

***VIRDEN ROSELEA UNIT No. 3***  
***PROGRESS REPORT***  
***January 1 to December 31, 2011***

***Enerplus Corporation***  
***Manitoba Team***  
***February 2012***

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# Introduction

Viriden Roselea Unit No. 3 became effective December, 1966. This report summarizes the operations of the Unit for the period from January 1 to December 31, 2011 and discusses the performance of the waterflood to date. The area map of the Viriden Roselea Unit No. 3 is shown in Figure 1.

## Discussion

### Oil Production

In 2011, oil production rate for the Unit averaged 26.5 sm<sup>3</sup>/d with a WOR of 38.4 sm<sup>3</sup>/ m<sup>3</sup>. A list of well servicing jobs in 2011 is shown in Table 1.

Total oil production in 2011 is 9,675 sm<sup>3</sup>. Cumulative oil since commencement of production is 2,577 sE3m<sup>3</sup>. Details of the production data are shown in Table 4 as well as graphically in the attached figures.

### Water Injection

Average water injection rate for the Unit in 2011 was 997 sm<sup>3</sup>/d. There was a water injector reactivated May 2011: 100/12-07-010-25W1/00.

Cumulative water injected to December 31, 2011 is 20,310 sE3m<sup>3</sup>. Details of the water injection data are also shown in Table 4 as well as the attached figures.

### Voidage

The total project voidage during 2011 was 376 rE3m<sup>3</sup>, resulting in the voidage replacement ratio (VRR) of 0.97. It is important to note that there is an aquifer of moderate strength that is providing pressure support to the west side of the Unit, near Sections 2, 3, and 10-010-26 W1M. The VRR calculation does not account for the water influx since its exact rate of production at the wells is difficult to quantify. All the water produced from Roselea Unit 3 is injected back into the reservoir and is included in the injection volume for voidage calculations

Cumulative total voidage from commencement of production to December 31, 2011 is 25,969 rE3m<sup>3</sup> and the cumulative VRR is 0.78. The oil formation volume factor used in the pattern voidage calculations is 1.0685 rm<sup>3</sup>/stm<sup>3</sup>. Detailed voidage calculations are shown in Table 4.

### Reservoir Pressure

In 2011, reservoir pressure was recorded in 29 wells. 23 pressure tests were AWS (Acoustic Well Sounder) measurements and the other fall-off tests.

Based on the available pressure tests, the average reservoir pressure in the Unit in 2011 is 6,546 kPa. A summary of the pressure data is given in Table 2.

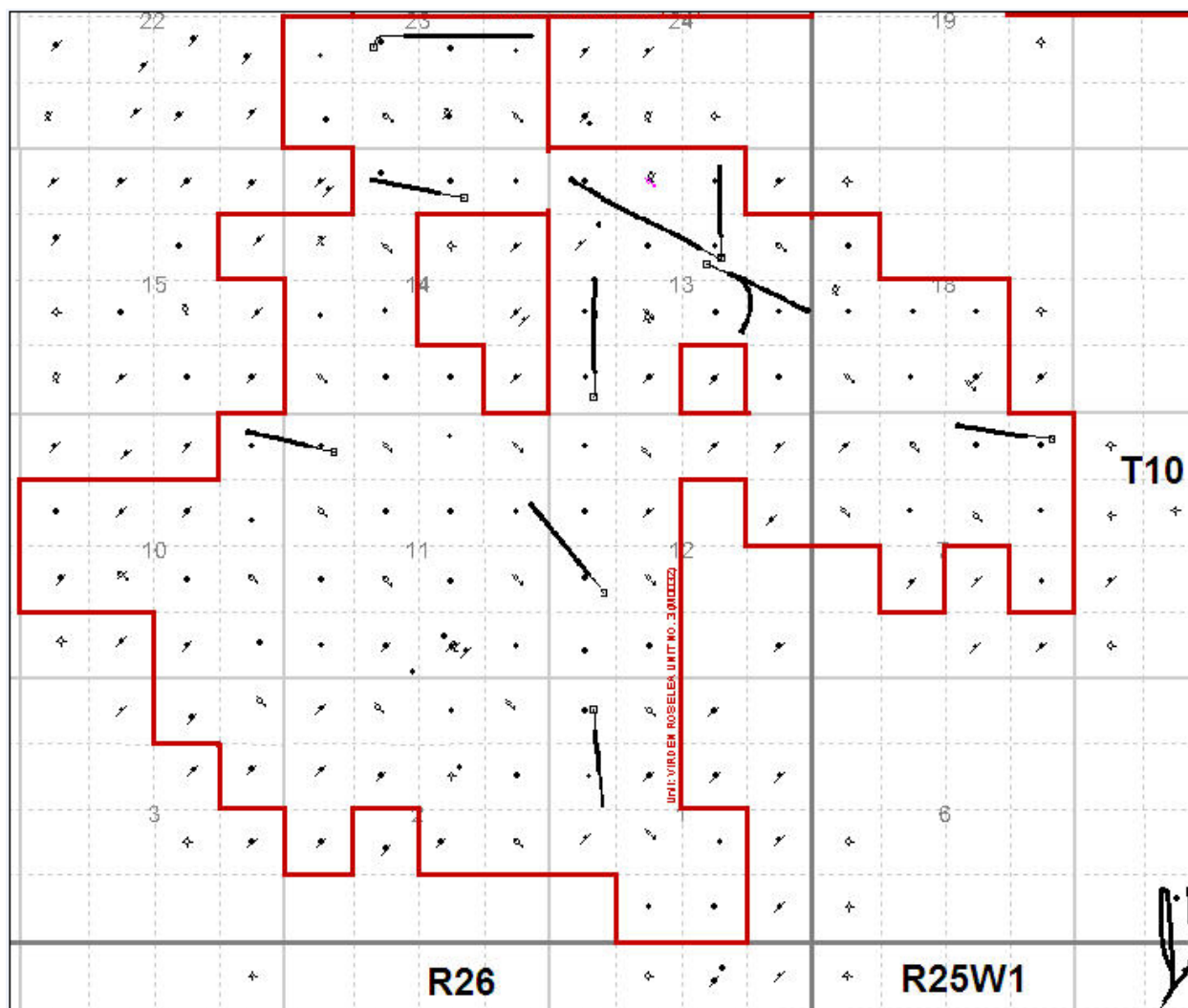
### Recovery

Based on the current estimated OOIP of 14,785 sE3m<sup>3</sup>, recovery in the Unit to year-end 2011 is 17.4%.

### Waterflood Patterns

The Virden Roselea Unit No. 3 waterflood was originally developed mainly as inverted 9-spot patterns, which are still considered to be the waterflood patterns over a large area in the Unit. However, there are a few exceptions, particularly near the boundaries of the Unit: such as 00/14-07 (inverted 5-spot), 00/10-07 (inverted 8-spot), and 00/12-18 and 00/02-18 (inverted 6-spots) etc. The current waterflood patterns map is shown in Figure 2.

A list of waterflood patterns and corresponding injectors is given in Table 3. Table 4 provides detailed production, injection, pressure and voidage for each pattern.



**Figure 1: Virden Roselea Unit No. 3 Map**

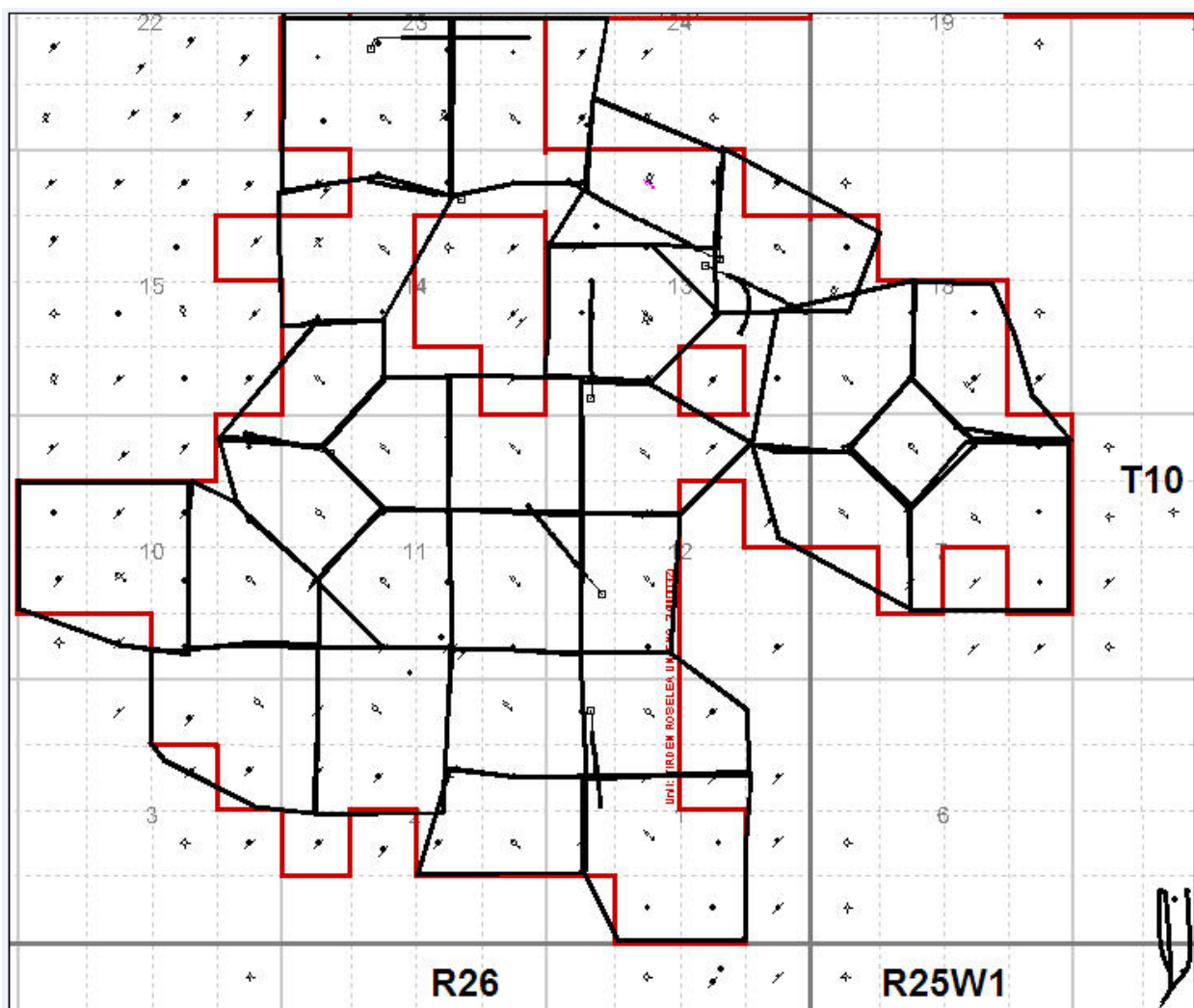


Figure 2: Pattern Map

**Table 1: Well Servicing Report**

UWI	Start Date	Type	Objective
100/05-13-010-26VW1	17-Jan-11	Maintenance	Corrosion Inhibitor squeeze (1.6 m3 oil+208LCR09961, displ with 8.0 m3 water)
100/12-10-010-26VW1	26-Mar-11	Maintenance	Corrosion Inhibitor squeeze (1.6 m3 oil+208L CR09961, displ with 8.0 m3 water)
100/12-07-010-25VW1	4-Apr-11	Workover	Reactivate injector
102/12-13-010-26VW1	9-May-11	Maintenance	Pump replacement
100/03-18-010-25VW1	6-Jun-11	Maintenance	Change out insert (0.18 m3)
100/14-14-010-26VW1	29-Jun-11	Maintenance	Pump change and/or hole in tubing (1.5 m3).
100/13-13-010-26VW1	21-Jul-11	Maintenance	Parted rod/ hole in tubing.
100/01-11-010-26VW1	21-Apr-11	Abandonment	Abandon formation, cut and cap.
100/07-11-010-26VW1	28-Apr-11	Abandonment	Abandon formation, cut and cap.
100/04-05-011-25VW1	9-Sep-11	Maintenance	Rectify packer failure
100/08-13-010-26VW1	28-Sep-11	Maintenance	Seized pump replacement, waxy well
100/07-29-010-25VW1	12-Mar-11	Workover	Reactivate Injection
100/14-14-010-26VW1	29-Nov-11	Maintenance	Replace worn pump

**Table 2: 2011 Pressure Surveys**

UWI	Test Date	Test Type	Shut-In Since	BH Pressure (kPaa)
100/08-07-010-25w/1/00	June 3, 2011	AWS	November 16, 2005	7650
100/11-07-010-25w/1/00	June 3, 2011	AWS	August 2, 2008	8869
102/15-07-010-25w/1/00	June 10, 2011	Buildup	May 29, 2011	7559
100/04-18-010-25w/1/00	June 10, 2011	Fall-off	May 30, 2011	9587
100/03-18-010-25w/1/00	June 3, 2011	AWS	May 1, 2011	8727
100/07-18-010-25w/1/00	June 4, 2011	AWS	May 30, 2011	7234
102/12-01-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	6384
100/01-10-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	6795
100/07-10-010-26w/1/00	June 3, 2011	AWS	May 30, 2011	7491
100/09-10-010-26w/1/00	June 3, 2011	AWS	April 12, 2011	7117
102/16-10-010-26w/1/00	June 3, 2011	AWS	May 30, 2011	5409
103/02-11-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	7924
100/08-11-010-26w/1/00	June 10, 2011	Fall-off	May 30, 2011	10231
102/09-11-010-26w/1/00	June 10, 2011	Buildup	May 29, 2011	7143
100/04-12-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	6347
100/06-12-010-26w/1/00	June 10, 2011	Fall-off	May 30, 2011	8642
100/12-12-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	5443
100/13-12-010-26w/1/00	June 3, 2011	AWS	May 16, 2011	6442
100/01-13-010-26w/1/00	June 10, 2011	Buildup	May 29, 2011	7396
102/05-13-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	5090
100/08-13-010-26w/1/00	June 28, 2011	AWS	May 30, 2011	5951
102/08-13-010-26w/1/00	June 28, 2011	AWS	May 30, 2011	6051
102/12-13-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	3763
102/13-13-010-26w/1/00	June 28, 2011	AWS	May 30, 2011	5642
102/15-13-010-26w/1/00	June 28, 2011	AWS	May 30, 2011	3852
102/14-14-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	4791
100/16-14-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	2907
100/02-23-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	5195
102/08-23-010-26w/1/00	June 4, 2011	AWS	May 30, 2011	4205

**Average Reservoir Pressure in 2011 ---->**

**6,546**



**Table 3: Waterflood Patterns and Corresponding Injectors**

Pattern	Well
PAT 01-23	00/01-23-010-26W1/0
PAT 02-18	00/02-18-010-26W1/0
PAT 04-18	00/04-18-010-26W1/0 , 00/12-07-010-25W1/0
PAT 06-01	00/06-01-010-26W1/0
PAT 06-10	00/06-10-010-26W1/0
PAT 06-11	00/06-11-010-26W1/0
PAT 06-12	00/06-12-010-26W1/0
PAT 06-13	00/06-13-010-26W1/0
PAT 08-02	00/08-02-010-26W1/0
PAT 08-10	00/08-10-010-26W1/0
PAT 08-11	00/08-11-010-26W1/0
PAT 09-13	00/09-13-010-26W1/0
PAT 10-07	00/10-07-010-26W1/0 , 00/12-07-010-25W1/0
PAT 11-14	00/11-14-010-26W1/0
PAT 12-11	00/12-11-010-26W1/0
PAT 14-11	00/14-11-010-26W1/0
PAT 14-02	00/14-02-010-26W1/0
PAT 14-07	00/14-07-010-26W1/0 , 00/12-07-010-25W1/0
PAT 14-11	00/14-11-010-26W1/0
PAT 14-12	00/14-12-010-26W1/0
PAT 14-13	00/14-13-010-26W1/0
PAT 16-02	00/16-02-010-26W1/0
PAT 16-03	00/16-03-010-26W1/0
PAT 16-11	00/16-11-010-26W1/0

Table 4										
Virden Roselea Unit #3										
Total For Unit										
Date	Monthly Oil Prod sm3	Oil Rate (CD) sm3/d	Monthly Water Prod sm3	Water Rate (CD) sm3/d	Water Oil Ratio	Monthly Water Inj sm3	Water Inj Rate (CD) sm3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	869.3	28.60	40525.0	1333.06	46.62	39975.0	1314.97	4671	0.96	0.78
2/28/2011	897.9	29.54	38926.0	1280.46	43.35	39047.0	1284.44	4370	0.98	0.78
3/31/2011	1028.9	33.85	25640.0	843.42	24.92	25297.0	832.14	3896	0.95	0.78
4/30/2011	838.2	27.57	25397.0	835.43	30.30	25167.0	827.86	3799	0.96	0.78
5/31/2011	802.3	26.39	26151.0	860.23	32.60	26211.6	862.22	3880	0.97	0.78
6/30/2011	553.3	18.20	26691.0	877.99	48.24	26951.4	886.56	3872	0.99	0.78
7/31/2011	734.4	24.16	29506.0	970.59	40.18	28425.1	935.04	3668	0.94	0.78
8/31/2011	757.1	24.90	25498.0	838.75	33.68	25715.0	845.89	3646	0.98	0.78
9/30/2011	739.9	24.34	33764.0	1110.66	45.63	33361.6	1097.42	3182	0.97	0.78
10/31/2011	785.4	25.84	39269.0	1291.74	50.00	39037.4	1284.12	3065	0.97	0.78
11/30/2011	792.4	26.07	28960.0	952.63	36.55	27788.4	914.09	3006	0.93	0.78
12/31/2011	876.3	28.83	25345.2	833.72	28.92	26862.6	883.64	2984	1.02	0.78
Cumulative Oil Produced (E3m3)					2577.73					
Cumulative Water Produced (E3m3)					23172.20					
Cumulative Water Injected (E3m3)					20309.57					
Cumulative Voidage Replacement Ratio					0.78					

**Table 4**  
**Viriden Roselea Unit #3**  
**Pattern: 01-23**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	54.2	1.75	1122.9	36.22	20.73	2246.0	72.45	3300	1.90	1.26
2/28/2011	55.1	1.97	1170.2	41.79	21.22	2965.0	105.89	3300	2.41	1.26
3/31/2011	62.7	2.02	779.5	25.15	12.44	996.0	32.13	3300	1.18	1.26
4/30/2011	58.8	1.96	839.3	27.98	14.28	1217.0	40.57	3303	1.35	1.26
5/31/2011	55.8	1.80	816.4	26.33	14.64	2588.0	83.48	3400	2.95	1.27
6/30/2011	44.9	1.50	1057.1	35.24	23.55	2209.0	73.63	3380	2.00	1.27
7/31/2011	54.9	1.77	984.9	31.77	17.94	1830.0	59.03	2800	1.75	1.27
8/31/2011	60.6	1.95	923.1	29.78	15.24	1360.0	43.87	2884	1.38	1.27
9/30/2011	56.6	1.89	1198.5	39.95	21.18	2760.0	92.00	1200	2.19	1.27
10/31/2011	55.5	1.79	1450.7	46.80	26.16	2131.0	68.74	1074	1.41	1.27
11/30/2011	56.3	1.88	1101.2	36.70	19.56	2099.0	69.97	1107	1.81	1.27
12/31/2011	59.4	1.92	1037.7	33.47	17.46	1634.0	52.71	1200	1.48	1.27
Cumulative Oil Produced (E3m3)					97.48					
Cumulative Water Produced (E3m3)					557.10					
Cumulative Water Injected (E3m3)					840.55					
Cumulative Voidage Replacement Ratio					1.28					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 02-18**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	47.7	1.54	1139.0	36.74	23.90	1650.0	53.23	5355	1.39	0.99
2/28/2011	48.2	1.72	1180.7	42.17	24.51	2323.0	82.96	4000	1.89	0.99
3/31/2011	55.0	1.77	786.5	25.37	14.30	1223.0	39.45	4000	1.45	1.00
4/30/2011	49.6	1.65	841.7	28.05	16.98	1158.0	38.60	4000	1.29	1.00
5/31/2011	45.7	1.47	781.5	25.21	17.10	1198.0	38.65	4000	1.44	1.00
6/30/2011	32.6	1.09	847.3	28.24	25.96	883.0	29.43	3993	1.00	1.00
7/31/2011	49.1	1.58	1049.8	33.86	21.39	2141.0	69.06	3794	1.94	1.00
8/31/2011	50.0	1.61	895.8	28.90	17.93	1534.0	49.48	3600	1.62	1.00
9/30/2011	41.9	1.40	1065.9	35.53	25.42	2014.0	67.13	3593	1.81	1.00
10/31/2011	44.1	1.42	1389.2	44.81	31.50	1276.0	41.16	3394	0.89	1.00
11/30/2011	45.0	1.50	1090.4	36.35	24.22	1195.0	39.83	3093	1.05	1.00
12/31/2011	48.4	1.56	1054.8	34.03	21.81	748.0	24.13	3000	0.68	1.00
Cumulative Oil Produced (E3m3)					62.08					
Cumulative Water Produced (E3m3)					575.49					
Cumulative Water Injected (E3m3)					641.19					
Cumulative Voidage Replacement Ratio					1.01					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 03-23**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	42.6	1.37	2044.6	65.95	48.04	3067.0	98.94	3100	1.47	0.93
2/28/2011	42.9	1.53	2113.6	75.49	49.22	1616.0	57.71	3100	0.75	0.93
3/31/2011	50.5	1.63	1478.1	47.68	29.29	1555.0	50.16	3100	1.02	0.93
4/30/2011	48.1	1.60	1617.0	53.90	33.62	2239.0	74.63	3103	1.34	0.93
5/31/2011	44.7	1.44	1541.4	49.72	34.50	736.0	23.74	3200	0.46	0.93
6/30/2011	32.8	1.09	1818.6	60.62	55.47	1302.0	43.40	3180	0.70	0.93
7/31/2011	48.1	1.55	2058.7	66.41	42.81	1244.0	40.13	2600	0.59	0.93
8/31/2011	49.1	1.58	1756.8	56.67	35.78	1221.0	39.39	2781	0.68	0.93
9/30/2011	45.7	1.52	2276.7	75.89	49.83	1204.0	40.13	2503	0.52	0.93
10/31/2011	45.2	1.46	2769.9	89.35	61.27	1198.0	38.65	2535	0.43	0.93
11/30/2011	29.3	0.98	1339.4	44.65	45.70	1986.0	66.20	2200	1.45	0.93
12/31/2011	46.5	1.50	1905.9	61.48	40.99	1525.0	49.19	2200	0.78	0.93
Cumulative Oil Produced (E3m3)					182.93					
Cumulative Water Produced (E3m3)					1289.76					
Cumulative Water Injected (E3m3)					1375.38					
Cumulative Voidage Replacement Ratio					0.93					

**Table 4**  
**Viriden Roselea Unit #3**  
**Pattern: 04-14**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	24.5	0.79	919.5	29.66	37.61	1358.0	43.81	4000	1.44	3.00
2/28/2011	25.3	0.90	966.5	34.52	38.20	1541.0	55.04	3946	1.55	3.00
3/31/2011	29.3	0.94	652.4	21.05	22.30	825.0	26.61	2519	1.21	2.99
4/30/2011	23.6	0.79	600.6	20.02	25.45	1505.0	50.17	3103	2.41	2.99
5/31/2011	22.4	0.72	573.1	18.49	25.58	1285.0	41.45	3200	2.15	2.99
6/30/2011	17.7	0.59	730.0	24.33	41.24	1090.0	36.33	3200	1.46	2.99
7/31/2011	23.8	0.77	759.3	24.49	31.90	1248.0	40.26	3200	1.59	2.98
8/31/2011	27.9	0.90	778.7	25.12	27.91	1423.0	45.90	3187	1.76	2.98
9/30/2011	26.1	0.87	1012.6	33.75	38.80	1320.0	44.00	2787	1.27	2.98
10/31/2011	11.2	0.36	514.5	16.60	46.14	2358.0	76.06	2400	4.48	2.98
11/30/2011	21.9	0.73	790.0	26.33	36.15	1048.0	34.93	2400	1.29	2.97
12/31/2011	20.9	0.67	714.4	23.04	34.18	1020.0	32.90	2400	1.39	2.97
Cumulative Oil Produced (E3m3)					48.53					
Cumulative Water Produced (E3m3)					288.80					
Cumulative Water Injected (E3m3)					1011.97					
Cumulative Voidage Replacement Ratio					3.00					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 04-18**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	36.2	1.17	2368.8	76.41	65.47	980.0	31.61	5355	0.41	0.70
2/28/2011	36.5	1.30	2440.8	87.17	66.90	2433.0	86.89	4000	0.98	0.70
3/31/2011	39.5	1.27	1628.1	52.52	41.25	1120.0	36.13	3981	0.67	0.70
4/30/2011	31.5	1.05	1624.3	54.14	51.61	1228.0	40.93	3813	0.74	0.70
5/31/2011	28.6	0.92	1536.2	49.55	53.71	2148.9	69.32	4200	1.37	0.70
6/30/2011	11.1	0.37	787.9	26.26	70.98	1848.5	61.62	4180	2.31	0.71
7/31/2011	17.3	0.56	1116.6	36.02	64.54	1983.4	63.98	3594	1.75	0.71
8/31/2011	14.5	0.47	756.2	24.39	52.33	1439.3	46.43	3400	1.87	0.71
9/30/2011	15.6	0.52	1241.6	41.39	79.59	1530.5	51.02	3400	1.22	0.71
10/31/2011	28.3	0.91	2850.7	91.96	100.73	1697.1	54.75	3387	0.59	0.71
11/30/2011	32.5	1.08	2327.0	77.57	71.70	1094.8	36.49	3107	0.46	0.71
12/31/2011	39.0	1.26	2366.3	76.33	60.65	1193.7	38.51	3200	0.50	0.71
Cumulative Oil Produced (E3m3)					144.86					
Cumulative Water Produced (E3m3)					867.96					
Cumulative Water Injected (E3m3)					721.96					
Cumulative Voidage Replacement Ratio					0.71					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 06-01**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	53.2	1.72	2858.6	92.21	53.76	1185.0	38.23	5400	0.41	0.47
2/28/2011	53.9	1.92	2944.3	105.15	54.68	4250.0	151.79	5343	1.42	0.47
3/31/2011	61.6	1.99	1986.1	64.07	32.27	892.0	28.77	3803	0.44	0.47
4/30/2011	44.4	1.48	1721.8	57.39	38.82	727.0	24.23	3870	0.41	0.47
5/31/2011	38.5	1.24	1610.9	51.96	41.81	331.0	10.68	3000	0.20	0.47
6/30/2011	29.9	1.00	1965.9	65.53	65.69	323.0	10.77	3000	0.16	0.47
7/31/2011	40.0	1.29	2218.0	71.55	55.48	392.0	12.65	3000	0.17	0.47
8/31/2011	40.5	1.30	1917.5	61.86	47.40	452.0	14.58	2968	0.23	0.47
9/30/2011	37.9	1.26	2498.3	83.28	65.96	720.0	24.00	2000	0.28	0.47
10/31/2011	49.4	1.59	3645.4	117.59	73.87	843.0	27.19	2000	0.23	0.47
11/30/2011	50.5	1.68	2796.1	93.20	55.42	432.0	14.40	2000	0.15	0.47
12/31/2011	53.2	1.72	2635.0	85.00	49.51	450.0	14.52	2000	0.17	0.47
Cumulative Oil Produced (E3m3)					121.97					
Cumulative Water Produced (E3m3)					1402.42					
Cumulative Water Injected (E3m3)					717.83					
Cumulative Voidage Replacement Ratio					0.47					



**Table 4**  
**Viriden Roselea Unit #3**  
**Pattern: 06-10**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	34.9	1.13	5506.7	177.63	157.78					0.04
2/28/2011	8.4	0.30	1950.8	69.67	232.23					0.04
3/31/2011	6.9	0.22	938.9	30.29	137.06					0.04
4/30/2011	9.1	0.30	1426.0	47.53	156.70					0.04
5/31/2011	9.5	0.31	1524.2	49.17	160.44					0.04
6/30/2011	7.6	0.25	1973.9	65.80	259.72					0.04
7/31/2011	9.7	0.31	1968.4	63.50	202.92					0.04
8/31/2011	10.0	0.32	1708.6	55.11	170.85					0.04
9/30/2011	8.7	0.29	2070.5	69.02	237.99					0.04
10/31/2011	0.9	0.03	261.7	8.44	307.88					0.04
11/30/2011										0.04
12/31/2011										0.04
Cumulative Oil Produced (E3m3)					131.87					
Cumulative Water Produced (E3m3)					5081.43					
Cumulative Water Injected (E3m3)					217.73					
Cumulative Voidage Replacement Ratio					0.04					

