

***VIRDEN ROSELEA UNIT No. 2***  
***PROGRESS REPORT***  
***January 1 to December 31, 2011***

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

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## Introduction

Virden Roselea Unit No. 2 became effective July, 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 Virden Roselea Unit No. 2 is shown in Figure 1.

## Discussion

### Oil Production

In 2011, oil production rate for the Unit averaged 23.3sm<sup>3</sup>/d with a WOR of 30.5 sm<sup>3</sup>/ sm<sup>3</sup>. A list of well servicing jobs in 2011 is shown in Table 1.

Total oil production in 2011 is 8,514 sm<sup>3</sup>. Cumulative oil since commencement of production is 1,129 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 712 sm<sup>3</sup>/d. There were no conversions in the Unit during 2011. The injector 02-06 was re-activated during 2011.

Cumulative water injected to December 31, 2011 is 11,815 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 268 rE3m<sup>3</sup>, resulting in the voidage replacement ratio (VRR) of 0.97. It should be noted that there is some communication between Roselea Unit 2 and Roselea Unit 1 to the South in the area of Section 36-010-26 W1. The VRR calculation does not account for any water influx or efflux through this communication path and a no-flow boundary is assumed between the two Units.

Cumulative total voidage from commencement of production to December 31, 2011 is 10,636 rE3m<sup>3</sup> and the cumulative VRR is 1.11. 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 3 wells. All 3 pressure tests were AWS (Acoustic Well Sounder) measurements. The pressures ranged from 9,029 kPa to 11,218 kPa.

Based on the available pressure tests, the average reservoir pressure in the Unit in 2011 is 9,912 kPa. A summary of the pressure data is given in Table 2.

### Recovery

Based on the current estimated OOIP of 6,359 sE3m<sup>3</sup>, recovery in the Unit to year-end 2011 is 17.8%.

### Waterflood Patterns

The Virden Roselea Unit No. 2 waterflood area was originally developed over the years, 1962 to 1971, mainly as inverted 5-spot and 8-spot patterns, which are still considered to be the waterflood patterns over a large area in the Unit. The exception is the pattern around the injector 00/04-08-011-25W1 that was initiated in October 1966 as an inverted 3-spot pattern. 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.

