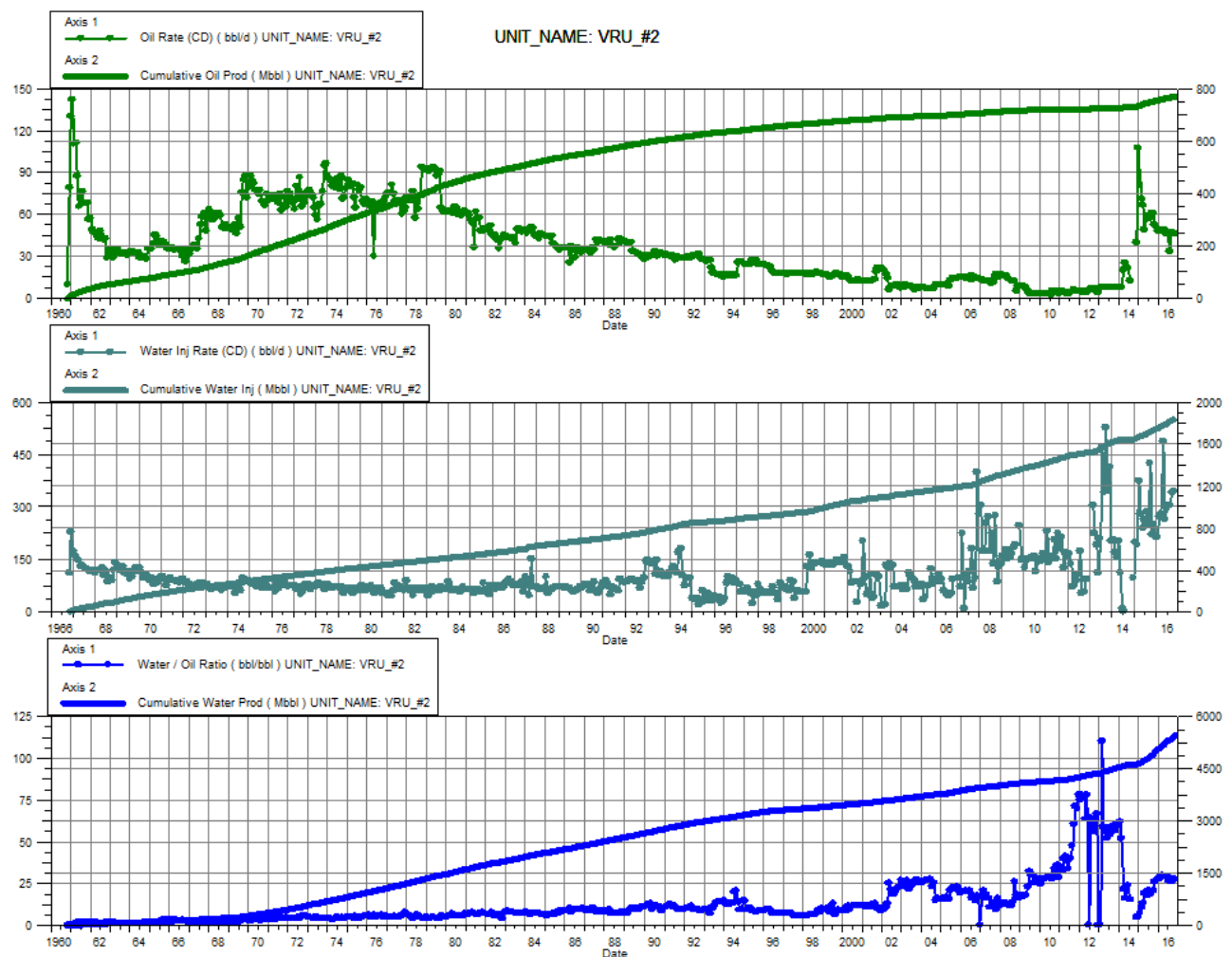
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	6.04	230.53	185.84	1898.06	154.91	1370.08	30.76	0.81	0.64	5,412.90
2/29/2016	5.72	230.69	182.40	1903.35	218.79	1376.42	31.87	1.16	0.64	5,806.90
3/31/2016	5.82	230.87	182.36	1909.00	179.10	1381.98	31.34	0.95	0.64	5,993.55
4/30/2016	6.06	231.05	186.68	1914.60	144.73	1386.32	30.81	0.75	0.65	5,790.00
5/31/2016	5.66	231.23	174.69	1920.02	139.39	1390.64	30.88	0.77	0.65	5,483.87
6/30/2016	5.98	231.41	177.90	1925.35	144.63	1394.98	29.77	0.79	0.65	4,990.00
7/31/2016	4.97	231.56	149.67	1929.99	143.51	1399.43	30.13	0.93	0.65	4,709.68
8/31/2016	6.28	231.76	170.55	1935.28	154.88	1404.23	27.17	0.88	0.65	5,006.45
9/30/2016	6.23	231.94	175.75	1940.55	248.45	1411.68	28.23	1.36	0.65	5,236.67
10/31/2016	6.11	232.13	180.90	1946.16	296.32	1420.87	29.62	1.58	0.65	6,306.45
11/30/2016	6.34	232.32	184.87	1951.71	297.42	1429.79	29.16	1.55	0.65	6,503.33
12/31/2016	5.81	232.50	200.30	1957.92	229.83	1436.91	34.46	1.11	0.66	6,600.00