**Table 4**  
**Viriden Roselea Unit #3**  
**Pattern: 06-11**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	16.0	0.52	176.8	5.70	11.07	1754.0	56.58	4600	9.05	3.05
2/28/2011	22.3	0.79	236.5	8.45	10.63	954.0	34.07	4529	3.67	3.05
3/31/2011	27.0	0.87	166.7	5.38	6.17	674.0	21.74	2632	3.45	3.05
4/30/2011	24.5	0.82	160.4	5.35	6.55	680.0	22.67	3607	3.64	3.05
5/31/2011	22.6	0.73	154.2	4.97	6.83	1322.0	42.65	3800	7.42	3.05
6/30/2011	17.4	0.58	188.0	6.27	10.80	1322.0	44.07	3800	6.40	3.05
7/31/2011	19.3	0.62	207.0	6.68	10.75	1270.0	40.97	3800	5.58	3.06
8/31/2011	18.4	0.59	173.0	5.58	9.40	680.0	21.94	3794	3.53	3.06
9/30/2011	17.2	0.57	224.7	7.49	13.04	680.0	22.67	3600	2.80	3.06
10/31/2011	15.8	0.51	267.1	8.62	16.90	680.0	21.94	3600	2.40	3.05
11/30/2011	18.9	0.63	241.5	8.05	12.81	710.0	23.67	3600	2.71	3.05
12/31/2011	21.2	0.68	249.7	8.06	11.79	730.0	23.55	3600	2.68	3.05
Cumulative Oil Produced (E3m3)					89.01					
Cumulative Water Produced (E3m3)					307.35					
Cumulative Water Injected (E3m3)					1229.02					
Cumulative Voidage Replacement Ratio					3.10					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 06-12**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	19.6	0.63	754.9	24.35	38.61	1245.0	40.16	4200	1.61	1.62
2/28/2011	19.9	0.71	782.2	27.93	39.31	1162.0	41.50	4193	1.45	1.62
3/31/2011	22.6	0.73	521.0	16.80	23.03	905.0	29.19	4000	1.66	1.62
4/30/2011	18.9	0.63	500.6	16.69	26.52	879.0	29.30	4000	1.69	1.62
5/31/2011	17.7	0.57	479.3	15.46	27.04	2609.0	84.16	4000	5.24	1.63
6/30/2011	16.0	0.53	697.8	23.26	43.54	840.0	28.00	4000	1.18	1.63
7/31/2011	19.5	0.63	694.8	22.41	35.72	837.0	27.00	4000	1.17	1.62
8/31/2011	20.0	0.64	608.1	19.62	30.48	806.0	26.00	3994	1.28	1.62
9/30/2011	18.5	0.61	779.5	25.98	42.25	902.0	30.07	3800	1.13	1.62
10/31/2011	18.5	0.60	962.3	31.04	52.09	1925.0	62.10	3800	1.96	1.62
11/30/2011	18.6	0.62	725.3	24.18	38.99	1083.0	36.10	3800	1.45	1.62
12/31/2011	19.6	0.63	683.5	22.05	34.87	1101.0	35.52	3800	1.56	1.62
Cumulative Oil Produced (E3m3)					30.92					
Cumulative Water Produced (E3m3)					321.49					
Cumulative Water Injected (E3m3)					575.16					
Cumulative Voidage Replacement Ratio					1.63					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 06-13**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	71.3	2.30	2373.8	76.57	33.32	1050.0	33.87	5000	0.43	0.61
2/28/2011	77.7	2.77	2545.5	90.91	32.78	940.0	33.57	4989	0.36	0.61
3/31/2011	88.1	2.84	1695.4	54.69	19.25	651.0	21.00	4684	0.36	0.61
4/30/2011	61.3	2.04	1660.5	55.35	27.09	404.0	13.47	4197	0.23	0.61
5/31/2011	49.6	1.60	1589.5	51.27	32.03	487.0	15.71	4100	0.30	0.61
6/30/2011	37.4	1.25	1977.5	65.92	52.81	410.0	13.67	4100	0.20	0.61
7/31/2011	50.2	1.62	2117.0	68.29	42.14	282.0	9.10	4100	0.13	0.61
8/31/2011	51.2	1.65	1819.9	58.71	35.55	487.0	15.71	4090	0.26	0.60
9/30/2011	65.0	2.17	2578.4	85.95	39.68	1638.0	54.60	3800	0.62	0.60
10/31/2011	77.4	2.50	3285.2	105.98	42.44	1400.0	45.16	3800	0.42	0.60
11/30/2011	72.3	2.41	2436.2	81.21	33.68	778.0	25.93	3760	0.31	0.60
12/31/2011	82.8	2.67	2337.2	75.39	28.23	781.0	25.19	3200	0.32	0.60
Cumulative Oil Produced (E3m3)					145.97					
Cumulative Water Produced (E3m3)					564.30					
Cumulative Water Injected (E3m3)					433.22					
Cumulative Voidage Replacement Ratio					0.61					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 08-02**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	6.2	0.20	1149.5	37.08	186.06	1487.0	47.97	5200	1.29	1.30
2/28/2011	6.3	0.22	1184.9	42.32	189.74	989.0	35.32	5186	0.83	1.30
3/31/2011	7.5	0.24	785.8	25.35	104.53	438.0	14.13	4761	0.55	1.29
4/30/2011	5.1	0.17	512.5	17.08	99.63	454.0	15.13	3573	0.88	1.29
5/31/2011	6.2	0.20	554.6	17.89	89.29	43.0	1.39	2800	0.08	1.29
6/30/2011	3.8	0.12	365.5	12.18	97.51	500.0	16.67	2800	1.35	1.29
7/31/2011	6.4	0.21	494.8	15.96	77.00	510.0	16.45	2800	1.02	1.29
8/31/2011	6.8	0.22	434.9	14.03	63.95	500.0	16.13	2800	1.13	1.29
9/30/2011	6.4	0.21	573.3	19.11	89.21	520.0	17.33	2800	0.90	1.29
10/31/2011	6.4	0.21	698.8	22.54	109.16	780.0	25.16	2800	1.11	1.29
11/30/2011	6.4	0.21	526.7	17.56	82.70	911.0	30.37	2800	1.71	1.29
12/31/2011	6.7	0.22	496.3	16.01	73.61	943.0	30.42	2800	1.87	1.29
Cumulative Oil Produced (E3m3)					41.12					
Cumulative Water Produced (E3m3)					289.18					
Cumulative Water Injected (E3m3)					429.80					
Cumulative Voidage Replacement Ratio					1.30					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 08-10**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	23.2	0.75	2130.2	68.72	91.96	1621.0	52.29	5000	0.75	0.68
2/28/2011	34.3	1.22	2731.2	97.54	79.75	1150.0	41.07	4921	0.42	0.68
3/31/2011	38.5	1.24	1498.6	48.34	38.98	984.0	31.74	2803	0.64	0.68
4/30/2011	33.9	1.13	1896.2	63.21	55.92	1102.0	36.73	2900	0.57	0.68
5/31/2011	31.7	1.02	2289.8	73.86	72.18	950.0	30.65	2900	0.41	0.68
6/30/2011	24.1	0.80	2715.8	90.53	112.92	2677.0	89.23	2900	0.98	0.68
7/31/2011	28.9	0.93	2991.6	96.50	103.61	2327.0	75.06	2900	0.77	0.68
8/31/2011	28.5	0.92	2603.5	83.98	91.27	1937.0	62.48	2871	0.74	0.68
9/30/2011	26.0	0.87	3232.4	107.75	124.20	3623.0	120.77	2000	1.11	0.68
10/31/2011	13.0	0.42	455.3	14.69	35.16	6385.0	205.97	2000	13.61	0.68
11/30/2011	13.0	0.43	52.9	1.76	4.08	2624.0	87.47	2000	39.32	0.69
12/31/2011	13.7	0.44	49.8	1.61	3.63	2601.0	83.90	2000	40.33	0.69
Cumulative Oil Produced (E3m3)					112.54					
Cumulative Water Produced (E3m3)					2096.45					
Cumulative Water Injected (E3m3)					1521.39					
Cumulative Voidage Replacement Ratio					0.69					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 08-11**

<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	57.1	1.84	2229.5	71.92	39.05	1210.0	39.03	5600	0.53	1.12
2/28/2011	57.7	2.06	2296.2	82.01	39.83	2089.0	74.61	5564	0.89	1.12
3/31/2011	65.6	2.12	1529.4	49.33	23.31	1322.0	42.65	4594	0.83	1.12
4/30/2011	56.8	1.89	1529.3	50.98	26.94	1493.0	49.77	4400	0.94	1.12
5/31/2011	57.3	1.85	1592.0	51.35	27.77	675.0	21.77	4400	0.41	1.12
6/30/2011	41.6	1.39	1838.4	61.28	44.17	1050.0	35.00	4400	0.56	1.12
7/31/2011	57.7	1.86	2135.0	68.87	36.99	950.0	30.65	4400	0.43	1.12
8/31/2011	60.3	1.95	1893.2	61.07	31.38	1093.0	35.26	4381	0.56	1.11
9/30/2011	56.1	1.87	2448.0	81.60	43.64	1580.0	52.67	3800	0.63	1.11
10/31/2011	55.8	1.80	2995.9	96.64	53.67	1410.0	45.48	3800	0.46	1.11
11/30/2011	56.0	1.87	2258.0	75.27	40.32	532.0	17.73	3800	0.23	1.11
12/31/2011	59.3	1.91	2128.1	68.65	35.92	515.0	16.61	3800	0.24	1.10
Cumulative Oil Produced (E3m3)					79.60					
Cumulative Water Produced (E3m3)					599.37					
Cumulative Water Injected (E3m3)					755.00					
Cumulative Voidage Replacement Ratio					1.11					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 09-13**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	35.2	1.14	2427.5	78.31	68.92	1335.0	43.06	5942	0.54	0.81
2/28/2011	36.1	1.29	2528.3	90.30	70.09	1103.0	39.39	4200	0.43	0.81
3/31/2011	39.9	1.29	1715.5	55.34	43.00	1626.0	52.45	4219	0.93	0.81
4/30/2011	33.5	1.12	1715.9	57.20	51.19	1063.0	35.43	4420	0.61	0.81
5/31/2011	32.7	1.06	1707.6	55.08	52.19	1104.0	35.61	5000	0.63	0.81
6/30/2011	5.4	0.18	529.7	17.66	98.23	1165.0	38.83	4960	2.18	0.81
7/31/2011	7.1	0.23	541.9	17.48	75.96	1354.0	43.68	3806	2.46	0.81
8/31/2011	7.3	0.24	462.5	14.92	63.35	1175.0	37.90	4000	2.50	0.81
9/30/2011	10.3	0.34	712.3	23.74	69.23	1012.0	33.73	4000	1.40	0.81
10/31/2011	31.7	1.02	2959.3	95.46	93.44	1013.0	32.68	3832	0.34	0.81
11/30/2011	35.7	1.19	2421.1	80.70	67.88	1806.0	60.20	3400	0.73	0.81
12/31/2011	41.8	1.35	2427.8	78.32	58.10	2170.0	70.00	3400	0.88	0.81
Cumulative Oil Produced (E3m3)					157.61					
Cumulative Water Produced (E3m3)					606.35					
Cumulative Water Injected (E3m3)					628.86					
Cumulative Voidage Replacement Ratio					0.82					



**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 10-07**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	13.0	0.42	694.5	22.40	53.51	2027.0	65.39	4555	2.86	1.32
2/28/2011	13.1	0.47	724.2	25.86	55.12	1178.0	42.07	3200	1.60	1.32
3/31/2011	15.4	0.50	482.5	15.57	31.43	830.0	26.77	3316	1.66	1.32
4/30/2011	14.3	0.48	528.5	17.62	37.00	1009.0	33.63	4413	1.86	1.32
5/31/2011	13.7	0.44	516.7	16.67	37.61	1634.9	52.74	4800	3.08	1.32
6/30/2011	6.9	0.23	504.3	16.81	72.64	1349.5	44.98	4733	2.64	1.32
7/31/2011	15.1	0.49	698.8	22.54	46.37	1576.4	50.85	2800	2.21	1.32
8/31/2011	15.4	0.50	596.4	19.24	38.72	1628.3	52.53	2800	2.66	1.32
9/30/2011	13.4	0.45	722.7	24.09	53.84	1542.5	51.42	2800	2.09	1.32
10/31/2011	14.3	0.46	943.8	30.44	66.22	1994.1	64.33	2690	2.08	1.32
11/30/2011	14.3	0.48	711.3	23.71	49.89	1168.8	38.96	2293	1.61	1.32
12/31/2011	15.0	0.49	670.4	21.62	44.58	1539.7	49.67	2200	2.24	1.32
Cumulative Oil Produced (E3m3)					84.25					
Cumulative Water Produced (E3m3)					732.33					
Cumulative Water Injected (E3m3)					1088.58					
Cumulative Voidage Replacement Ratio					1.33					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 11-14**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	29.6	0.96	1643.3	53.01	55.50	987.0	31.84	4200	0.59	0.97
2/28/2011	30.0	1.07	1701.7	60.78	56.64	564.0	20.14	4168	0.33	0.97
3/31/2011	36.1	1.16	1209.2	39.00	33.52	480.0	15.48	3287	0.39	0.97
4/30/2011	31.9	1.06	1256.3	41.88	39.33	477.0	15.90	2900	0.37	0.97
5/31/2011	28.4	0.92	1156.2	37.30	40.75	409.0	13.19	2900	0.35	0.97
6/30/2011	19.3	0.64	1303.7	43.46	67.61	409.0	13.63	2900	0.31	0.96
7/31/2011	30.2	0.98	1531.9	49.42	50.66	410.0	13.23	2900	0.26	0.96
8/31/2011	34.5	1.11	1437.9	46.38	41.73	477.0	15.39	2897	0.32	0.96
9/30/2011	32.2	1.07	1868.6	62.29	57.96	1901.0	63.37	2773	1.00	0.96
10/31/2011	32.0	1.03	2277.6	73.47	71.15	1610.0	51.94	2000	0.70	0.96
11/30/2011	15.8	0.53	960.5	32.02	60.95	1117.0	37.23	2000	1.14	0.96
12/31/2011	32.2	1.04	1548.9	49.96	48.12	1081.0	34.87	2000	0.68	0.96

Cumulative Oil Produced (E3m3)	62.67
Cumulative Water Produced (E3m3)	465.44
Cumulative Water Injected (E3m3)	510.15
Cumulative Voidage Replacement Ratio	0.97

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 12-11**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	28.5	0.92	1174.3	37.88	41.14	1254.0	40.45	5000	1.04	0.59
2/28/2011	35.6	1.27	1776.7	63.45	49.98	1464.0	52.29	4971	0.81	0.59
3/31/2011	42.1	1.36	1241.7	40.05	29.51	974.0	31.42	4181	0.76	0.59
4/30/2011	31.3	1.04	942.2	31.41	30.12	1086.0	36.20	3613	1.11	0.59
5/31/2011	27.4	0.88	740.3	23.88	27.02	932.0	30.06	4000	1.21	0.59
6/30/2011	21.8	0.72	946.4	31.55	43.51	749.0	24.97	4000	0.77	0.59
7/31/2011	26.2	0.85	859.4	27.72	32.80	227.0	7.32	4000	0.26	0.59
8/31/2011	27.1	0.87	745.6	24.05	27.56	1086.0	35.03	3974	1.40	0.59
9/30/2011	26.6	0.89	1029.5	34.31	38.77	980.0	32.67	3200	0.93	0.59
10/31/2011	12.9	0.41	604.7	19.51	47.06	810.0	26.13	3200	1.31	0.59
11/30/2011	24.0	0.80	840.6	28.02	34.98	911.0	30.37	3200	1.05	0.59
12/31/2011	20.4	0.66	621.2	20.04	30.45	878.0	28.32	3200	1.37	0.60
Cumulative Oil Produced (E3m3)					92.86					
Cumulative Water Produced (E3m3)					530.93					
Cumulative Water Injected (E3m3)					374.84					
Cumulative Voidage Replacement Ratio					0.60					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 14-01**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	17.6	0.57	936.1	30.20	53.11	1187.0	38.29	3400	1.24	1.27
2/28/2011	18.0	0.64	970.9	34.68	53.94	678.0	24.21	3357	0.69	1.27
3/31/2011	20.8	0.67	671.6	21.67	32.37	644.0	20.77	2194	0.93	1.27
4/30/2011	15.9	0.53	604.1	20.14	37.93	721.0	24.03	2007	1.16	1.27
5/31/2011	13.5	0.44	570.5	18.40	42.26	769.0	24.81	2200	1.32	1.27
6/30/2011	11.8	0.39	700.6	23.35	59.50	717.0	23.90	2200	1.01	1.27
7/31/2011	16.1	0.52	848.0	27.35	52.59	733.0	23.65	2200	0.85	1.27
8/31/2011	16.9	0.54	752.4	24.27	44.65	860.0	27.74	2174	1.12	1.27
9/30/2011	15.7	0.52	975.5	32.52	62.33	688.0	22.93	1387	0.69	1.27
10/31/2011	15.8	0.51	1201.2	38.75	76.27	922.0	29.74	1000	0.76	1.27
11/30/2011	15.8	0.53	905.4	30.18	57.30	351.0	11.70	1000	0.38	1.27
12/31/2011	16.6	0.54	853.2	27.52	51.40	387.0	12.48	1000	0.44	1.26
Cumulative Oil Produced (E3m3)					40.52					
Cumulative Water Produced (E3m3)					444.61					
Cumulative Water Injected (E3m3)					616.79					
Cumulative Voidage Replacement Ratio					1.27					

**Table 4**  
**Viriden Roselea Unit #3**  
**Pattern: 14-02**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	17.7	0.57	398.0	12.84	22.51	1698.0	54.77	3000	4.07	0.97
2/28/2011	22.8	0.81	419.1	14.97	18.36	1330.0	47.50	3036	3.00	0.97
3/31/2011	27.4	0.88	280.8	9.06	10.26	1473.0	47.52	3984	4.75	0.97
4/30/2011	23.2	0.77	162.7	5.42	7.01	1250.0	41.67	3507	6.67	0.97
5/31/2011	24.5	0.79	294.2	9.49	12.03	417.0	13.45	3700	1.30	0.97
6/30/2011	17.8	0.59	239.6	7.99	13.50	1100.0	36.67	3700	4.26	0.97
7/31/2011	21.4	0.69	402.6	12.99	18.84	980.0	31.61	3700	2.30	0.97
8/31/2011	20.9	0.67	355.0	11.45	17.00	1062.0	34.26	3687	2.82	0.97
9/30/2011	19.6	0.65	460.9	15.36	23.58	1416.0	47.20	3290	2.94	0.98
10/31/2011	18.1	0.58	555.0	17.90	30.66	980.0	31.61	3000	1.71	0.98
11/30/2011	19.3	0.64	423.4	14.11	21.89	947.0	31.57	3000	2.13	0.98
12/31/2011	20.5	0.66	399.0	12.87	19.50	931.0	30.03	3000	2.21	0.98
Cumulative Oil Produced (E3m3)					115.26					
Cumulative Water Produced (E3m3)					564.37					
Cumulative Water Injected (E3m3)					671.56					
Cumulative Voidage Replacement Ratio					0.99					

**Table 4**  
**Virde Roselea Unit #3**  
**Pattern: 14-07**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	8.6	0.28	469.3	15.14	54.67	1998.0	64.45	5161	4.18	2.19
2/28/2011	8.7	0.31	483.8	17.28	55.84	2630.0	93.93	4000	5.33	2.20
3/31/2011	10.1	0.32	323.8	10.44	32.16	1009.0	32.55	4000	3.02	2.20
4/30/2011	8.8	0.29	333.4	11.11	37.83	1268.0	42.27	4000	3.70	2.20
5/31/2011	7.4	0.24	289.7	9.34	39.26	2086.9	67.32	4000	7.01	2.21
6/30/2011	3.9	0.13	292.7	9.76	75.41	2091.5	69.72	3987	7.05	2.21
7/31/2011	8.1	0.26	390.9	12.61	48.19	2820.4	90.98	4000	7.06	2.22
8/31/2011	8.3	0.27	333.6	10.76	40.43	1534.3	49.49	3787	4.48	2.22
9/30/2011	7.2	0.24	404.2	13.47	56.04	1394.5	46.48	3600	3.39	2.22
10/31/2011	7.7	0.25	527.9	17.03	68.99	1886.1	60.84	3490	3.52	2.22
11/30/2011	8.6	0.29	441.3	14.71	51.33	1190.8	39.69	3200	2.64	2.22
12/31/2011	9.8	0.32	443.1	14.29	45.24	1238.7	39.96	3200	2.73	2.22
Cumulative Oil Produced (E3m3)					45.12					
Cumulative Water Produced (E3m3)					301.38					
Cumulative Water Injected (E3m3)					776.73					
Cumulative Voidage Replacement Ratio					2.24					

**Table 4**  
**Virde Roselea Unit #3**  
**Pattern: 14-11**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	7.1	0.23	278.4	8.98	39.49	865.0	27.90	3000	3.03	2.35
2/28/2011	7.7	0.28	315.1	11.25	40.92	1048.0	37.43	3050	3.24	2.35
3/31/2011	9.1	0.29	221.2	7.14	24.44	464.0	14.97	4394	2.01	2.35
4/30/2011	7.8	0.26	238.6	7.95	30.69	472.0	15.73	4203	1.91	2.35
5/31/2011	10.7	0.34	320.7	10.35	30.11	814.0	26.26	4300	2.45	2.35
6/30/2011	7.0	0.23	357.2	11.91	51.21	691.0	23.03	4300	1.90	2.35
7/31/2011	4.9	0.16	197.4	6.37	40.48	939.0	30.29	4300	4.64	2.35
8/31/2011	5.2	0.17	172.2	5.55	32.96	472.0	15.23	4287	2.66	2.35
9/30/2011	6.2	0.21	285.1	9.50	46.17	2074.0	69.13	3900	7.11	2.35
10/31/2011	7.4	0.24	417.3	13.46	56.77	1774.0	57.23	3900	4.17	2.35
11/30/2011	7.9	0.26	297.1	9.90	37.69	913.0	30.43	3900	2.99	2.36
12/31/2011	5.5	0.18	139.1	4.49	25.40	887.0	28.61	3900	6.12	2.36
Cumulative Oil Produced (E3m3)					95.90					
Cumulative Water Produced (E3m3)					289.43					
Cumulative Water Injected (E3m3)					923.42					
Cumulative Voidage Replacement Ratio					2.40					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 14-12**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	18.4	0.59	346.4	11.17	18.79	2456.0	79.23	5500	6.71	2.10
2/28/2011	21.6	0.77	395.4	14.12	18.31	1500.0	53.57	5468	3.59	2.10
3/31/2011	24.5	0.79	263.3	8.49	10.74	986.0	31.81	4581	3.41	2.10
4/30/2011	13.4	0.45	236.8	7.89	17.69	689.0	22.97	4020	2.74	2.10
5/31/2011	8.2	0.26	216.5	6.98	26.56	660.0	21.29	4600	2.93	2.11
6/30/2011	4.0	0.13	230.4	7.68	57.23	774.0	25.80	4600	3.30	2.11
7/31/2011	4.9	0.16	210.8	6.80	43.47	928.0	29.94	4600	4.30	2.11
8/31/2011	7.4	0.24	208.0	6.71	28.29	1056.0	34.06	4568	4.89	2.11
9/30/2011	10.4	0.35	325.3	10.84	31.20	1017.0	33.90	3607	3.02	2.12
10/31/2011	20.3	0.65	444.4	14.33	21.93	2958.0	95.42	3800	6.35	2.13
11/30/2011	21.4	0.71	338.7	11.29	15.81	1766.0	58.87	3800	4.88	2.14
12/31/2011	22.6	0.73	319.3	10.30	14.13	1687.0	54.42	3800	4.91	2.14
Cumulative Oil Produced (E3m3)					45.23					
Cumulative Water Produced (E3m3)					97.89					
Cumulative Water Injected (E3m3)					313.38					
Cumulative Voidage Replacement Ratio					2.19					



**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 14-13**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	39.0	1.26	1731.7	55.86	44.38	1723.0	55.58	7497	0.97	1.12
2/28/2011	40.6	1.45	1822.5	65.09	44.87	1155.0	41.25	7400	0.62	1.12
3/31/2011	46.9	1.51	1242.9	40.09	26.53	1203.0	38.81	7397	0.93	1.12
4/30/2011	41.1	1.37	1249.7	41.66	30.43	1046.0	34.87	7303	0.81	1.12
5/31/2011	40.7	1.31	1266.1	40.84	31.13	1275.0	41.13	7400	0.97	1.12
6/30/2011	26.3	0.88	1134.3	37.81	43.06	1369.0	45.63	7397	1.18	1.12
7/31/2011	30.3	0.98	1063.8	34.32	35.13	762.0	24.58	7300	0.70	1.12
8/31/2011	35.5	1.15	990.4	31.95	27.90	1182.0	38.13	7200	1.15	1.12
9/30/2011	32.9	1.10	1247.4	41.58	37.87	792.0	26.40	7207	0.62	1.12
10/31/2011	41.2	1.33	2255.8	72.77	54.73	920.0	29.68	6619	0.40	1.12
11/30/2011	42.2	1.41	1755.8	58.53	41.64	553.0	18.43	7200	0.31	1.11
12/31/2011	44.6	1.44	1654.6	53.38	37.11	212.5	6.85	7200	0.13	1.11
Cumulative Oil Produced (E3m3)					128.98					
Cumulative Water Produced (E3m3)					728.97					
Cumulative Water Injected (E3m3)					963.57					
Cumulative Voidage Replacement Ratio					1.12					

**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 16-02**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	15.8	0.51	1356.4	43.75	85.83	1589.0	51.26	5400	1.16	1.47
2/28/2011	16.1	0.57	1397.4	49.91	87.09	1231.0	43.96	5400	0.87	1.47
3/31/2011	18.2	0.59	902.4	29.11	49.47	1361.0	43.90	5361	1.48	1.47
4/30/2011	11.6	0.39	512.6	17.09	44.21	1147.0	38.23	4207	2.19	1.47
5/31/2011	11.2	0.36	568.9	18.35	50.97	540.0	17.42	4400	0.93	1.47
6/30/2011	9.4	0.31	456.4	15.21	48.82	378.0	12.60	4400	0.81	1.47
7/31/2011	12.9	0.42	607.9	19.61	47.12	837.0	27.00	4400	1.35	1.47
8/31/2011	13.5	0.44	540.1	17.42	40.01	1147.0	37.00	4335	2.07	1.47
9/30/2011	12.5	0.42	691.3	23.04	55.52	1082.0	36.07	2400	1.54	1.47
10/31/2011	12.6	0.40	854.7	27.57	68.10	1101.0	35.52	2400	1.27	1.47
11/30/2011	12.5	0.42	644.2	21.47	51.46	1121.0	37.37	2400	1.71	1.47
12/31/2011	13.2	0.43	607.1	19.58	45.93	1111.0	35.84	2400	1.79	1.47
Cumulative Oil Produced (E3m3)					98.95					
Cumulative Water Produced (E3m3)					637.96					
Cumulative Water Injected (E3m3)					1090.88					
Cumulative Voidage Replacement Ratio					1.48					

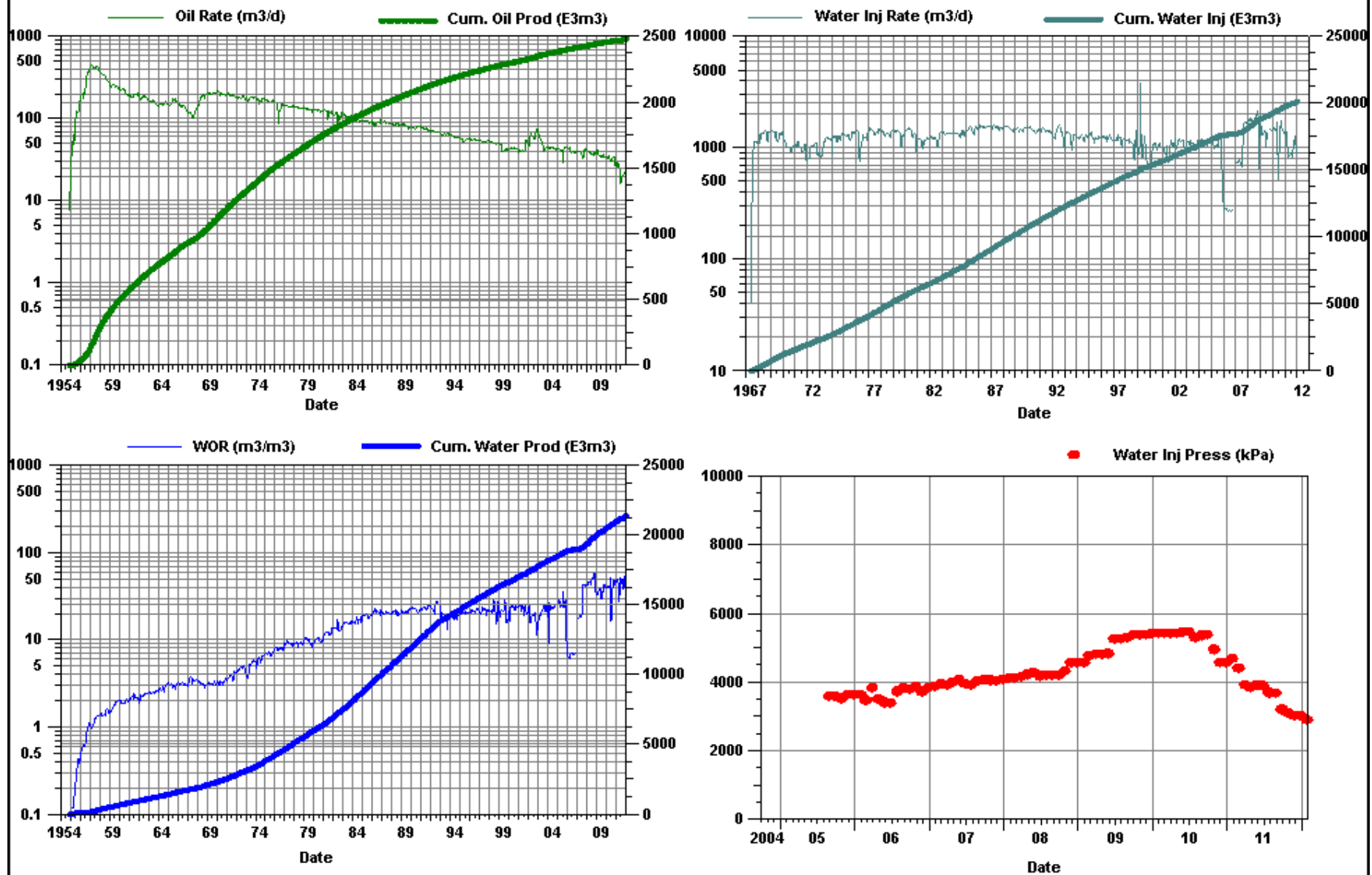
**Table 4**  
**Virden Roselea Unit #3**  
**Pattern: 16-03**

Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	13.9	0.45	639.7	20.64	46.10	3014.0	97.23	3500	4.61	0.95
2/28/2011	16.6	0.59	34.6	1.24	2.09	1881.0	67.18	3475	35.98	0.95
3/31/2011	20.2	0.65	24.8	0.80	1.23	1651.0	53.26	2800	35.57	0.95
4/30/2011	20.5	0.68	242.8	8.09	11.83	751.0	25.03	2803	2.84	0.95
5/31/2011	22.2	0.72	765.6	24.70	34.45	699.0	22.55	2900	0.89	0.95
6/30/2011	16.5	0.55	741.9	24.73	45.10	594.0	19.80	2900	0.78	0.95
7/31/2011	19.2	0.62	1023.3	33.01	53.36	653.0	21.06	2900	0.63	0.95
8/31/2011	18.5	0.60	894.9	28.87	48.31	659.0	21.26	2900	0.72	0.95
9/30/2011	17.3	0.58	1161.9	38.73	67.06	573.0	19.10	2900	0.49	0.95
10/31/2011	12.1	0.39	193.6	6.24	16.00	816.0	26.32	2900	3.95	0.95
11/30/2011	13.0	0.43	52.9	1.76	4.08	1170.0	39.00	2900	17.53	0.95
12/31/2011	13.7	0.44	49.8	1.61	3.63	1201.0	38.74	2900	18.62	0.95
Cumulative Oil Produced (E3m3)					98.91					
Cumulative Water Produced (E3m3)					1207.08					
Cumulative Water Injected (E3m3)					1249.46					
Cumulative Voidage Replacement Ratio					0.96					

**Table 4**  
**Viriden Roselea Unit #3**  
**Pattern: 16-11**

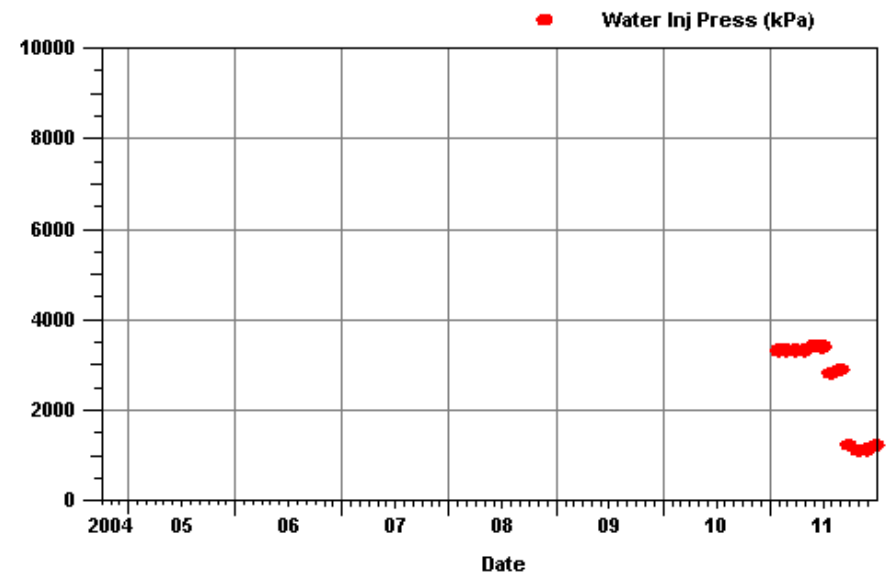
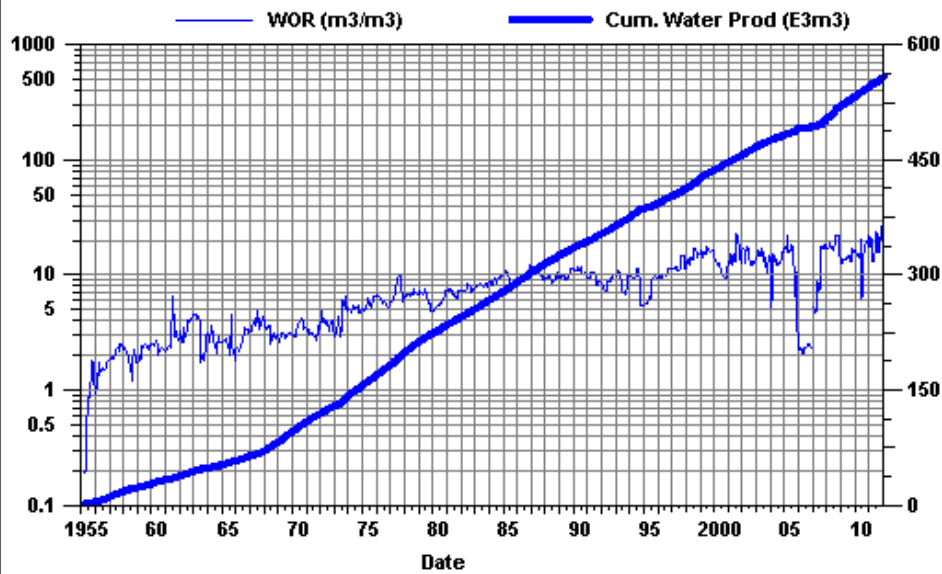
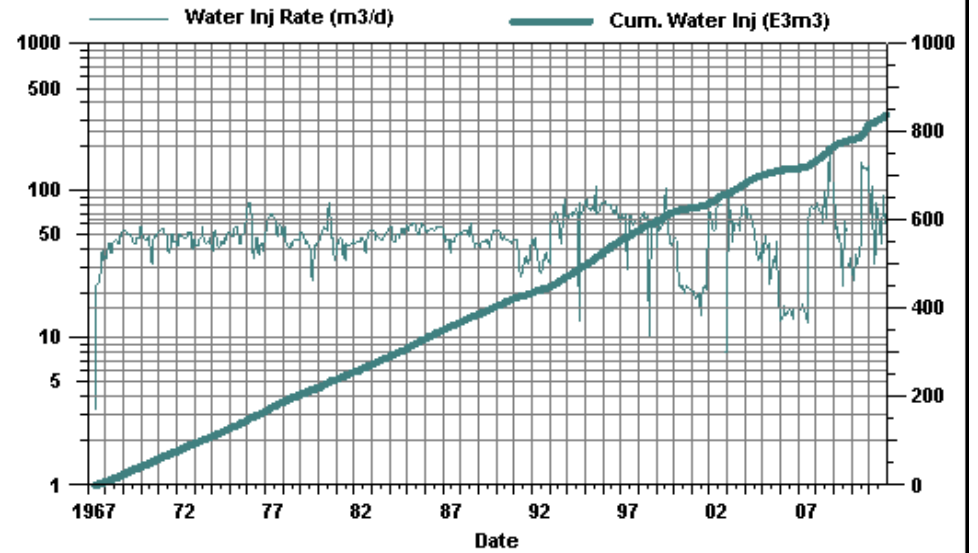
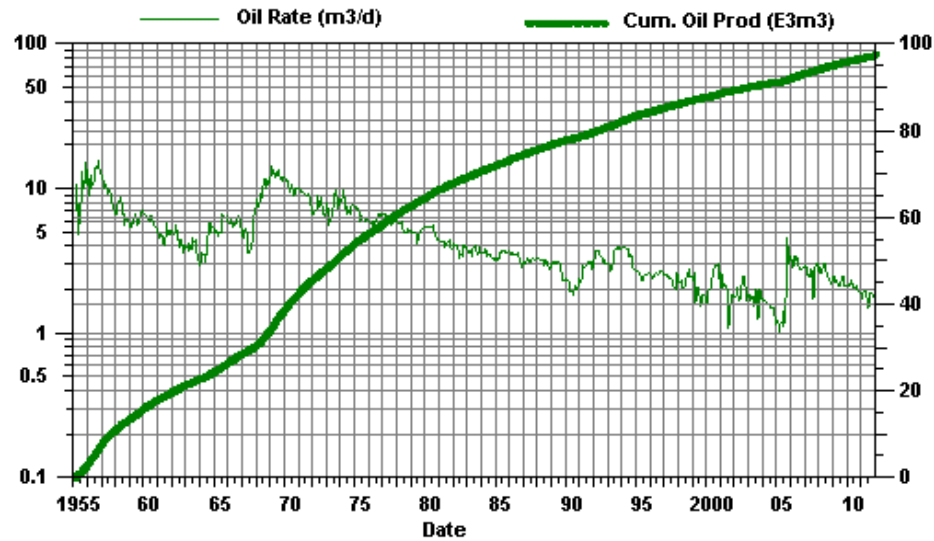
Date	Monthly Oil Prod M3	Oil Rate (CD) m3/d	Monthly Water Prod m3	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Monthly Water Inj m3	Water Inj Rate (CD) m3/d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	31.8	1.03	670.0	21.61	21.08	989.0	31.90	4500	1.41	1.16
2/28/2011	35.0	1.25	727.6	25.98	20.76	873.0	31.18	4464	1.14	1.16
3/31/2011	39.7	1.28	484.5	15.63	12.20	1011.0	32.61	3506	1.92	1.16
4/30/2011	26.5	0.88	475.4	15.85	17.93	1102.0	36.73	3703	2.19	1.16
5/31/2011	24.2	0.78	537.2	17.33	22.20	498.0	16.06	3800	0.89	1.16
6/30/2011	14.7	0.49	571.5	19.05	38.88	1110.0	37.00	3800	1.89	1.16
7/31/2011	16.1	0.52	467.1	15.07	29.06	1191.0	38.42	3800	2.46	1.16
8/31/2011	18.7	0.60	414.6	13.37	22.14	444.0	14.32	3781	1.02	1.16
9/30/2011	21.1	0.70	593.6	19.79	28.13	398.0	13.27	3200	0.65	1.16
10/31/2011	30.8	0.99	771.3	24.88	25.04	170.0	5.48	3200	0.21	1.16
11/30/2011	32.0	1.07	585.2	19.51	18.30	281.0	9.37	3200	0.45	1.16
12/31/2011	33.8	1.09	551.5	17.79	16.33	297.0	9.58	3200	0.51	1.15
Cumulative Oil Produced (E3m3)					103.84					
Cumulative Water Produced (E3m3)					290.71					
Cumulative Water Injected (E3m3)					463.71					
Cumulative Voidage Replacement Ratio					1.18					

## Viriden Roselea Unit #3 Total For Project



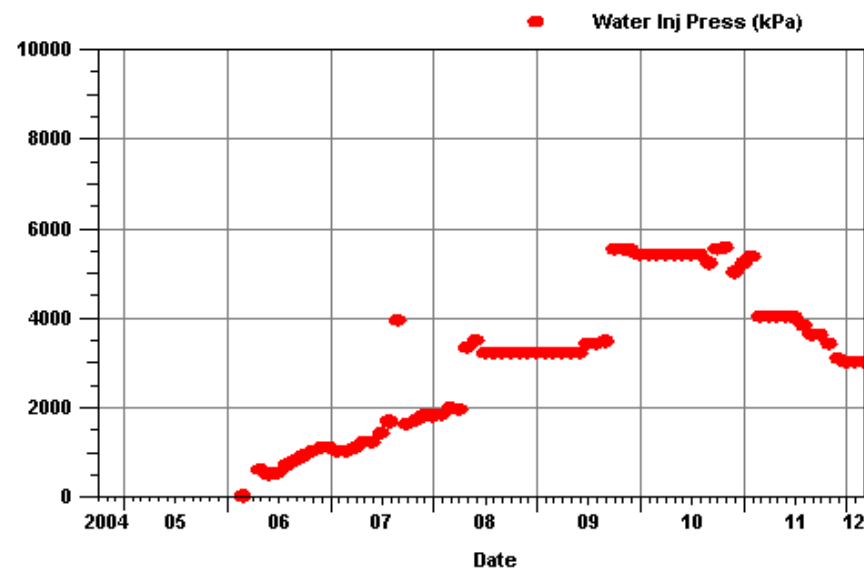
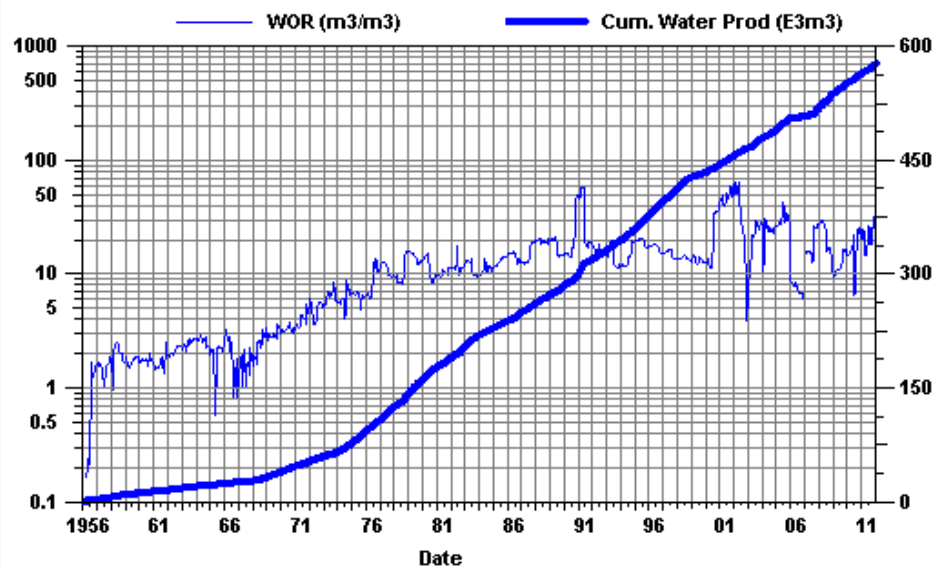
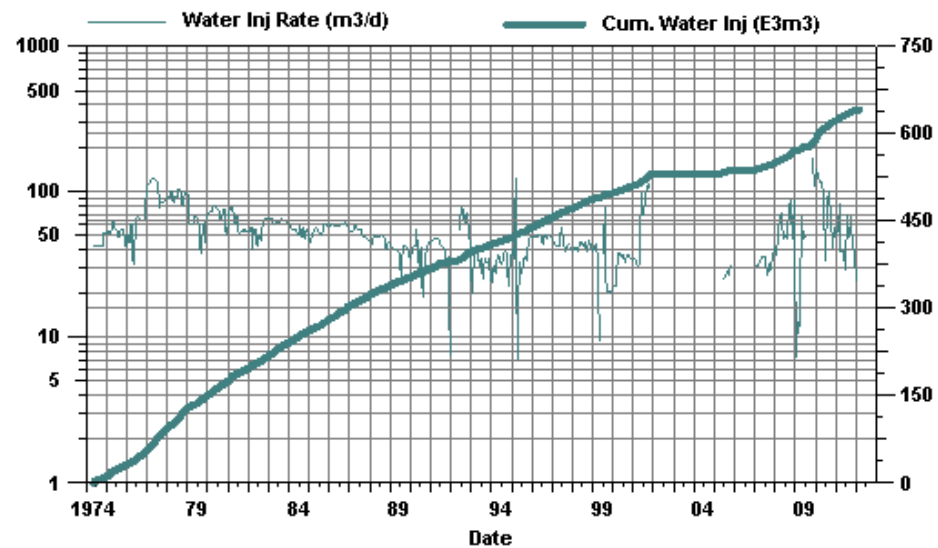
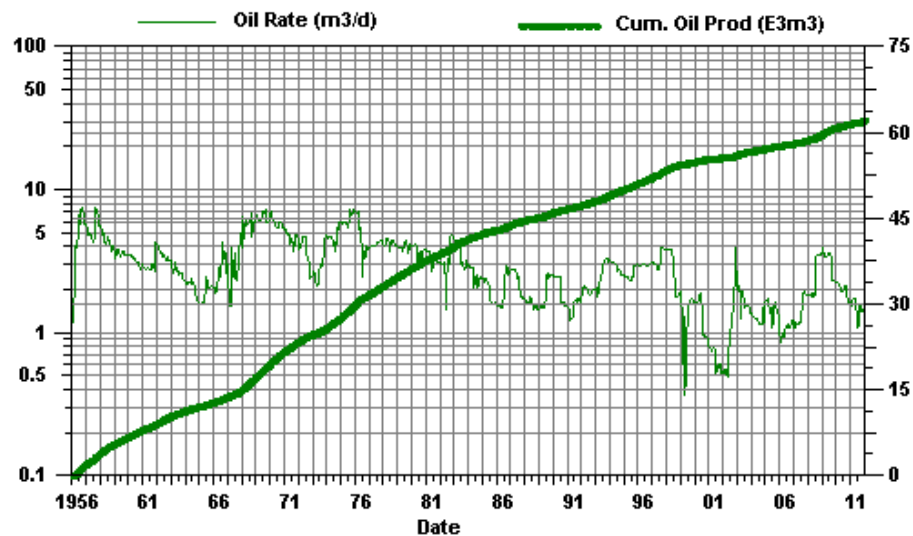
## Viriden Roselea Unit #3

### PAT 01-23



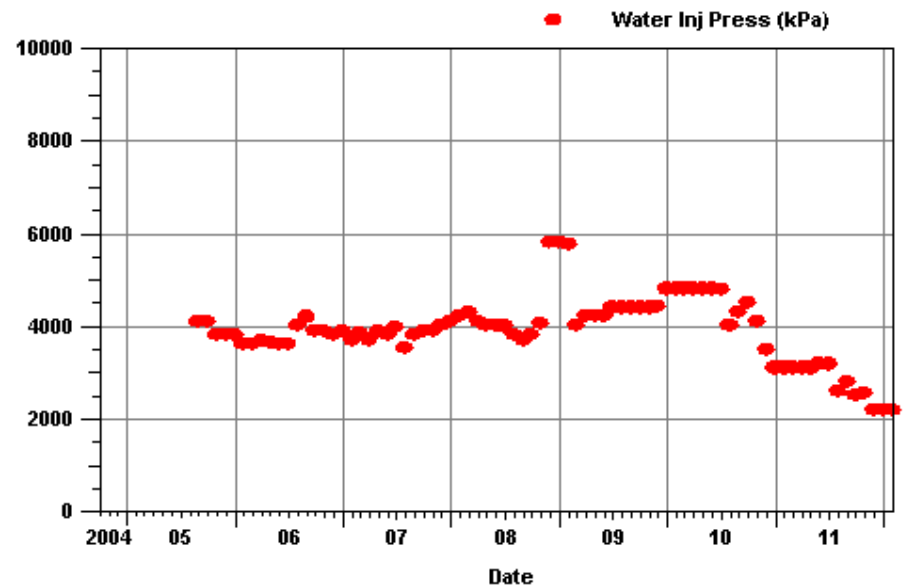
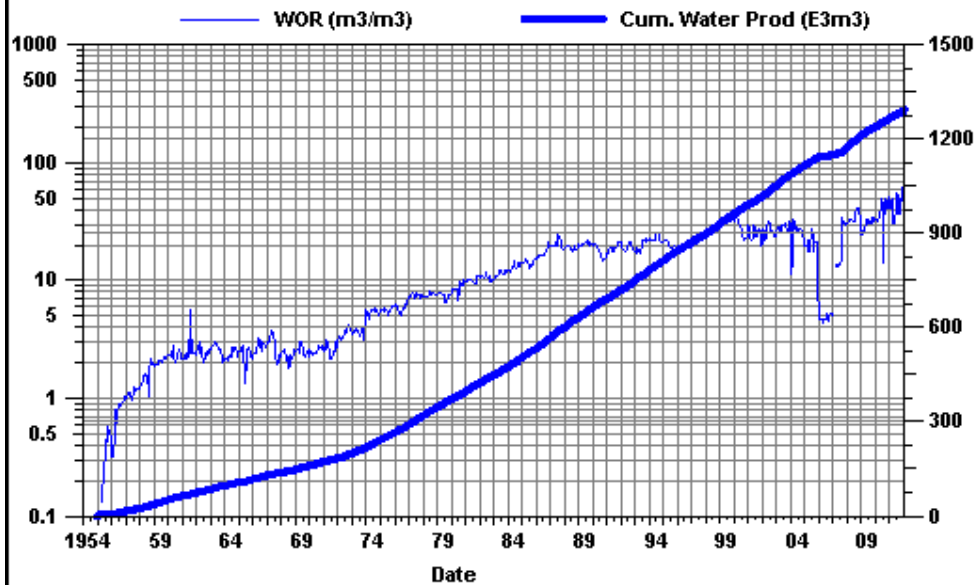
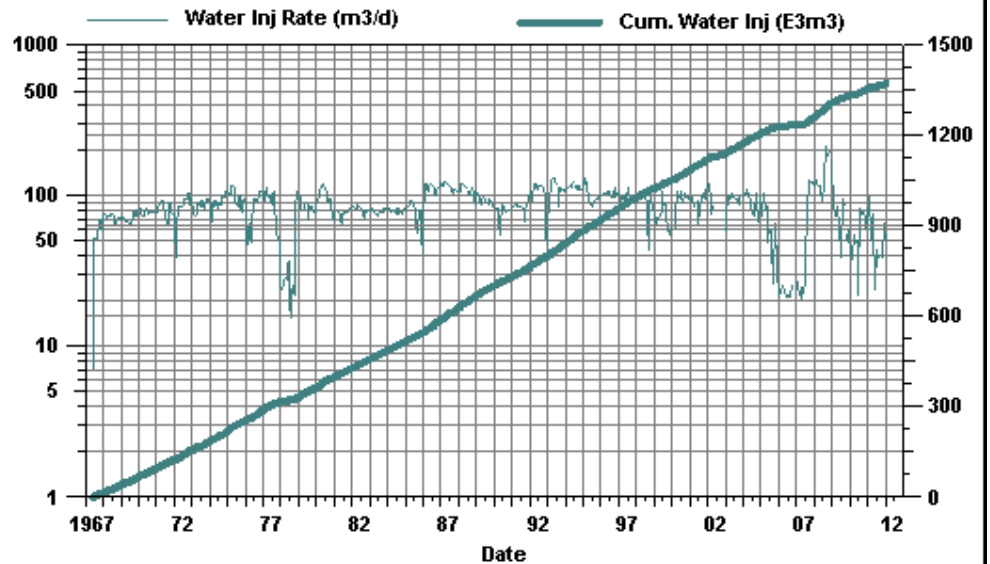
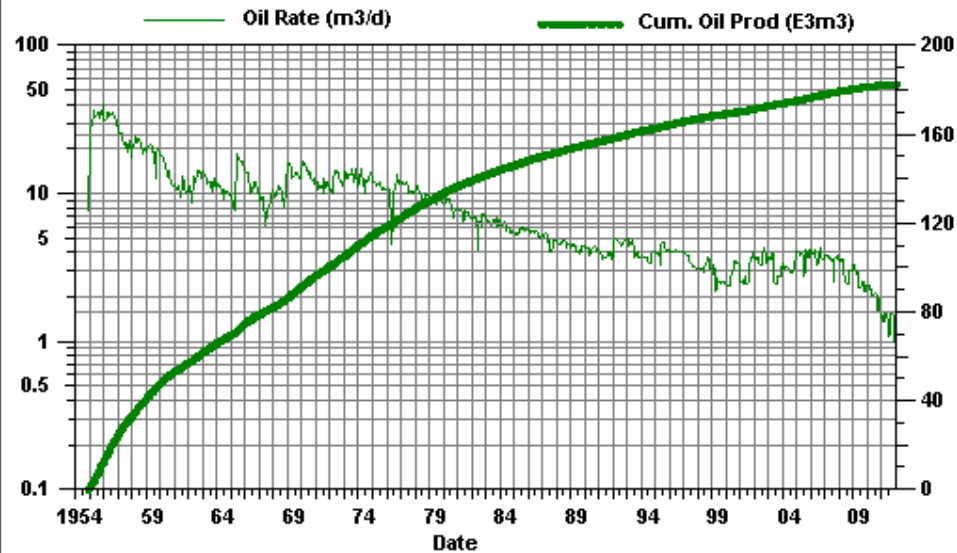
## Virden Roselea Unit #3

### PAT 02-18



## Viriden Roselea Unit #3

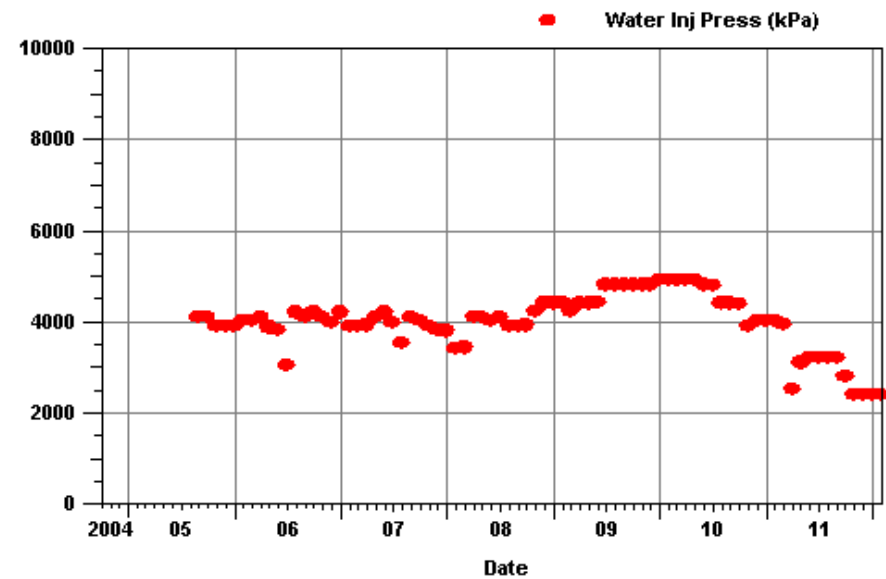
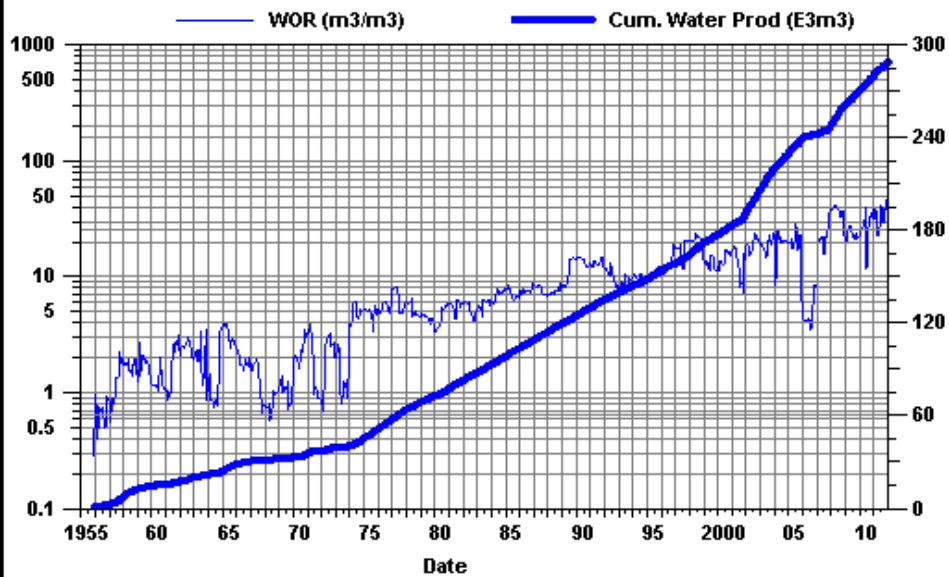
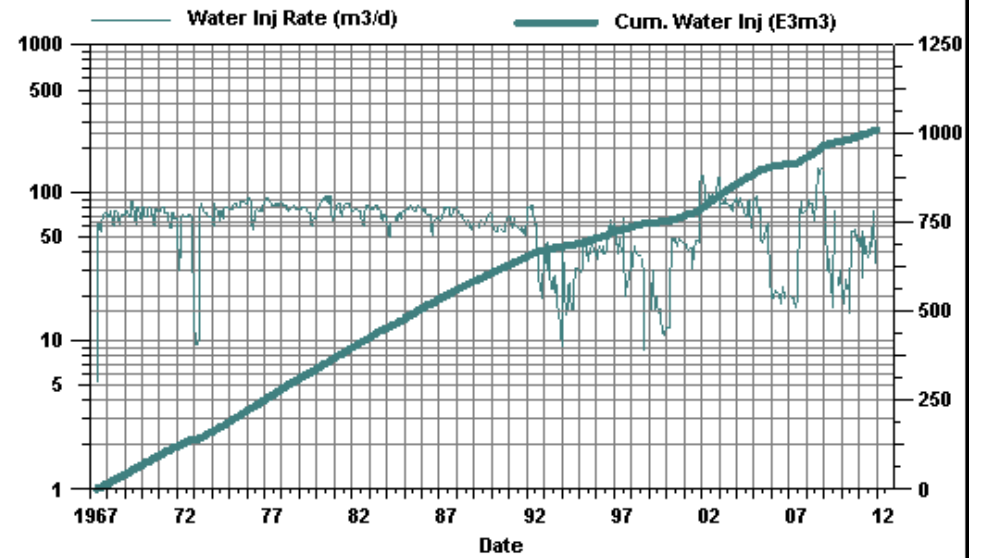
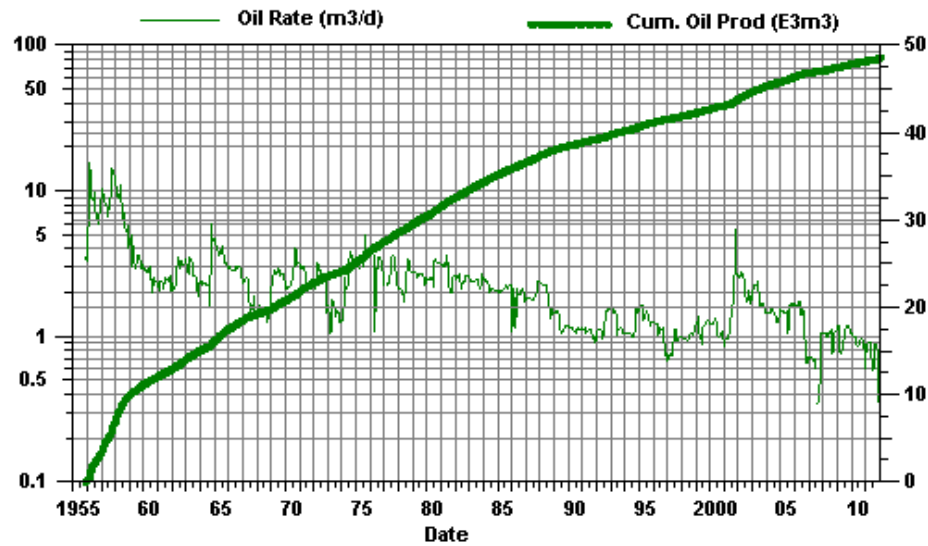
### PAT 03-23