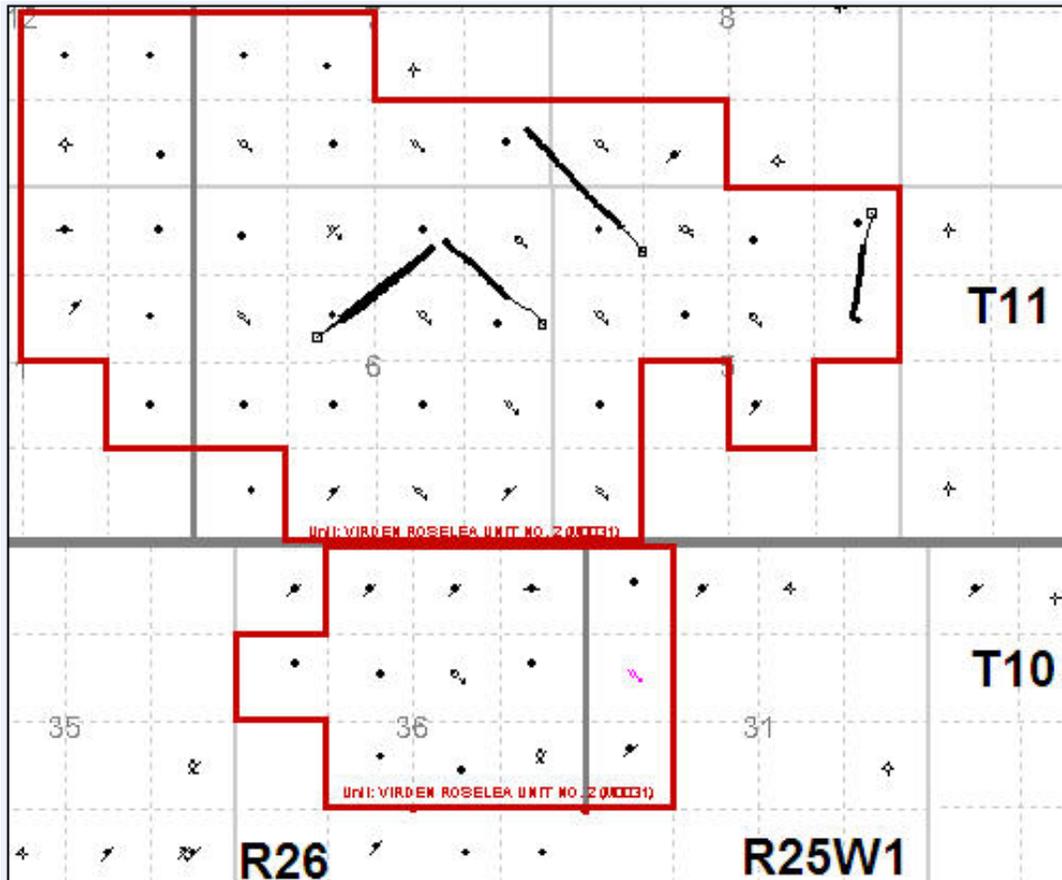


Figure 1: Virden Roselea Unit No. 2 Map

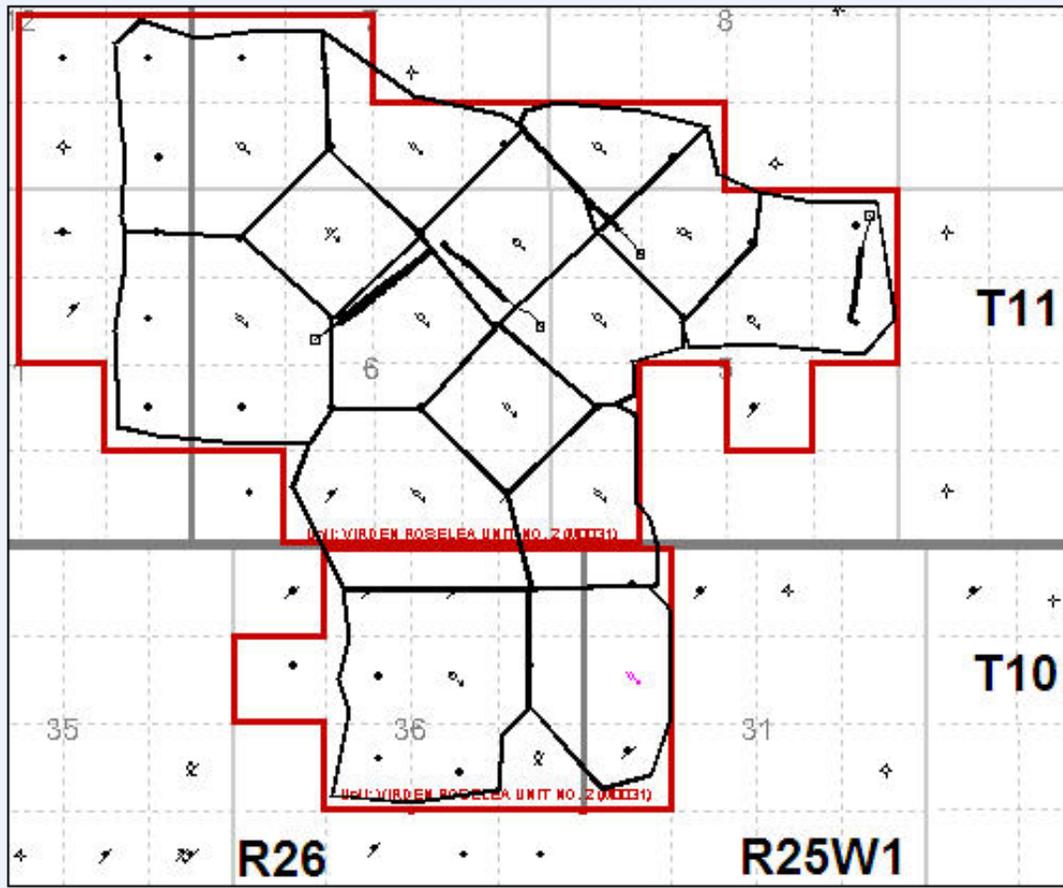


Figure 2: Pattern Map

**Table 1: Well Servicing Report**

<b>UWI</b>	<b>Start Date</b>	<b>Type</b>	<b>Objective</b>
100/12-36-010-26W1	23-Mar-11	Maintenance	Downsize pump. Replaced 3 red band joints and exchanged the 2.25" tubing barrel pump.
102/09-05-011-25W1	22-Jun-11	Maintenance	Change out failed pump. Wet location. Waiting on break up.
100/02-06-011-25W1	15-Sep-11	Maintenance	Rectify packer failure. Injection well failure - required remedial cement job and pressure testing to rectify.
102/15-06-011-25W1	30-Sep-11	Maintenance	Installed redundant OH packer.

**Table 2: 2011 Pressure Surveys**

UWI	Test Date	Test Type	Shut-In Since	BH Pressure (kPaa)
100/16-36-10-26W1/00	10-Aug-11	AWS	5-Nov-98	<b>11,218</b>
102/09-05-011-25W1/00	10-Aug-11	AWS	15-Jul-11	<b>9,029</b>
100/01-07-011-25W1/00	10-Aug-11	AWS	5-Dec-07	<b>9,489</b>

**Average Reservoir Pressure in 2011 ---- 9,912**

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

Pattern	Well
00/02-06-011-25W1/0	100/02-06-011-25W1/00
00/02-07-011-25W1/0	100/02-07-011-25W1/00
00/04-05-011-25W1/0	100/04-05-011-25W1/00
00/04-07-011-25W1/0	100/04-07-011-25W1/00
00/04-08-011-25W1/0	100/04-08-011-25W1/00
00/08-06-011-25W1/0	100/08-06-011-25W1/00
00/10-05-011-25W1/0	100/10-05-011-25W1/00
00/14-06-011-25W1/0	100/14-06-011-25W1/00
00/10-06-011-25W1/0	100/10-06-011-25W1/00
00/10-36-010-26W1/0	100/10-36-010-26W1/00
00/12-05-011-25W1/0	100/12-05-011-25W1/00
00/12-06-011-25W1/0	100/12-06-011-25W1/00
00/16-06-011-25W1/0	100/16-06-011-25W1/00
00/14-05-011-25W1/0	100/14-05-011-25W1/00

