

Virden Roselea Unit #1
2014 Annual EOR Report

Executive Summary

In 2014 oil production in the Virden Roselea Unit #1 (VRU #1) was 63 m³/d (394 bbl/d) totaling 22.8 e³m³ (143.8 mmbbl). Annual production was down 2.2% from 2013 to 2014, this is largely due to the down time during the flood as oil rate has increased; to 88 m³/d (555 bbl/d) with a peak of 107 m³/d (675 bbl/d). By the end of 2014 cumulative oil production from the VRU #1 was 2 971 e³m³ (18.7 mmbbl). The original forecasted recovery was 845 e³m³ (5.3 mmbbl) on primary recovery and 2 300 e³m³ (14.4 mmbbl) total primary plus secondary recovery.

In December 2014 there were 64 producing oil wells and 17 water injectors active in the unit. In 2014, three horizontal Scallion wells were drilled in the unit and three horizontal Virden wells were also drilled.

Corex Resources has operated VRU #1 since December 19, 2012.

Discussion

The VRU #1 has been under waterflood since 1965, 11 years after initial production in 1954. Water injection increased the oil production rate from $\sim 125 \text{ m}^3/\text{d}$ (786 bbl/d) just prior to injection to $\sim 250 \text{ m}^3/\text{d}$ ($\sim 1,570 \text{ bbl/d}$), equivalent to peak production from the field. Expected ultimate oil recovery was increased by 2.5 – 3 times due to the waterflood. Due to this there are areas in the unit that have a higher recovery than what is seen in the other Roselea units and overall the unit has a higher recovery.

Horizontal drilling has offset the production decline over the last decade with 22 horizontal wells drilled in the unit. In 2014, an additional three Scallion horizontals and three Virden horizontals were drilled in this unit with variable results.

In this unit it appears as if there is a preferential orientation as the wells offsetting injectors in the E-W direction were generally more successful than the adjacent producers to the North and South. The majority of the horizontals are aligned in an E-W orientation and the unit outline may support implementing an E-W line drive; technical work has yet to be conducted. The water injection rate was $1\,430 \text{ m}^3/\text{d}$ (8 996 bbl/d) in 2014 and the producing WOR was $22 \text{ m}^3/\text{m}^3$. The injected water at VRU #1 is not filtered or treated in any way.

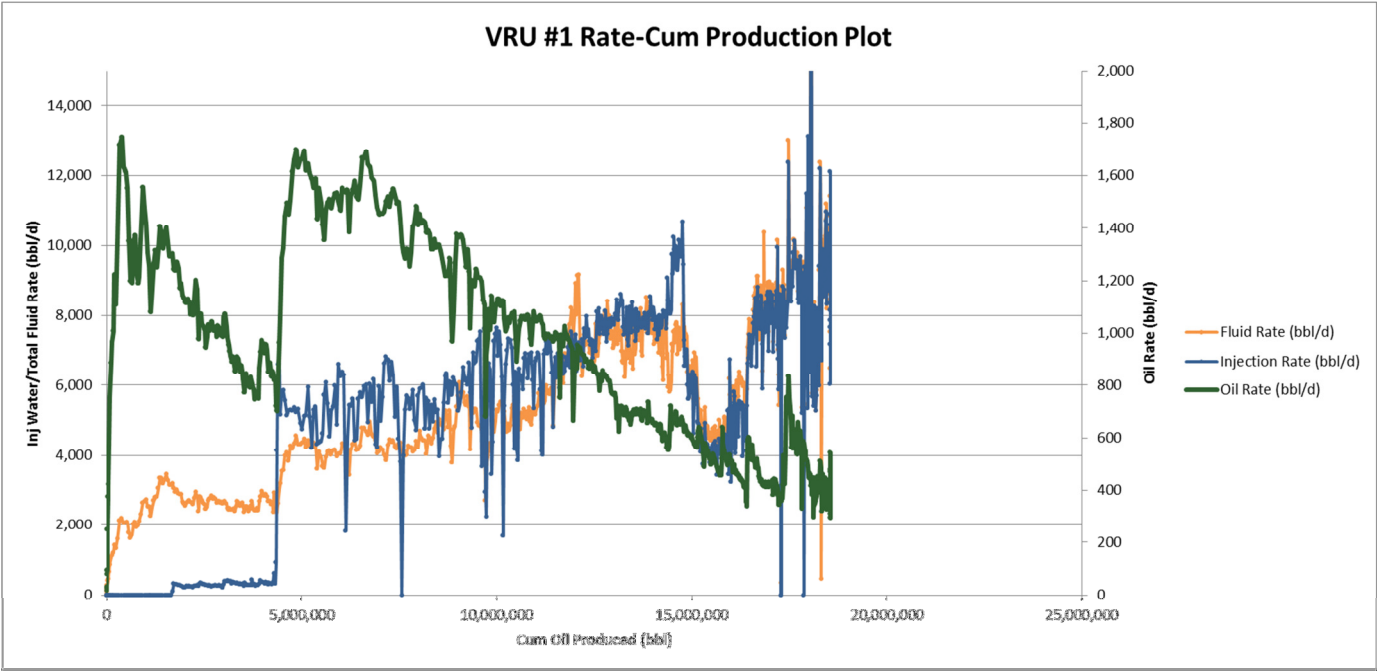
Significant events in 2014 are as follows:

- July 2014, due to the flooding that occurred, several wells needed to be shut in, and for a period the entire field was down.
- August 2014, drilled 103/11-23-010-26W1/00, 102/10-24-010-26W1/00, and 102/07-25-010-26W1/00 horizontals in the Virden formation.
- August 2014, vertical recomple on 100/11-23-010-26W1/00, fraced the Virden formation. Recomplete was successful with incremental production of $\sim 30 \text{ bbl/d}$ of oil.
- October 2014, drill 102/13-24-010-26W1/00 Scallion well.
- November 2014, drill 103/12-24-010-26W1/00 Scallion well.
- November 2014, acid and gyp converter on Oolites and Scallion, perf and frac the Virden on 100/01-26-010-26W1/00 & 100/12-24-010-26W1/00 vertical wells. There is little production information as of yet for the recompletions.
- December 2014, drill 102/11-20-010-25W1/00 Scallion well.

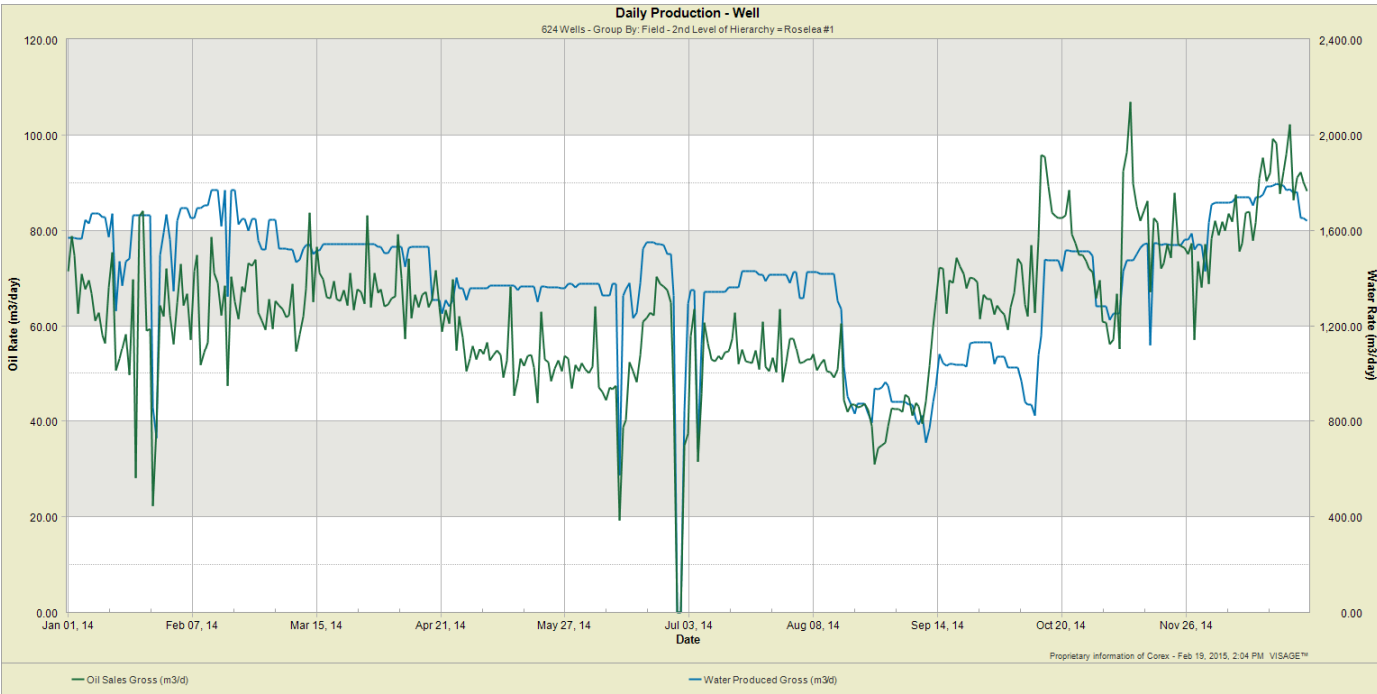
In the composite rate – cumulative oil plot below, waterflood response is clearly demonstrated at a cumulative oil production of $650 \text{ e}^3\text{m}^3$ (4 MMbbl).

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

VRU #1 – Rate vs Cumulative Oil Production



VRU #1 – Rate vs Time



2014 Reservoir Pressure Surveys

Unit	UWI	License	Test Type	Date of Pressure	Duration of SI	Datum BHP
VRU #1	102/11-20-010-25W1/00	10222	BH BU	12/11/2014	3	8,614
VRU #1	103/12-24-010-26W1/00	10123	Interference Test	11/7/2014		5,837
VRU #1	102/13-24-010-26W1/00	10122	Interference Test	11/9/2014		6,649
VRU #1	100/15-24-010-26W1/00	625	FO	8/18/2014		12,289
VRU #1	102/01-25-010-26W1/00	4976	Surface Recorder	9/13/2014	3	8,114
VRU #1	100/07-25-010-26W1/00	555	Surface Recorder	9/13/2014	3	6,664
VRU #1	100/11-25-010-26W1/00	608	Surface Recorder	9/13/2014	3	6,755
VRU #1	102/01-26-010-26W1/00	9503	AWS BU	12/8/2014	18	1,911
VRU #1	100/03-26-010-26W1/00	797	Surface Recorder	8/28/2014	2	7,531

In 2014, nine pressures were taken, giving an average reservoir pressure of 7,200 kPaa. There is an anomalous pressure that is quite low in the group. This is from a poor producing Virden horizontal well, after analysis the low pressure seems to be the reason for the poor production. Knowing this, in the future, attempting to provide pressure support in the Virden is a priority.

It is important to note that the pressures from 102/11-20-010-25W1/00, 103/12-24-010-26W1/00, and 102/13-24-010-26W1/00 are pressures taken from newly drilled Scallion wells prior to production.

An interference test was done on two horizontal Scallion wells. It was found that the 103/12-24-010-26W1/00 was influenced by the production from the 102/12-24-010-26W1/00 horizontal well and may have been supported by the 100/15-24-010-26W1/00 injection well, however slightly. The 102/13-24-010-26W1/00 was clearly influenced by the injection of the 100/13-24-010-26W1/00 injector, pressure increasing rapidly. Currently the fluid rate on the 102/12-24-010-26W1/00 well is dropping, which had not been seen prior to this, speaking to the additional drawdown in the area and possible communication between the horizontal wells.

In 2012, there were seven reservoir pressures recorded averaging 7,376 kPaa. The range in pressures taken is consistent with the pressure recorded this year. The initial reservoir pressure is estimated at 6 340 kPaa and the bubble point pressure as 1,273 kPaa.

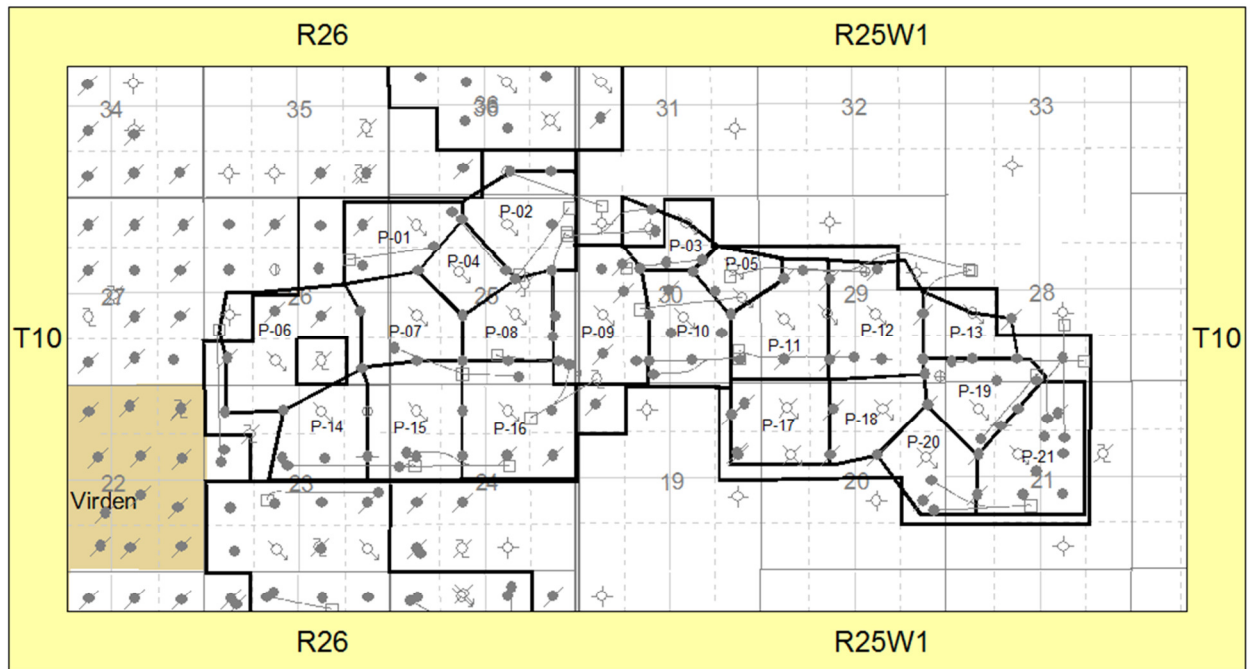
The voidage replacement ratio (VRR) in 2014 was maintained close to 1.00. The cumulative VRR at the end of 2014 was 0.96. An oil formation volume factor of 1.06 rm^3/sm^3 and a water formation volume factor of 1.04 rm^3/sm^3 were used in the VRR calculations.