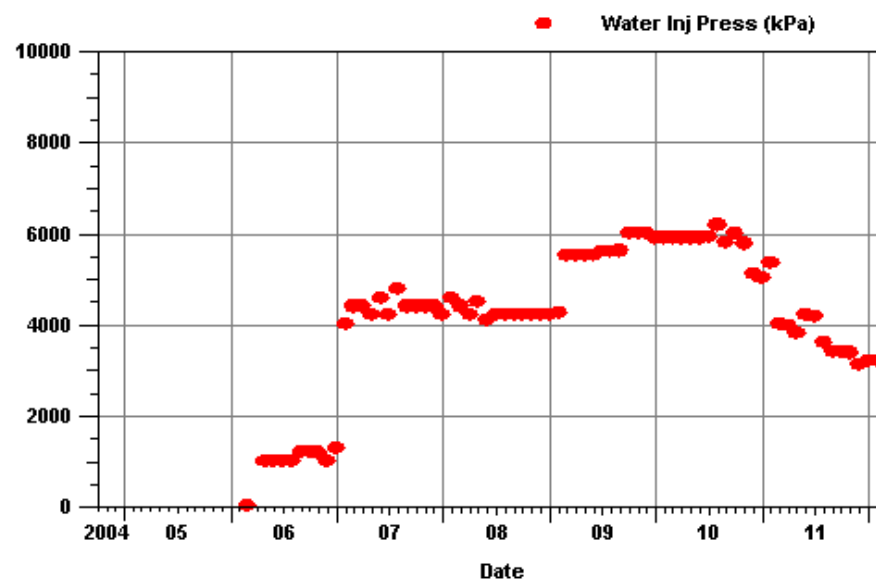
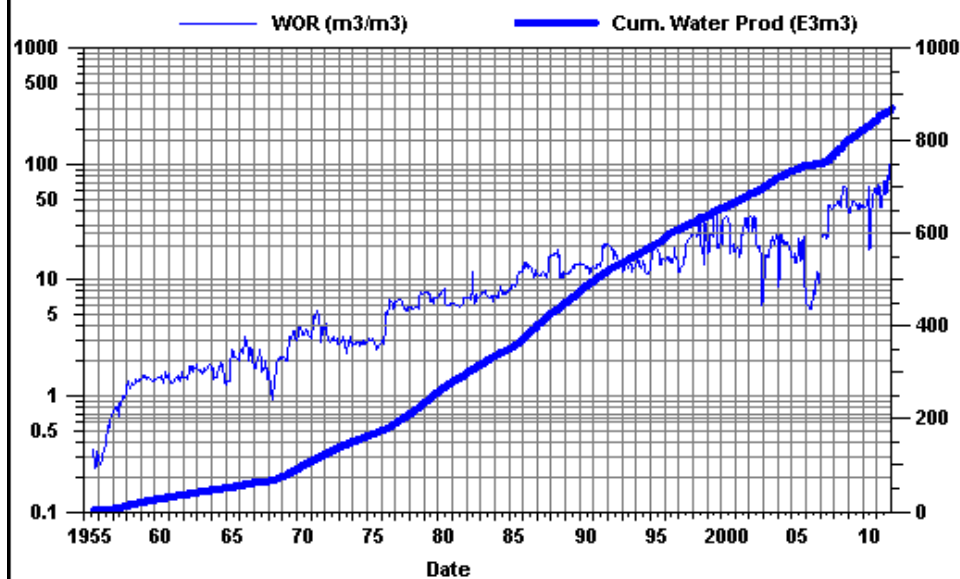
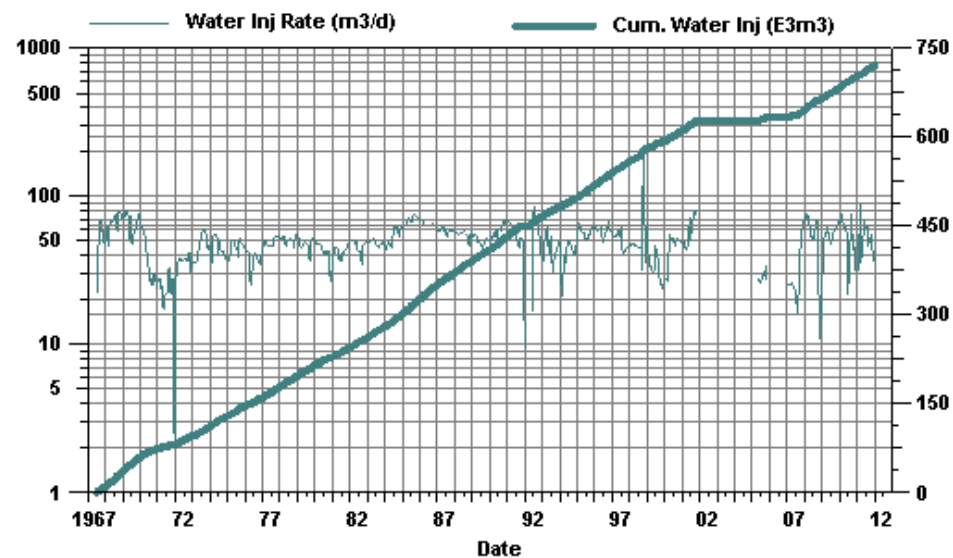
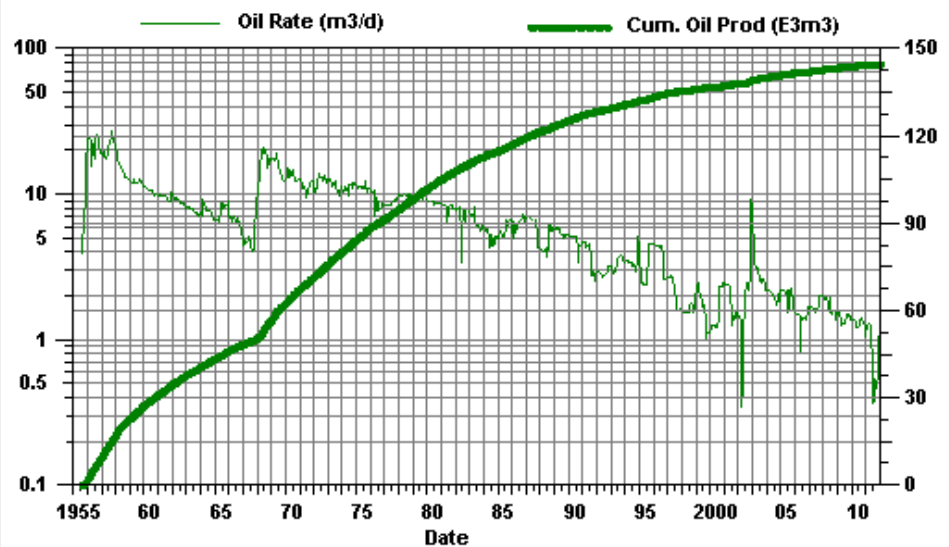


## Viriden Roselea Unit #3

### PAT 04-14

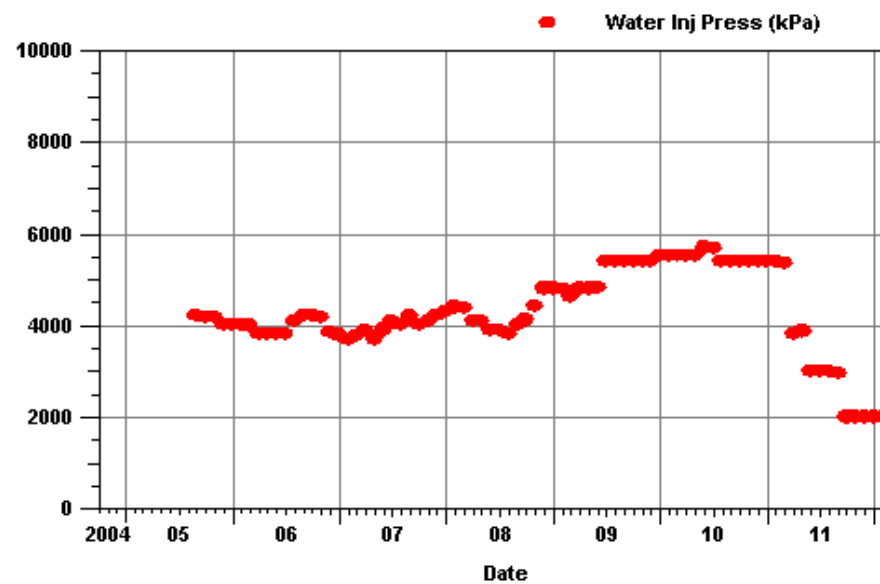
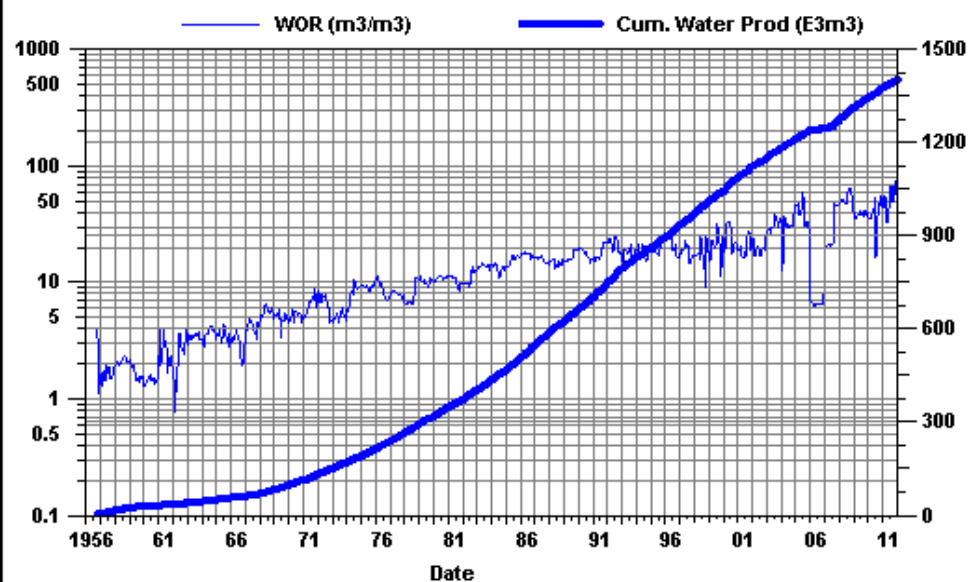
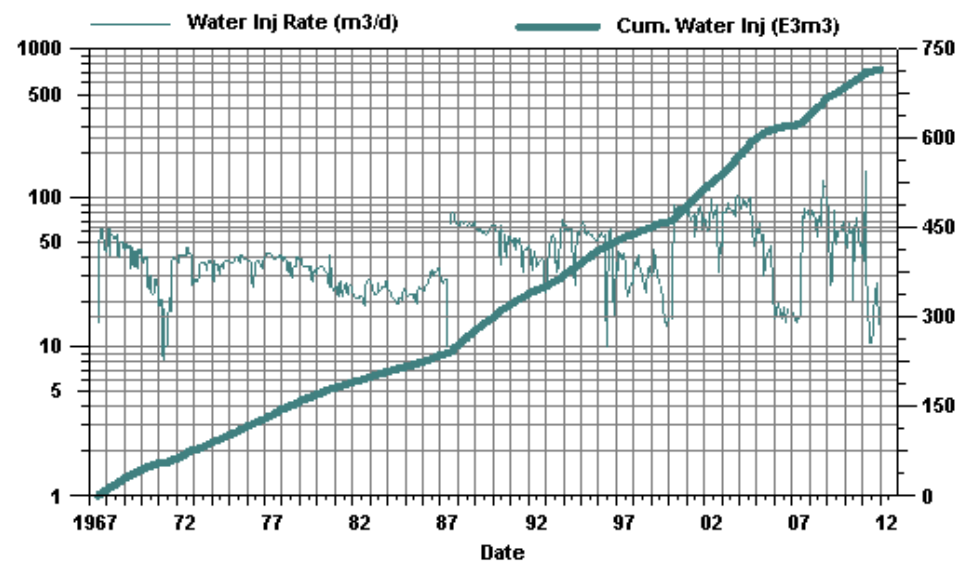
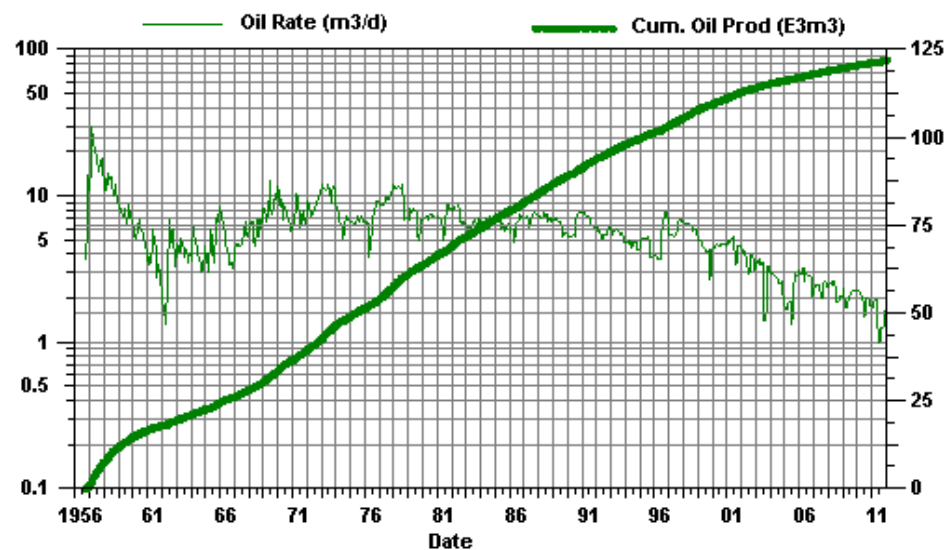


## Virden Roselea Unit #3 PAT 04-18

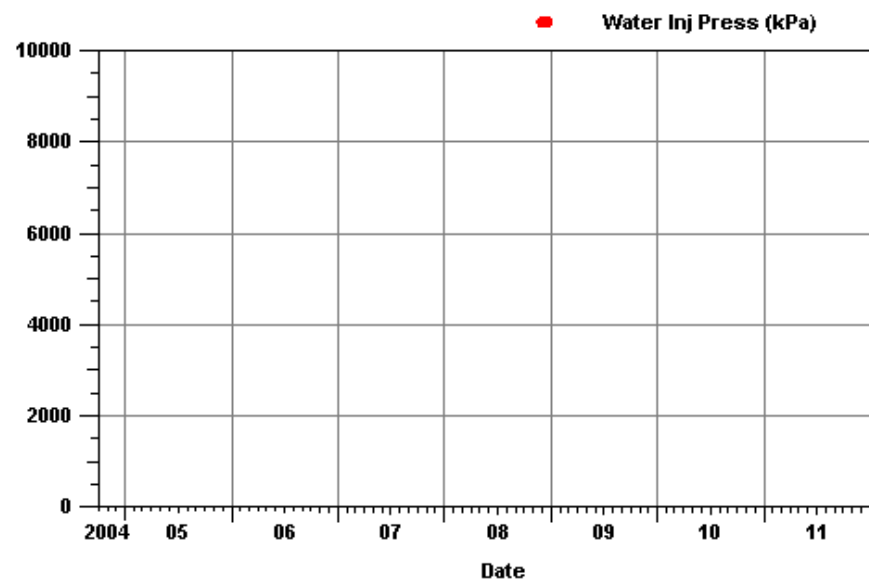
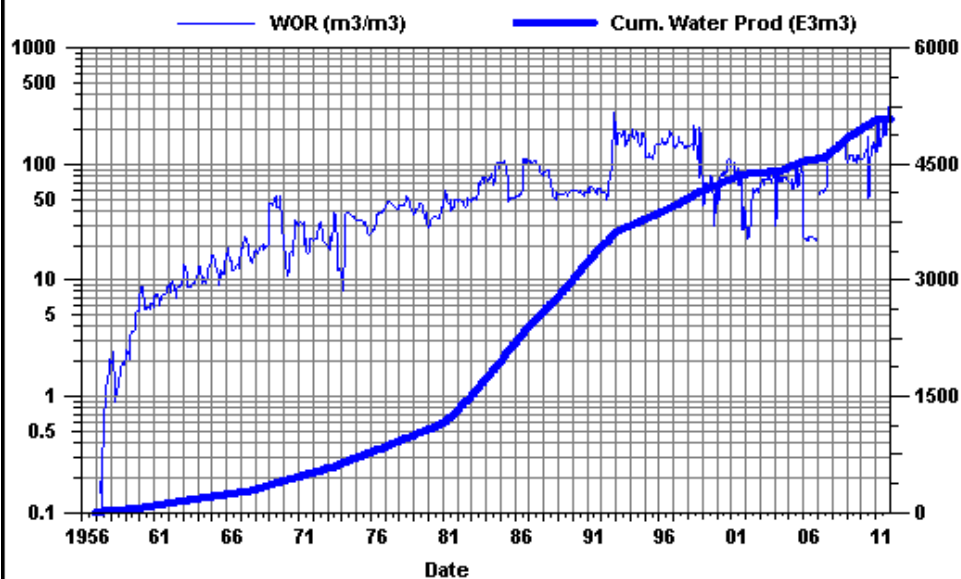
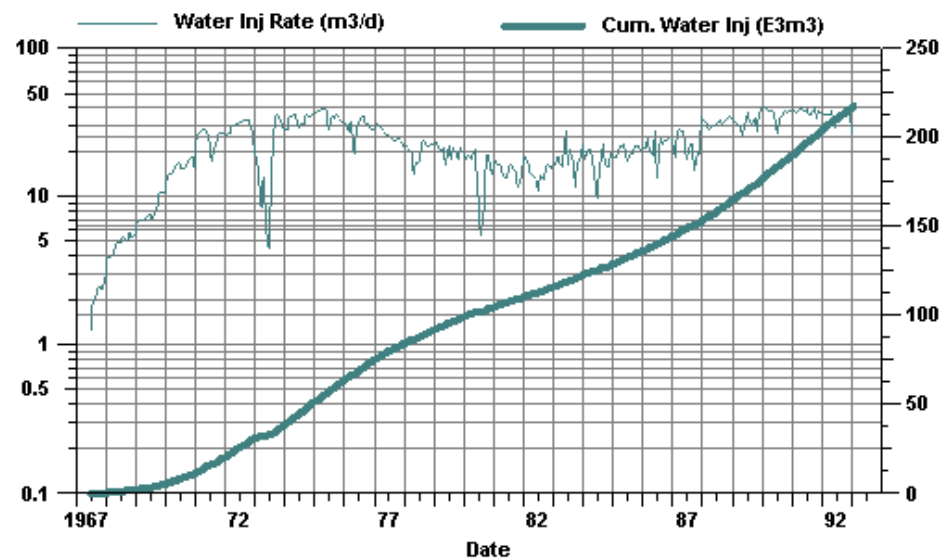
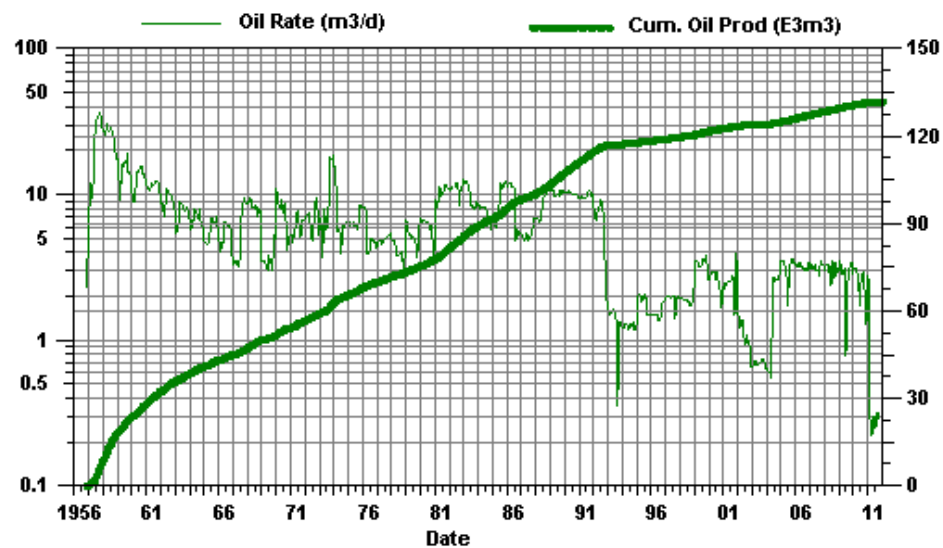


## Virden Roselea Unit #3

### PAT 06-01

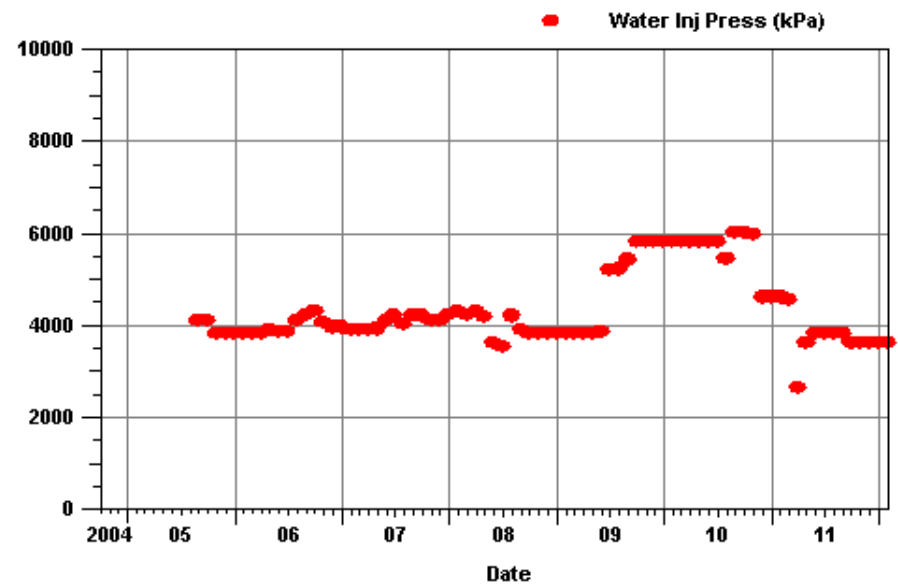
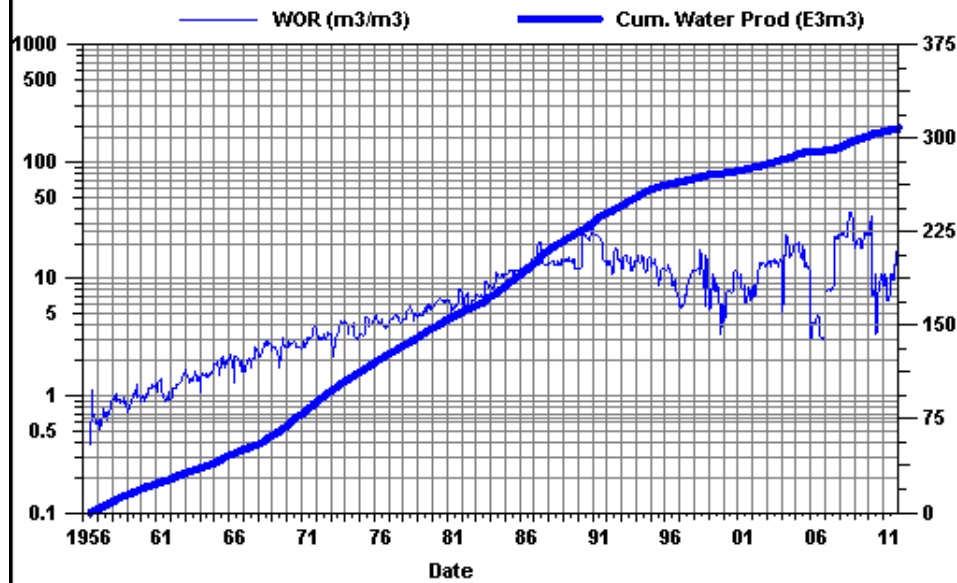
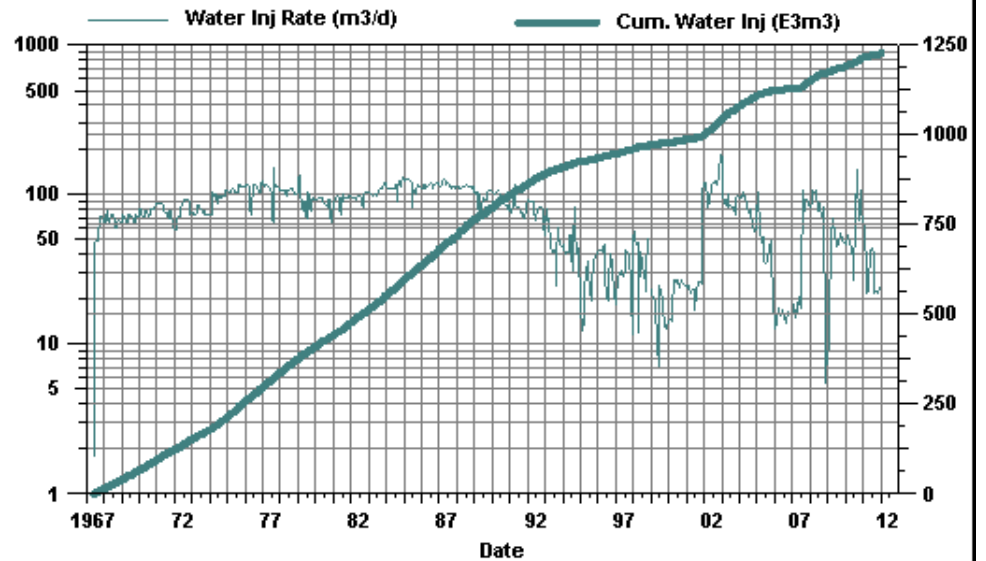
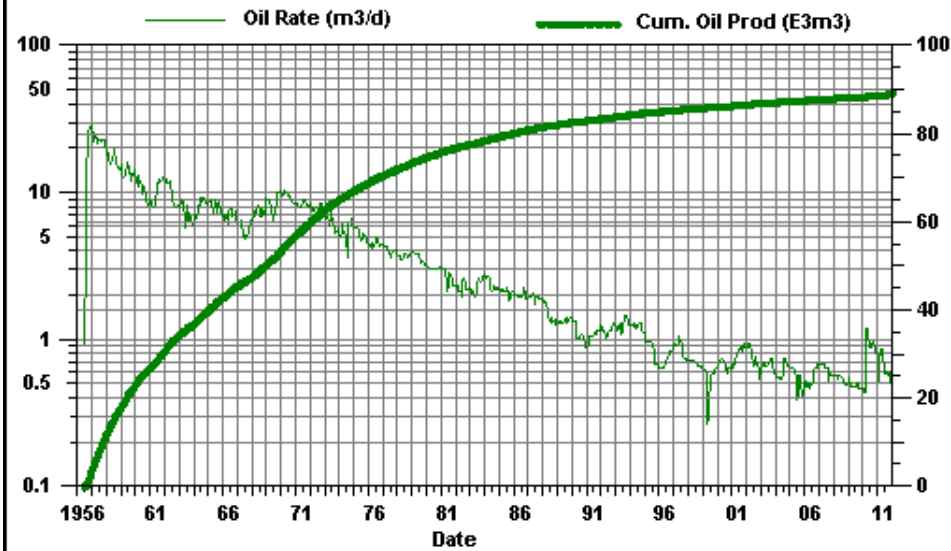