**Table 4**  
**Virden Roselea Unit #2**  
**Total For Unit**

Date	Monthly Oil Prod sm <sup>3</sup>	Oil Rate (CD) sm <sup>3</sup> /d	Monthly Water Prod sm <sup>3</sup>	Water Rate (CD) sm <sup>3</sup> /d	Water Oil Ratio	Monthly Water Inj sm <sup>3</sup>	Water Inj Rate (CD) sm <sup>3</sup> /d	Water Inj Pressure kPa	Voidage Replacement Ratio	Cum Voidage Replacement Ratio
1/31/2011	823.8	27.10	22822.4	750.74	27.70	22857.0	751.88	5959	0.96	1.12
2/28/2011	784.4	25.80	18719.1	615.76	23.86	18747.0	616.68	5816	0.96	1.12
3/31/2011	706.4	23.24	19536.2	642.64	27.66	19572.0	643.82	5741	0.96	1.12
4/30/2011	616.1	20.27	21044.7	692.26	34.16	21080.0	693.42	5605	0.97	1.12
5/31/2011	750.5	24.69	22300.0	733.55	29.71	22335.0	734.70	5760	0.97	1.12
6/30/2011	485.3	15.96	16236.3	534.09	33.46	16261.0	534.90	5916	0.97	1.12
7/31/2011	732.2	24.09	22933.4	754.39	31.32	22964.0	755.39	5862	0.97	1.12
8/31/2011	712.0	23.42	23520.1	773.69	33.03	23563.0	775.10	5802	0.97	1.12
9/30/2011	763.6	25.12	22804.9	750.16	29.86	22874.0	752.43	5882	0.97	1.12
10/31/2011	715.0	23.52	22744.1	748.16	31.81	22811.0	750.36	5867	0.97	1.12
11/30/2011	710.9	23.38	22014.9	724.17	30.97	22079.0	726.28	5706	0.97	1.12
12/31/2011	714.0	23.49	23062.0	758.62	32.30	24432.0	803.68	5875	1.03	1.11
Cumulative Oil Produced (E3m <sup>3</sup> )					1129.18					
Cumulative Water Produced (E3m <sup>3</sup> )					9386.22					
Cumulative Water Injected (E3m <sup>3</sup> )					11815.39					
Cumulative Voidage Replacement Ratio					1.11					

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 02-06**

<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	14.9	0.48	558.7	18.02	37.62					0.88
2/28/2011	14.0	0.50	450.7	16.10	32.12					0.88
3/31/2011	14.5	0.47	577.0	18.61	39.87					0.88
4/30/2011	12.1	0.40	464.2	15.47	38.24					0.88
5/31/2011	15.6	0.50	564.9	18.22	36.11					0.88
6/30/2011	10.2	0.34	411.4	13.71	40.38					0.88
7/31/2011	15.8	0.51	582.6	18.79	36.91					0.87
8/31/2011	15.8	0.51	593.2	19.13	37.57					0.87
9/30/2011	16.0	0.53	531.3	17.71	33.15					0.87
10/31/2011	13.7	0.44	476.2	15.36	34.78					0.87
11/30/2011	14.2	0.47	473.4	15.78	33.31					0.87
12/31/2011	14.4	0.47	537.0	17.32	37.20					0.87

Cumulative Oil Produced (E3m3)	126.53
Cumulative Water Produced (E3m3)	1590.56
Cumulative Water Injected (E3m3)	1506.38
Cumulative Voidage Replacement Ratio	0.88

Table 4  
Virden Roselea Unit #2  
Pattern: 02-07

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	20.2	0.65	1182.8	38.16	58.70	1455.0	46.94	5406	1.21	1.50
2/28/2011	19.1	0.68	954.2	34.08	50.03	1314.0	46.93	5586	1.35	1.50
3/31/2011	19.6	0.63	1221.5	39.40	62.21	1205.0	38.87	5194	0.97	1.50
4/30/2011	16.4	0.55	1055.6	35.19	64.55	1382.0	46.07	5007	1.29	1.50
5/31/2011	21.3	0.69	1196.0	38.58	56.07	1322.0	42.65	5213	1.09	1.50
6/30/2011	13.1	0.44	836.4	27.88	63.87	1456.0	48.53	5587	1.71	1.50
7/31/2011	18.2	0.59	1168.4	37.69	64.13	2658.0	85.74	5200	2.24	1.50
8/31/2011	17.5	0.56	1207.7	38.96	69.19	2690.0	86.77	5206	2.19	1.51
9/30/2011	18.7	0.62	1106.0	36.87	59.14	2149.0	71.63	5400	1.91	1.51
10/31/2011	18.3	0.59	1071.6	34.57	58.64	2191.0	70.68	5390	2.01	1.51
11/30/2011	18.4	0.61	1042.3	34.74	56.57	2205.0	73.50	5110	2.08	1.51
12/31/2011	18.8	0.60	1182.4	38.14	63.04	4302.0	138.77	5403	3.58	1.51

Cumulative Oil Produced (E3m3)	68.25
Cumulative Water Produced (E3m3)	611.81
Cumulative Water Injected (E3m3)	1034.45
Cumulative Voidage Replacement Ratio	1.52

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 04-05**

<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	9.4	0.30	244.2	7.88	25.98	3125.0	100.81	5987	12.29	3.59
2/28/2011	8.9	0.32	197.1	7.04	22.14	2823.0	100.82	5607	13.67	3.60
3/31/2011	9.2	0.30	252.2	8.14	27.56	2875.0	92.74	5800	10.97	3.60
4/30/2011	6.3	0.21	178.4	5.95	28.54	2969.0	98.97	5800	16.04	3.61
5/31/2011	10.0	0.32	247.0	7.97	24.82	2909.0	93.84	5806	11.29	3.62
6/30/2011	6.3	0.21	174.4	5.81	27.68	2406.0	80.20	5997	13.28	3.62
7/31/2011	9.0	0.29	249.4	8.05	27.71	3494.0	112.71	5903	13.49	3.63
8/31/2011	8.4	0.27	243.7	7.86	29.01	4150.0	133.87	6000	16.43	3.64
9/30/2011	9.2	0.31	231.3	7.71	25.14	4194.0	139.80	5997	17.40	3.65
10/31/2011	8.2	0.26	265.3	8.56	32.55	4641.0	149.71	5903	16.94	3.66
11/30/2011	8.1	0.27	256.5	8.55	31.67	4308.0	143.60	6000	16.25	3.67
12/31/2011	1.4	0.04	47.0	1.51	34.78	4302.0	138.77	6000	88.90	3.69
Cumulative Oil Produced (E3m3)					33.30					
Cumulative Water Produced (E3m3)					279.64					
Cumulative Water Injected (E3m3)					1161.57					
Cumulative Voidage Replacement Ratio					3.71					