The higher than initial reservoir pressure is inconsistent with the cumulative VRR of 0.96. The pressure inconsistency may be due to the partial pressure support for the field from an aquifer on the west side of the unit. This water influx from the aquifer is not accounted for in the VRR calculation.

2014 Well Servicing

UWI	Licence	Unit	Operation	Date	Objective
100/01-26-010-26W1/00	000407	VRU#1	Other Stimulation	12-NOV-14	
100/02-25-010-26W1/00	000525	VRU#1	Pump Repair	31-JUL-14	
100/03-25-010-26W1/00	000481	VRU#1	Cathodic		
100/05-25-010-26W1/00	000695	VRU#1	Equipment Pressure Integrity Test	11-APR-14	
100/05-29-010-25W1/00	001303	VRU#1	Equipment Pressure Integrity Test	20-FEB-14	
100/05-30-010-25W1/00	000623	VRU#1	Equipment Pressure Integrity Test	14-APR-14	
100/06-29-010-25W1/00	001384	VRU#1	Equipment Pressure Integrity Test	20-FEB-14	
100/06-30-010-25W1/00	000712	VRU#1	Pump Repair	06-NOV-14	
100/06-30-010-25W1/00	000712	VRU#1	Equip Only		
100/07-29-010-25W1/00	001405	VRU#1	Equipment Pressure Integrity Test	11-MAR-14	
100/07-30-010-25W1/00	000737	VRU#1	Equipment Pressure Integrity Test	14-APR-14	
100/08-30-010-25W1/00	001053	VRU#1	Inhibitor Squeeze	28-FEB-14	Inhibitor Squeeze
100/09-30-010-25W1/00	001070	VRU#1	Equipment Pressure Integrity Test	23-JUN-14	
100/11-23-010-26W1/00	000503	VRU#1	Other Stimulation	05-SEP-14	
100/12-24-010-26W1/00	000477	VRU#1	Other Stimulation	26-NOV-14	
100/13-24-010-26W1/00	000431	VRU#1	Equipment Pressure Integrity Test	11-APR-14	
100/13-25-010-26W1/00	000698	VRU#1	Equipment Pressure Integrity Test	23-JUN-14	
100/15-23-010-26W1/00	000543	VRU#1	Equipment Pressure Integrity Test	23-JUN-14	
100/15-24-010-26W1/00	000625	VRU#1	Equipment Pressure Integrity Test	11-APR-14	
100/15-25-010-26W1/00	000672	VRU#1	Equipment Pressure Integrity Test	14-APR-14	
100/15-30-010-25W1/00	001110	VRU#1	Equipment Pressure Integrity Test	14-APR-14	
100/16-25-010-26W1/00	000653	VRU#1	Pump Repair		
102/01-26-010-26W1/00	9503	VRU#1	Cathodic		
102/02-25-010-26W1/00	004996	VRU#1	Workover	19-AUG-14	
102/03-29-010-25W1/00	6867	VRU#1	Suspension	05-MAY-14	
102/03-30-010-25W1/02	6231	VRU#1	Reconfigure Tubing/Components	08-JUN-14	
102/04-25-010-26W1/00	004997	VRU#1	Pump Repair	01-AUG-14	
102/07-25-010-26W1/00	9932	VRU#1	Drilling - original	06-SEP-14	
102/07-25-010-26W1/00	9932	VRU#1	Construction		
102/07-25-010-26W1/00	9932	VRU#1	Equip Only		
102/07-25-010-26W1/00	9932	VRU#1	Initial Completion	10-OCT-14	VIRDEN COMPLETION
102/10-24-010-26W1/00	9933	VRU#1	Drilling - original	26-AUG-14	
102/10-24-010-26W1/00	9933	VRU#1	Construction		
102/10-24-010-26W1/00	9933	VRU#1	Equip Only		
102/10-24-010-26W1/00	9933	VRU#1	Initial Completion	03-OCT-14	VIRDEN COMPLETION
102/11-20-010-25W1/00	10222	VRU#1	Equip & Tie-In		
102/11-20-010-25W1/00	10222	VRU#1	Initial Completion	13-DEC-14	SCALLION COMPLETION
102/11-20-010-25W1/00	10222	VRU#1	Construction		
102/11-20-010-25W1/00	10222	VRU#1	Drilling - original	09-DEC-14	Scallion Openhole HZ
102/12-23-010-26W1/00	6394	VRU#1	Upsize Pump	17-JAN-14	Reconfigure Tubing/Components
102/13-24-010-26W1/00	10122	VRU#1	Equip & Tie-In		SCALLION COMPLETION
102/13-24-010-26W1/00	10122	VRU#1	Initial Completion		
102/13-24-010-26W1/00	10122	VRU#1	Construction		
102/13-24-010-26W1/00	10122	VRU#1	Drilling - original	30-OCT-14	
103/11-23-010-26W1/00	9803	VRU#1	Construction		
103/11-23-010-26W1/00	9803	VRU#1	Initial Completion		VIRDEN COMPLETION
103/11-23-010-26W1/00	9803	VRU#1	Equip Only		
103/11-23-010-26W1/00	9803	VRU#1	Drilling - original	17-AUG-14	
103/12-24-010-26W1/00	10123	VRU#1	Equip & Tie-In		
103/12-24-010-26W1/00	10123	VRU#1	Initial Completion	19-NOV-14	SCALLION COMPLETION
103/12-24-010-26W1/00	10123	VRU#1	Construction		
103/12-24-010-26W1/00	10123	VRU#1	Drilling - original	06-NOV-14	
104/08-30-010-25W1/00	005124	VRU#1	Equipment Pressure Integrity Test	14-APR-14	
104/10-30-010-25W1/00	004985	VRU#1	Pump Repair	14-MAR-14	

VRU #1 Waterflood Pattern Map

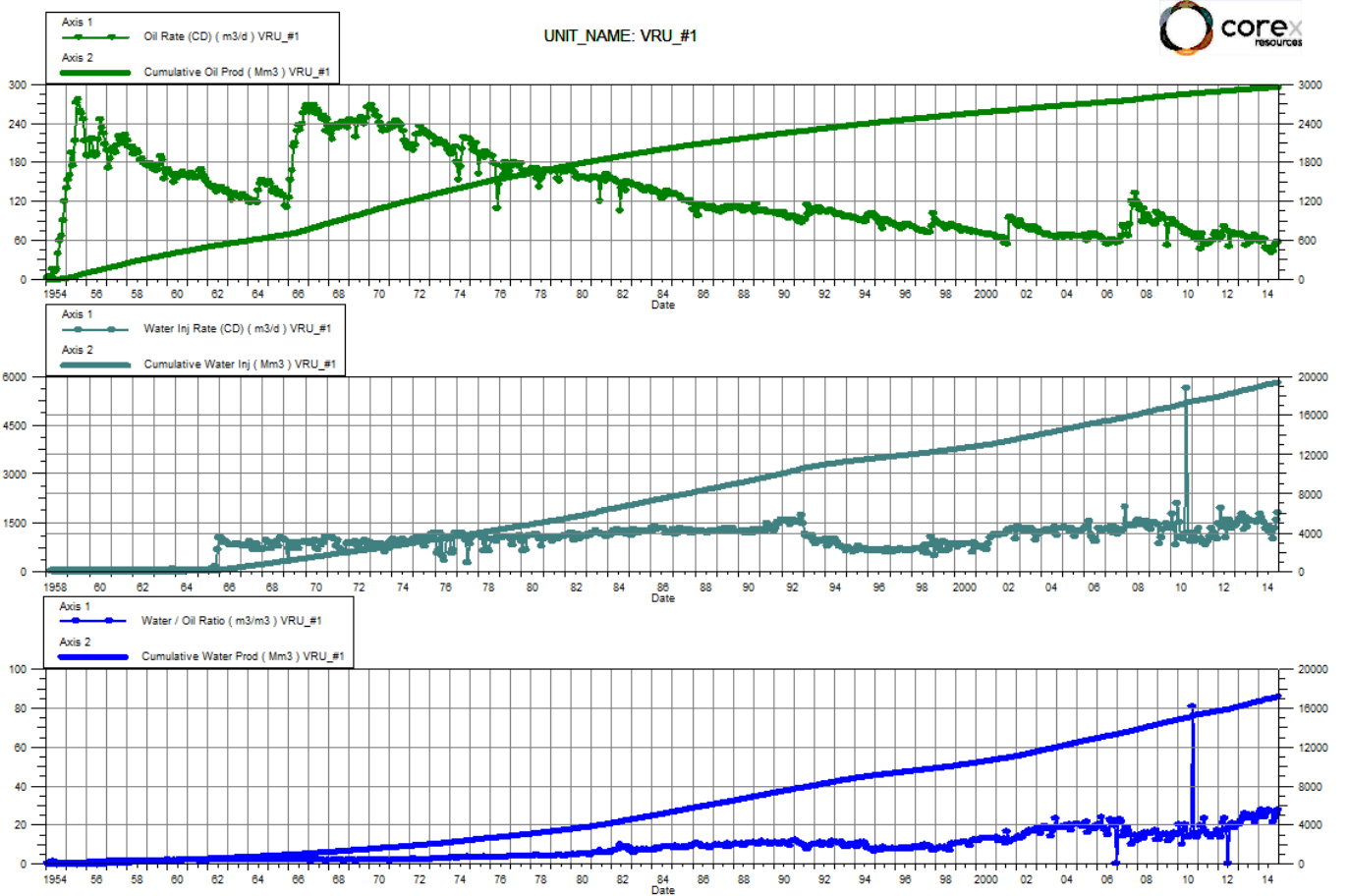


VRU #1 Waterflood Pattern Table

Pattern	Well
P-01	100/13-25-010-26W1/00
P-02	100/15-25-010-26W1/00
P-03	100/15-30-010-25W1/00
P-04	100/11-25-010-26W1/00
P-05	100/09-30-010-25W1/00
P-06	100/03-26-010-26W1/00
P-07	100/05-25-010-26W1/00
P-08	100/07-25-010-26W1/00
P-09	100/05-30-010-25W1/00
P-09	103/01-25-010-26W1/00
	100/07-30-010-25W1/00
P-10	104/08-30-010-25W1/00
P-11	100/05-29-010-25W1/00
P-12	100/06-29-010-25W1/00
P-12	100/07-29-010-25W1/00
P-13	100/05-28-010-25W1/00
P-14	100/15-23-010-26W1/00
P-15	100/13-24-010-26W1/00
P-16	100/15-24-010-26W1/00
P-16	103/01-25-010-26W1/00
P-19	100/13-21-010-25W1/00
P-21	100/11-21-010-25W1/00

Total for VRU #1

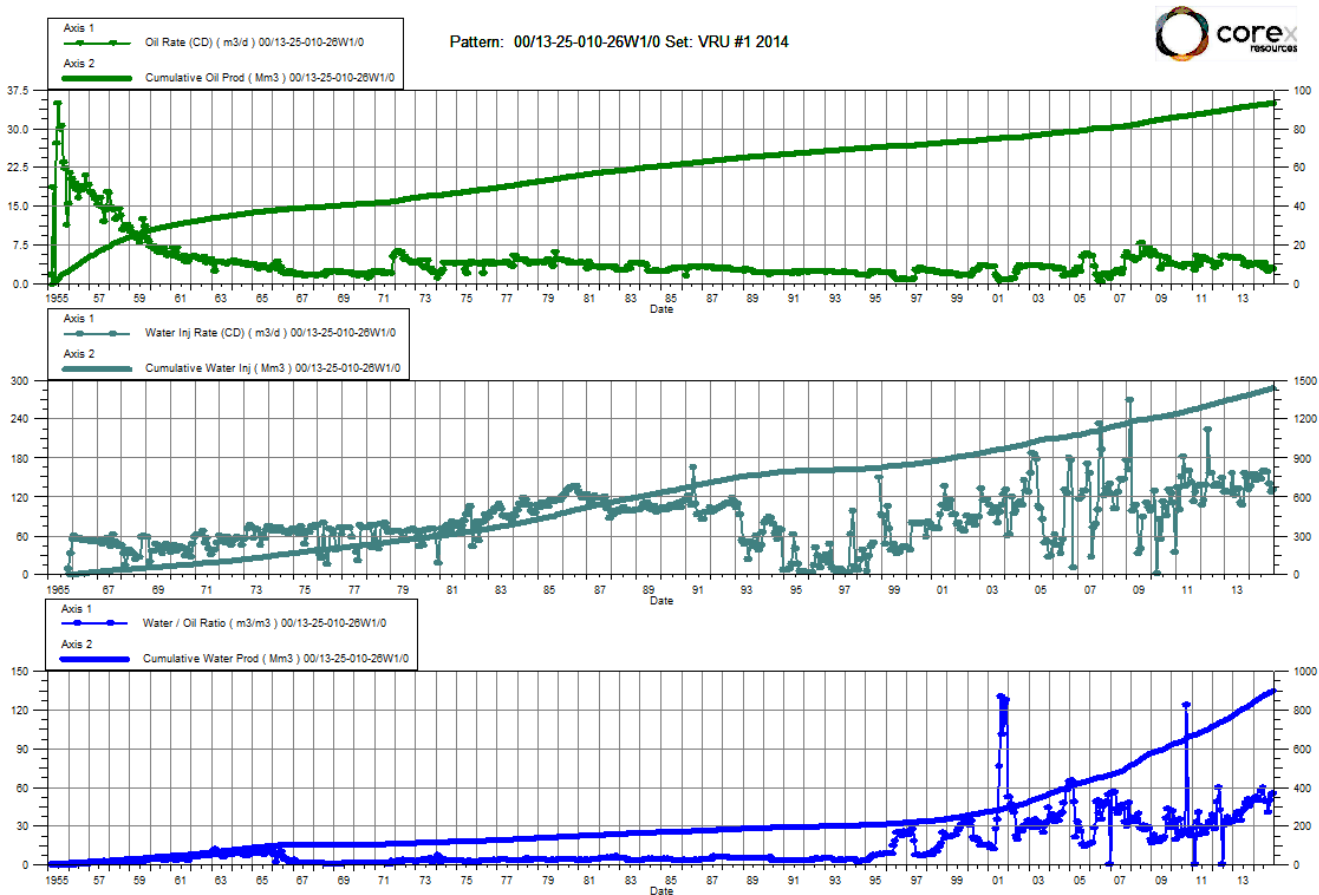
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	58.94	2944.39	1538.59	16751.36	1600.53	18972.07	26.10	1.00	0.96	5,612
2/28/2014	61.76	2946.12	1698.78	16798.93	1763.76	19021.45	27.50	1.00	0.96	5,540
3/31/2014	63.93	2948.10	1608.17	16848.78	1673.55	19073.33	25.16	1.00	0.96	5,713
4/30/2014	61.05	2949.94	1457.72	16892.51	1521.48	19118.98	23.88	1.00	0.96	5,546
5/31/2014	49.54	2951.47	1271.02	16931.91	1330.60	19160.23	25.66	1.01	0.96	5,773
6/30/2014	45.34	2952.83	1242.68	16969.19	1301.24	19199.26	27.41	1.01	0.96	5,658
7/31/2014	48.17	2954.32	1304.56	17009.64	1367.89	19241.67	27.08	1.01	0.96	5,539
8/31/2014	41.66	2955.62	1117.67	17044.28	1188.20	19278.50	26.83	1.02	0.96	5,724
9/30/2014	42.80	2956.90	918.16	17071.83	1007.96	19308.74	21.45	1.05	0.96	5,865
10/31/2014	52.61	2958.53	1235.48	17110.13	1317.66	19349.59	23.48	1.02	0.96	5,822
11/30/2014	56.01	2960.21	1455.00	17153.78	1577.75	19396.92	25.98	1.04	0.96	5,892
12/31/2014	57.36	2961.99	1566.65	17202.34	1817.56	19453.27	27.31	1.12	0.96	5,640