Virden Roselea Unit No. 2

Pattern P-10 - 00/12-05-011-25W1/0

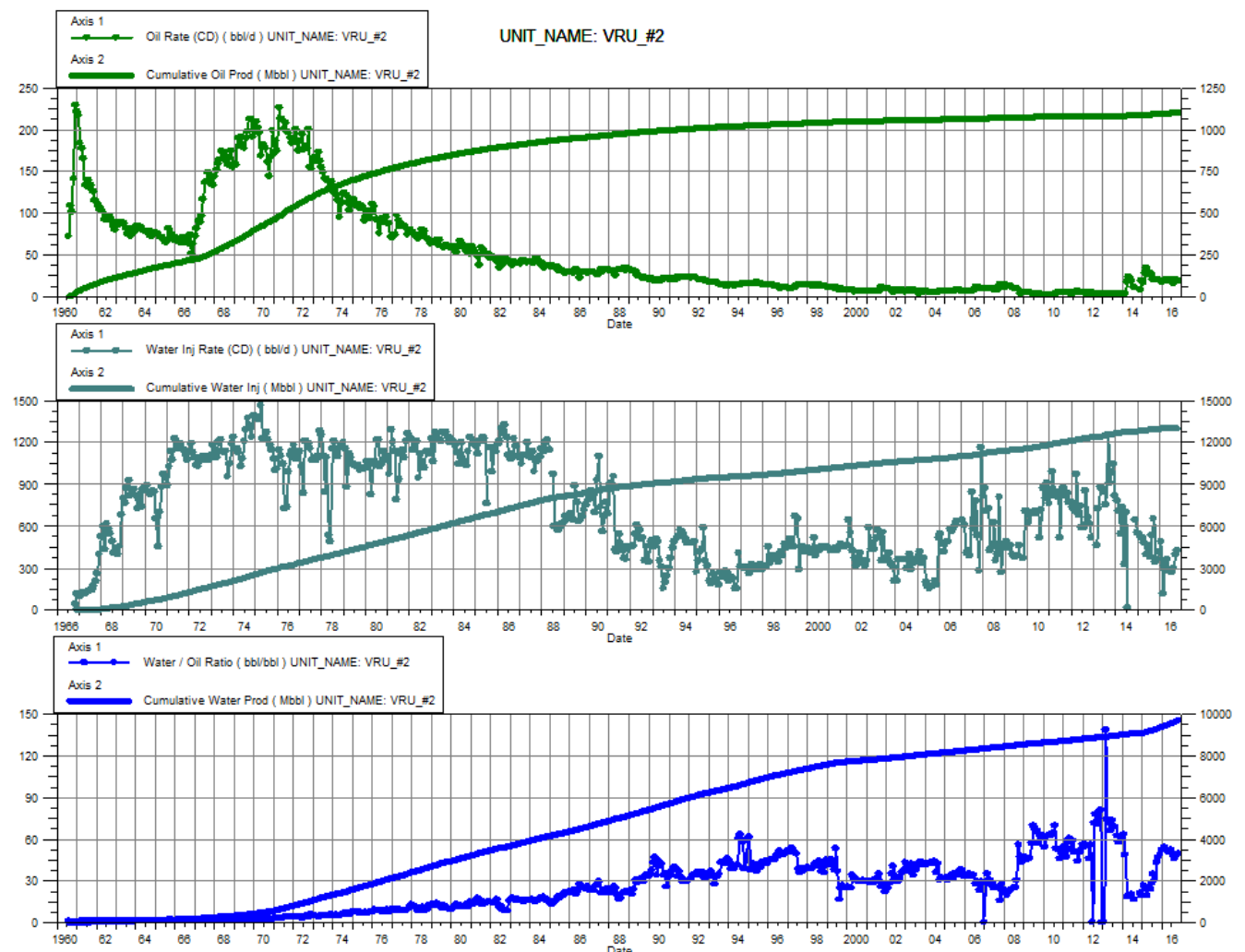
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	7.72	120.70	216.29	809.45	34.30	278.70	28.03	0.15	0.30	5,616.13
2/29/2016	7.60	120.92	222.04	815.89	43.50	279.97	29.22	0.19	0.30	6,100.00
3/31/2016	7.75	121.16	232.57	823.10	44.37	281.34	30.00	0.19	0.30	6,048.39
4/30/2016	7.75	121.39	227.37	829.92	77.45	283.66	29.34	0.33	0.30	6,973.33
5/31/2016	7.40	121.62	214.94	836.59	42.31	284.98	29.03	0.19	0.30	6,200.00
6/30/2016	7.58	121.85	203.97	842.71	47.10	286.39	26.90	0.22	0.30	6,200.00
7/31/2016	5.34	122.02	149.89	847.35	48.51	287.89	28.08	0.31	0.30	6,200.00
8/31/2016	7.35	122.24	193.32	853.35	48.62	289.40	26.29	0.24	0.30	6,225.81
9/30/2016	7.52	122.47	199.67	859.34	54.49	291.03	26.55	0.26	0.30	7,000.00
10/31/2016	7.40	122.70	202.71	865.62	55.01	292.74	27.40	0.26	0.30	7,000.00
11/30/2016	7.52	122.93	214.26	872.05	56.87	294.45	28.50	0.26	0.30	7,000.00
12/31/2016	6.90	123.14	223.34	878.97	69.01	296.59	32.35	0.30	0.30	6,993.55