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 04-07**

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	73.7	2.38	833.0	26.87	11.31	1301.0	41.97	5987	1.43	0.75
2/28/2011	69.5	2.48	672.0	24.00	9.68	716.0	25.57	5593	0.96	0.75
3/31/2011	71.8	2.31	860.1	27.75	11.99	933.0	30.10	5400	1.00	0.75
4/30/2011	56.6	1.89	741.4	24.71	13.10	980.0	32.67	5410	1.22	0.76
5/31/2011	75.9	2.45	835.1	26.94	11.00	1281.0	41.32	5703	1.40	0.76
6/30/2011	38.8	1.29	532.7	17.76	13.73	945.0	31.50	5803	1.65	0.76
7/31/2011	56.3	1.82	827.6	26.70	14.70	1235.0	39.84	5894	1.39	0.76
8/31/2011	52.5	1.69	890.4	28.72	16.98	1238.0	39.94	5703	1.31	0.76
9/30/2011	61.2	2.04	843.7	28.12	13.79	947.0	31.57	5793	1.04	0.76
10/31/2011	59.6	1.92	825.4	26.62	13.85	462.0	14.90	5594	0.52	0.76
11/30/2011	59.3	1.98	800.2	26.67	13.48	732.0	24.40	5393	0.85	0.76
12/31/2011	60.5	1.95	907.5	29.27	15.01	739.0	23.84	5216	0.76	0.76

Cumulative Oil Produced (E3m3)	98.07
Cumulative Water Produced (E3m3)	484.60
Cumulative Water Injected (E3m3)	447.04
Cumulative Voidage Replacement Ratio	0.77

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 04-08**

<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	36.5	1.18	761.0	24.55	20.88	1126.0	36.32	5797	1.41	1.03
2/28/2011	35.2	1.26	652.7	23.31	18.54	681.0	24.32	5711	0.99	1.03
3/31/2011	36.4	1.17	835.5	26.95	22.99	877.0	28.29	5990	1.00	1.03
4/30/2011	24.9	0.83	591.0	19.70	23.76	912.0	30.40	5703	1.48	1.03
5/31/2011	38.7	1.25	778.3	25.11	20.14	1144.0	36.90	5800	1.40	1.03
6/30/2011	25.1	0.84	577.9	19.26	23.00	857.0	28.57	5800	1.42	1.03
7/31/2011	33.0	1.06	770.7	24.86	23.37	546.0	17.61	5794	0.68	1.03
8/31/2011	33.0	1.07	844.3	27.24	25.57	796.0	25.68	5603	0.91	1.03
9/30/2011	36.2	1.21	1069.4	35.65	29.56	613.0	20.43	5710	0.55	1.03
10/31/2011	34.9	1.13	1165.2	37.59	33.39	697.0	22.48	5994	0.58	1.03
11/30/2011	34.6	1.15	1114.7	37.16	32.22	603.0	20.10	5807	0.52	1.02
12/31/2011	35.2	1.14	1264.4	40.79	35.89	479.0	15.45	5997	0.37	1.02
Cumulative Oil Produced (E3m3)					33.53					
Cumulative Water Produced (E3m3)					187.98					
Cumulative Water Injected (E3m3)					228.19					
Cumulative Voidage Replacement Ratio					1.03					

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 08-06**

<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	8.6	0.28	473.6	15.28	54.97	4263.0	137.52	6600	8.83	3.63
2/28/2011	8.1	0.29	382.1	13.65	46.93	4406.0	157.36	6593	11.28	3.63
3/31/2011	8.4	0.27	489.1	15.78	58.37	4013.0	129.45	6400	8.06	3.64
4/30/2011	5.7	0.19	346.0	11.53	60.61	4050.0	135.00	6403	11.50	3.64
5/31/2011	9.1	0.29	478.9	15.45	52.89	3990.0	128.71	6497	8.17	3.65
6/30/2011	6.0	0.20	350.3	11.68	58.62	2456.0	81.87	6400	6.89	3.65
7/31/2011	9.8	0.31	495.4	15.98	50.74	4242.0	136.84	6403	8.39	3.66
8/31/2011	10.0	0.32	505.0	16.29	50.75	4298.0	138.65	6497	8.34	3.66
9/30/2011	10.6	0.35	463.8	15.46	43.80	3920.0	130.67	6390	8.25	3.66
10/31/2011	8.6	0.28	445.6	14.37	51.93	4105.0	132.42	6110	9.03	3.67
11/30/2011	8.5	0.28	432.7	14.42	51.11	3680.0	122.67	6387	8.33	3.67
12/31/2011	8.6	0.28	490.8	15.83	56.85	3805.0	122.74	6010	7.61	3.68
Cumulative Oil Produced (E3m3)					52.23					
Cumulative Water Produced (E3m3)					469.24					
Cumulative Water Injected (E3m3)					1930.07					
Cumulative Voidage Replacement Ratio					3.70					

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 10-06**

<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	83.0	2.68	1479.5	47.72	17.83	3025.0	97.58	5890	1.93	1.94	
2/28/2011	80.2	2.86	1269.9	45.35	15.83	2712.0	96.86	5607	2.00	1.94	
3/31/2011	82.9	2.67	1625.5	52.43	19.61	2775.0	89.52	5787	1.62	1.94	
4/30/2011	72.7	2.42	1260.3	42.01	17.34	2874.0	95.80	5397	2.15	1.94	
5/31/2011	89.8	2.90	1591.6	51.34	17.73	2814.0	90.77	5323	1.67	1.94	
6/30/2011	55.8	1.86	1124.6	37.48	20.14	1888.0	62.93	5993	1.59	1.94	
7/31/2011	83.5	2.69	1514.3	48.85	18.14	3420.0	110.32	5800	2.13	1.94	
8/31/2011	72.2	2.33	1455.2	46.94	20.16	3490.0	112.58	5806	2.28	1.94	
9/30/2011	46.1	1.54	1281.9	42.73	27.81	3785.0	126.17	6000	2.84	1.94	
10/31/2011	40.8	1.31	1299.3	41.91	31.88	3805.0	122.74	5994	2.83	1.94	
11/30/2011	41.0	1.37	1187.4	39.58	28.99	3680.0	122.67	5807	2.99	1.94	
12/31/2011	41.7	1.34	1346.9	43.45	32.31	3817.0	123.13	6003	2.74	1.94	
Cumulative Oil Produced (E3m3)					78.92						
Cumulative Water Produced (E3m3)					552.12						
Cumulative Water Injected (E3m3)					1237.19						
Cumulative Voidage Replacement Ratio					1.96						