VRU No. 1

Pattern P-01 - 00/13-25-010-26W1/0

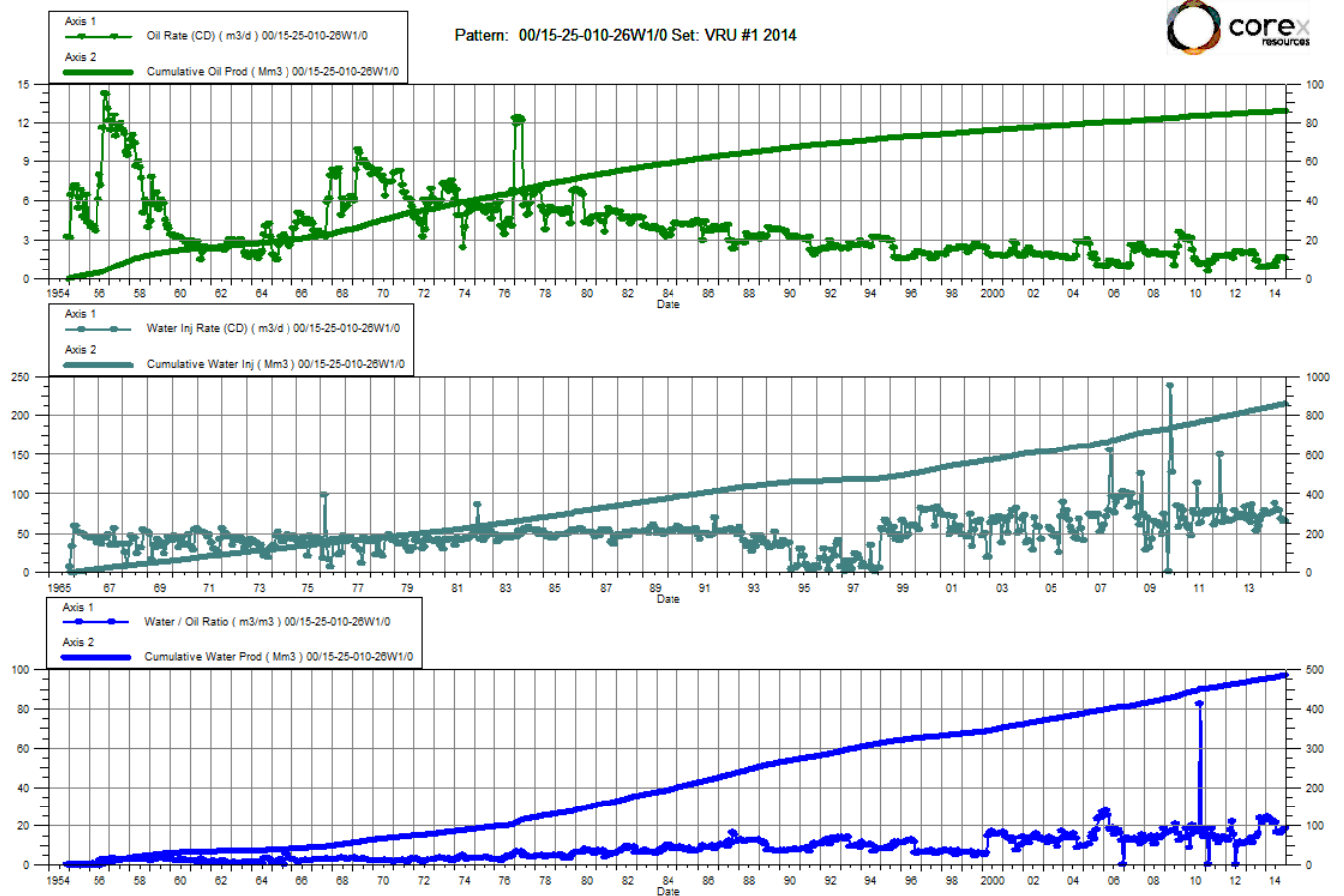
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	3.79	92.11	193.88	842.30	136.88	1394.41	51.11	0.69	1.49	4,797
2/28/2014	3.79	92.22	198.45	847.86	154.61	1398.74	52.37	0.76	1.49	4,704
3/31/2014	4.13	92.34	204.78	854.21	154.54	1403.53	49.60	0.74	1.48	4,797
4/30/2014	4.04	92.47	199.02	860.18	145.55	1407.90	49.26	0.72	1.48	4,707
5/31/2014	3.40	92.57	191.97	866.13	152.44	1412.62	56.52	0.78	1.47	4,897
6/30/2014	3.09	92.66	182.92	871.62	147.74	1417.06	59.26	0.79	1.47	4,793
7/31/2014	4.03	92.79	198.04	877.76	160.17	1422.02	49.15	0.79	1.46	4,613
8/31/2014	3.15	92.89	152.14	882.47	160.43	1426.99	48.37	1.03	1.46	5,006
9/30/2014	2.42	92.96	98.78	885.44	157.49	1431.72	40.82	1.56	1.46	5,200
10/31/2014	2.78	93.04	138.38	889.73	140.17	1436.06	49.71	0.99	1.46	5,200
11/30/2014	3.10	93.14	167.31	894.75	127.16	1439.88	54.03	0.75	1.46	5,187
12/31/2014	2.92	93.23	160.53	899.72	130.86	1443.94	54.99	0.80	1.45	4,800



VRU No. 1

Pattern P-02 - 00/15-25-010-26W1/0

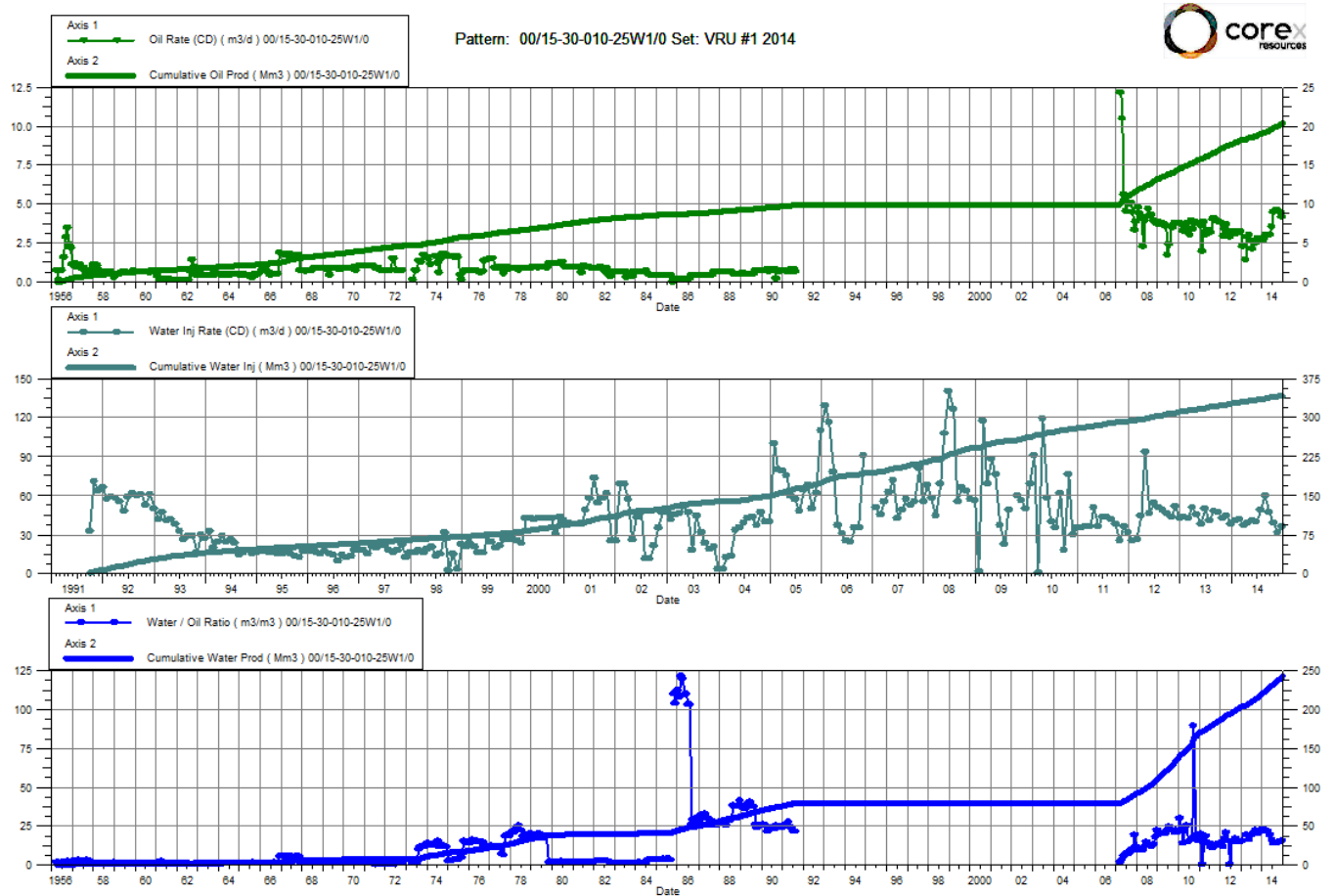
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	0.88	85.50	21.62	477.67	71.73	838.55	24.68	3.19	1.49	5,600
2/28/2014	0.96	85.53	22.90	478.31	79.10	840.76	23.96	3.31	1.49	5,607
3/31/2014	1.04	85.56	23.63	479.04	75.99	843.12	22.76	3.08	1.49	5,794
4/30/2014	1.02	85.59	23.03	479.74	73.55	845.32	22.54	3.06	1.49	5,610
5/31/2014	1.00	85.62	21.32	480.40	75.47	847.66	21.23	3.38	1.49	5,897
6/30/2014	0.97	85.65	20.70	481.02	76.51	849.96	21.34	3.53	1.50	5,800
7/31/2014	1.39	85.69	22.63	481.72	88.12	852.69	16.27	3.66	1.50	5,806
8/31/2014	1.65	85.74	26.94	482.55	79.61	855.16	16.37	2.78	1.50	6,006
9/30/2014	1.75	85.80	28.07	483.40	78.81	857.52	16.00	2.64	1.50	6,200
10/31/2014	1.73	85.85	29.55	484.31	68.25	859.64	17.09	2.18	1.50	6,194
11/30/2014	1.67	85.90	29.29	485.19	64.34	861.57	17.55	2.08	1.50	5,990
12/31/2014	1.58	85.95	29.00	486.09	65.06	863.58	18.34	2.13	1.51	5,703



VRU No. 1

Pattern P-03 - 00/15-30-010-25W1/0

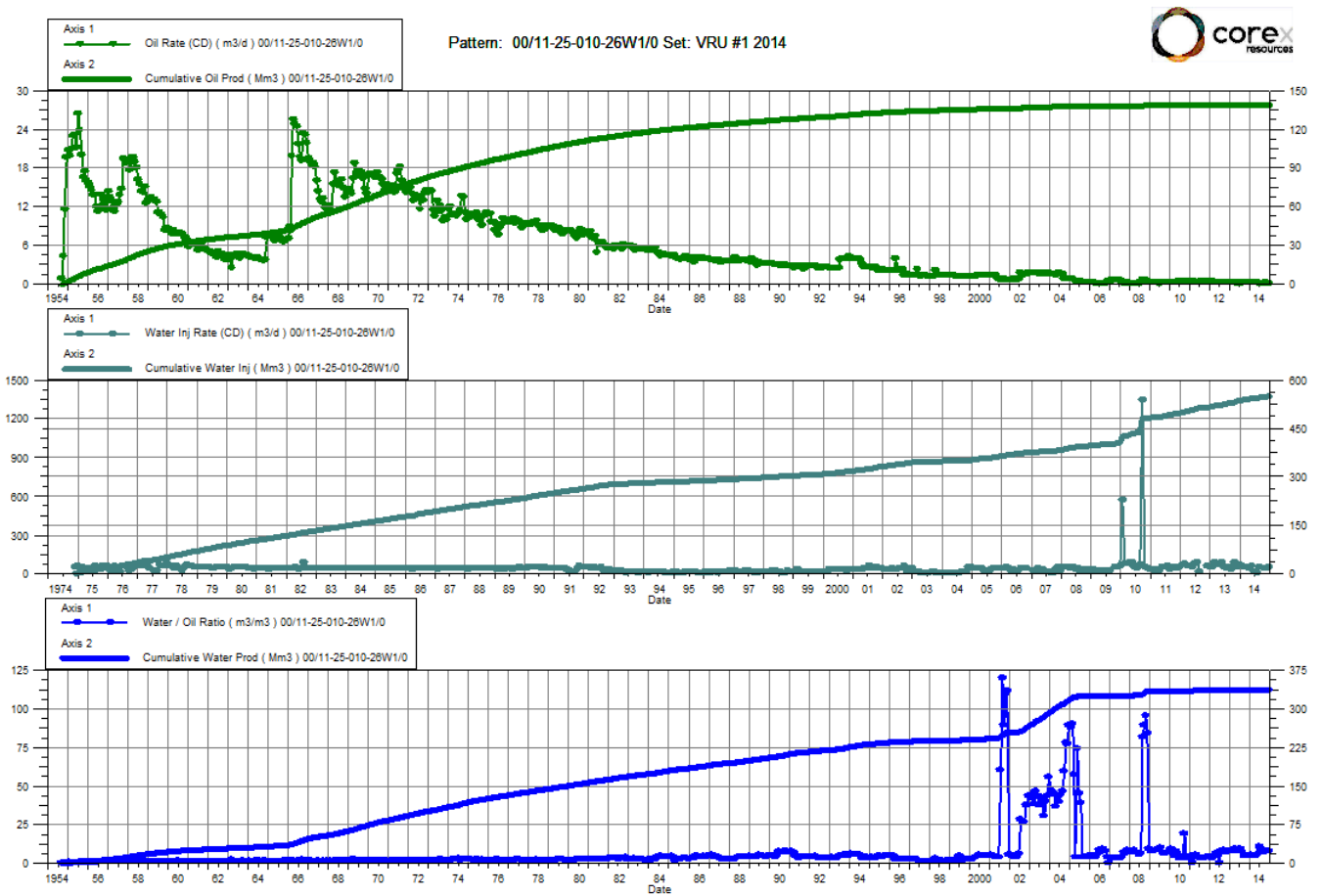
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	2.61	19.13	60.74	221.16	40.40	328.61	23.25	0.64	1.37	7,081
2/28/2014	2.80	19.20	62.99	222.92	41.16	329.76	22.47	0.63	1.36	6,511
3/31/2014	3.05	19.30	65.00	224.94	37.03	330.91	21.28	0.54	1.35	6,787
4/30/2014	3.00	19.39	63.34	226.84	38.81	332.07	21.11	0.59	1.35	6,417
5/31/2014	3.05	19.48	58.80	228.66	40.65	333.33	19.25	0.66	1.34	6,897
6/30/2014	3.58	19.59	57.95	230.40	39.60	334.52	16.19	0.64	1.34	6,807
7/31/2014	4.52	19.73	60.67	232.28	49.14	336.05	13.43	0.75	1.33	7,000
8/31/2014	4.55	19.87	63.75	234.25	60.18	337.91	14.01	0.88	1.33	7,006
9/30/2014	4.66	20.01	63.19	236.15	47.23	339.33	13.57	0.70	1.32	7,200
10/31/2014	4.57	20.15	65.87	238.19	39.05	340.54	14.41	0.55	1.32	7,194
11/30/2014	4.47	20.29	66.59	240.19	31.31	341.48	14.89	0.44	1.31	6,987
12/31/2014	4.18	20.42	64.64	242.19	36.14	342.60	15.45	0.53	1.30	6,597