Virden Roselea Unit No. 2

Pattern P-11 - 00/08-06-011-25W1/0

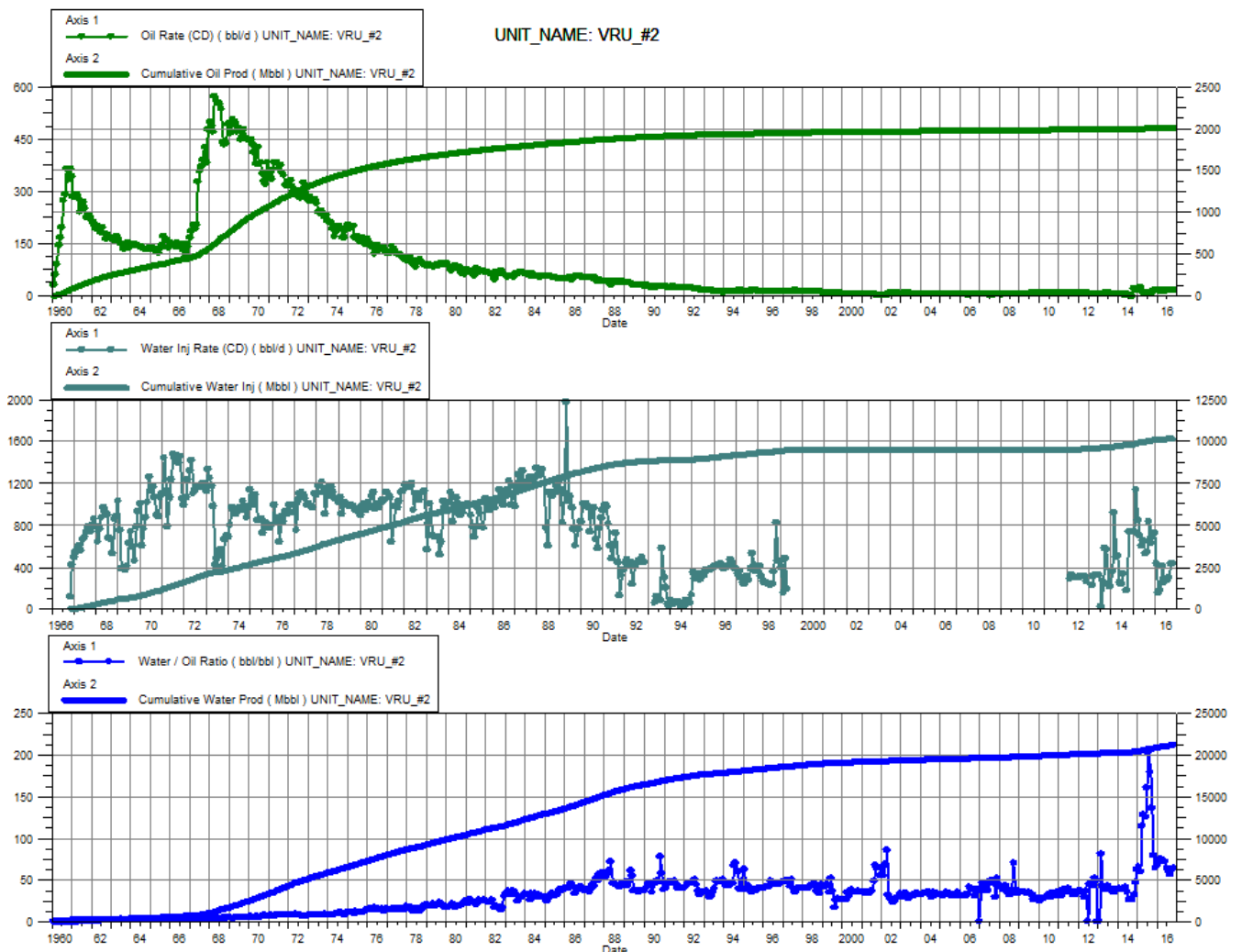
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	3.14	174.56	164.99	1497.38	78.19	2066.93	52.51	0.47	1.23	3,741.94
2/29/2016	3.07	174.65	166.69	1502.22	17.37	2067.43	54.31	0.10	1.23	1,993.10
3/31/2016	3.27	174.75	170.00	1507.49	50.79	2069.01	52.02	0.29	1.23	1,916.13
4/30/2016	3.28	174.85	167.57	1512.52	57.15	2070.72	51.09	0.33	1.23	5,320.00
5/31/2016	3.12	174.95	157.91	1517.41	43.96	2072.09	50.62	0.27	1.22	3,000.00
6/30/2016	3.02	175.04	157.95	1522.15	45.93	2073.46	52.24	0.29	1.22	3,040.00
7/31/2016	2.65	175.12	129.14	1526.15	43.46	2074.81	48.70	0.33	1.22	4,200.00
8/31/2016	3.26	175.22	149.19	1530.78	46.56	2076.25	45.70	0.31	1.22	4,174.19
9/30/2016	3.24	175.32	153.75	1535.39	63.35	2078.15	47.50	0.40	1.21	3,406.67
10/31/2016	3.13	175.41	155.05	1540.20	67.97	2080.26	49.50	0.43	1.21	3,606.45
11/30/2016	3.03	175.51	138.73	1544.36	93.70	2083.07	45.74	0.66	1.21	3,813.33
12/31/2016	3.03	175.60	176.15	1549.82	112.77	2086.57	58.09	0.63	1.21	4,206.45