# Virden Roselea Unit #3 PAT 06-10



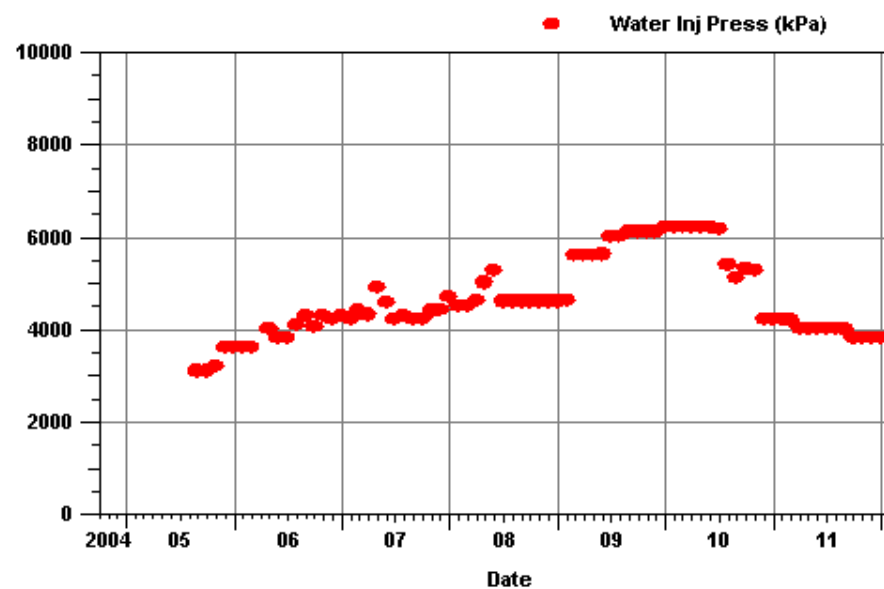
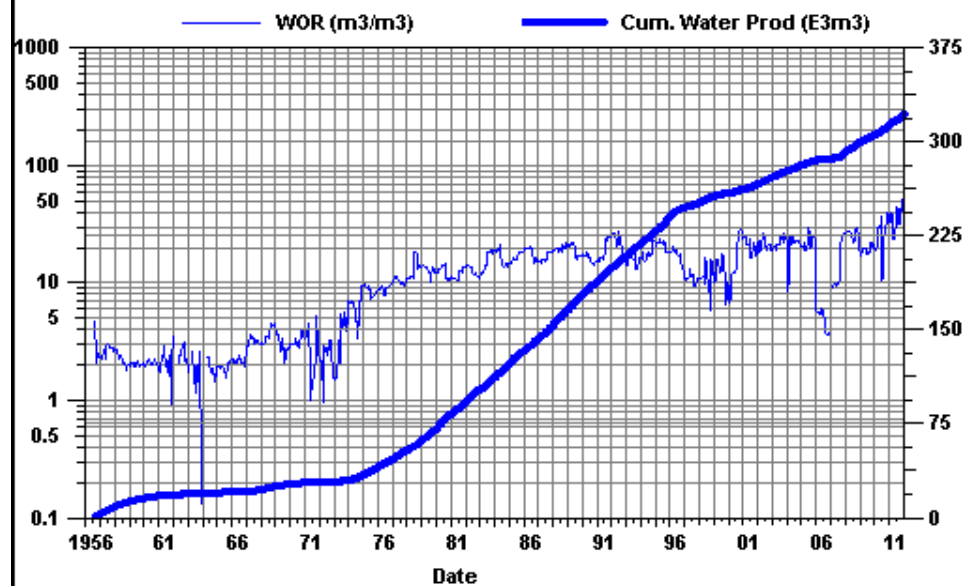
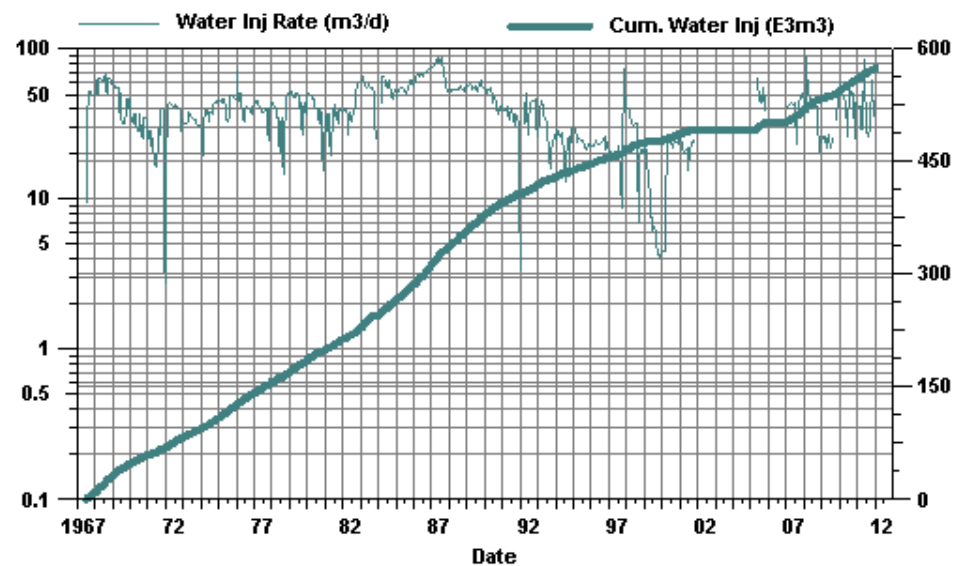
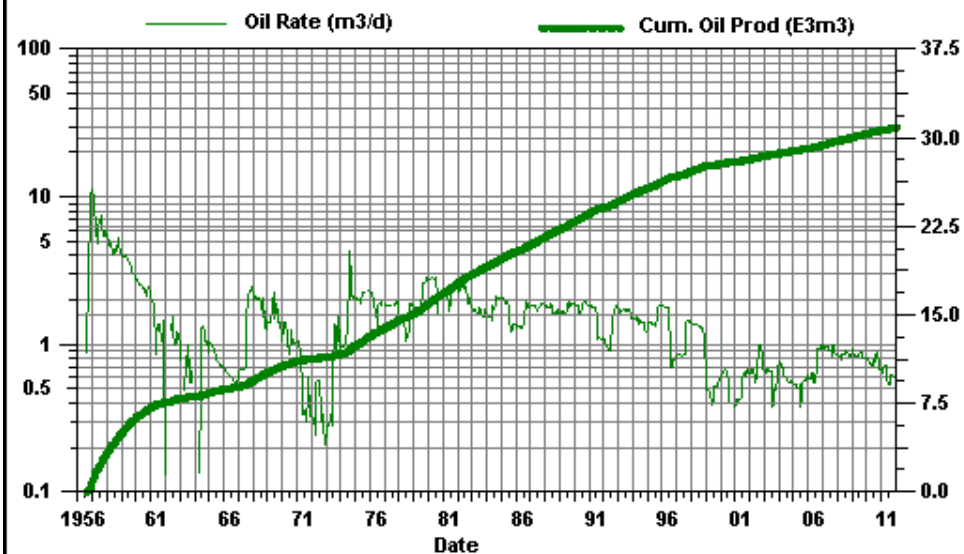
## Virden Roselea Unit #3

### PAT 06-11

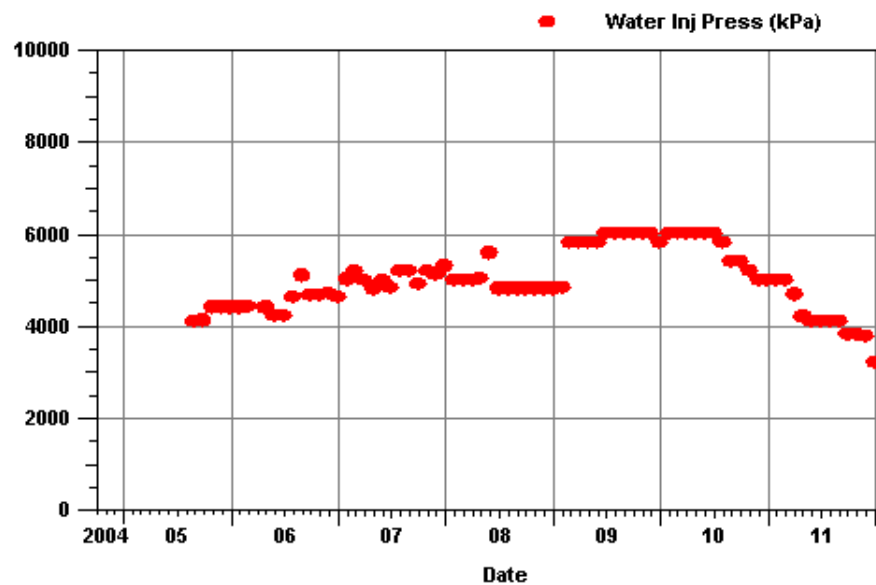
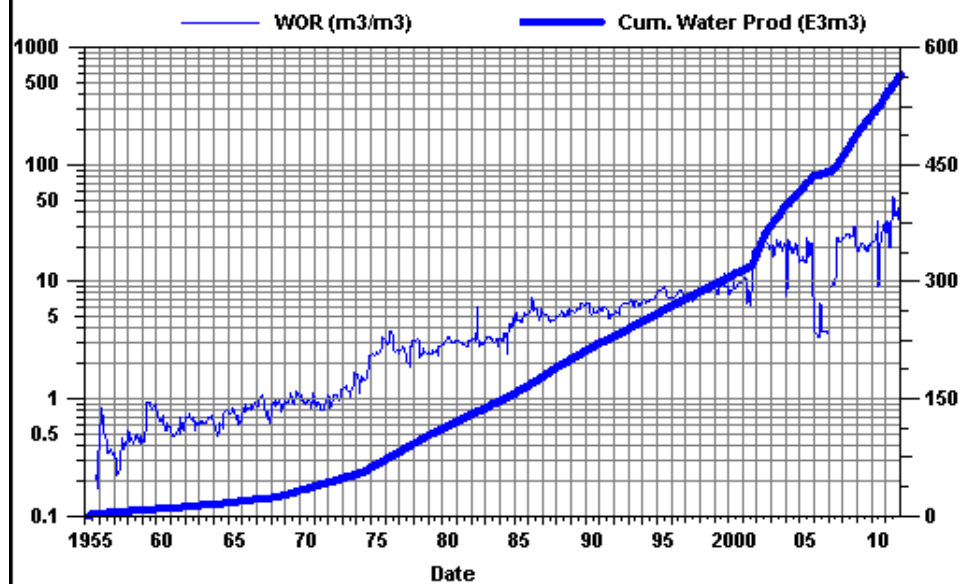
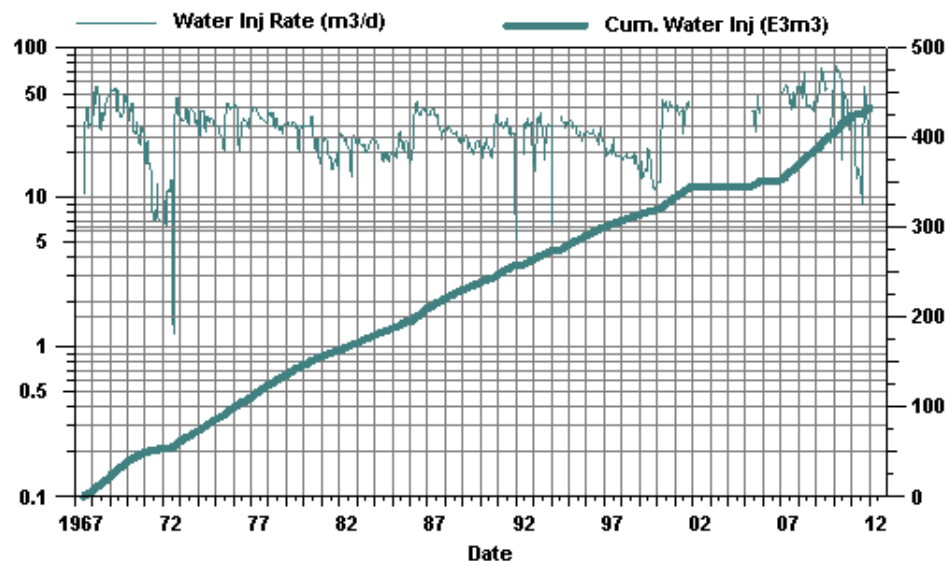
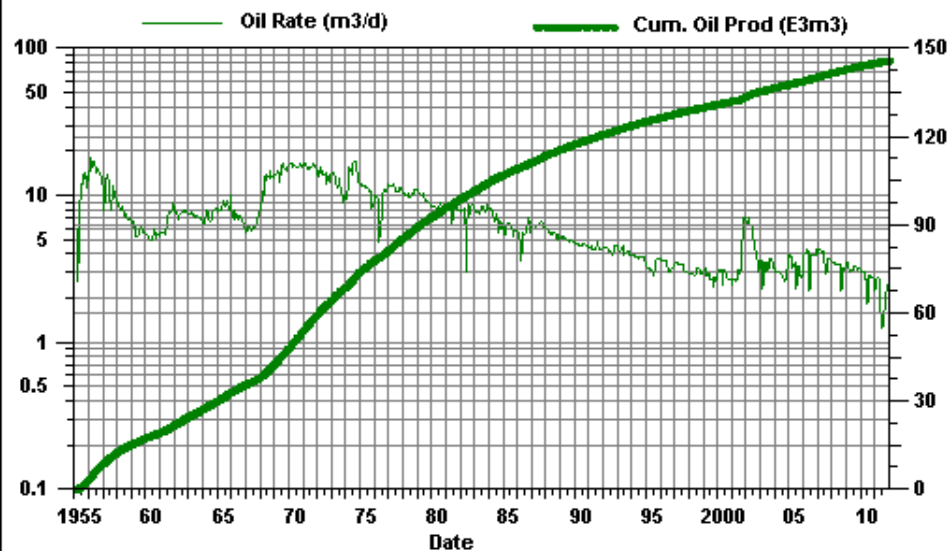


# Virden Roselea Unit #3

PAT 06-12

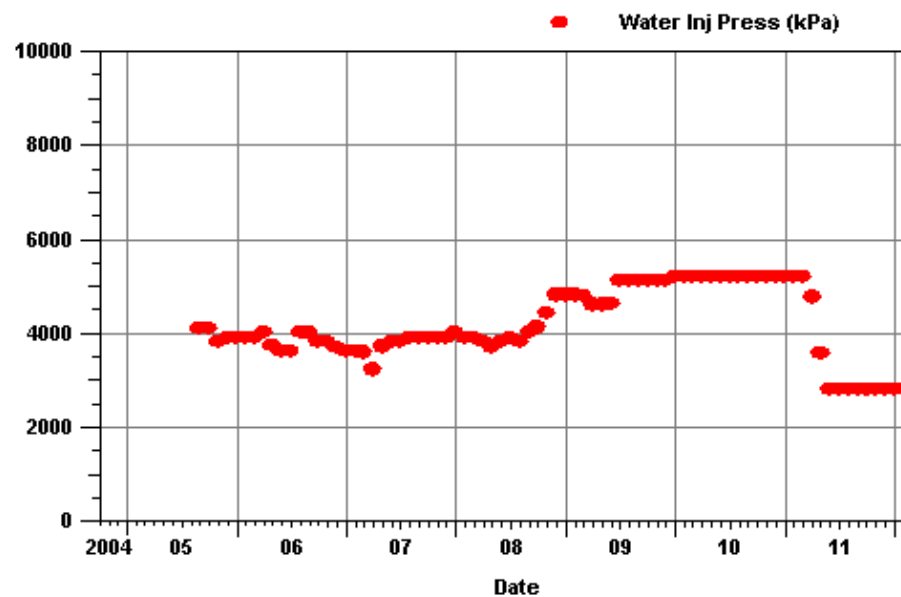
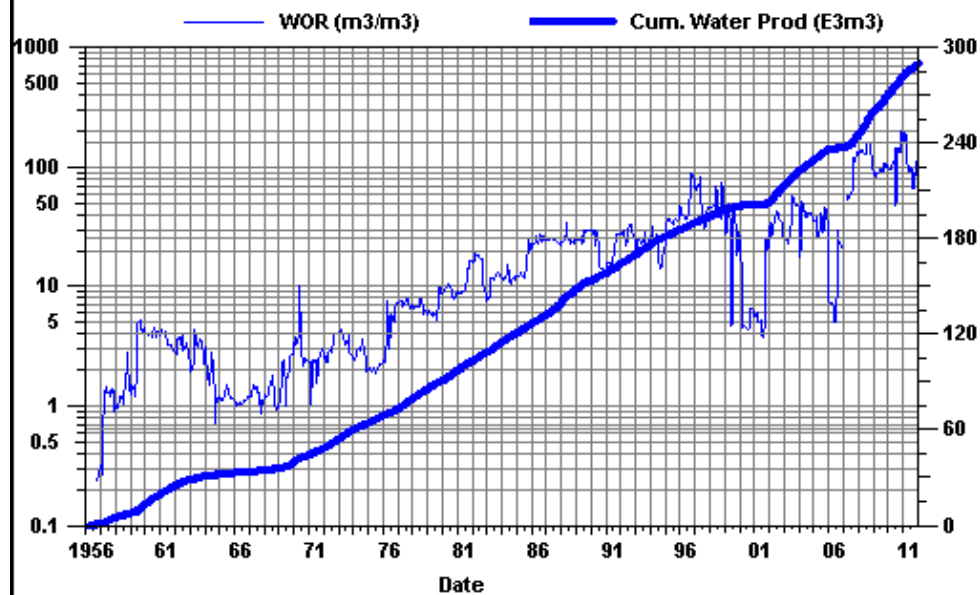
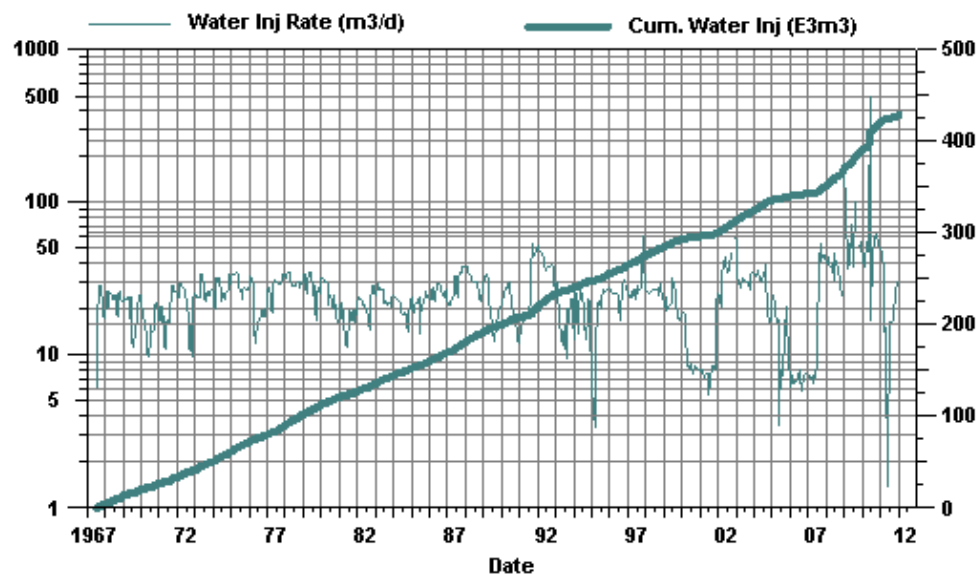
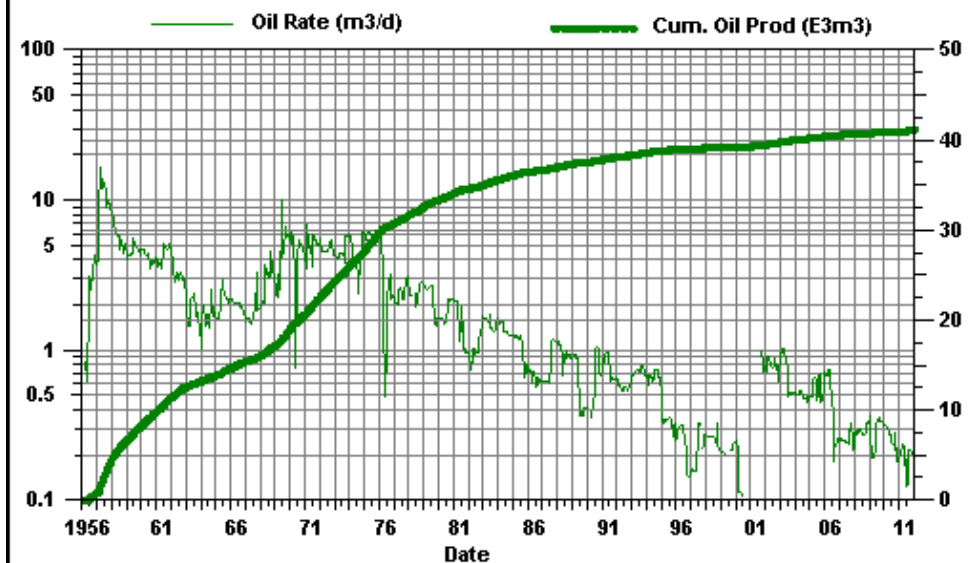


# Virden Roselea Unit #3 PAT 06-13



# Viriden Roselea Unit #3

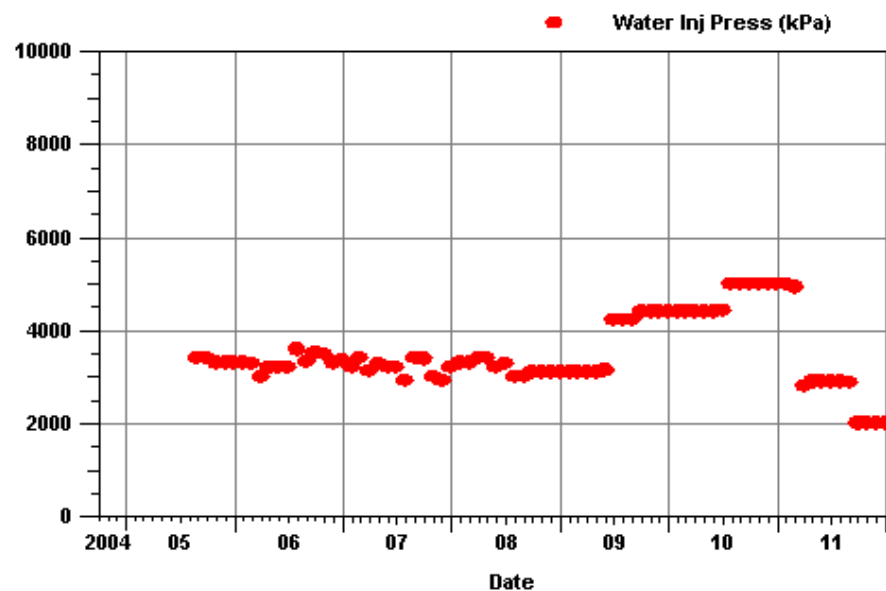
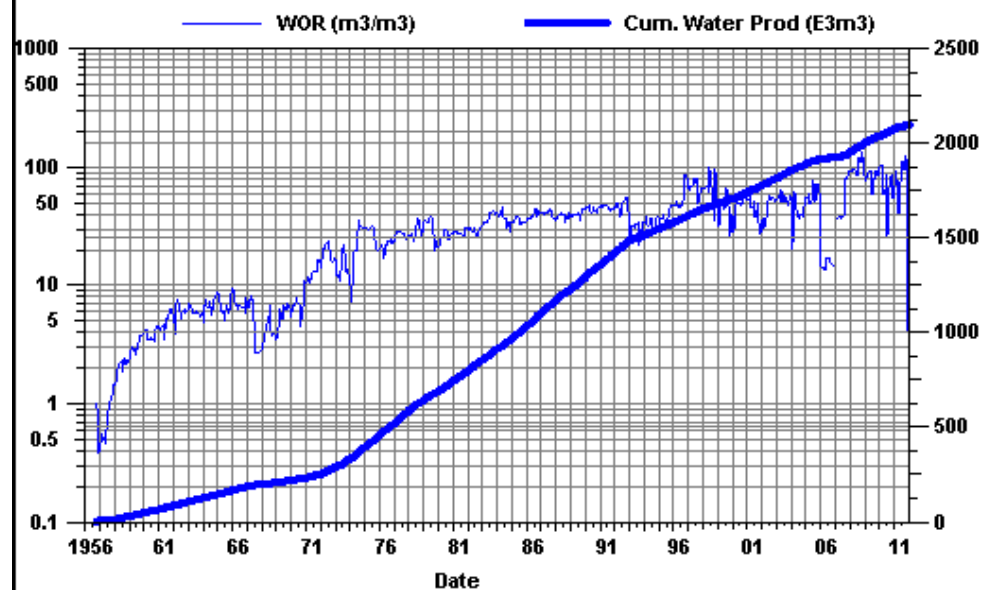
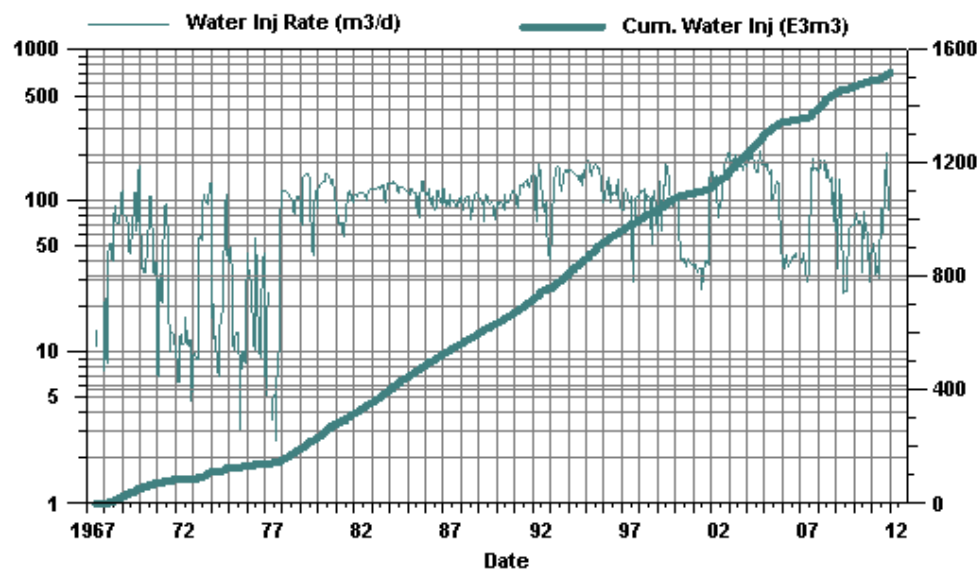
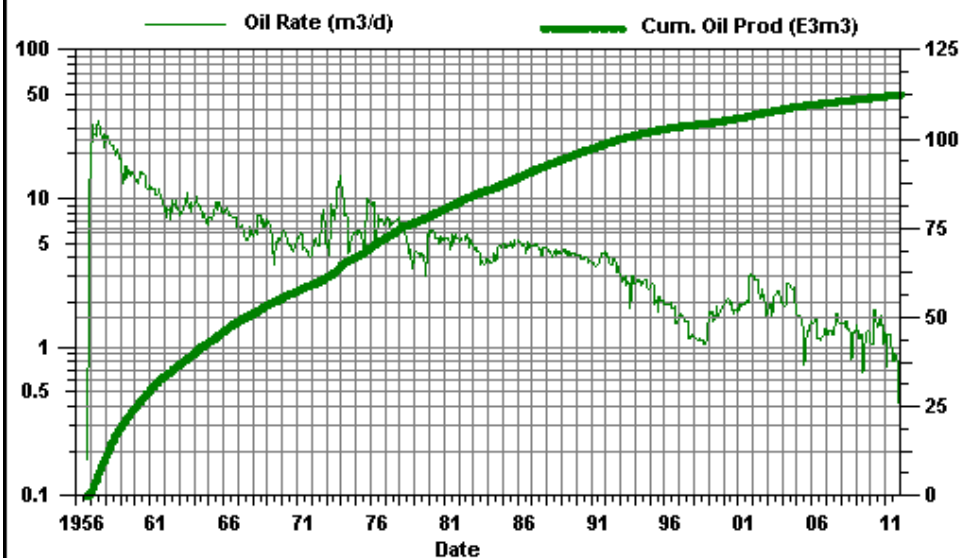
PAT 08-02