VRU No. 1

Pattern P-04 - 00/11-25-010-26W1/0

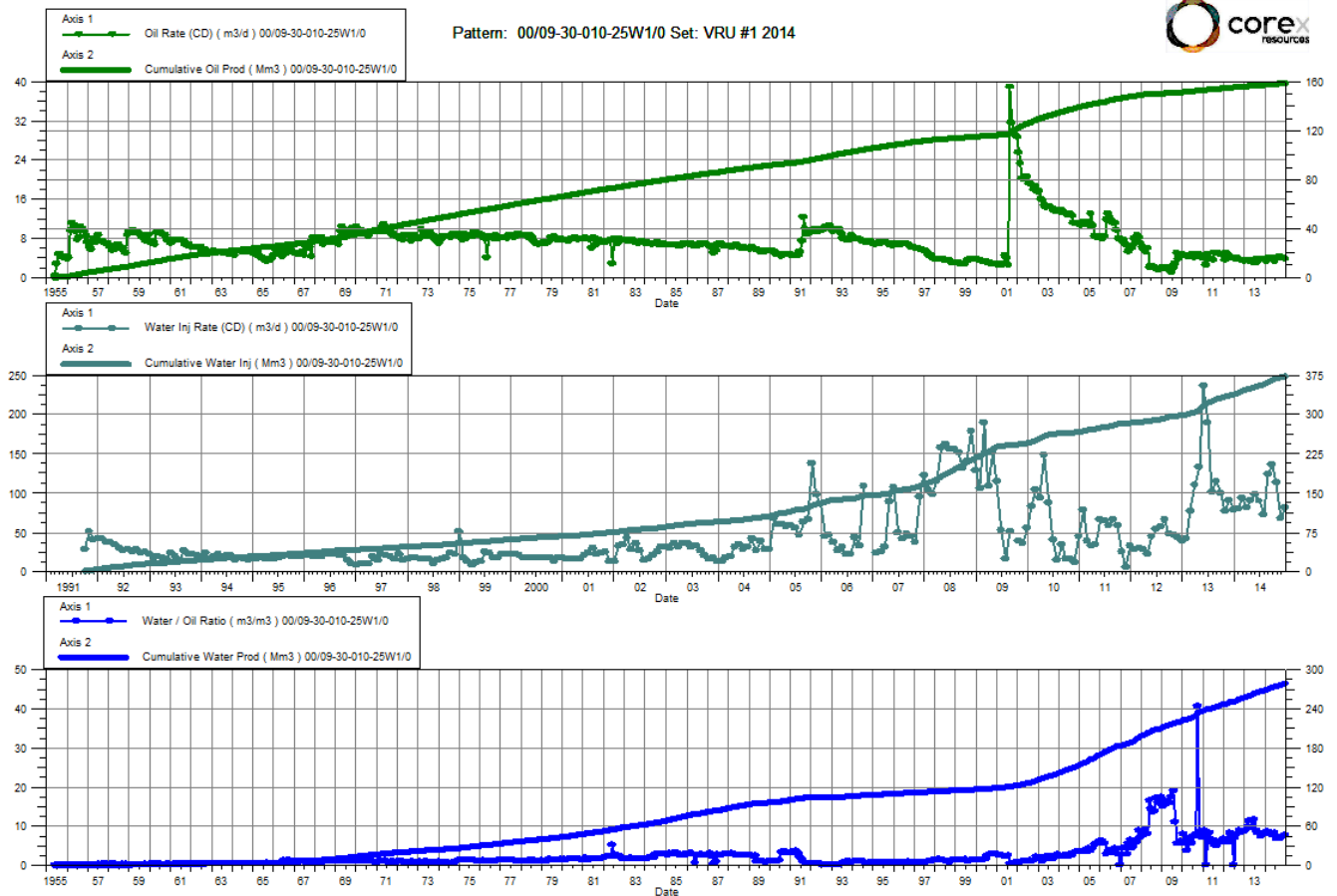
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	0.31	139.15	1.57	337.38	59.18	538.48	5.13	31.40	1.12	6,194
2/28/2014	0.32	139.16	1.58	337.43	48.22	539.83	4.93	25.23	1.13	6,004
3/31/2014	0.35	139.17	1.64	337.48	45.08	541.23	4.66	22.59	1.13	6,097
4/30/2014	0.34	139.18	1.60	337.52	43.77	542.54	4.65	22.49	1.13	6,007
5/31/2014	0.27	139.19	1.48	337.57	57.63	544.33	5.39	32.77	1.14	6,190
6/30/2014	0.13	139.20	1.40	337.61	16.56	544.83	10.78	10.80	1.14	5,900
7/31/2014	0.17	139.20	1.54	337.66	0.07	544.83	8.93	0.04	1.14	5,913
8/31/2014	0.22	139.21	1.62	337.71	53.18	546.48	7.40	28.78	1.14	6,300
9/30/2014	0.22	139.21	1.53	337.76		546.48	6.96		1.14	6,300
10/31/2014	0.22	139.22	1.67	337.81	41.46	547.76	7.50	21.86	1.14	6,290
11/30/2014	0.21	139.23	1.59	337.86	44.57	549.10	7.55	24.78	1.15	5,997
12/31/2014	0.20	139.23	1.64	337.91	49.96	550.65	7.99	27.07	1.15	5,903



VRU No. 1

Pattern P-05 - 00/09-30-010-25W1/0

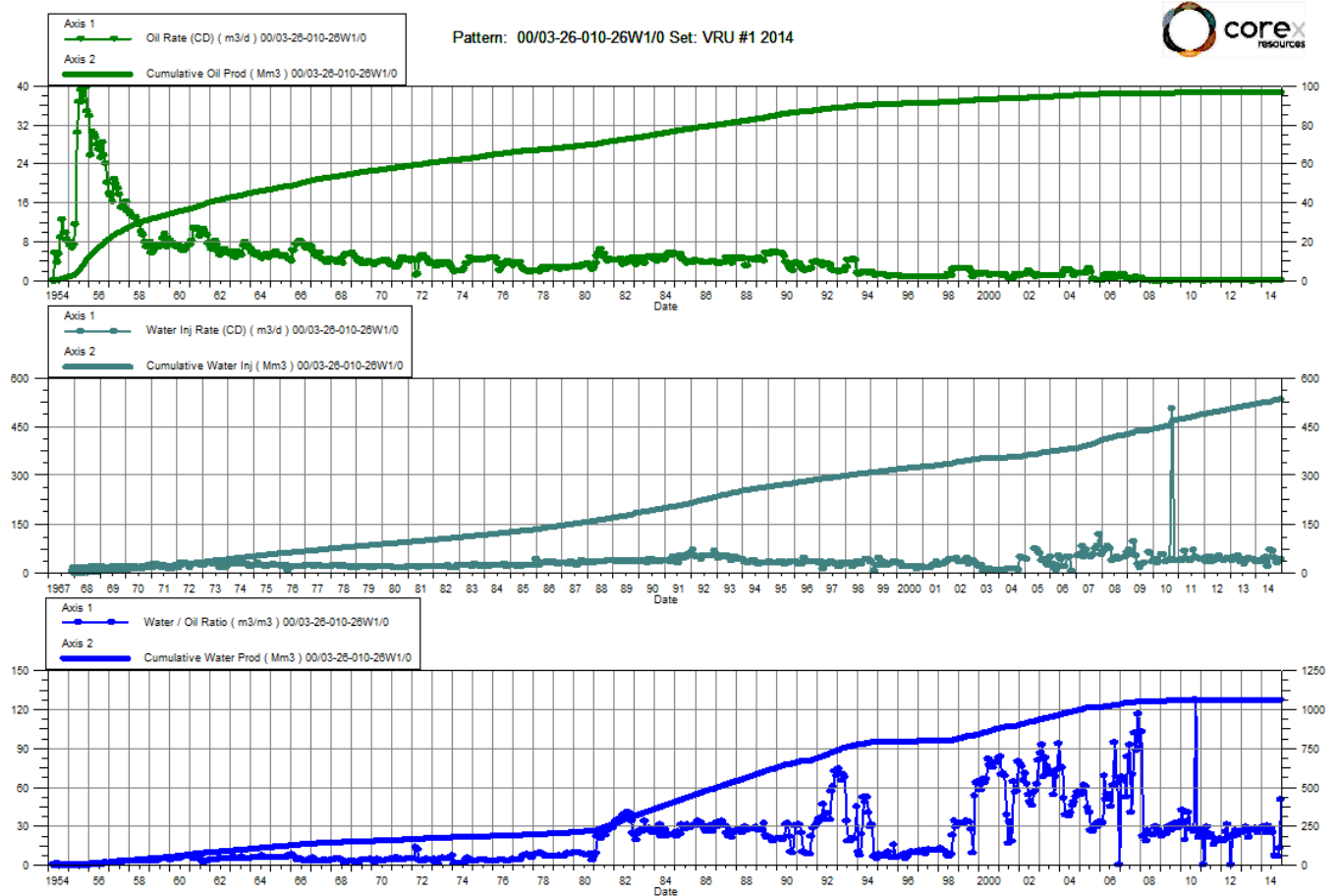
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	3.35	157.65	29.18	269.38	79.52	343.14	8.72	2.44	0.80	7,094
2/28/2014	3.83	157.76	32.38	270.29	94.40	345.78	8.45	2.60	0.80	6,900
3/31/2014	4.09	157.88	32.61	271.30	81.63	348.32	7.97	2.22	0.81	6,897
4/30/2014	4.02	158.00	31.75	272.25	90.13	351.02	7.90	2.51	0.81	6,820
5/31/2014	3.97	158.13	30.02	273.18	97.93	354.05	7.55	2.87	0.82	7,394
6/30/2014	3.30	158.23	27.36	274.00	89.90	356.75	8.30	2.93	0.82	7,193
7/31/2014	4.11	158.35	27.45	274.85	71.85	358.98	6.68	2.27	0.82	7,000
8/31/2014	4.09	158.48	28.25	275.73	123.64	362.81	6.90	3.81	0.83	7,019
9/30/2014	4.21	158.61	28.17	276.58	136.74	366.91	6.69	4.21	0.84	7,597
10/31/2014	4.07	158.73	28.88	277.47	112.83	370.41	7.10	3.42	0.84	7,494
11/30/2014	3.98	158.85	29.19	278.35	67.99	372.45	7.33	2.05	0.85	7,287
12/31/2014	3.72	158.97	28.34	279.22	80.96	374.96	7.61	2.52	0.85	6,897