Virden Roselea Unit No. 2

Pattern P-12 - 00/02-06-011-25W1/0

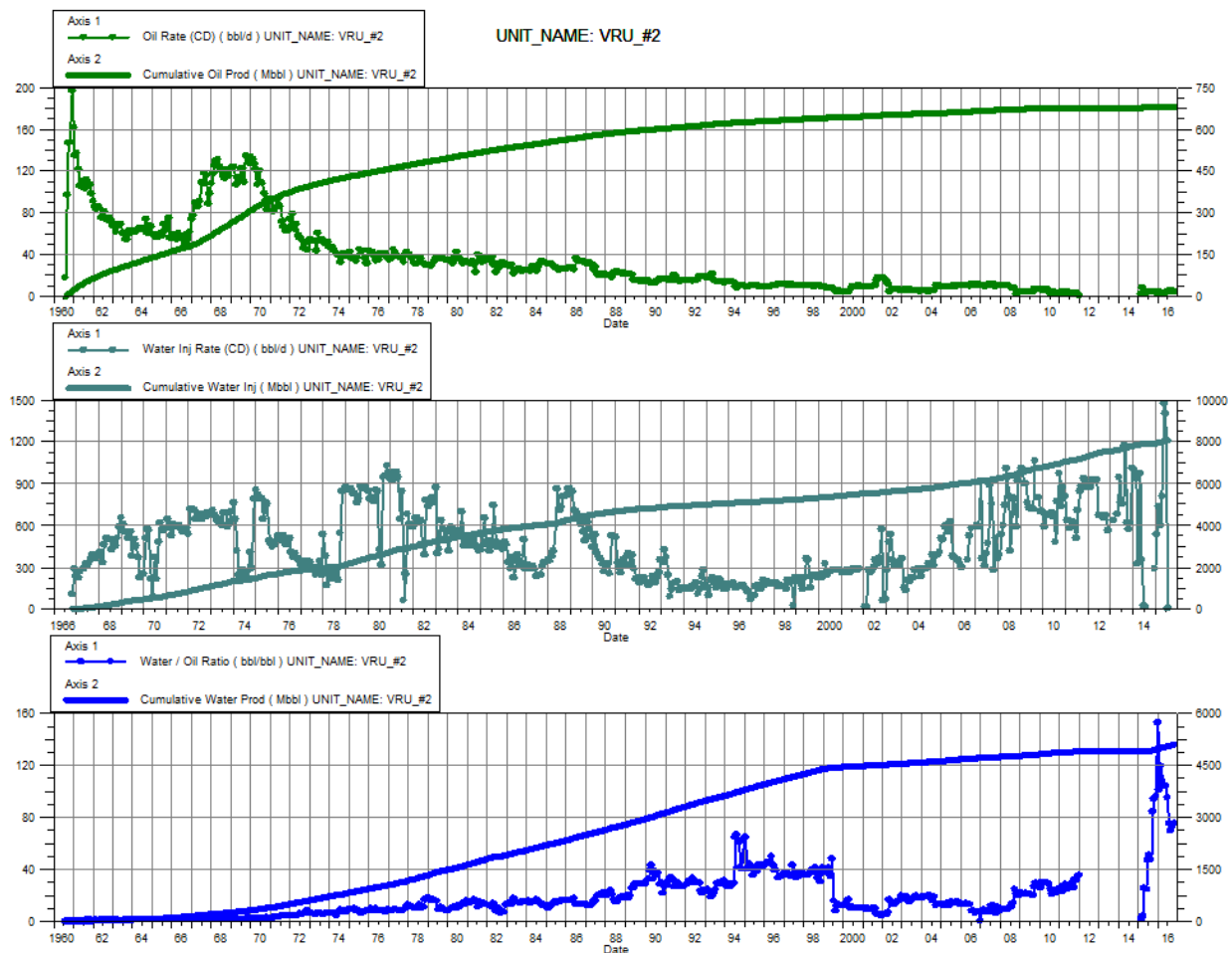
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	2.57	318.86	181.89	3330.82	69.19	1607.29	70.66	0.38	0.44	5,116.13
2/29/2016	2.41	318.93	180.62	3336.06	24.97	1608.01	75.04	0.14	0.44	2,579.31
3/31/2016	2.38	319.01	179.84	3341.63	27.82	1608.87	75.44	0.15	0.44	2,032.26
4/30/2016	2.46	319.08	177.76	3346.96	64.66	1610.81	72.26	0.36	0.44	3,000.00
5/31/2016	2.39	319.15	170.86	3352.26	38.72	1612.01	71.38	0.22	0.44	3,000.00
6/30/2016	2.74	319.24	174.94	3357.51	45.18	1613.37	63.93	0.25	0.44	3,036.67
7/31/2016	2.46	319.31	152.09	3362.22	43.26	1614.71	61.79	0.28	0.44	4,100.00
8/31/2016	2.87	319.40	164.00	3367.31	47.08	1616.17	57.19	0.28	0.44	4,096.77
9/30/2016	2.88	319.49	175.03	3372.56	69.25	1618.25	60.77	0.39	0.44	4,013.33
10/31/2016	2.82	319.57	180.83	3378.16	69.57	1620.40	64.14	0.38	0.44	4,406.45
11/30/2016	2.08	319.64	124.97	3381.91	70.10	1622.51	60.18	0.55	0.44	4,606.67
12/31/2016	2.58	319.72	192.19	3387.87	111.98	1625.98	74.38	0.58	0.44	4,832.26