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 10-36**

<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	192.8	6.22	10573.5	341.08	54.84	3655.0	117.90	6000	0.34	0.78
2/28/2011	182.0	6.50	8529.9	304.64	46.87	3250.0	116.07	5979	0.37	0.78
3/31/2011	119.9	3.87	6869.2	221.59	57.31	3405.0	109.84	5397	0.49	0.78
4/30/2011	179.7	5.99	10777.3	359.24	59.97	3472.0	115.73	5317	0.32	0.78
5/31/2011	198.3	6.40	10517.8	339.28	53.05	3412.0	110.06	5806	0.32	0.78
6/30/2011	131.0	4.37	7893.0	263.10	60.25	2512.0	83.73	6000	0.31	0.77
7/31/2011	183.3	5.91	10753.8	346.90	58.67	3494.0	112.71	6000	0.32	0.77
8/31/2011	173.3	5.59	10854.9	350.16	62.64	3470.0	111.94	6000	0.31	0.77
9/30/2011	160.4	5.34	9732.7	324.42	60.70	2910.0	97.00	6000	0.29	0.77
10/31/2011	152.3	4.91	9484.5	305.95	62.27	3520.0	113.55	5981	0.37	0.77
11/30/2011	153.2	5.11	9239.9	308.00	60.33	3566.0	118.87	5420	0.38	0.76
12/31/2011	155.8	5.02	10480.7	338.09	67.29	3701.0	119.39	6000	0.35	0.76
Cumulative Oil Produced (E3m3)					118.96					
Cumulative Water Produced (E3m3)					2074.06					
Cumulative Water Injected (E3m3)					1676.22					
Cumulative Voidage Replacement Ratio					0.76					

**Table 4**  
**Virde Roselea Unit #2**  
**Pattern: 12-05**

<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	5.3	0.17	156.2	5.04	29.49	1144.0	36.90	6194	7.07	1.35
2/28/2011	5.8	0.21	164.8	5.89	28.53	631.0	22.54	6000	3.69	1.35
3/31/2011	6.0	0.19	211.0	6.81	35.39	740.0	23.87	5990	3.40	1.35
4/30/2011	4.1	0.14	149.3	4.98	36.41	755.0	25.17	5703	4.91	1.36
5/31/2011	5.7	0.18	166.9	5.38	29.27	1016.0	32.77	5810	5.88	1.36
6/30/2011	4.3	0.14	146.5	4.88	34.21	732.0	24.40	6097	4.85	1.37
7/31/2011	5.9	0.19	208.7	6.73	35.45	1113.0	35.90	6000	5.18	1.37
8/31/2011	6.0	0.19	256.6	8.28	42.90	892.0	28.77	6003	3.39	1.37
9/30/2011	8.1	0.27	455.2	15.17	56.34	1014.0	33.80	6097	2.19	1.38
10/31/2011	7.1	0.23	442.2	14.27	62.74	618.0	19.94	5981	1.37	1.38
11/30/2011	6.9	0.23	423.2	14.11	61.26	804.0	26.80	5427	1.87	1.38
12/31/2011	7.0	0.23	480.1	15.49	68.24	787.0	25.39	6194	1.61	1.38
Cumulative Oil Produced (E3m3)					25.95					
Cumulative Water Produced (E3m3)					143.70					
Cumulative Water Injected (E3m3)					236.03					
Cumulative Voidage Replacement Ratio					1.39					

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 12-06**

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	78.6	2.54	2045.2	65.97	26.02	1353.0	43.65	5997	0.64	0.71
2/28/2011	74.0	2.64	1649.8	58.92	22.30	752.0	26.86	5889	0.44	0.71
3/31/2011	76.6	2.47	2112.0	68.13	27.57	939.0	30.29	5594	0.43	0.71
4/30/2011	71.9	2.40	2029.5	67.65	28.22	1219.0	40.63	5420	0.58	0.71
5/31/2011	82.8	2.67	2067.9	66.70	24.96	1373.0	44.29	5997	0.64	0.71
6/30/2011	54.5	1.82	1513.8	50.46	27.80	913.0	30.43	5897	0.58	0.71
7/31/2011	81.6	2.63	2100.3	67.75	25.73	1862.0	60.06	5800	0.85	0.71
8/31/2011	79.9	2.58	2066.8	66.67	25.87	1559.0	50.29	5806	0.72	0.71
9/30/2011	84.7	2.82	1851.9	61.73	21.88	1393.0	46.43	5987	0.72	0.71
10/31/2011	77.5	2.50	1666.6	53.76	21.50	1084.0	34.97	5606	0.62	0.71
11/30/2011	78.3	2.61	1633.8	54.46	20.86	957.0	31.90	5807	0.56	0.71
12/31/2011	79.6	2.57	1853.3	59.78	23.28	966.0	31.16	5990	0.50	0.71

Cumulative Oil Produced (E3m3)	103.27
Cumulative Water Produced (E3m3)	890.45
Cumulative Water Injected (E3m3)	708.11
Cumulative Voidage Replacement Ratio	0.71