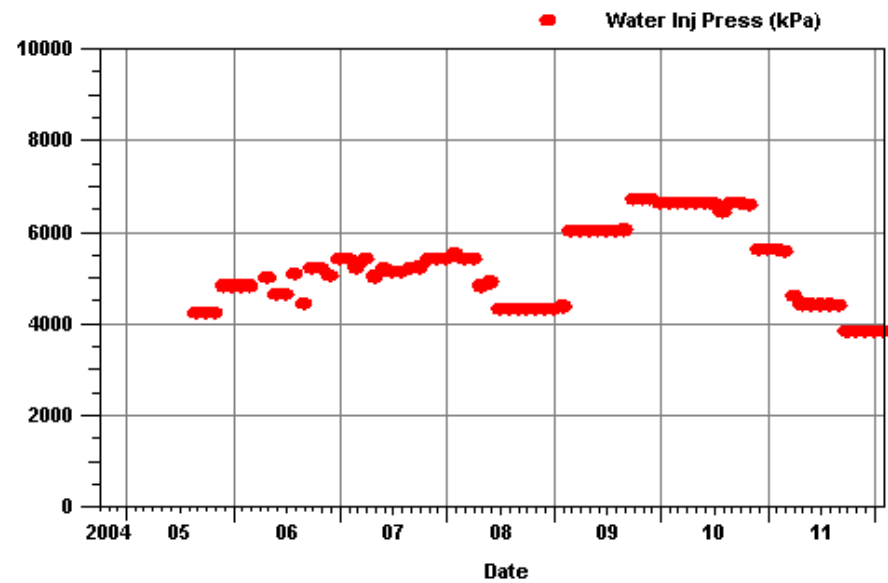
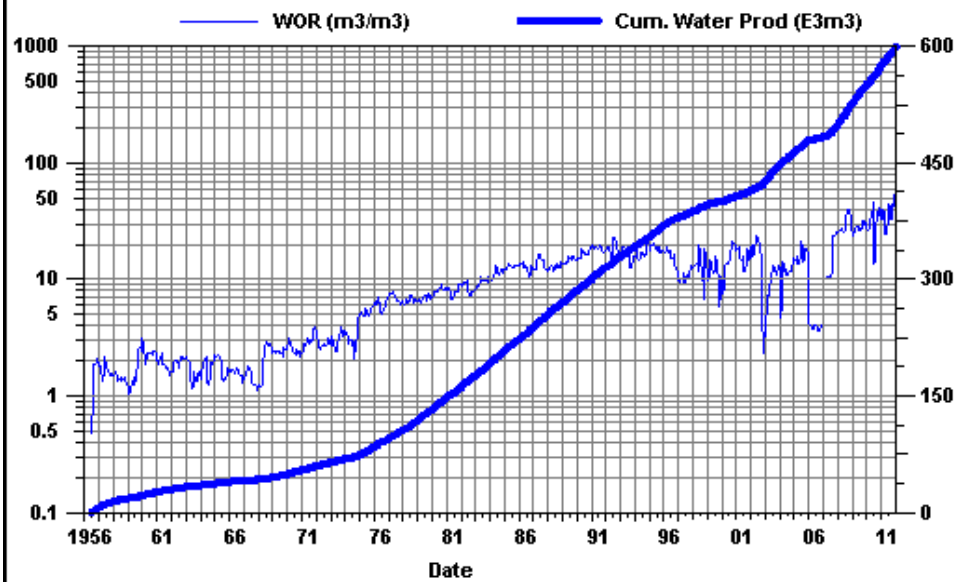
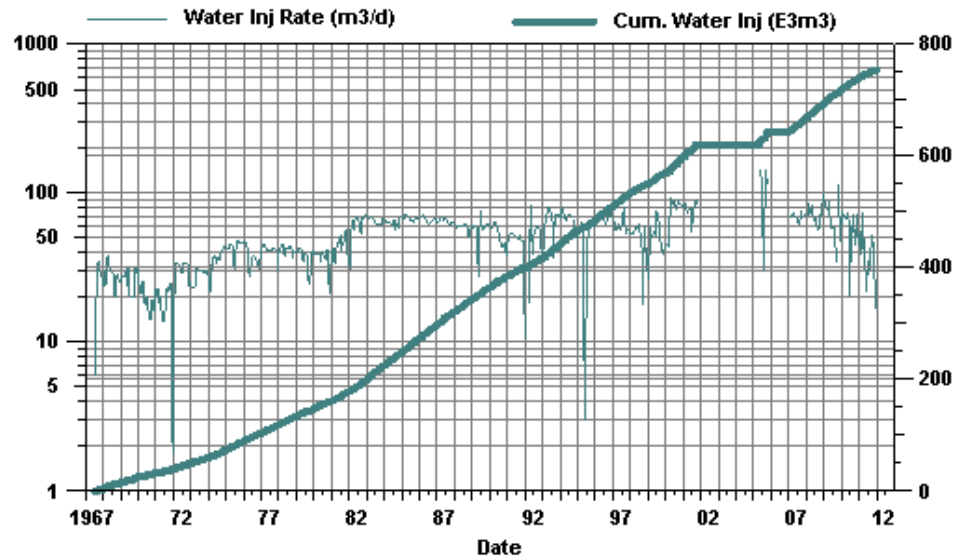
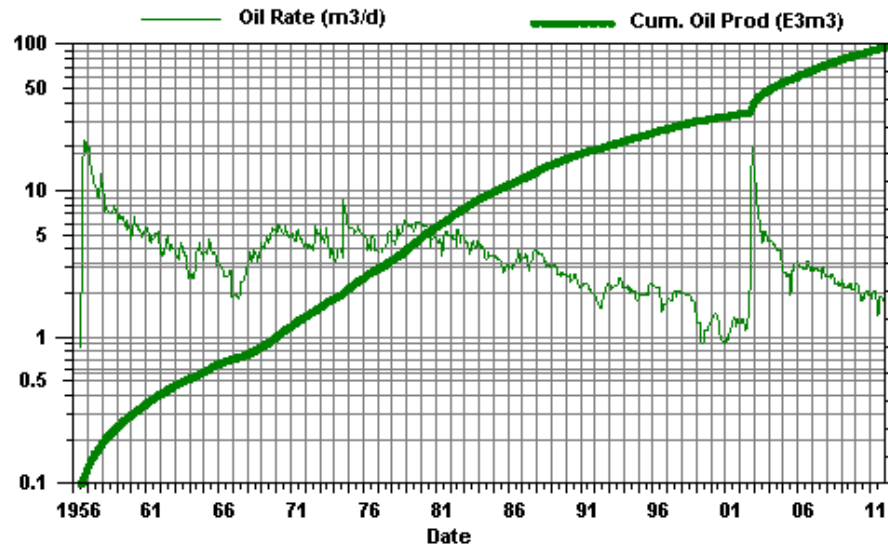
# Viriden Roselea Unit #3

PAT 08-10



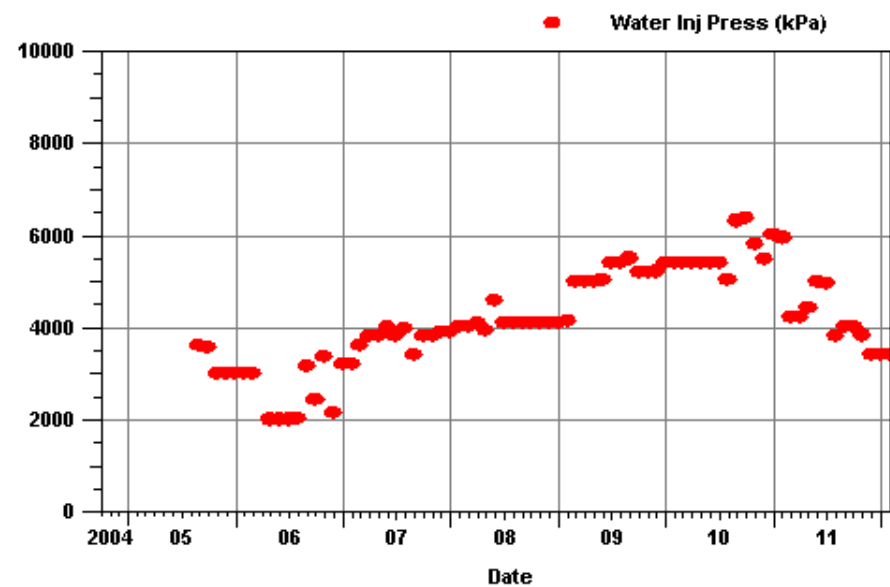
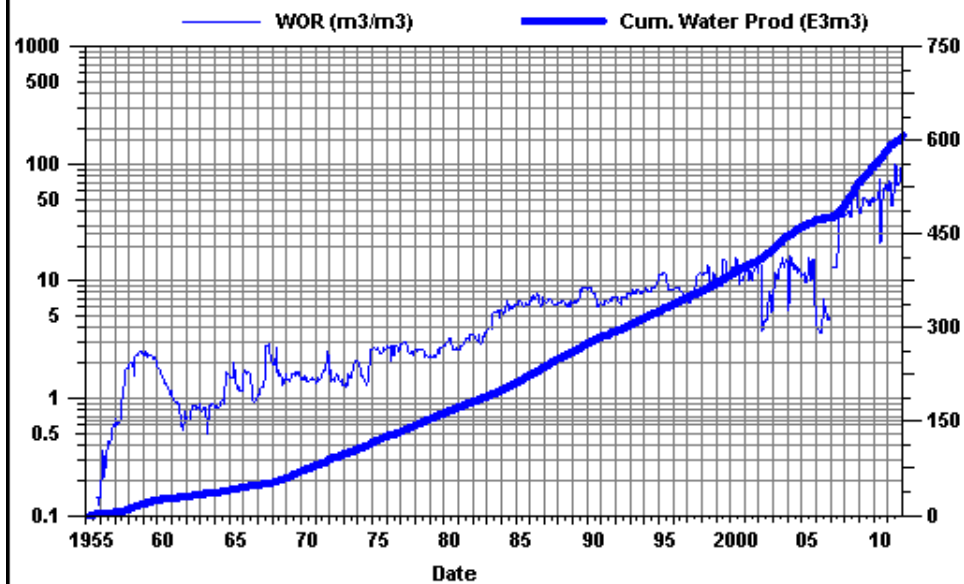
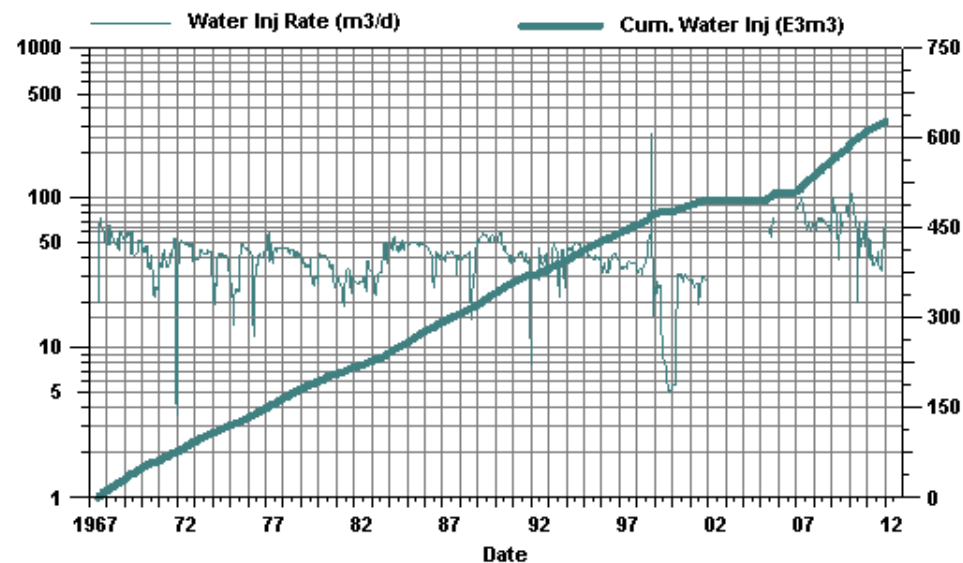
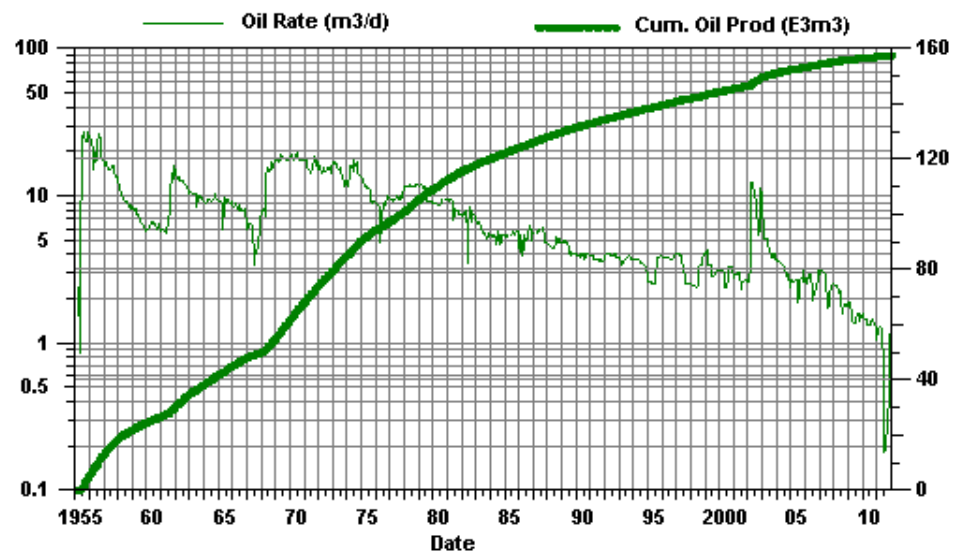
## Virden Roselea Unit #3

### PAT 08-11



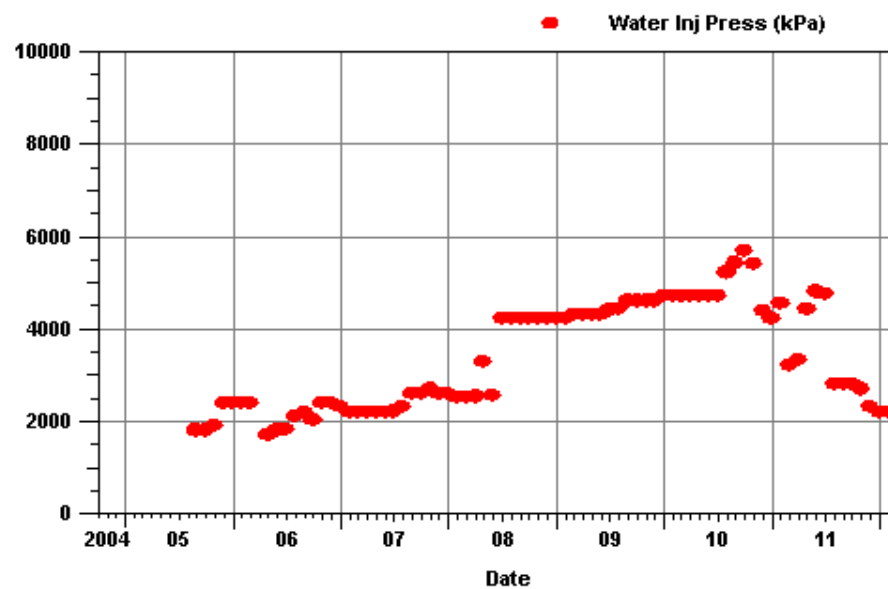
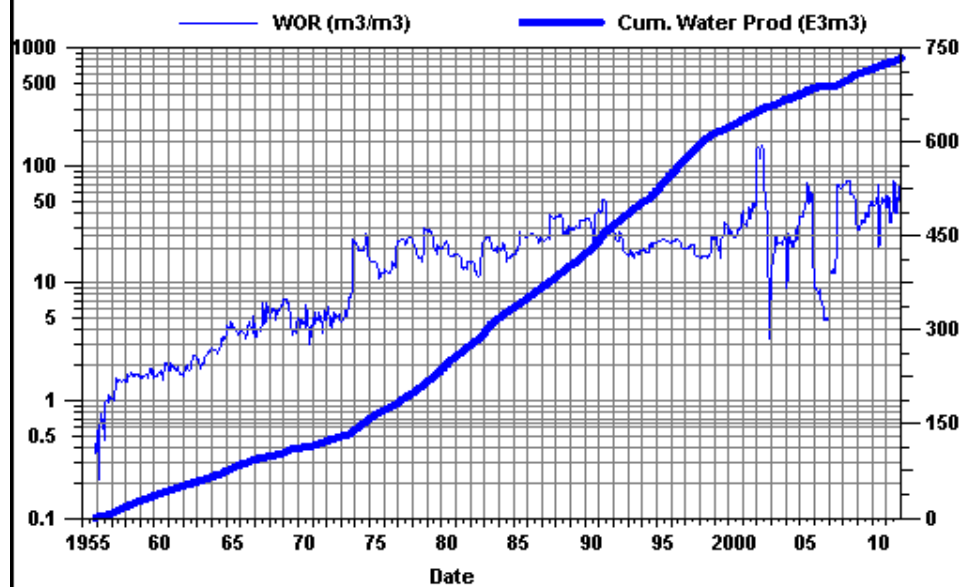
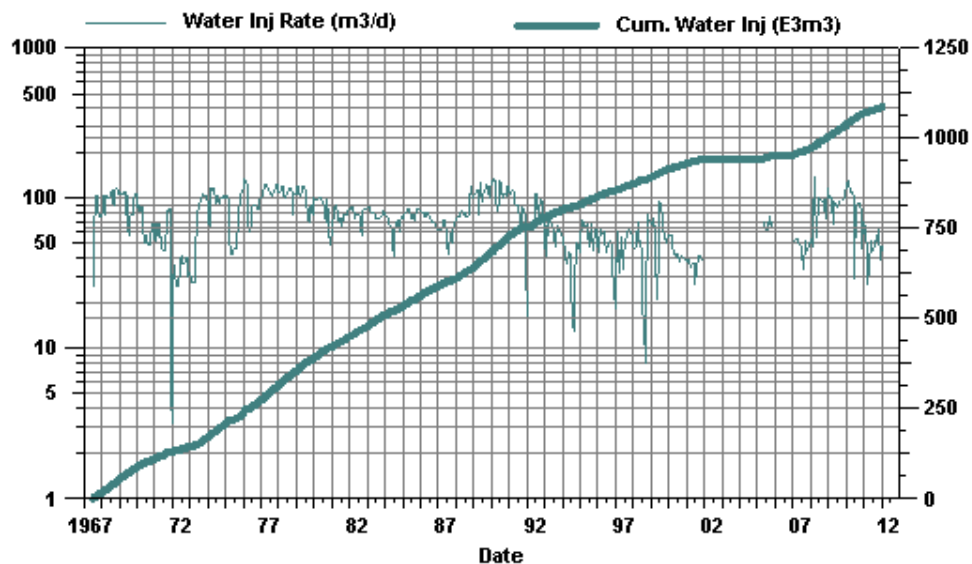
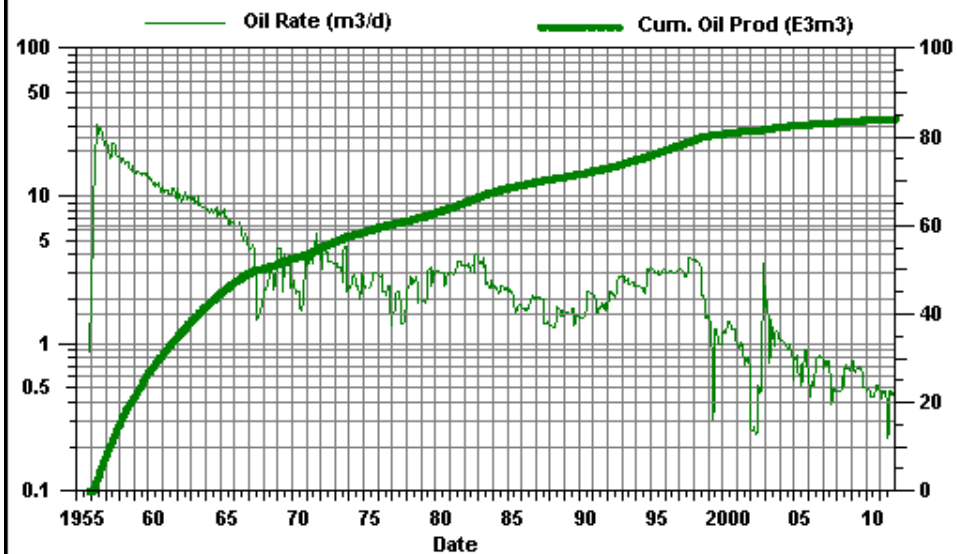
## Virden Roselea Unit #3

### PAT 09-13

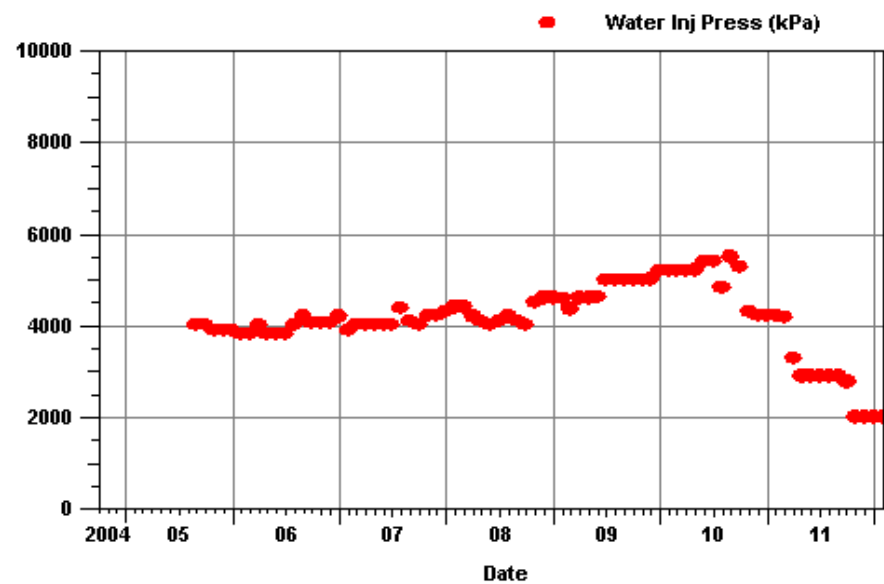
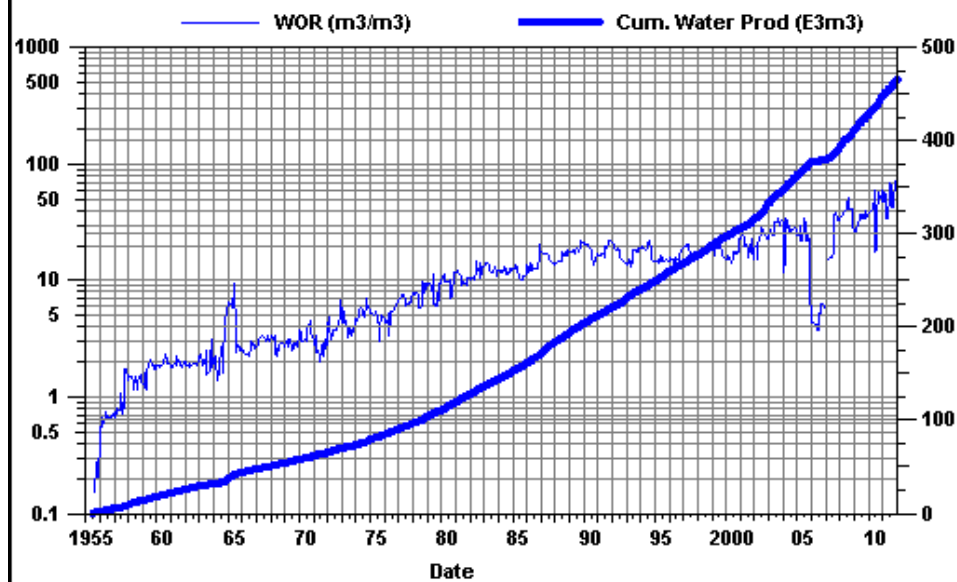
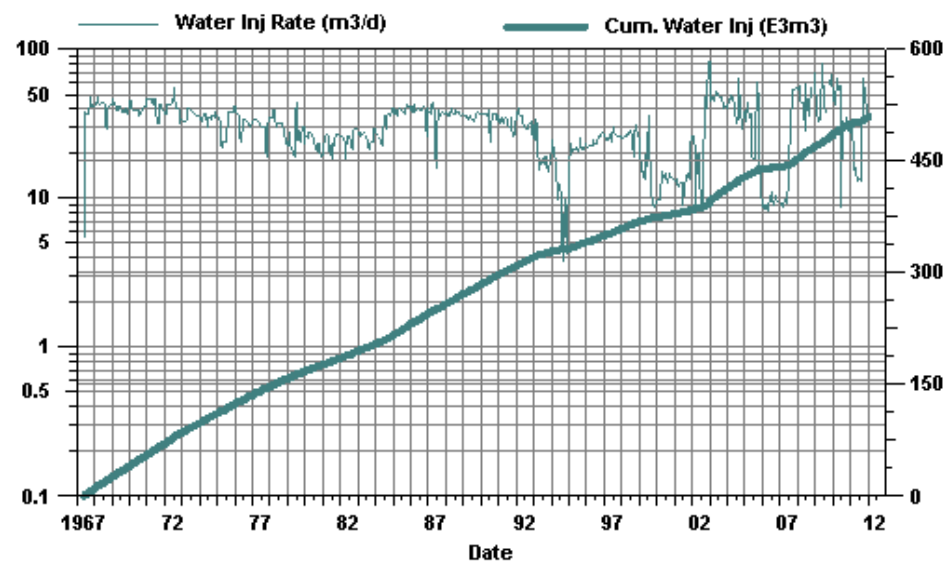
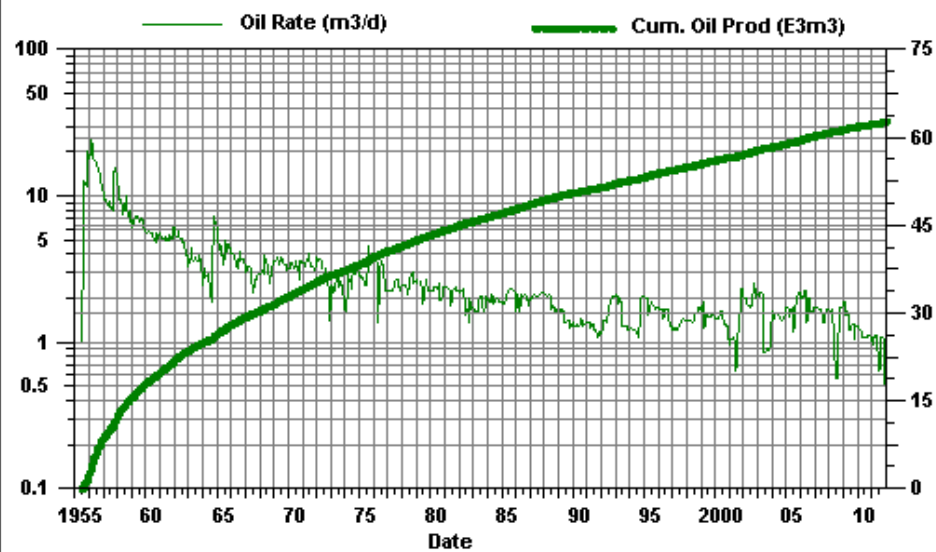


# Viriden Roselea Unit #3

PAT 10-07

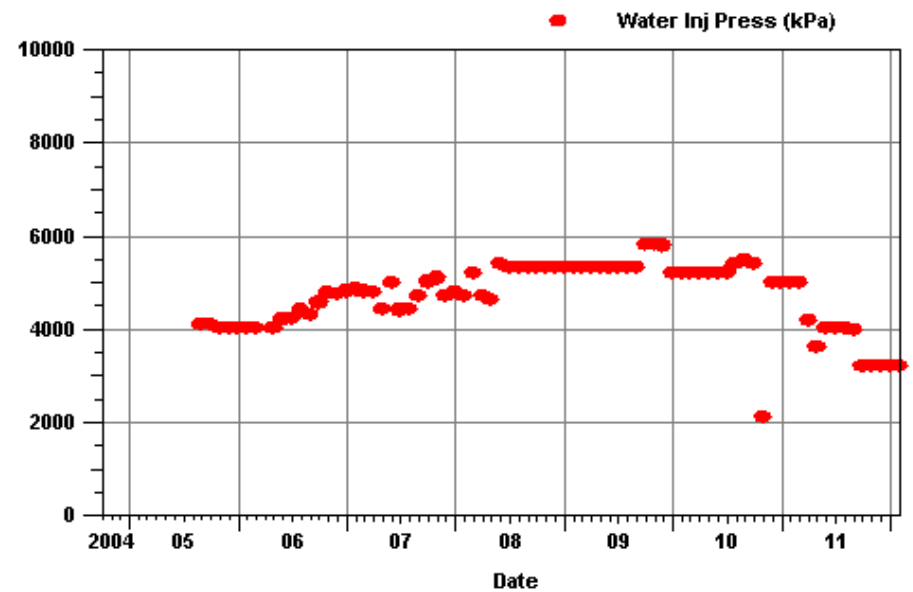
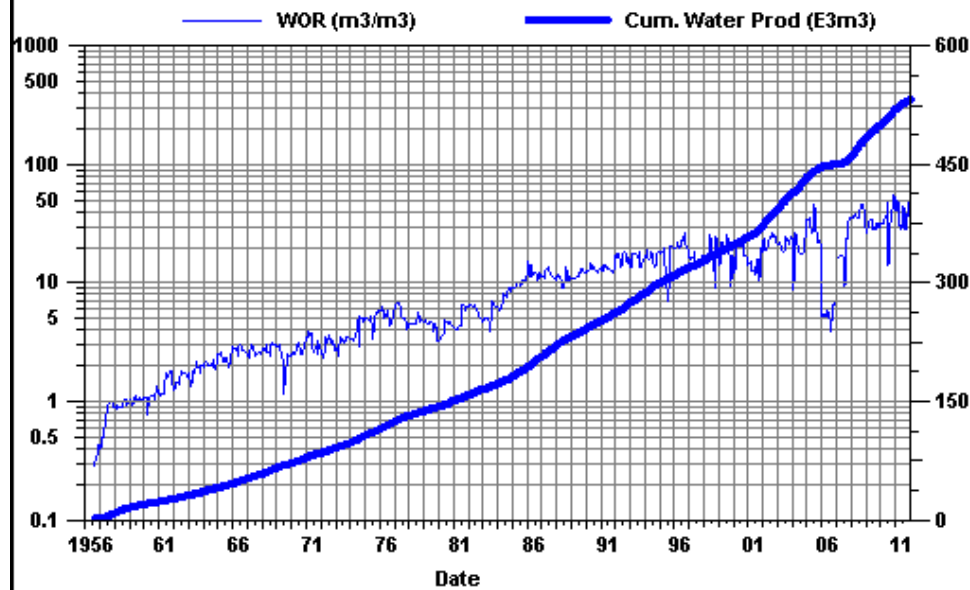
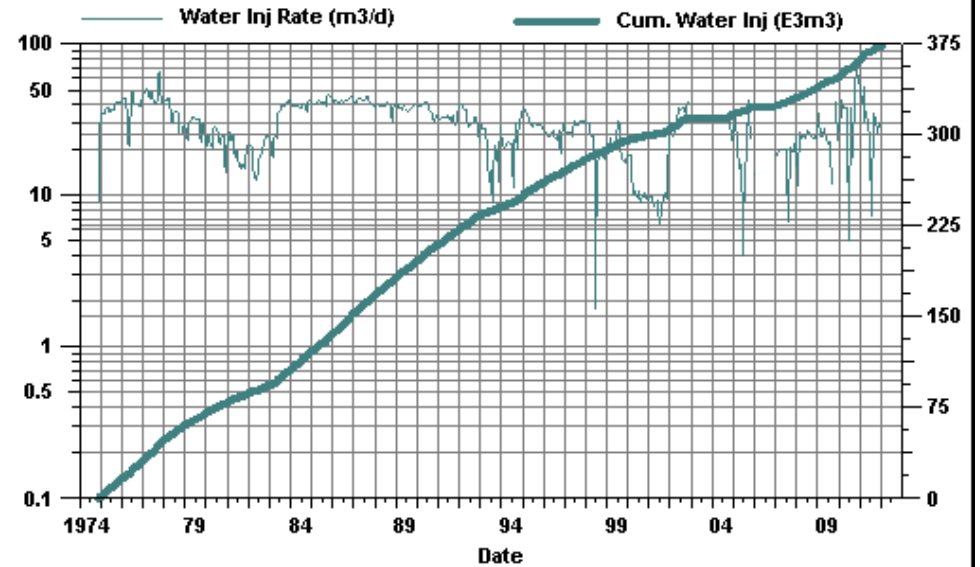
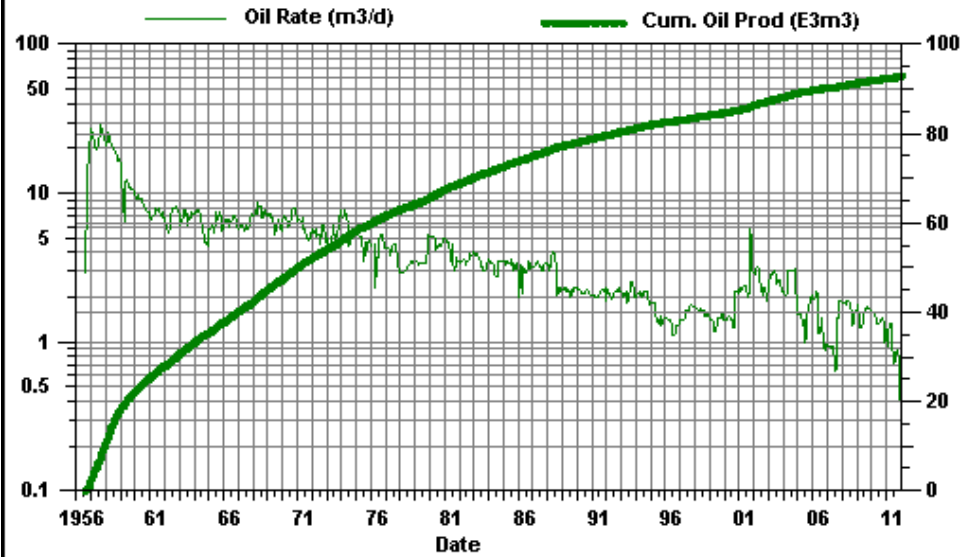