Viriden Roselea Unit No. 2

Pattern P-13 - 00/04-05-011-25W1/0

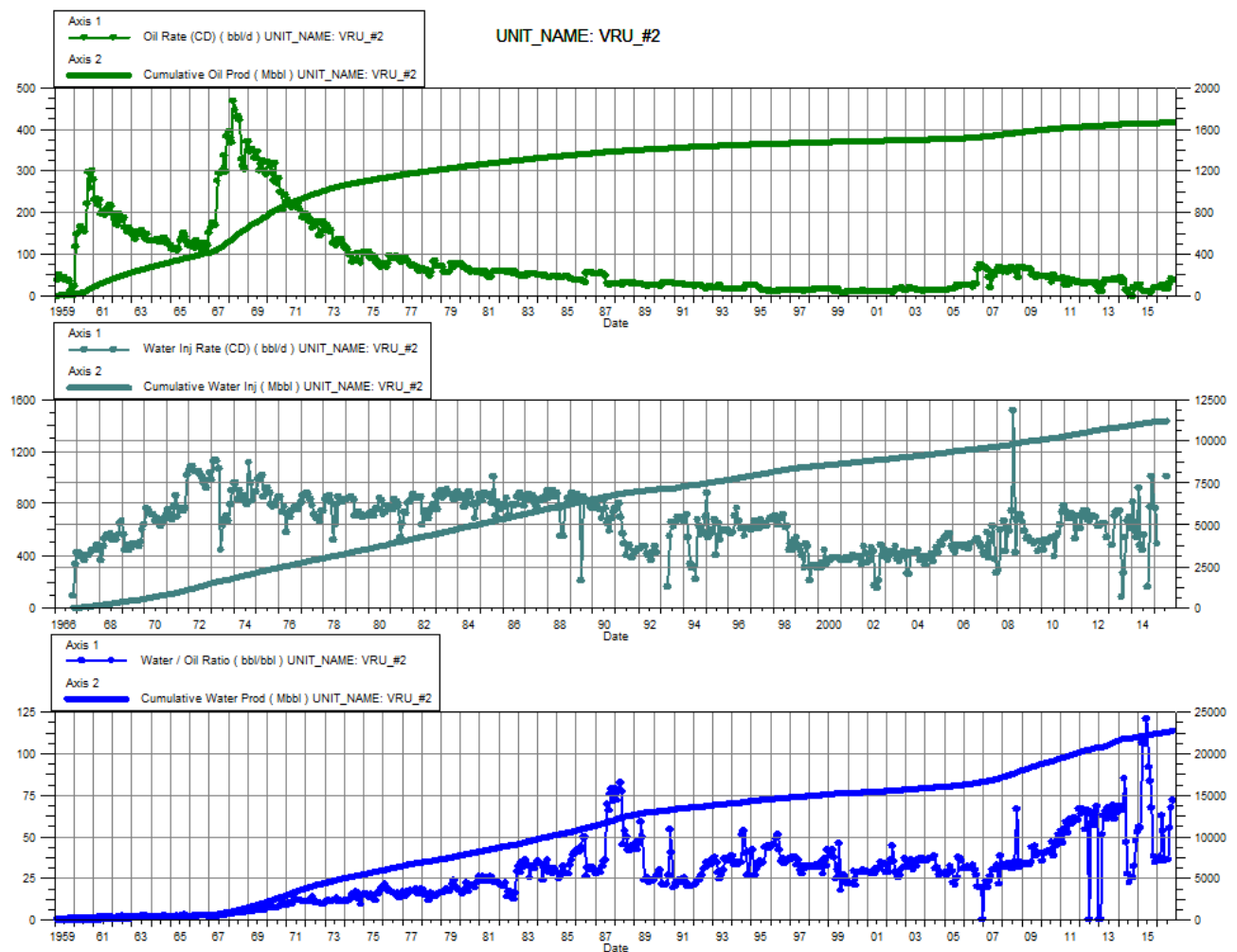
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	0.6	108.07	64.76	792.75		1285.3	100.9		1.42	3,800.00
2/29/2016	0.5	108.09	64.75	794.63		1285.3	119.6		1.42	3,800.00
3/31/2016	0.6	108.11	64.58	796.63		1285.3	107.6		1.42	3,800.00
4/30/2016	0.6	108.12	64.16	798.55		1285.3	104.6		1.41	3,800.00
5/31/2016	0.6	108.14	60.46	800.43		1285.3	103.6		1.41	3,800.00
6/30/2016	0.7	108.16	62.48	802.30		1285.3	95.2		1.41	3,800.00
7/31/2016	0.6	108.18	46.91	803.76		1285.3	75.0		1.41	3,800.00
8/31/2016	0.9	108.21	58.42	805.57		1285.3	69.1		1.40	3,800.00
9/30/2016	0.8	108.23	60.21	807.37		1285.3	72.0		1.40	3,800.00
10/31/2016	0.8	108.26	58.27	809.18		1285.3	75.6		1.40	3,800.00
11/30/2016	0.6	108.28	49.68	810.67		1285.3	82.4		1.40	3,800.00
12/31/2016	0.8	108.30	68.98	812.81		1285.3	88.0		1.39	3,800.00