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 12-31**

<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	22.6	0.73	686.9	22.16	30.39					1.02
2/28/2011	21.4	0.76	554.1	19.79	25.89					1.01
3/31/2011	22.0	0.71	709.3	22.88	32.24					1.01
4/30/2011	18.6	0.62	629.6	20.98	33.94					1.01
5/31/2011	18.5	0.60	521.3	16.82	28.18					1.01
6/30/2011	6.3	0.21	174.4	5.81	27.68					1.01
7/31/2011	20.4	0.66	657.7	21.22	32.24					1.01
8/31/2011	20.6	0.66	700.0	22.58	33.98					1.01
9/30/2011	21.7	0.72	710.7	23.69	32.82					1.01
10/31/2011	19.1	0.61	806.7	26.02	42.35					1.00
11/30/2011	19.2	0.64	784.4	26.15	40.96					1.00
12/31/2011	12.6	0.41	645.7	20.83	51.25					1.00

Cumulative Oil Produced (E3m3)	39.89
Cumulative Water Produced (E3m3)	441.21
Cumulative Water Injected (E3m3)	483.90
Cumulative Voidage Replacement Ratio	1.01

**Table 4**  
**Virten Roselea Unit #2**  
**Pattern: 14-05**

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	12.4	0.40	211.8	6.83	17.02					1.00
2/28/2011	12.5	0.45	209.6	7.49	16.71					1.00
3/31/2011	10.6	0.34	233.8	7.54	22.07					1.00
4/30/2011	8.7	0.29	185.9	6.20	21.48					1.00
5/31/2011	13.2	0.43	223.0	7.19	16.85					1.00
6/30/2011	9.7	0.32	194.1	6.47	20.06					1.00
7/31/2011	12.7	0.41	265.4	8.56	20.84					0.99
8/31/2011	12.3	0.40	310.1	10.00	25.24					0.99
9/30/2011	15.5	0.52	553.3	18.44	35.79					0.99
10/31/2011	15.5	0.50	601.8	19.41	38.82					0.98
11/30/2011	15.4	0.51	575.7	19.19	37.50					0.98
12/31/2011	13.6	0.44	600.0	19.36	44.08					0.97
Cumulative Oil Produced (E3m3)					33.03					
Cumulative Water Produced (E3m3)					105.33					
Cumulative Water Injected (E3m3)					137.03					
Cumulative Voidage Replacement Ratio					0.99					

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 14-06**

<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	24.9	0.80	929.4	29.98	37.38					0.51
2/28/2011	23.5	0.84	749.8	26.78	31.97					0.51
3/31/2011	24.2	0.78	959.8	30.96	39.62					0.51
4/30/2011	21.5	0.72	835.2	27.84	38.80					0.51
5/31/2011	26.3	0.85	939.7	30.31	35.80					0.51
6/30/2011	16.3	0.54	654.7	21.82	40.29					0.51
7/31/2011	27.1	0.87	933.2	30.10	34.47					0.51
8/31/2011	27.7	0.89	963.4	31.08	34.84					0.50
9/30/2011	29.5	0.98	888.1	29.60	30.16					0.50
10/31/2011	26.7	0.86	851.5	27.47	31.91					0.50
11/30/2011	26.6	0.89	824.5	27.48	31.05					0.50
12/31/2011	27.1	0.87	935.2	30.17	34.56					0.50
Cumulative Oil Produced (E3m3)					41.91					
Cumulative Water Produced (E3m3)					397.46					
Cumulative Water Injected (E3m3)					220.82					
Cumulative Voidage Replacement Ratio					0.50					