VRU No. 1

Pattern P-06 - 00/03-26-010-26W1/0

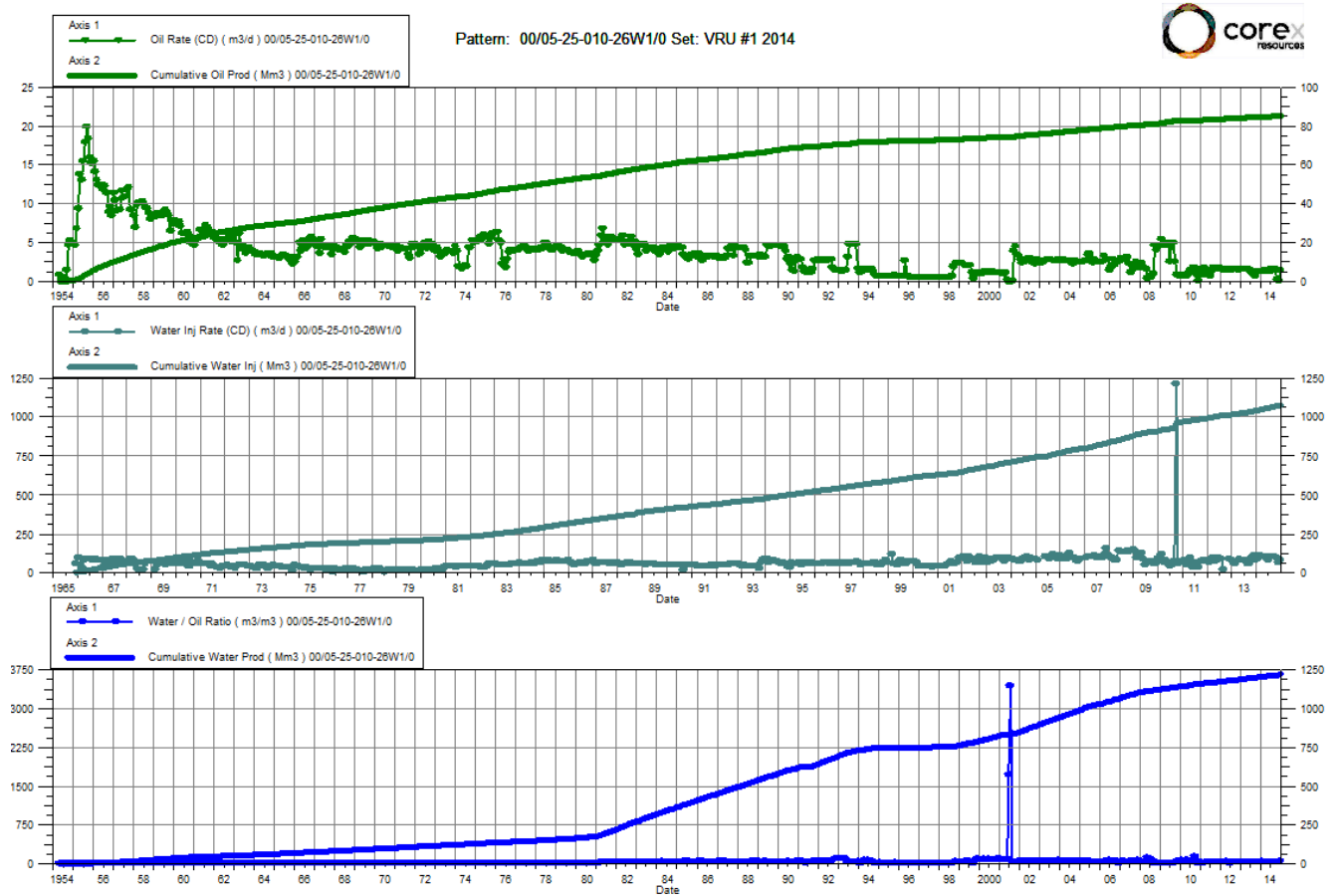
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	0.05	96.67	1.54	1060.36	38.34	521.43	29.02	23.98	0.45	4,997
2/28/2014	0.05	96.68	1.58	1060.41	38.24	522.50	28.93	23.44	0.45	4,914
3/31/2014	0.06	96.68	1.44	1060.45	33.07	523.52	25.13	22.09	0.45	5,284
4/30/2014	0.05	96.68	1.64	1060.50	45.11	524.87	30.69	26.67	0.45	4,807
5/31/2014	0.06	96.68	1.53	1060.55	48.85	526.39	26.31	30.79	0.45	4,994
6/30/2014	0.05	96.68	1.44	1060.59	19.91	526.99	27.95	13.30	0.46	4,763
7/31/2014	0.06	96.68	1.50	1060.64	70.61	529.17	24.80	45.21	0.46	3,742
8/31/2014	0.13	96.69	0.93	1060.66	67.57	531.27	7.34	63.87	0.46	5,000
9/30/2014	0.20	96.69	1.37	1060.71	47.23	532.69	6.72	30.01	0.46	5,000
10/31/2014	0.26	96.70	1.60	1060.76	32.36	533.69	6.11	17.37	0.46	5,010
11/30/2014	0.24	96.71	3.13	1060.85	40.75	534.91	12.83	12.05	0.46	5,293
12/31/2014	0.23	96.72	11.52	1061.21	40.90	536.18	50.67	3.48	0.46	5,106



VRU No. 1

Pattern P-07 - 00/05-25-010-26W1/0

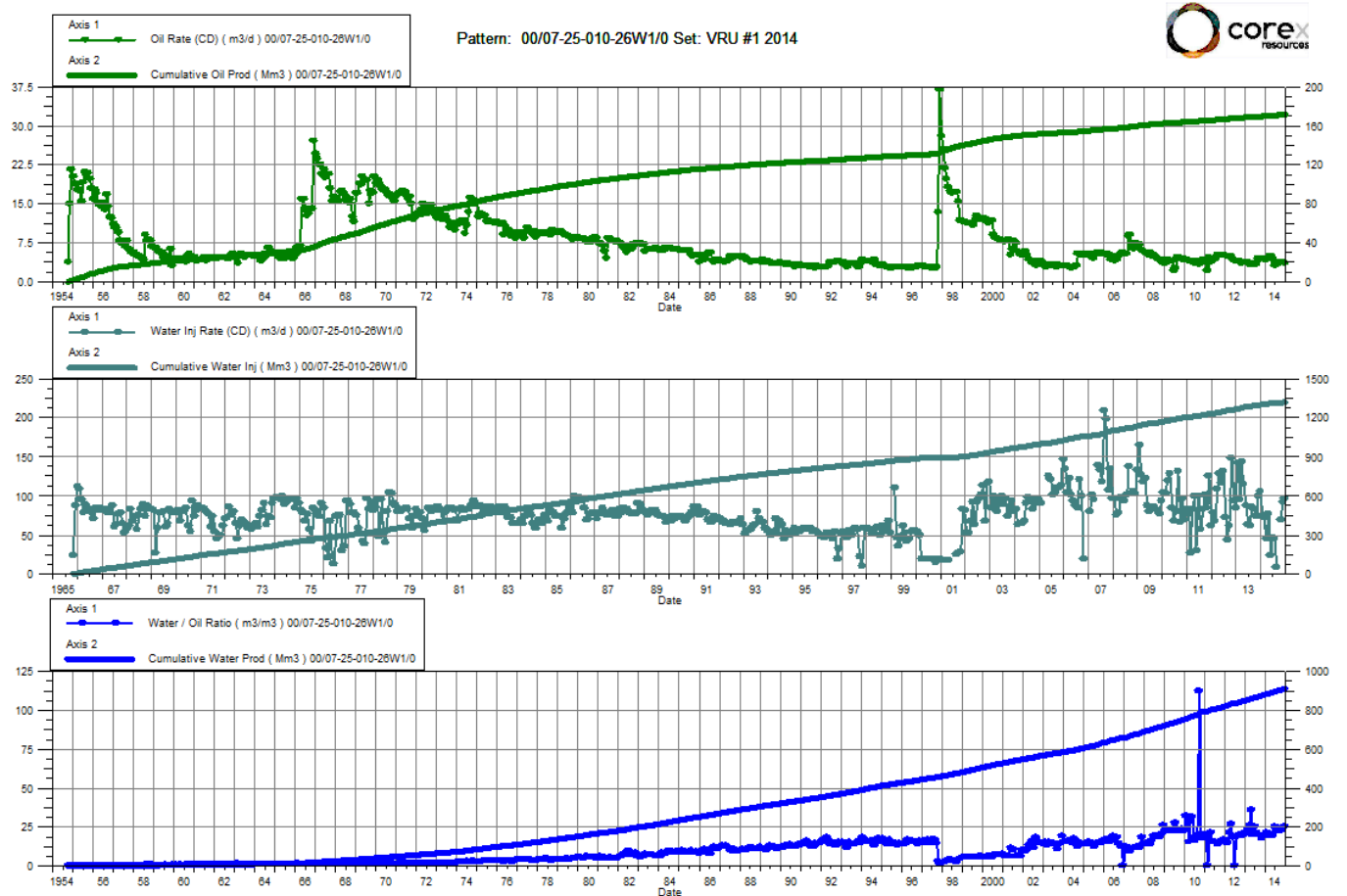
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	1.28	84.74	48.55	1205.81	88.94	1044.39	37.86	1.78	0.81	5,800
2/28/2014	1.34	84.78	49.06	1207.19	106.69	1047.38	36.61	2.12	0.81	5,804
3/31/2014	1.46	84.83	50.62	1208.76	104.63	1050.62	34.62	2.01	0.81	5,897
4/30/2014	1.43	84.87	49.32	1210.24	98.74	1053.58	34.45	1.95	0.81	5,807
5/31/2014	1.40	84.91	45.51	1211.65	105.32	1056.85	32.51	2.24	0.81	6,000
6/30/2014	1.26	84.95	42.26	1212.92	82.74	1059.33	33.58	1.90	0.82	6,000
7/31/2014	1.66	85.00	46.60	1214.36	103.51	1062.54	28.01	2.14	0.82	6,006
8/31/2014	1.58	85.05	44.49	1215.74	103.08	1065.73	28.19	2.24	0.82	6,213
9/30/2014	1.64	85.10	44.65	1217.08	102.38	1068.81	27.17	2.21	0.82	6,597
10/31/2014	0.31	85.11	5.41	1217.25	95.32	1071.76	17.30	16.63	0.82	6,484
11/30/2014	0.15	85.11	2.27	1217.31	67.10	1073.77	15.22	27.71	0.82	5,993
12/31/2014	1.44	85.16	54.98	1219.02	77.20	1076.17	38.08	1.37	0.82	5,800



VRU No. 1

Pattern P-08 - 00/07-25-010-26W1/0

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
1/31/2014	4.26	170.30	89.94	882.87	73.96	1304.64	21.13	0.79	1.24	7,181
2/28/2014	4.50	170.43	93.32	885.48	72.41	1306.67	20.75	0.74	1.23	6,604
3/31/2014	4.99	170.58	97.11	888.49	44.80	1308.06	19.46	0.44	1.23	6,694
4/30/2014	4.88	170.73	94.01	891.31	77.17	1310.37	19.25	0.78	1.23	6,517
5/31/2014	4.53	170.87	86.49	894.00	23.97	1311.12	19.11	0.26	1.23	6,994
6/30/2014	3.15	170.96	80.73	896.42	46.02	1312.50	25.61	0.55	1.23	6,800
7/31/2014	3.73	171.08	82.59	898.98	44.76	1313.88	22.15	0.52	1.22	6,806
8/31/2014	3.84	171.20	89.15	901.74	8.98	1314.16	23.20	0.10	1.22	7,000
9/30/2014	3.57	171.30	78.61	904.10		1314.16	22.03		1.22	7,000
10/31/2014	3.84	171.42	87.38	906.81	68.88	1316.30	22.78	0.76	1.22	6,987
11/30/2014	3.81	171.54	93.21	909.61	92.24	1319.06	24.45	0.95	1.22	6,590
12/31/2014	3.64	171.65	91.83	912.45	97.40	1322.08	25.22	1.02	1.22	6,306