Virden Roselea Unit No. 2

Pattern P-14 - 00/10-36-010-26W1/0

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 Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	3.14	264.38	110.16	3564.36		1786.49	35.10		0.47	3,000.00
2/29/2016	3.09	264.47	115.35	3567.70		1786.49	37.33		0.47	3,000.00
3/31/2016	3.93	264.59	247.07	3575.36		1786.49	62.83		0.47	3,000.00
4/30/2016	4.40	264.72	235.35	3582.42		1786.49	53.53		0.46	3,000.00
5/31/2016	2.99	264.82	105.68	3585.70		1786.49	35.38		0.46	3,000.00
6/30/2016	3.04	264.91	110.26	3589.01		1786.49	36.27		0.46	3,000.00
7/31/2016	2.65	264.99	96.19	3591.99		1786.49	36.32		0.46	3,000.00
8/31/2016	4.87	265.14	269.03	3600.33		1786.49	55.23		0.46	3,000.00
9/30/2016	6.75	265.34	455.95	3614.01		1786.49	67.55		0.46	3,000.00
10/31/2016	6.12	265.53	439.72	3627.64		1786.49	71.86		0.46	3,000.00
11/30/2016	5.12	265.69	419.40	3640.22		1786.49	81.86		0.46	3,000.00
12/31/2016	5.33	265.85	457.69	3654.41		1786.49	85.83		0.46	3,000.00



Virden Roselea Unit No. 2

Pattern P-15 - 00/12-31-010-25W1/0

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 Replacemt Ratio	Water Inj Pressure kPa
1/31/2016	0.94	113.32	12.26	970.25		483.90	13.01		0.45	--
2/29/2016	0.92	113.35	12.65	970.62		483.90	13.79		0.45	--
3/31/2016	0.82	113.38	11.16	970.96		483.90	13.63		0.45	--
4/30/2016	0.94	113.40	12.46	971.34		483.90	13.26		0.45	--
5/31/2016	0.89	113.43	11.74	971.70		483.90	13.14		0.45	--
6/30/2016	0.90	113.46	12.09	972.07		483.90	13.38		0.45	--
7/31/2016	0.79	113.48	10.55	972.39		483.90	13.40		0.45	--
8/31/2016	0.85	113.51	10.52	972.72		483.90	12.40		0.45	--
9/30/2016	0.93	113.54	12.00	973.08		483.90	12.86		0.44	--
10/31/2016	0.80	113.56	12.11	973.45		483.90	15.07		0.44	--
11/30/2016	0.74	113.58	13.51	973.86		483.90	18.17		0.44	--
12/31/2016	0.68	113.61	13.13	974.27		483.90	19.38		0.44	--