## Virden Roselea Unit #3 PAT 11-14



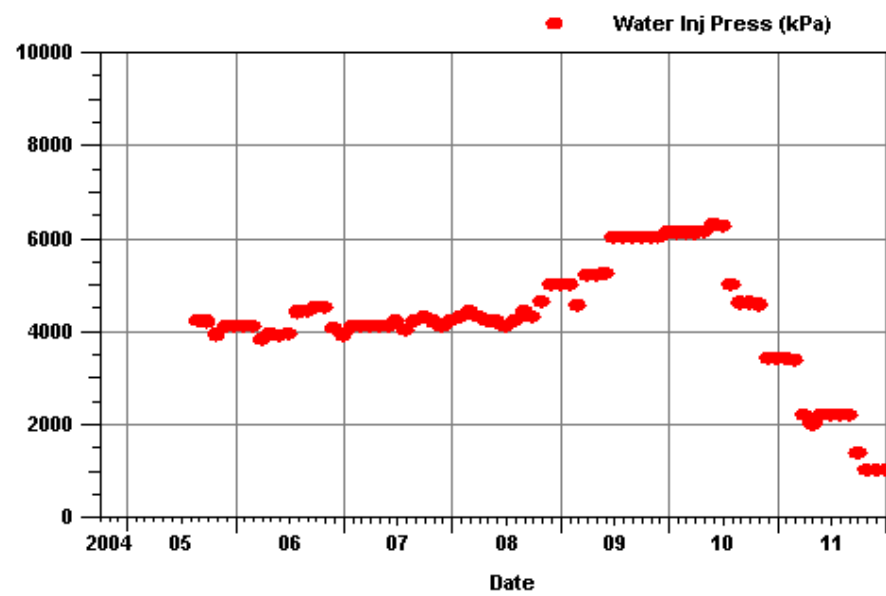
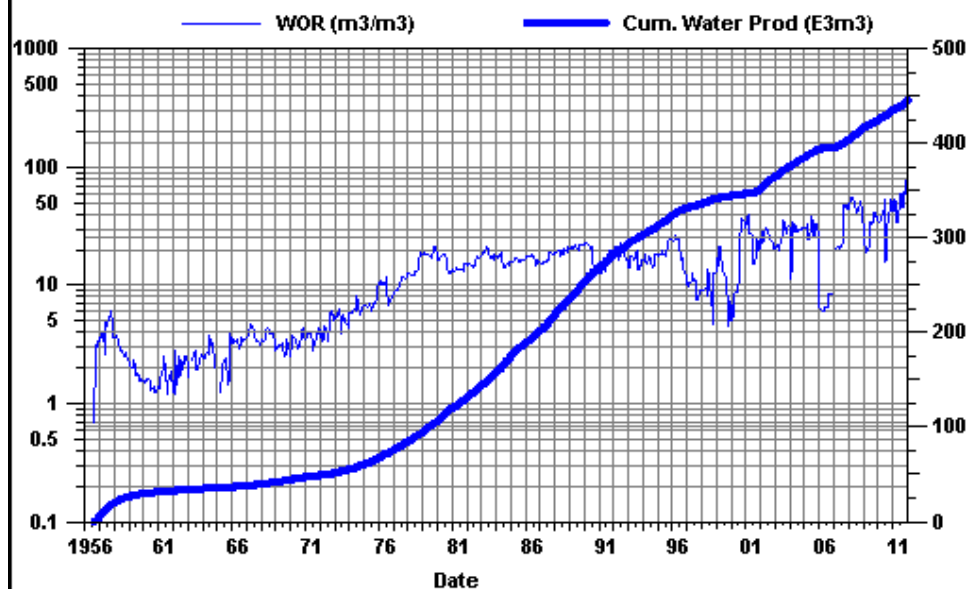
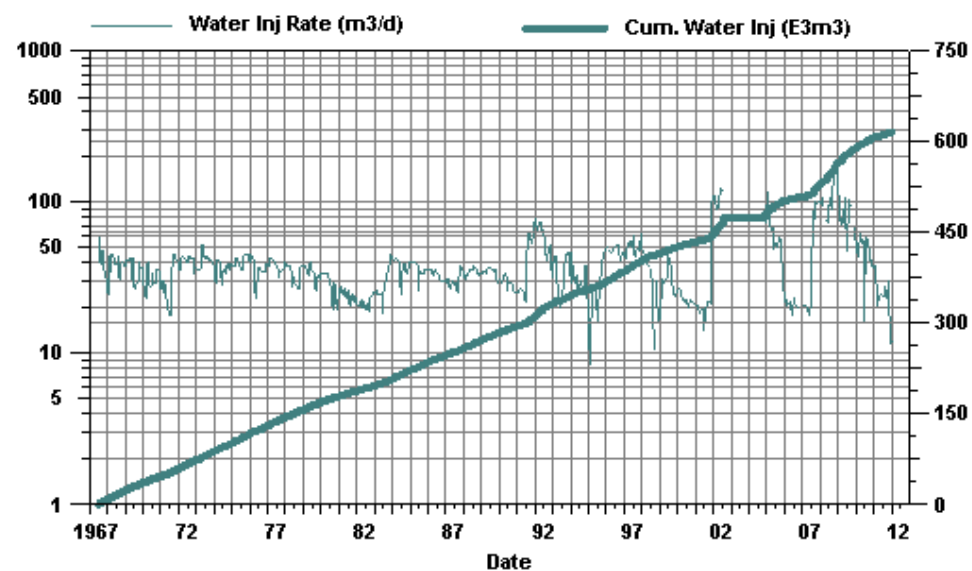
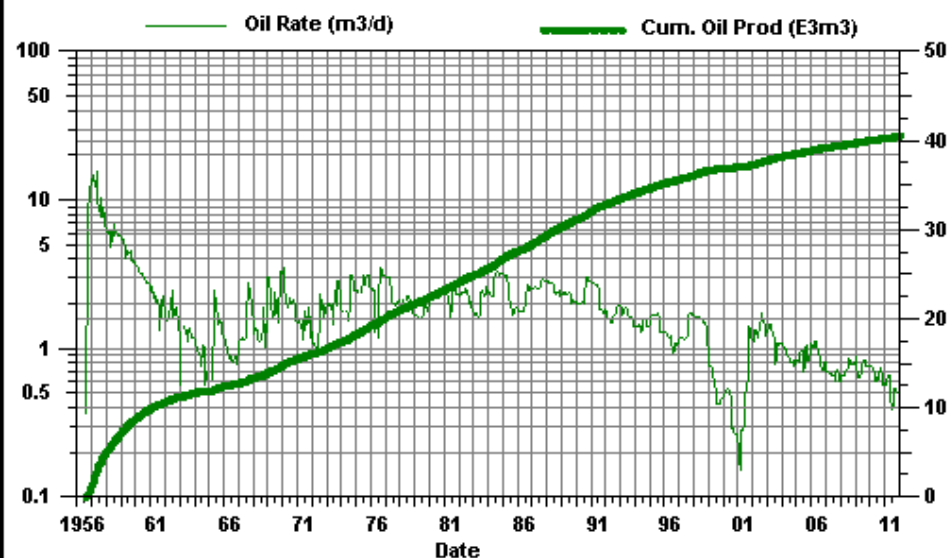
# Viriden Roselea Unit #3

## PAT 12-11



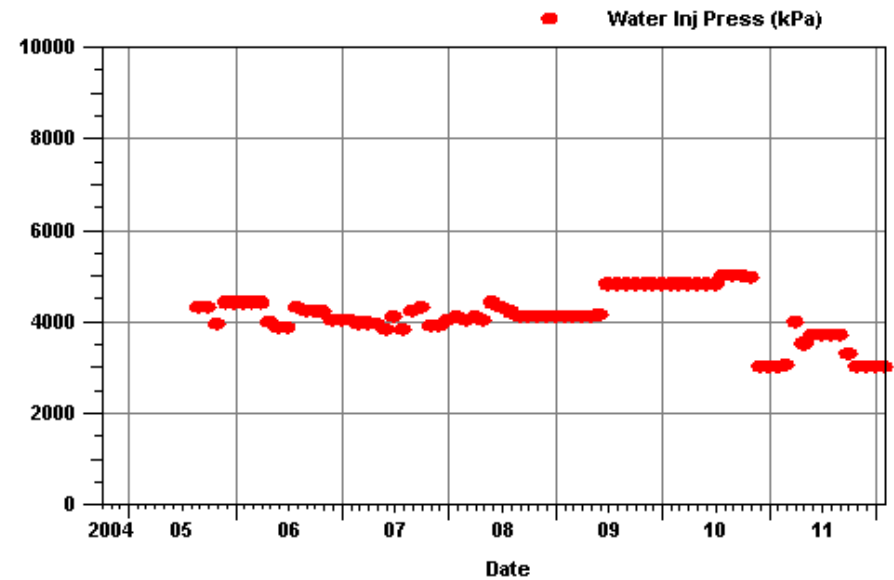
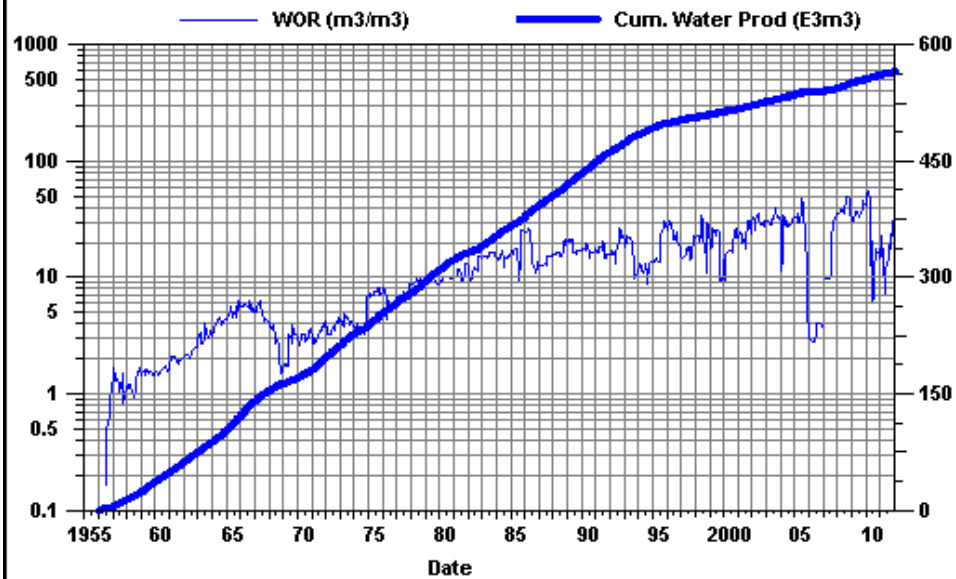
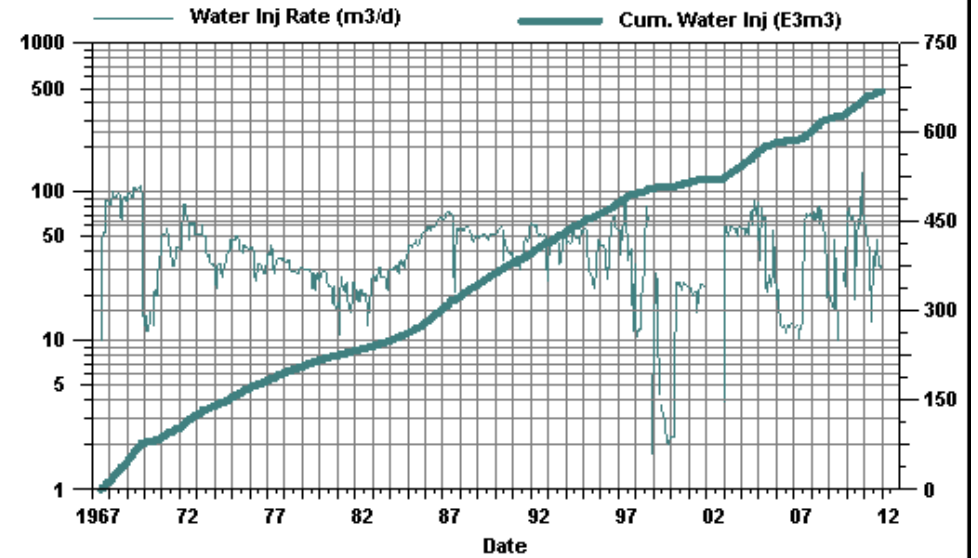
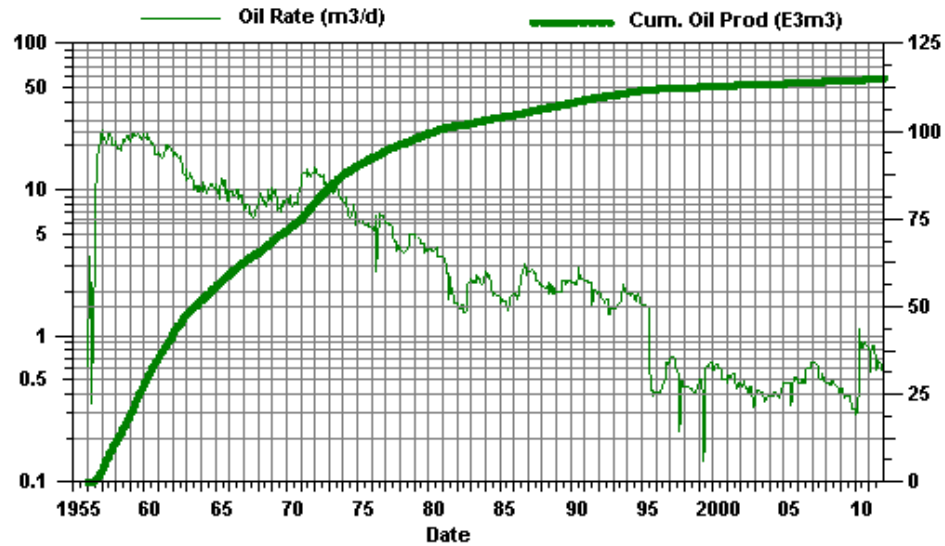
# Viriden Roselea Unit #3

PAT 14-01



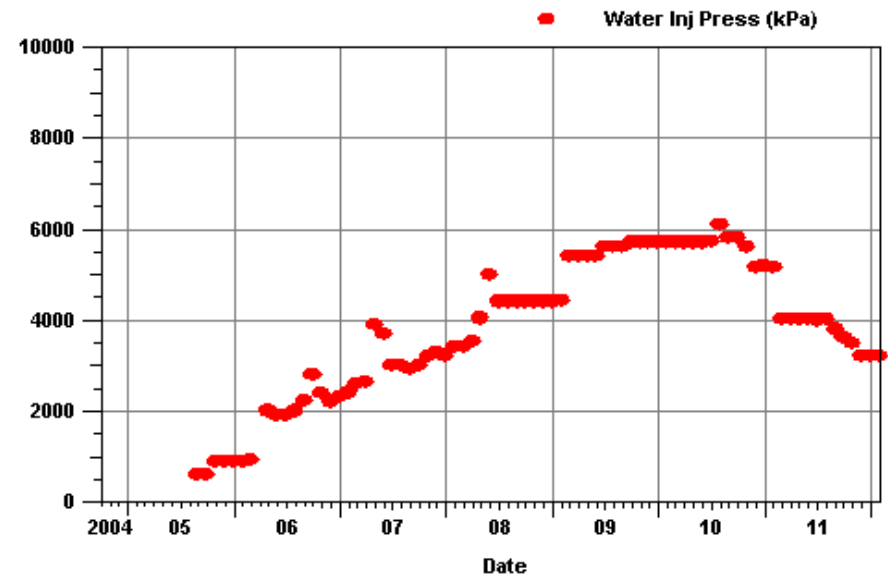
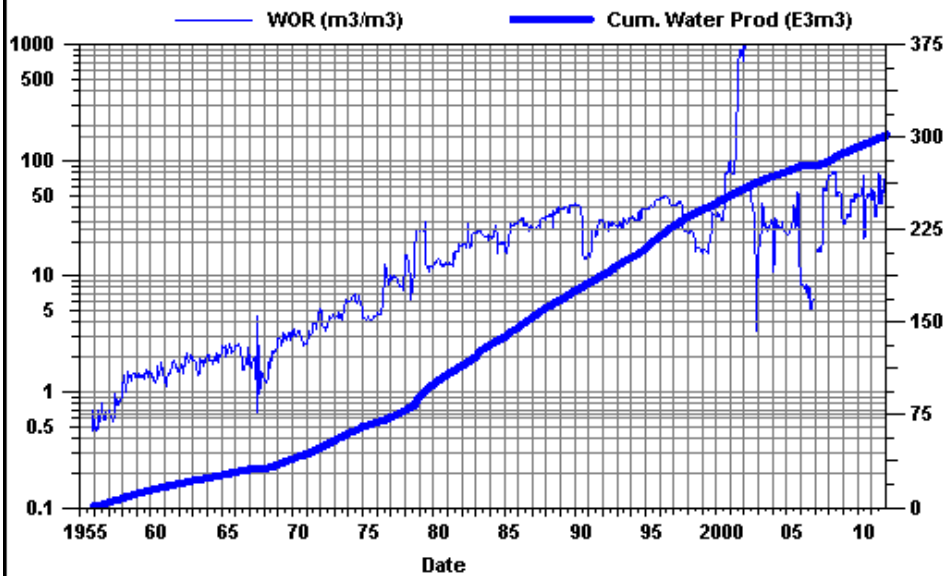
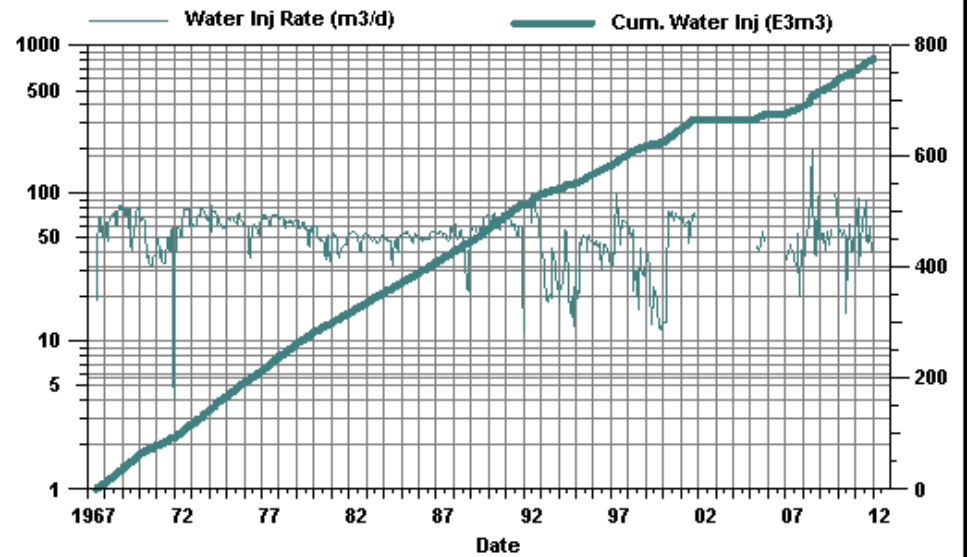
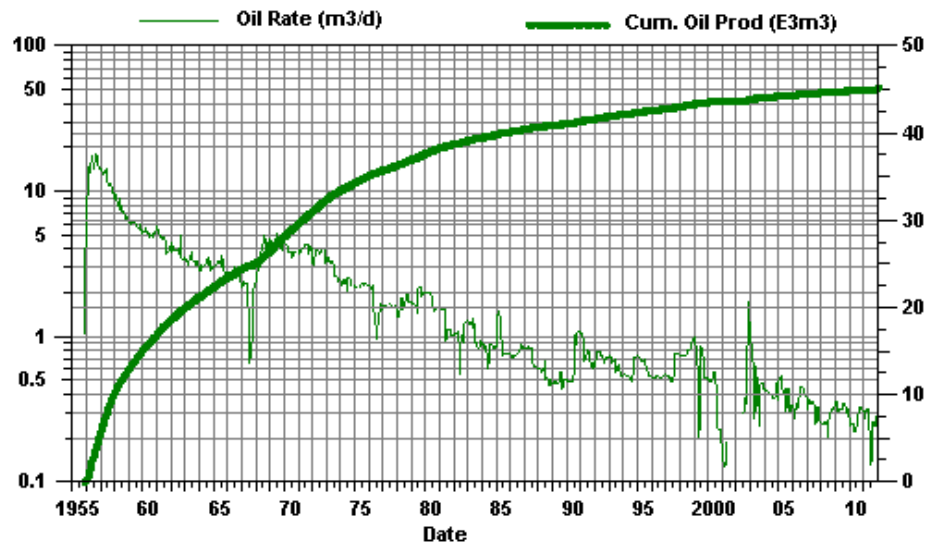
# Viriden Roselea Unit #3

## PAT 14-02



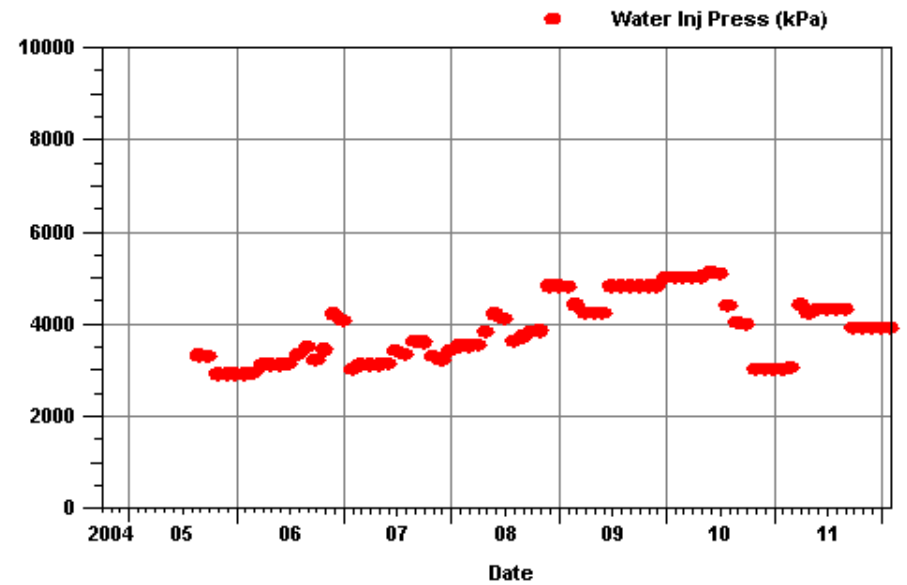
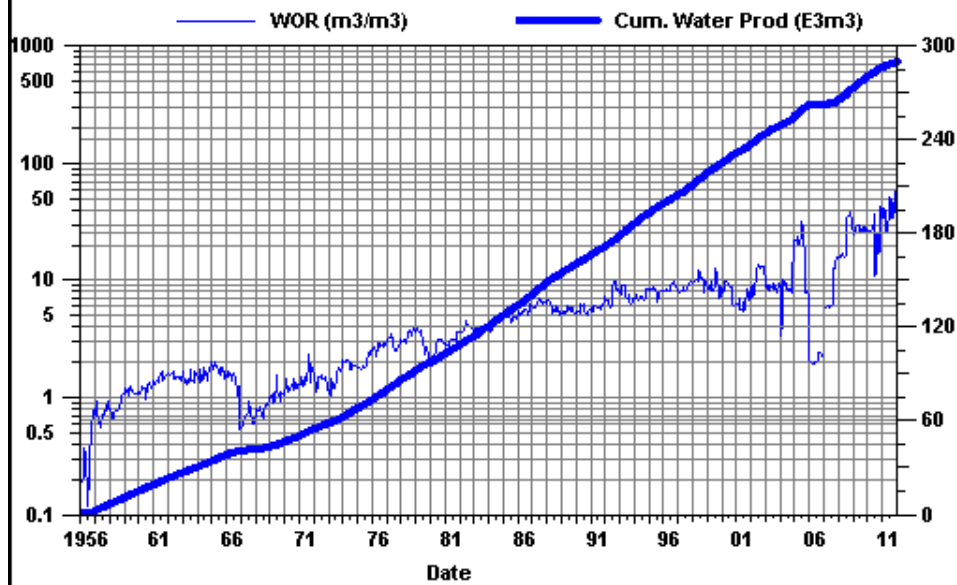
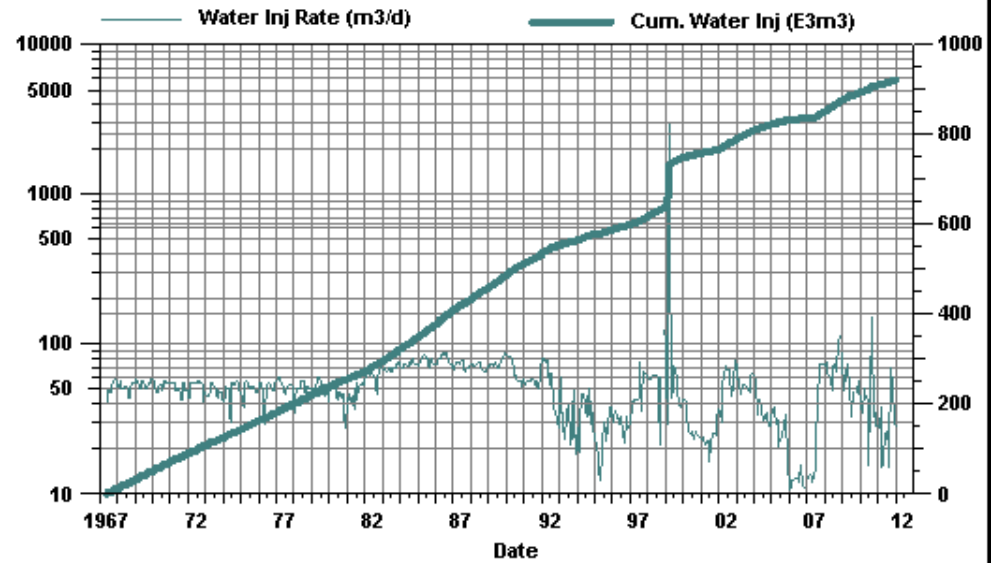
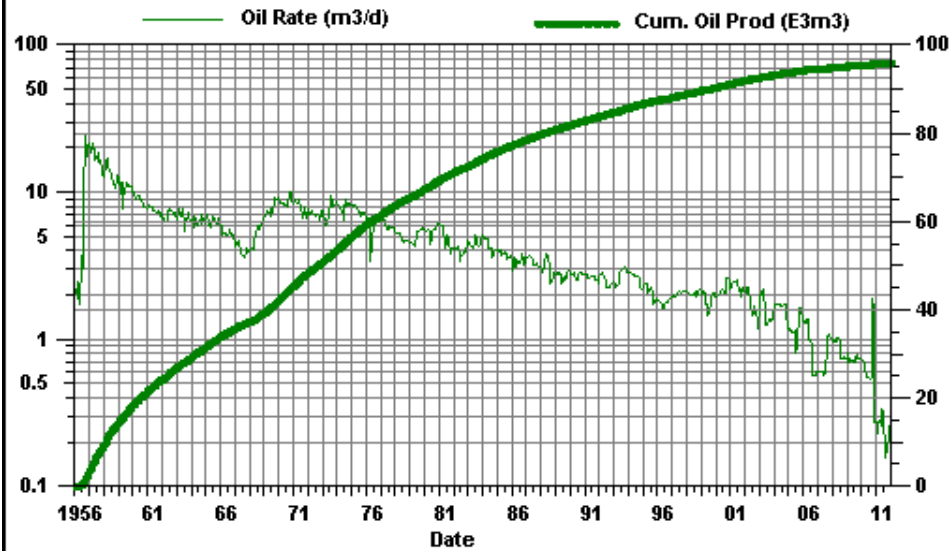