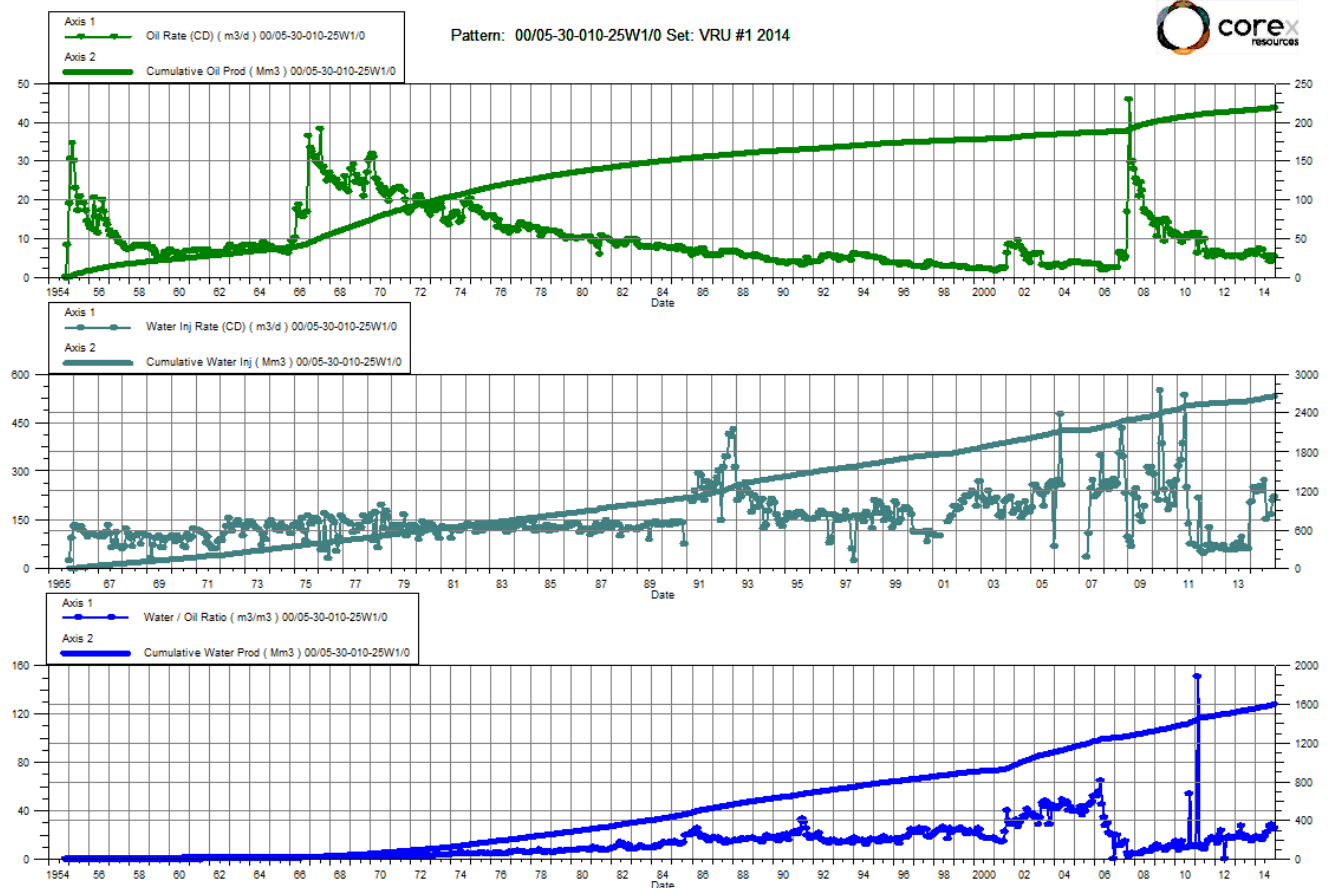


VRU No. 1

Pattern P-09 – 00/05-30-010-25W1/0

P-09 – 03/01-25-010-26W1/0

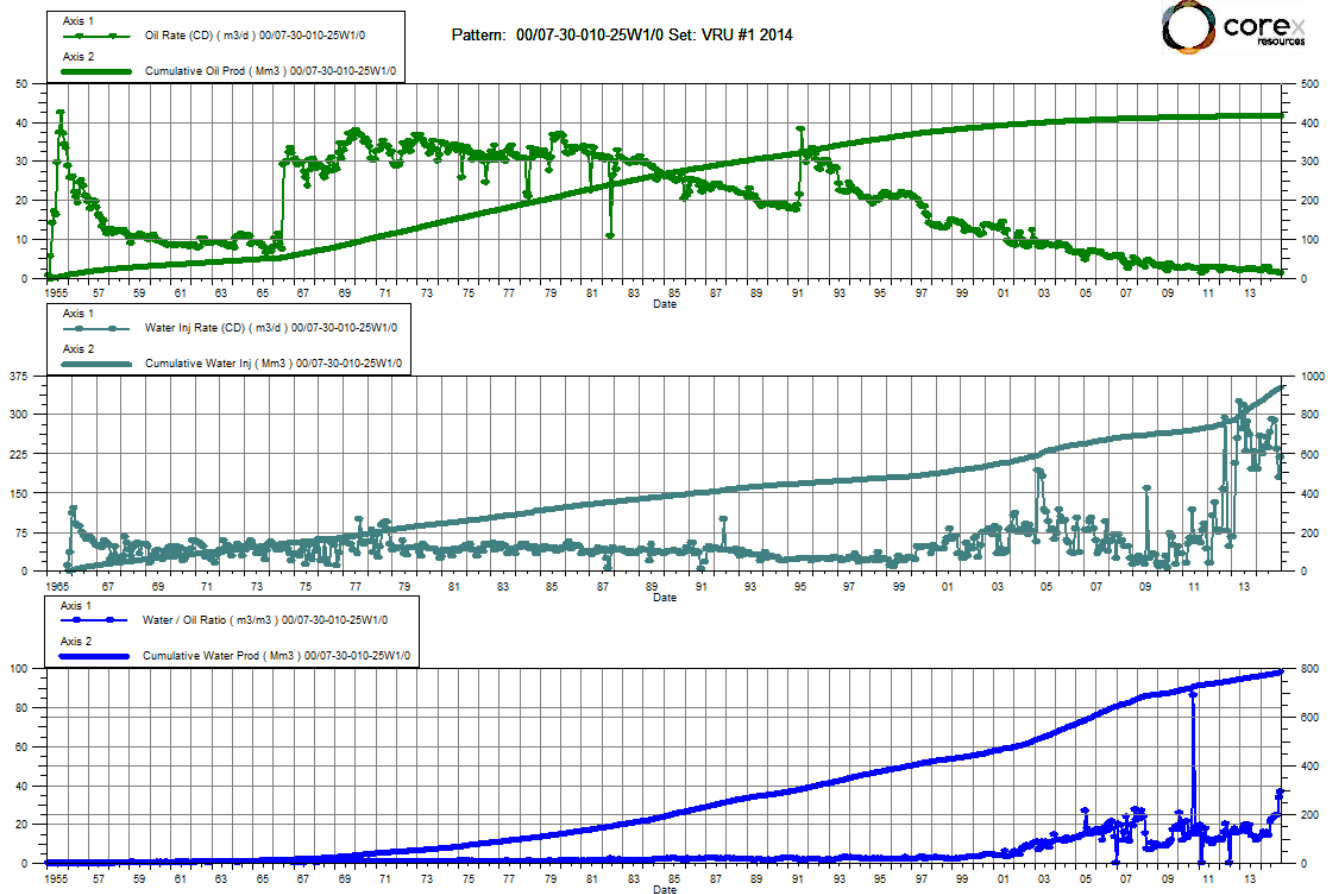
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemnt Ratio	Water Inj Pressure kPa	Water Inj Pressure kPa
1/31/2014	6.10	216.98	112.30	1559.98	208.04	2595.50	18.40	1.76	1.46	5,800	--
2/28/2014	6.85	217.17	120.27	1563.35	248.77	2602.46	17.55	1.96	1.46	5,807	--
3/31/2014	7.46	217.41	124.10	1567.20	235.29	2609.76	16.65	1.79	1.46	6,000	--
4/30/2014	7.14	217.62	118.66	1570.76	248.12	2617.20	16.61	1.97	1.46	6,007	--
5/31/2014	7.14	217.84	111.65	1574.22	253.24	2625.05	15.64	2.13	1.46	6,200	--
6/30/2014	5.54	218.01	102.07	1577.28	238.96	2632.22	18.42	2.22	1.46	6,200	--
7/31/2014	5.49	218.18	120.47	1581.01	272.08	2640.66	21.96	2.16	1.46	6,200	--
8/31/2014	5.65	218.35	130.14	1585.05	153.37	2645.41	23.04	1.13	1.46	6,200	--
9/30/2014	4.25	218.48	115.68	1588.52		2645.41	27.20		1.46	6,200	--
10/31/2014	4.31	218.61	122.02	1592.30	165.84	2650.55	28.29	1.31	1.46	6,161	--
11/30/2014	5.62	218.78	139.63	1596.49	208.75	2656.81	24.84	1.44	1.46	5,000	--
12/31/2014	5.33	218.95	136.91	1600.73	220.75	2663.66	25.69	1.55	1.46	5,026	--



VRU No. 1

Pattern P-10 - 00/07-30-010-25W1/0

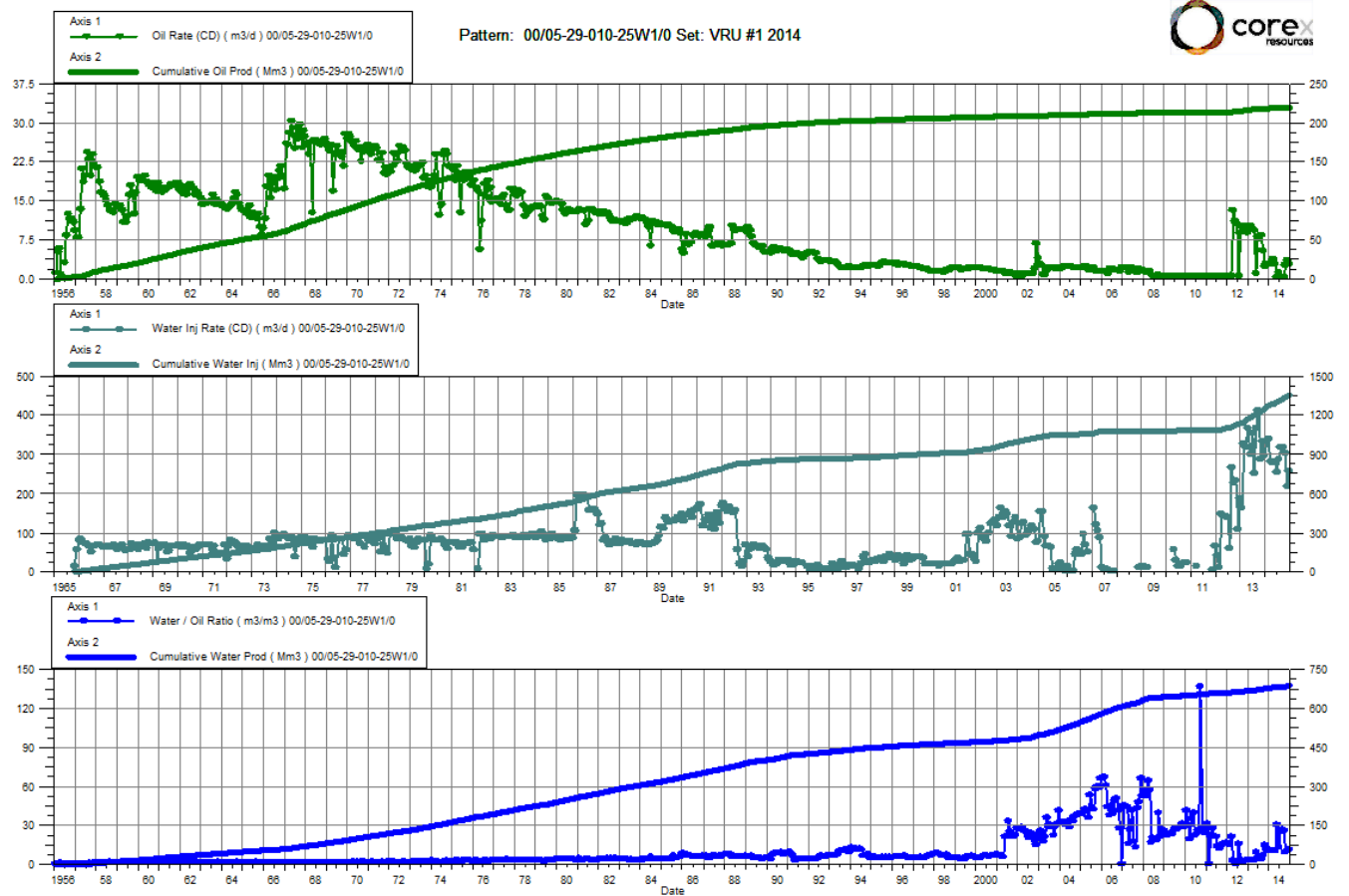
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa	Water Inj Pressure kPa
1/31/2014	2.02	417.72	28.20	771.16	195.42	862.06	13.99	6.46	0.72	6,787	6,787
2/28/2014	2.46	417.79	38.86	772.25	258.74	869.31	15.82	6.26	0.73	6,400	6,404
3/31/2014	2.85	417.87	42.87	773.57	225.53	876.30	15.03	4.93	0.73	6,394	6,497
4/30/2014	2.91	417.96	45.65	774.94	239.31	883.48	15.70	4.92	0.74	6,220	6,410
5/31/2014	3.01	418.06	41.97	776.24	256.45	891.43	13.93	5.69	0.74	6,797	6,697
6/30/2014	1.85	418.11	40.03	777.45	235.93	898.51	21.64	5.63	0.75	6,703	6,597
7/31/2014	1.69	418.16	38.69	778.64	267.45	906.80	22.89	6.62	0.75	6,803	6,510
8/31/2014	1.77	418.22	41.60	779.93	291.76	915.84	23.47	6.72	0.76	6,910	6,806
9/30/2014	1.71	418.27	42.04	781.20	289.79	924.54	24.63	6.62	0.77	7,200	7,000
10/31/2014	1.74	418.32	42.80	782.52	234.29	931.80	24.59	5.26	0.77	7,187	6,994
11/30/2014	1.38	418.36	46.16	783.91	179.17	937.18	33.57	3.77	0.77	6,787	6,793
12/31/2014	1.53	418.41	56.55	785.66	218.46	943.95	36.95	3.76	0.78	6,394	6,594



VRU No. 1

Pattern P-11 - 00/05-29-010-25W1/0

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
1/31/2014	2.87	218.65	31.59	678.88	332.73	1263.01	11.00	9.64	1.40	6,400
2/28/2014	3.43	218.74	35.90	679.88	340.02	1272.53	10.47	8.63	1.41	6,404
3/31/2014	3.73	218.86	37.14	681.03	282.26	1281.28	9.95	6.89	1.42	6,503
4/30/2014	2.97	218.95	31.13	681.97	279.71	1289.67	10.49	8.19	1.43	6,600
5/31/2014	0.42	218.96	12.80	682.36	281.09	1298.39	30.75	21.26	1.43	6,600
6/30/2014	1.41	219.00	18.57	682.92	254.59	1306.02	13.20	12.73	1.44	6,600
7/31/2014	0.40	219.02	10.03	683.23	287.40	1314.93	24.88	27.52	1.45	6,600
8/31/2014	0.41	219.03	10.67	683.56	317.20	1324.77	26.25	28.61	1.46	6,600
9/30/2014	0.42	219.04	10.64	683.88	317.85	1334.30	25.33	28.72	1.47	6,600
10/31/2014	2.65	219.12	24.33	684.63	302.29	1343.67	9.18	11.18	1.48	6,597
11/30/2014	3.56	219.23	35.31	685.69	219.19	1350.25	9.91	5.63	1.49	6,497
12/31/2014	3.00	219.32	34.61	686.77	257.66	1358.24	11.53	6.84	1.49	6,400