**Table 4**  
**Virde Roselea Unit #2**  
**Pattern: 16-06**

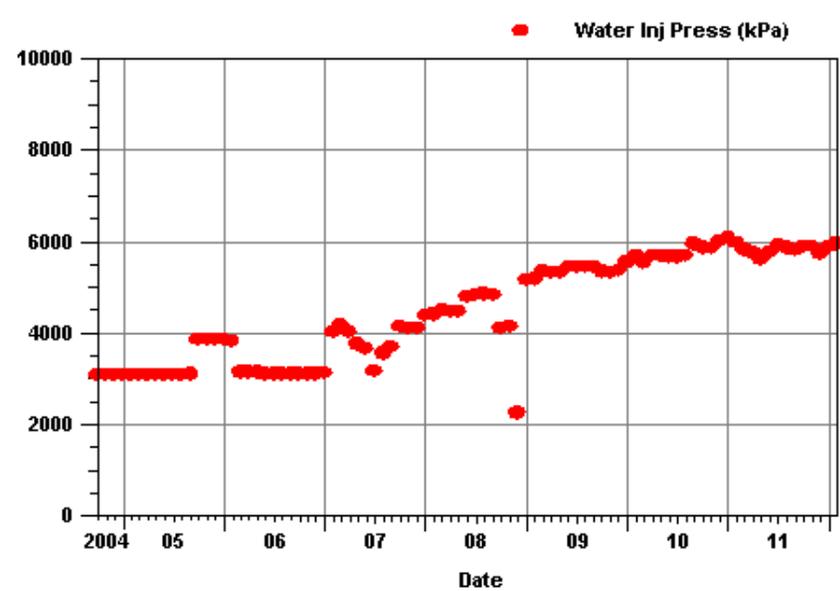
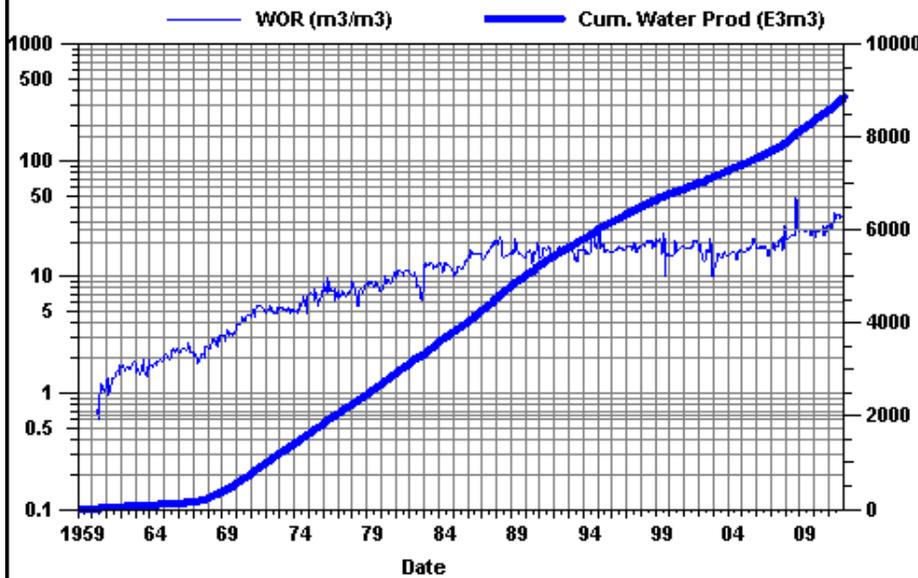
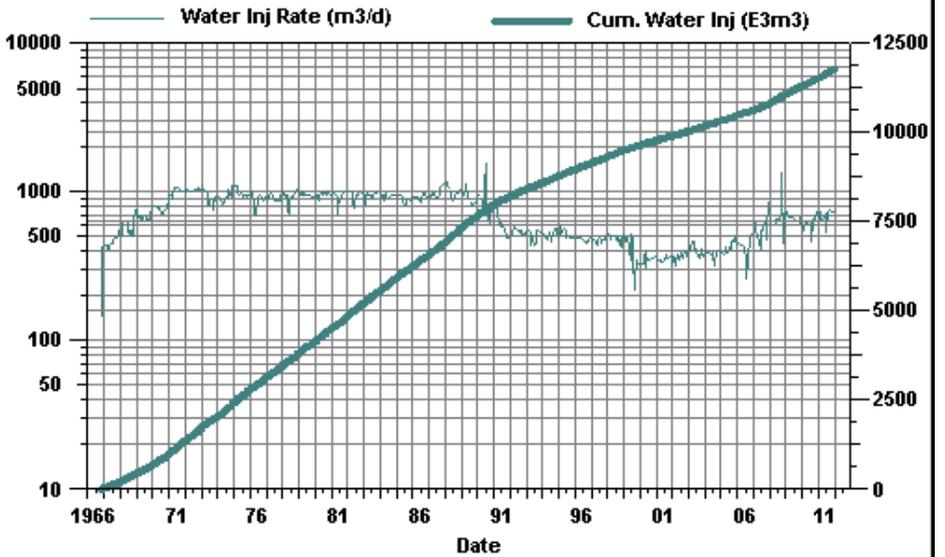
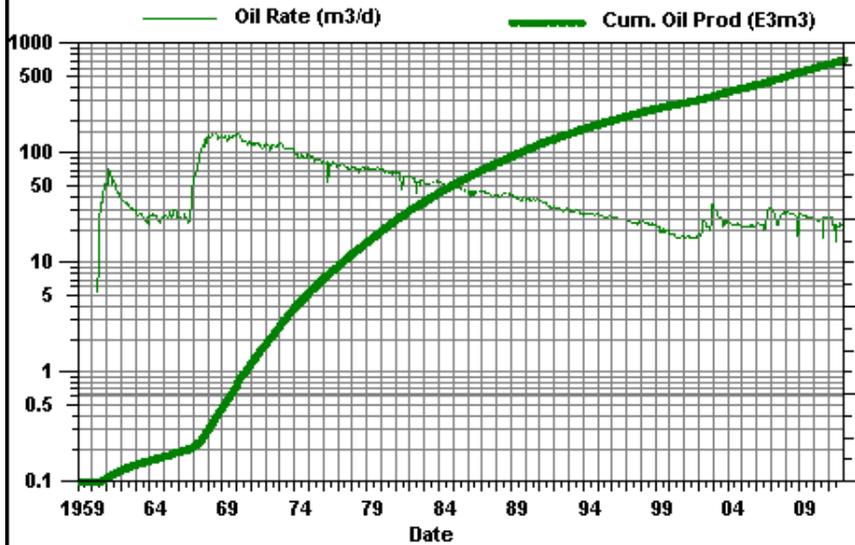
<b>Date</b>	<b>Monthly Oil Prod M3</b>	<b>Oil Rate (CD) m3/d</b>	<b>Monthly Water Prod m3</b>	<b>Water Rate (CD) m3/d</b>	<b>Water Oil Ratio m3/m3</b>	<b>Monthly Water Inj m3</b>	<b>Water Inj Rate (CD) m3/d</b>	<b>Water Inj Pressure kPa</b>	<b>Voidage Replacement Ratio</b>	<b>Cum Voidage Replacement Ratio</b>
1/31/2011	52.3	1.69	1471.0	47.45	28.14	1624.0	52.39	5794	1.06	1.06
2/28/2011	52.1	1.86	1301.8	46.49	24.98	963.0	34.39	5607	0.71	1.06
3/31/2011	53.8	1.74	1666.5	53.76	30.95	1244.0	40.13	5797	0.72	1.06
4/30/2011	36.8	1.23	1178.9	39.30	32.00	1413.0	47.10	5700	1.16	1.06
5/31/2011	57.6	1.86	1591.9	51.35	27.62	1839.0	59.32	5703	1.11	1.06
6/30/2011	37.1	1.24	1147.3	38.24	30.89	1245.0	41.50	5803	1.05	1.06
7/31/2011	50.8	1.64	1487.7	47.99	29.30	526.0	16.97	5890	0.34	1.06
8/31/2011	50.0	1.61	1509.7	48.70	30.23	530.0	17.10	5600	0.34	1.06
9/30/2011	54.4	1.81	1682.6	56.09	30.93	1058.0	35.27	5613	0.61	1.06
10/31/2011	51.9	1.67	1771.9	57.16	34.14	906.0	29.23	5994	0.50	1.05
11/30/2011	51.4	1.71	1695.2	56.51	32.98	748.0	24.93	5803	0.43	1.05
12/31/2011	52.4	1.69	1922.8	62.03	36.73	820.0	26.45	5903	0.41	1.05
Cumulative Oil Produced (E3m3)					47.14					
Cumulative Water Produced (E3m3)					398.42					
Cumulative Water Injected (E3m3)					470.22					
Cumulative Voidage Replacement Ratio					1.06					