# Virden Roselea Unit #3 PAT 14-07

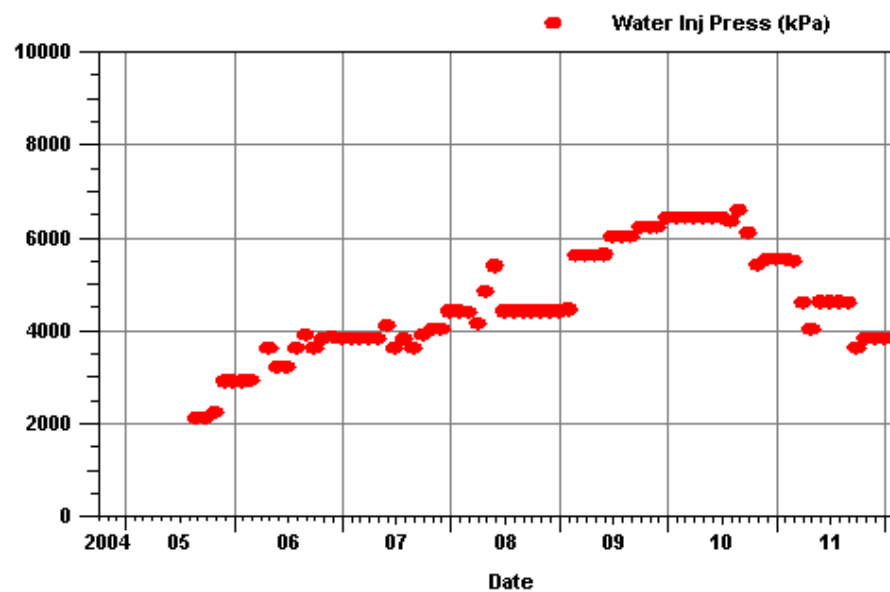
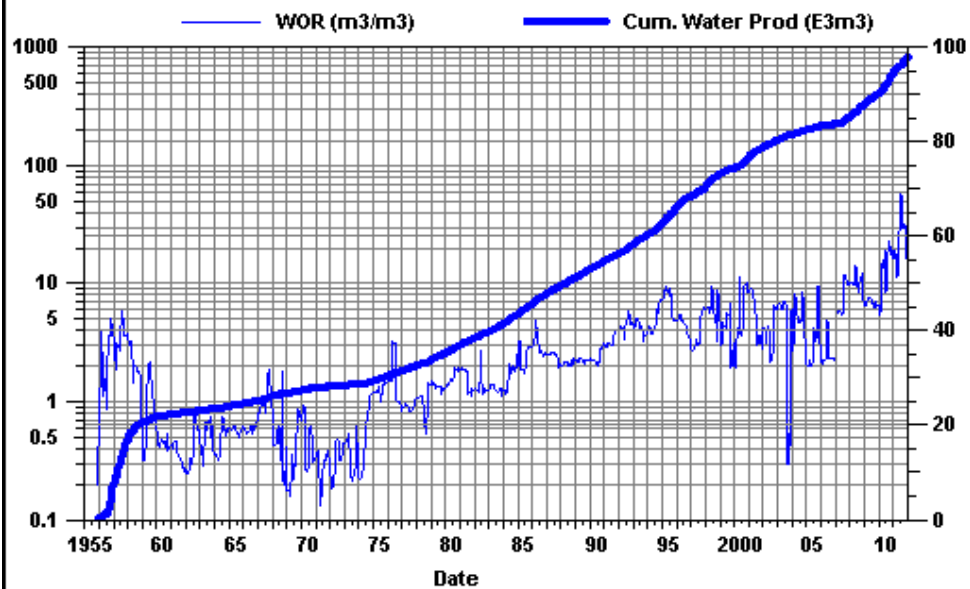
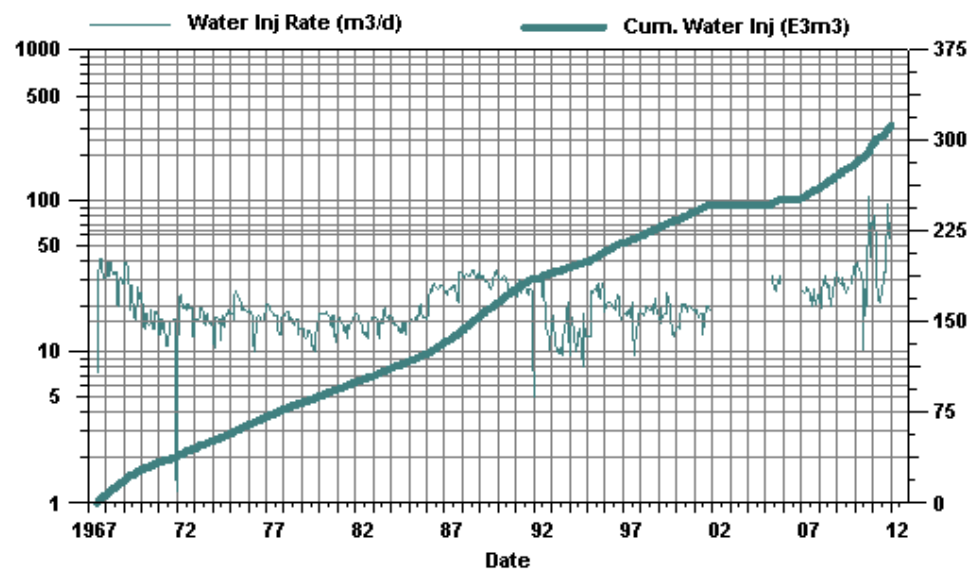
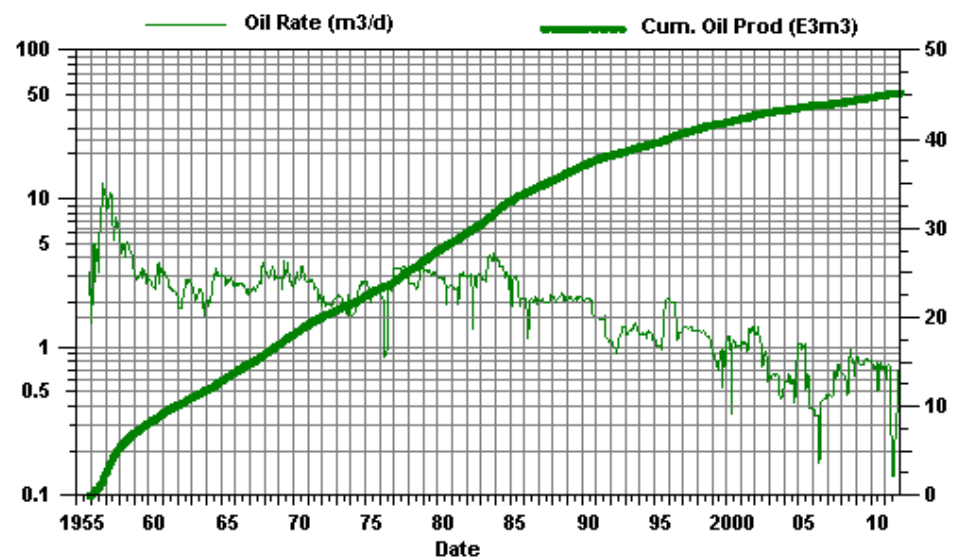


# Virden Roselea Unit #3

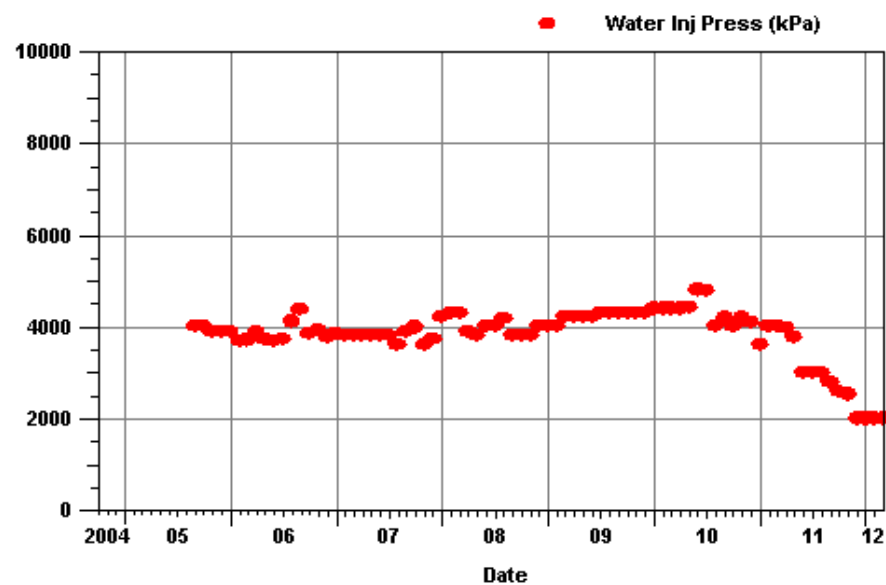
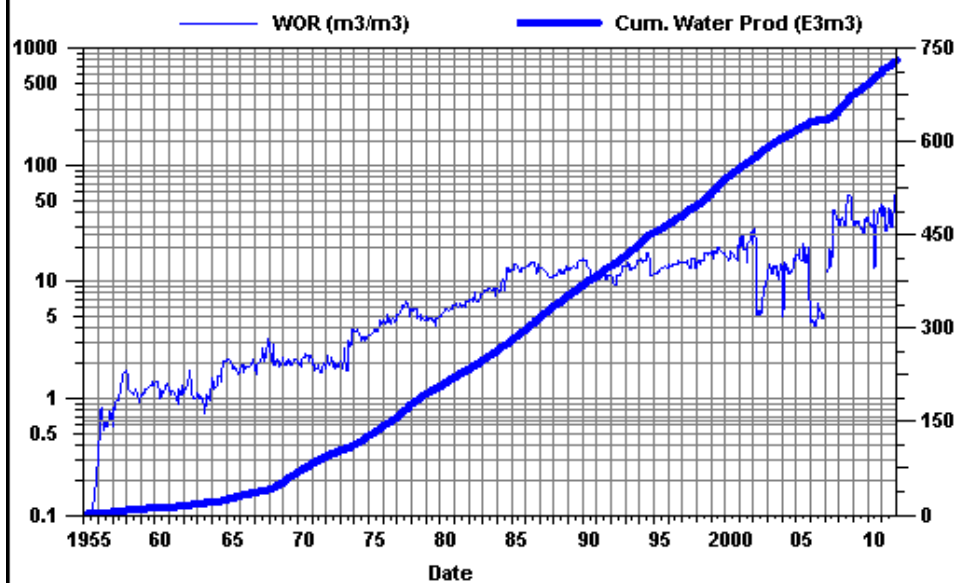
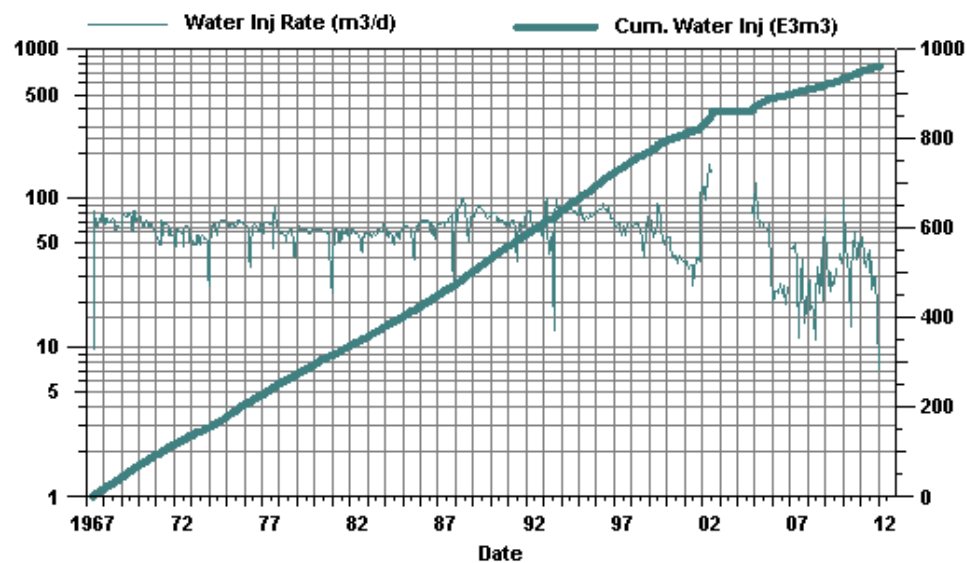
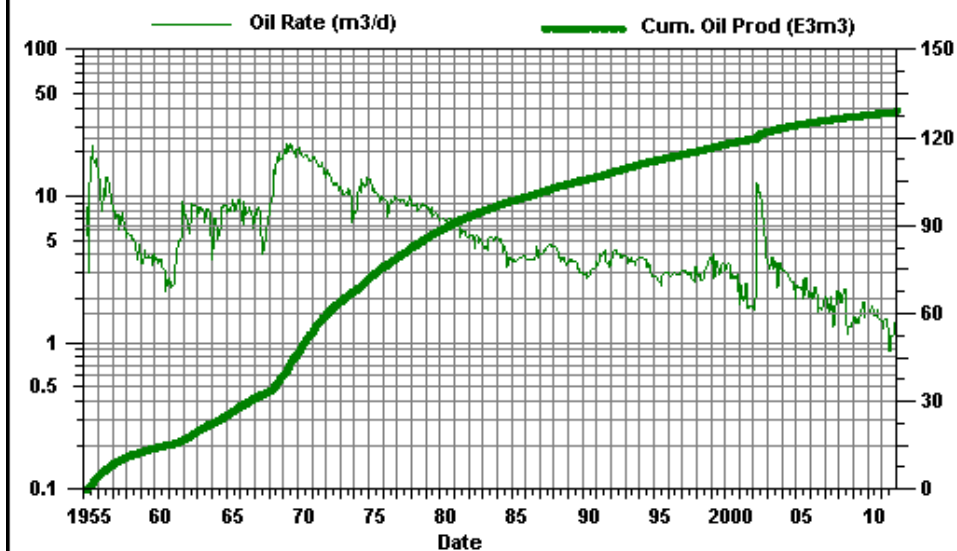
## PAT 14-11



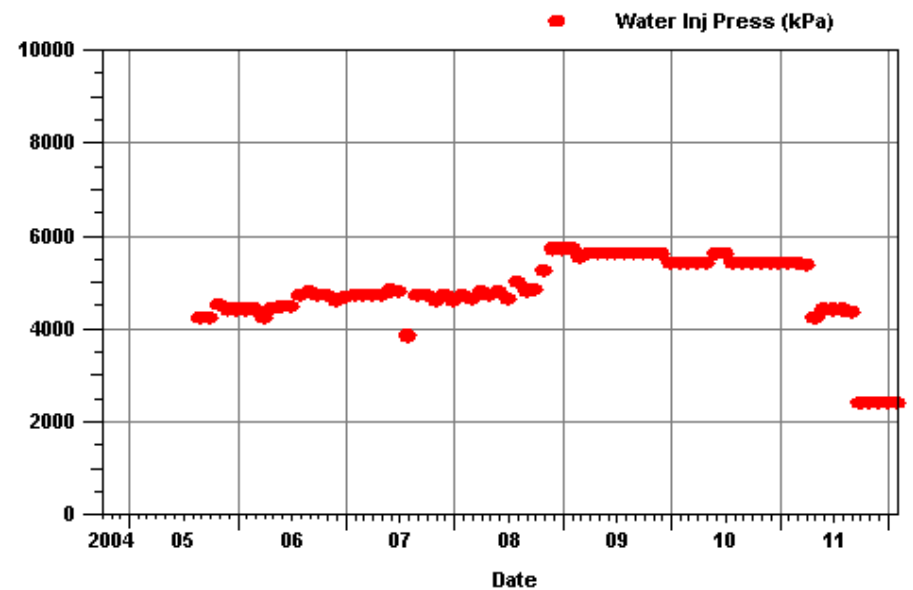
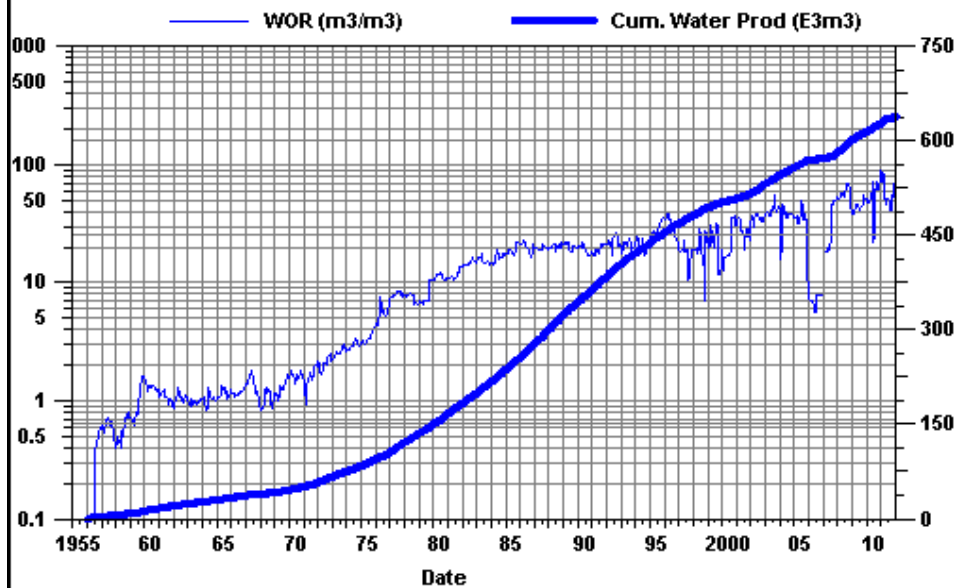
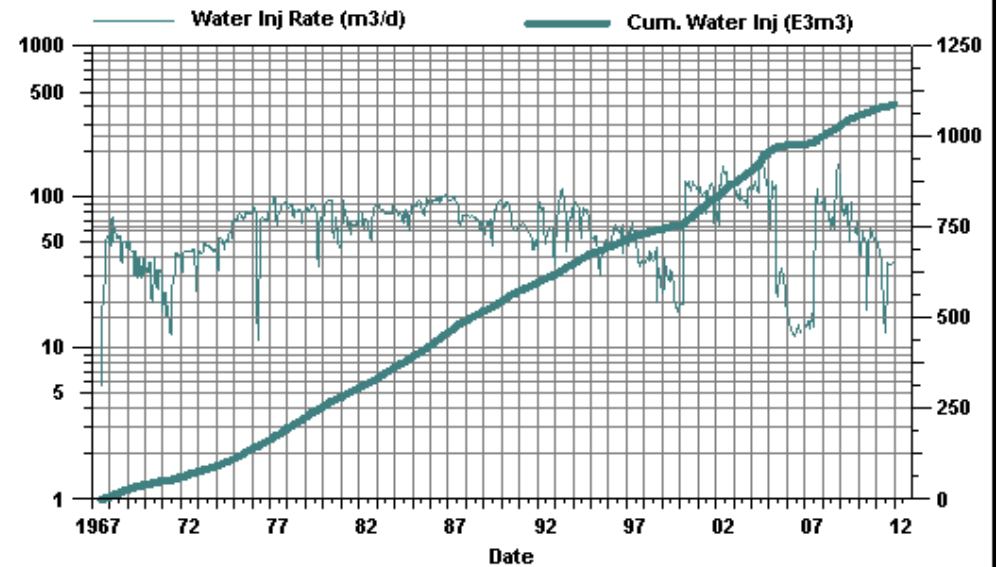
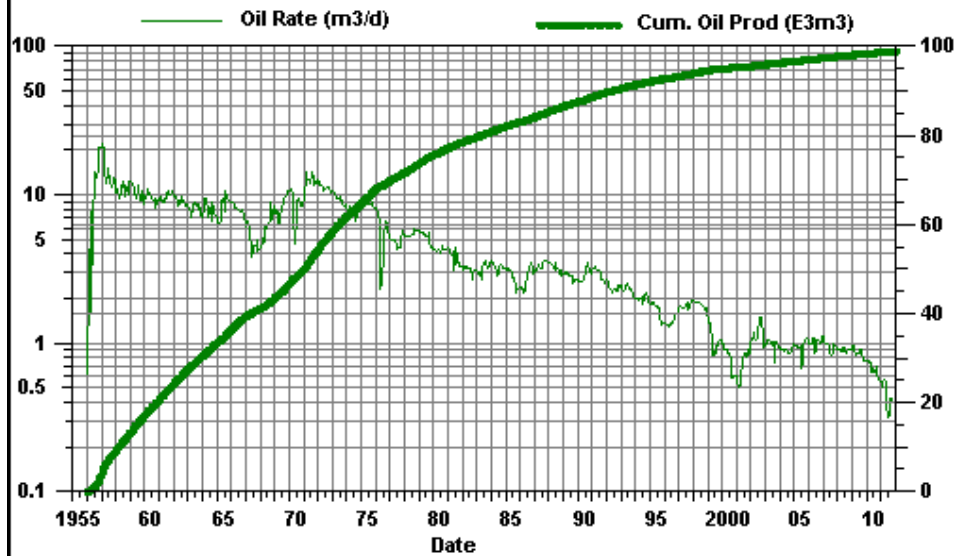
# Virden Roselea Unit #3 PAT 14-12



## Virden Roselea Unit #3 PAT 14-13

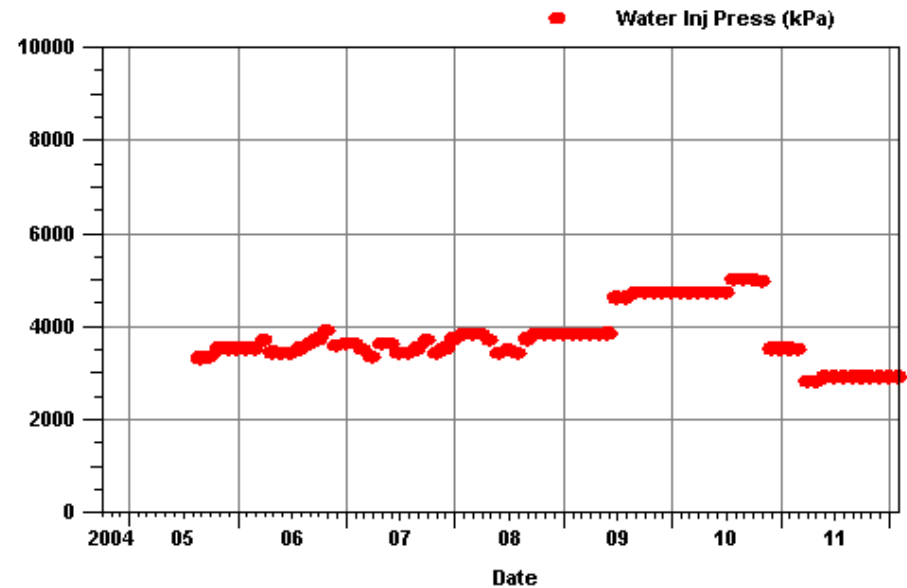
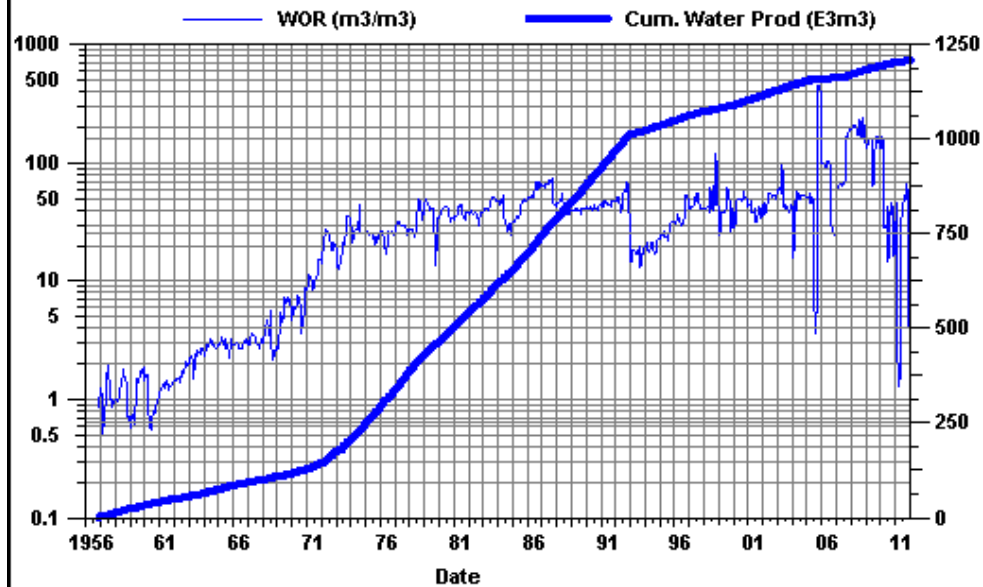
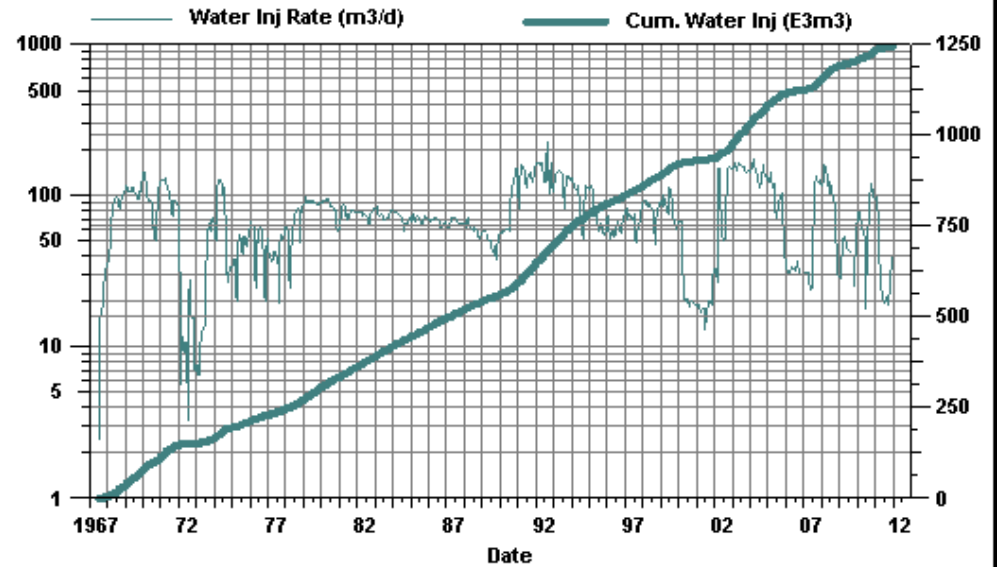
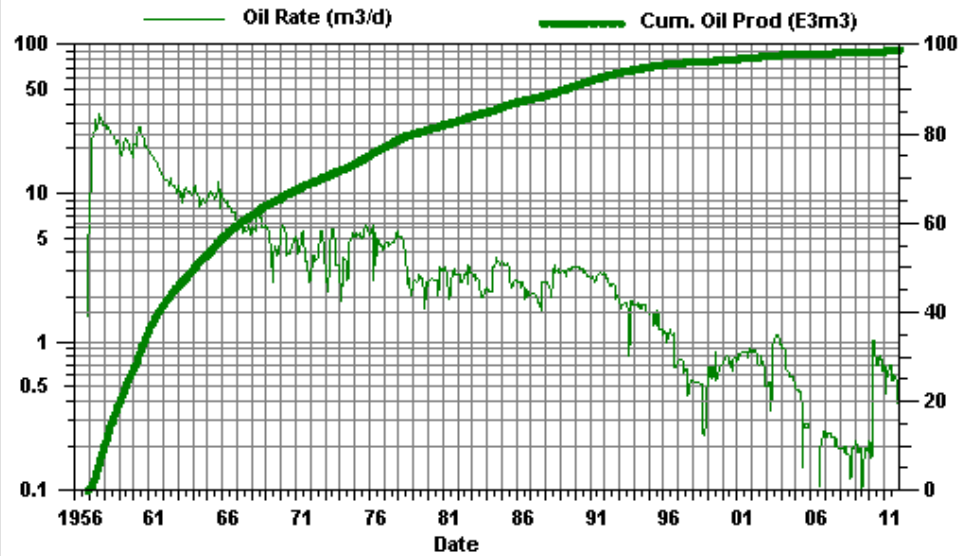


# Virden Roselea Unit #3 PAT 16-02



# Viriden Roselea Unit #3

## PAT 16-03



## Virden Roselea Unit #3 PAT 16-11