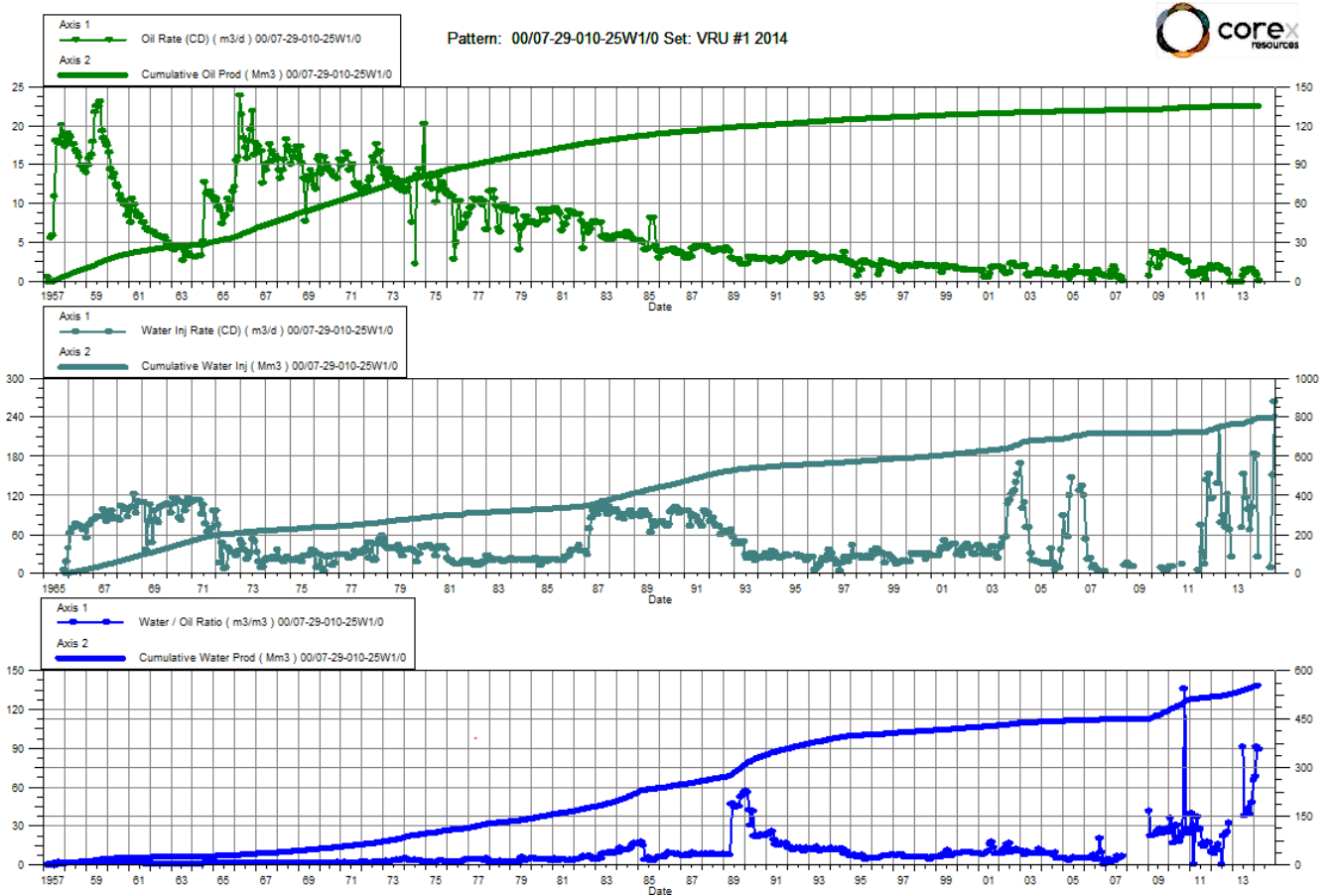


VRU No. 1

Pattern P-12 – 00/06-29-010-25W1/0

P-12 – 03/07-29-010-25W1/0

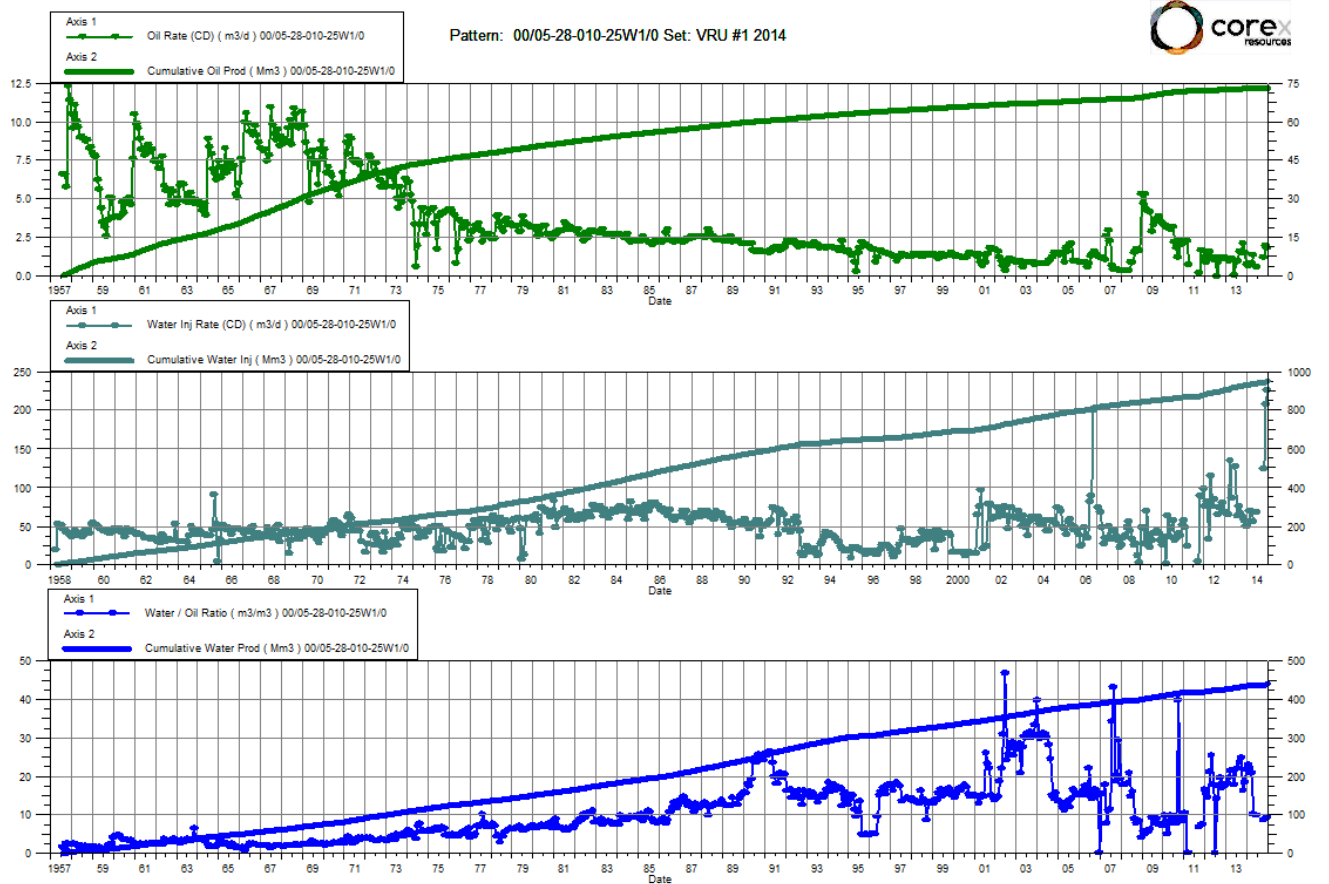
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa	Water Inj Pressure kPa
1/31/2014	1.13	135.66	77.23	552.16	100.90	783.44	68.21	1.29	1.14	5,719	6,210
2/28/2014	0.92	135.69	83.59	554.50	184.33	788.60	90.71	2.18	1.14	6,304	6,500
3/31/2014	0.14	135.69	12.62	554.89	181.82	794.24	88.91	14.25	1.15	6,400	6,500
4/30/2014		135.69		554.89	23.82	794.95			1.15	6,400	6,500
5/31/2014		135.69		554.89		794.95			1.15	6,400	6,500
6/30/2014		135.69		554.89		794.95			1.15	6,400	6,500
7/31/2014		135.69		554.89		794.95			1.15	6,400	6,500
8/31/2014		135.69		554.89		794.95			1.15	6,400	6,500
9/30/2014		135.69		554.89		794.95			1.15	6,400	6,500
10/31/2014		135.69		554.89	8.84	795.23			1.15	6,413	6,500
11/30/2014		135.69		554.89	151.51	799.77			1.15	6,787	6,500
12/31/2014		135.69		554.89	263.85	807.95			1.17	6,394	6,500



VRU No. 1

Pattern P-13 - 00/05-28-010-25W1/0

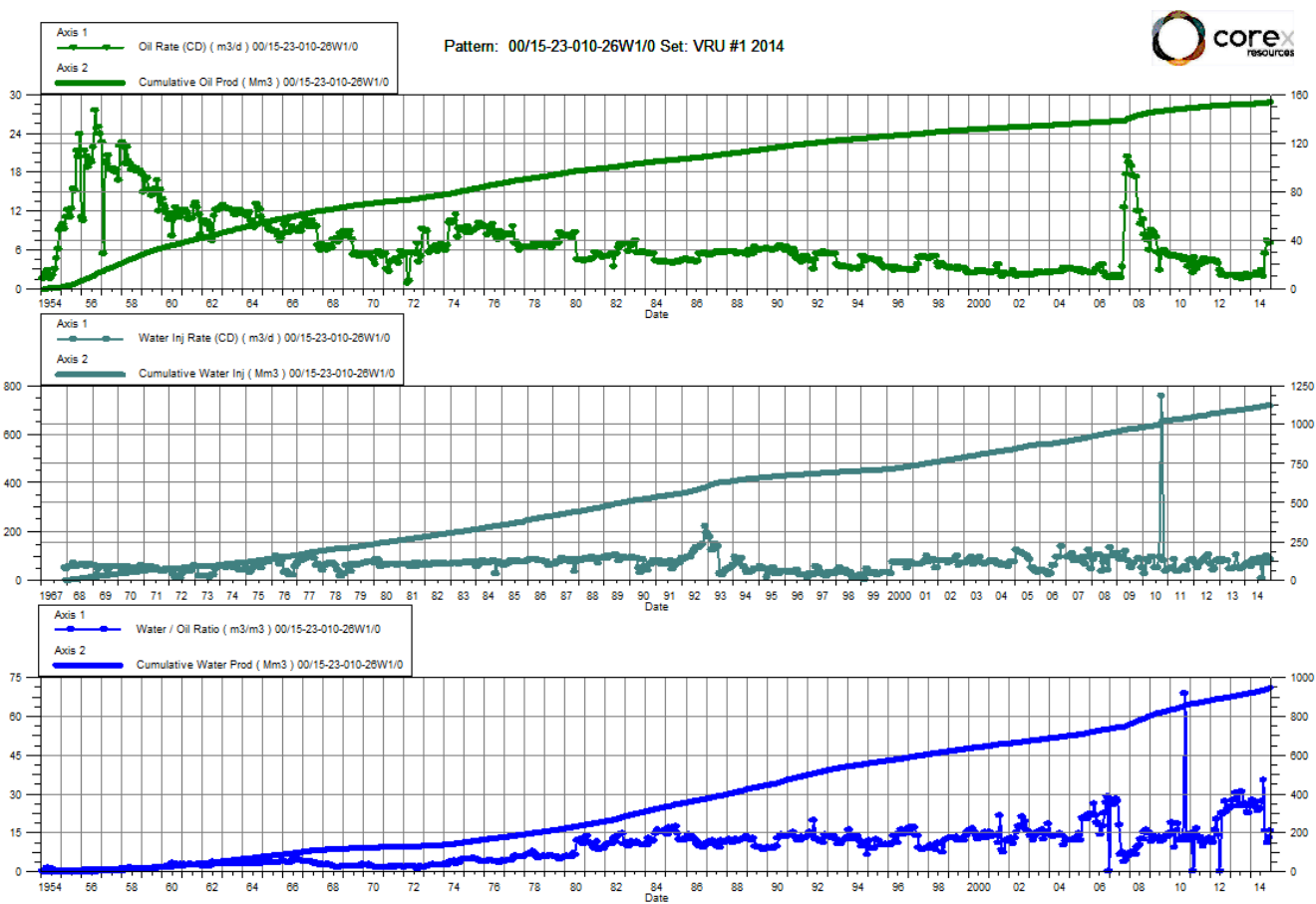
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	0.68	73.04	15.56	435.54	48.97	932.57	22.80	3.01	1.83	4,406
2/28/2014	0.80	73.06	17.56	436.03	69.16	934.50	22.05	3.76	1.83	4,607
3/31/2014	0.83	73.08	17.30	436.57	69.45	936.65	20.86	3.83	1.83	4,800
4/30/2014	1.33	73.12	13.48	436.97	55.92	938.33	10.11	3.77	1.83	4,800
5/31/2014		73.12		436.97		938.33			1.83	4,800
6/30/2014	0.56	73.14	5.44	437.14	68.17	940.38	9.66	11.34	1.84	4,793
7/31/2014		73.14		437.14		940.38			1.84	4,600
8/31/2014		73.14		437.14		940.38			1.84	4,600
9/30/2014		73.14		437.14		940.38			1.84	4,600
10/31/2014	1.22	73.18	10.50	437.46	124.76	944.25	8.61	10.63	1.84	4,632
11/30/2014	1.96	73.24	17.43	437.99	207.53	950.47	8.90	10.69	1.85	5,587
12/31/2014	1.83	73.29	16.92	438.51	226.49	957.49	9.23	12.06	1.87	5,200



VRU No. 1

Pattern P-14 - 00/15-23-010-26W1/0

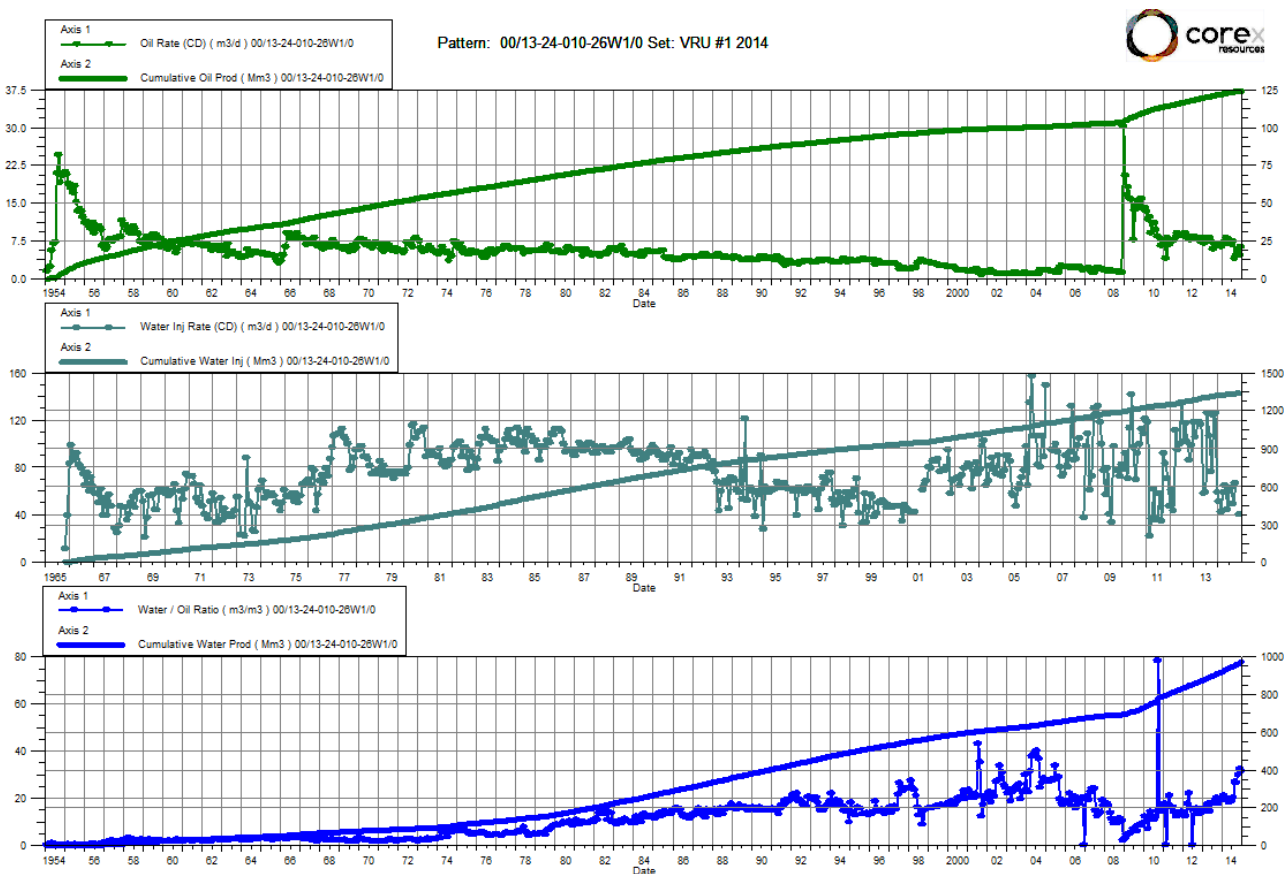
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa
1/31/2014	2.12	152.46	58.25	921.46	70.22	1101.71	27.46	1.16	1.02	5,774
2/28/2014	2.14	152.52	56.97	923.05	72.00	1103.72	26.57	1.22	1.02	5,021
3/31/2014	2.13	152.59	57.54	924.84	54.53	1105.41	26.95	0.91	1.02	5,571
4/30/2014	2.49	152.66	62.08	926.70	82.89	1107.90	24.90	1.28	1.02	4,720
5/31/2014	2.44	152.74	57.29	928.48	87.38	1110.61	23.52	1.46	1.02	5,290
6/30/2014	2.16	152.80	52.06	930.04	71.66	1112.76	24.12	1.32	1.03	5,000
7/31/2014	2.79	152.89	75.12	932.37	90.09	1115.55	26.90	1.16	1.03	5,006
8/31/2014	1.94	152.95	68.21	934.48	7.56	1115.79	35.11	0.11	1.02	5,200
9/30/2014	5.42	153.11	84.67	937.02	81.79	1118.24	15.61	0.91	1.02	5,200
10/31/2014	7.43	153.34	82.31	939.57	100.54	1121.36	11.08	1.12	1.02	5,210
11/30/2014	7.27	153.56	93.13	942.37	71.26	1123.50	12.81	0.71	1.02	5,493
12/31/2014	7.11	153.78	109.94	945.78	84.25	1126.11	15.46	0.72	1.02	5,303



VRU No. 1

Pattern P-15 - 00/13-24-010-26W1/0

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
1/31/2014	6.70	122.36	140.15	923.40	51.58	1323.68	20.92	0.35	1.26	5,400
2/28/2014	7.18	122.56	144.96	927.46	41.98	1324.85	20.19	0.28	1.26	5,425
3/31/2014	8.09	122.81	154.79	932.26	59.44	1326.69	19.14	0.37	1.26	6,077
4/30/2014	7.93	123.05	150.74	936.78	65.02	1328.65	19.00	0.41	1.25	5,407
5/31/2014	7.72	123.29	138.86	941.09	44.57	1330.03	17.98	0.30	1.25	5,587
6/30/2014	6.84	123.50	126.99	944.90	59.55	1331.81	18.58	0.45	1.24	5,200
7/31/2014	7.57	123.73	151.46	949.59	63.23	1333.77	20.00	0.40	1.24	5,206
8/31/2014	4.09	123.86	110.73	953.03	48.88	1335.29	27.06	0.43	1.24	5,432
9/30/2014	4.52	123.99	120.15	956.63	66.49	1337.28	26.55	0.53	1.24	6,373
10/31/2014	5.69	124.17	170.66	961.92		1337.28	29.97		1.23	5,600
11/30/2014	4.66	124.31	151.47	966.47	40.23	1338.49	32.49	0.26	1.22	5,600
12/31/2014	6.44	124.51	201.71	972.72		1338.49	31.33		1.22	5,419

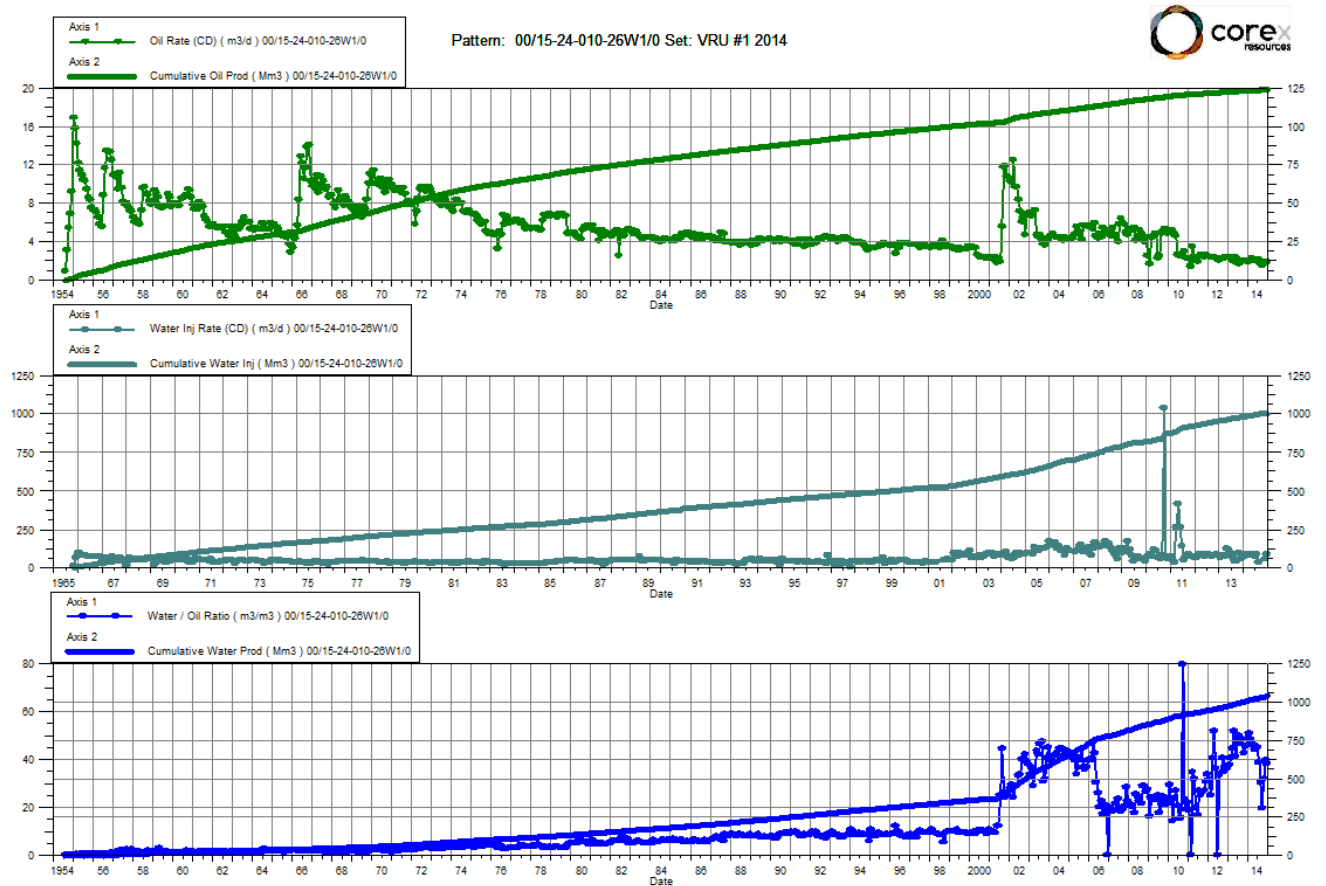


VRU No. 1

Pattern P-16 – 00/15-24-010-26W1/0

P-16 – 03/01-25-010-26W1/0

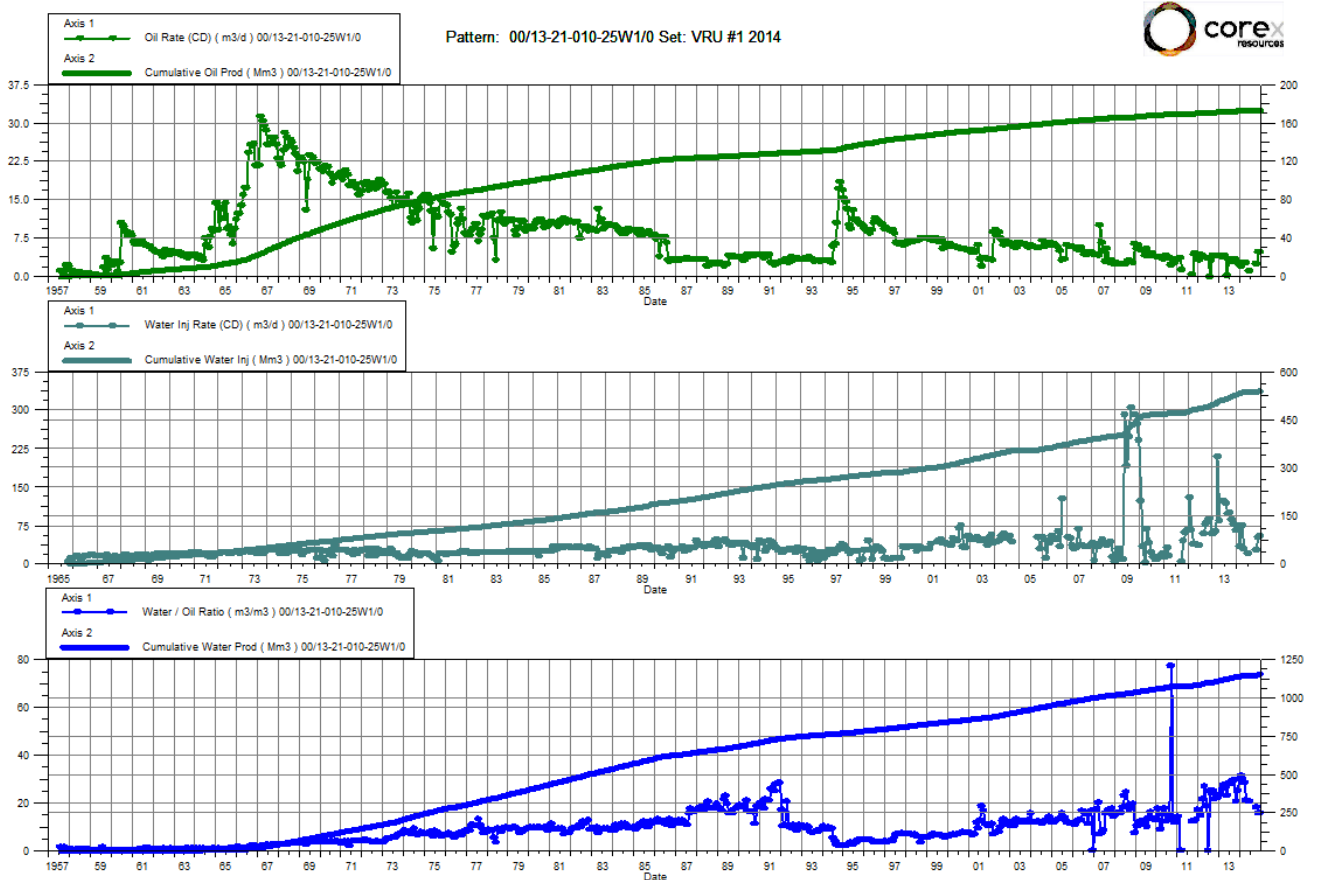
Date	Oil Rate (CD) m3/d	Cum Oil Prod Mm3	Water Rate (CD) m3/d	Cum Water Prod Mm3	Water Inj Rate (CD) m3/d	Cum Water Inj Mm3	Water Oil Ratio m3/m3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio	Water Inj Pressure kPa	Water Inj Pressure kPa
1/31/2014	1.91	123.38	97.35	1009.26	71.04	983.39	51.08	0.72	0.87	6,594	--
2/28/2014	2.04	123.44	99.15	1012.04	85.38	985.78	48.57	0.84	0.87	6,400	--
3/31/2014	2.24	123.51	104.26	1015.27	79.94	988.26	46.45	0.75	0.87	6,397	--
4/30/2014	2.20	123.57	101.38	1018.31	77.58	990.59	46.15	0.75	0.87	6,313	--
5/31/2014	2.10	123.64	92.04	1021.16	86.71	993.27	43.78	0.92	0.87	6,690	--
6/30/2014	1.93	123.69	87.04	1023.78	70.20	995.38	45.16	0.79	0.87	6,400	--
7/31/2014	2.20	123.76	85.12	1026.41	86.81	998.07	38.61	0.99	0.87	6,413	--
8/31/2014	1.79	123.82	54.74	1028.11	29.95	999.00	30.51	0.53	0.87	6,800	--
9/30/2014	1.58	123.87	30.56	1029.03		999.00	19.40		0.87	6,800	--
10/31/2014	1.84	123.92	58.49	1030.84		999.00	31.71		0.86	6,800	--
11/30/2014	1.84	123.98	73.28	1033.04	54.53	1000.64	39.80	0.73	0.86	6,777	--
12/31/2014	1.90	124.04	72.57	1035.29	89.10	1003.40	38.13	1.20	0.86	6,106	--



VRU No. 1

Pattern P-19 - 00/13-21-010-25W1/0

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
1/31/2014	2.08	172.54	64.50	1141.11	74.53	531.31	31.07	1.12	0.40	5,613
2/28/2014	2.42	172.61	72.82	1143.15	31.89	532.20	30.03	0.42	0.40	6,000
3/31/2014	2.59	172.69	73.50	1145.43	73.15	534.47	28.41	0.96	0.40	6,000
4/30/2014	2.72	172.77	57.42	1147.15	28.34	535.32	21.08	0.47	0.41	6,000
5/31/2014		172.77		1147.15		535.32			0.41	6,000
6/30/2014	1.12	172.81	22.83	1147.83	18.88	535.89	20.38	0.79	0.41	5,967
7/31/2014		172.81		1147.83		535.89			0.41	5,000
8/31/2014		172.81		1147.83		535.89			0.41	5,000
9/30/2014		172.81		1147.83		535.89			0.41	5,000
10/31/2014	2.42	172.88	44.05	1149.20	25.79	536.69	18.18	0.55	0.41	5,071
11/30/2014	4.82	173.03	76.45	1151.49	51.47	538.23	15.88	0.63	0.41	7,197
12/31/2014	4.85	173.18	75.69	1153.84	53.99	539.90	15.61	0.67	0.41	7,097



VRU No. 1

Pattern P-21 - 00/11-21-010-25W1/0

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
1/31/2014	1.79	84.58	53.92	440.51	89.89	634.41	30.12	1.61	1.20	3,613
2/28/2014	2.10	84.64	61.09	442.22	84.56	636.77	29.09	1.34	1.21	4,021
3/31/2014	2.28	84.71	63.03	444.18	83.03	639.35	27.60	1.27	1.21	4,594
4/30/2014	1.45	84.76	39.75	445.37	69.61	641.44	27.41	1.69	1.21	4,400
5/31/2014		84.76		445.37		641.44			1.21	4,400
6/30/2014	0.57	84.77	15.60	445.84	18.91	642.00	27.21	1.17	1.21	4,393
7/31/2014		84.77		445.84		642.00			1.21	4,200
8/31/2014		84.77		445.84		642.00			1.21	4,200
9/30/2014		84.77		445.84		642.00			1.21	4,200
10/31/2014	0.32	84.78	17.06	446.37	34.64	643.08	52.88	1.99	1.21	4,239
11/30/2014	0.52	84.80	28.32	447.21	55.53	644.74	54.46	1.93	1.21	5,383
12/31/2014	0.48	84.82	27.49	448.07	65.49	646.77	56.82	2.34	1.21	4,897