**Table 4**  
**Viriden Roselea Unit #2**  
**Pattern: 10-05**

<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	144.5	4.66	802.7	25.89	5.56	786.0	25.35	5897	0.82	1.18
2/28/2011	136.3	4.87	647.8	23.14	4.75	499.0	17.82	5800	0.63	1.18
3/31/2011	126.5	4.08	720.5	23.24	5.69	566.0	18.26	5800	0.66	1.18
4/30/2011	51.1	1.70	295.2	9.84	5.78	1054.0	35.13	5797	3.01	1.18
5/31/2011	64.1	2.07	317.6	10.25	4.95	1235.0	39.84	5700	3.20	1.18
6/30/2011	56.4	1.88	328.5	10.95	5.82	851.0	28.37	5703	2.19	1.18
7/31/2011	86.7	2.80	527.0	17.00	6.08	374.0	12.06	5794	0.60	1.18
8/31/2011	92.4	2.98	693.6	22.38	7.51	450.0	14.52	5603	0.57	1.18
9/30/2011	148.8	4.96	979.1	32.64	6.58	891.0	29.70	5710	0.78	1.18
10/31/2011	142.4	4.59	1019.8	32.90	7.16	782.0	25.23	5994	0.67	1.18
11/30/2011	137.7	4.59	994.8	33.16	7.22	796.0	26.53	5803	0.70	1.17
12/31/2011	138.1	4.46	1075.5	34.69	7.79	714.0	23.03	5906	0.58	1.17

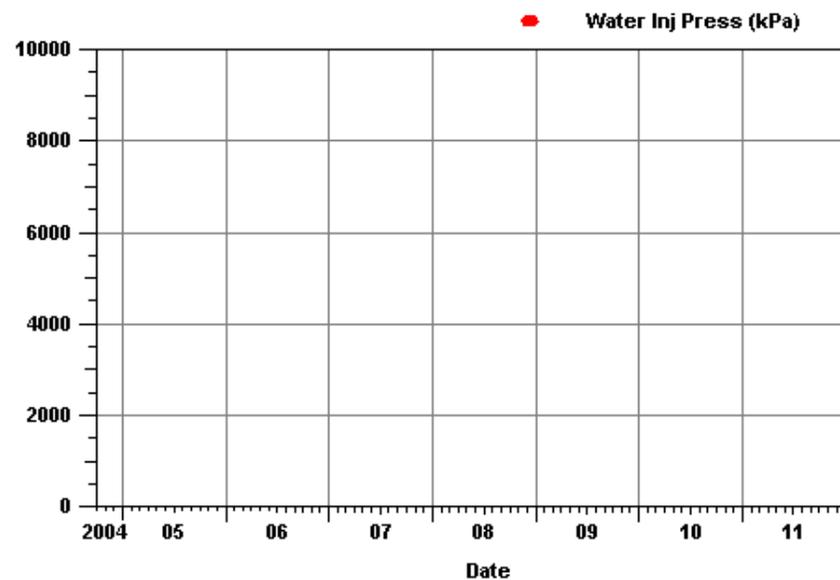
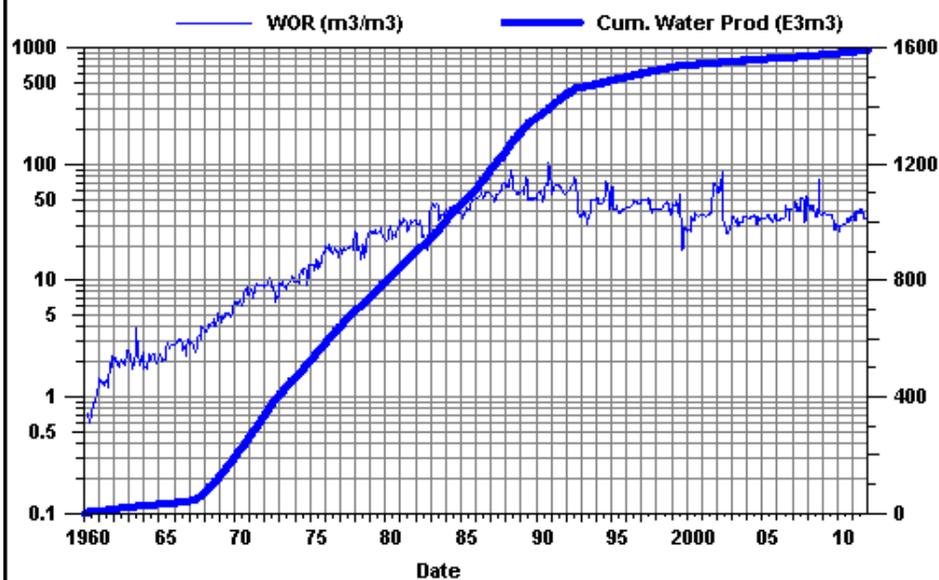
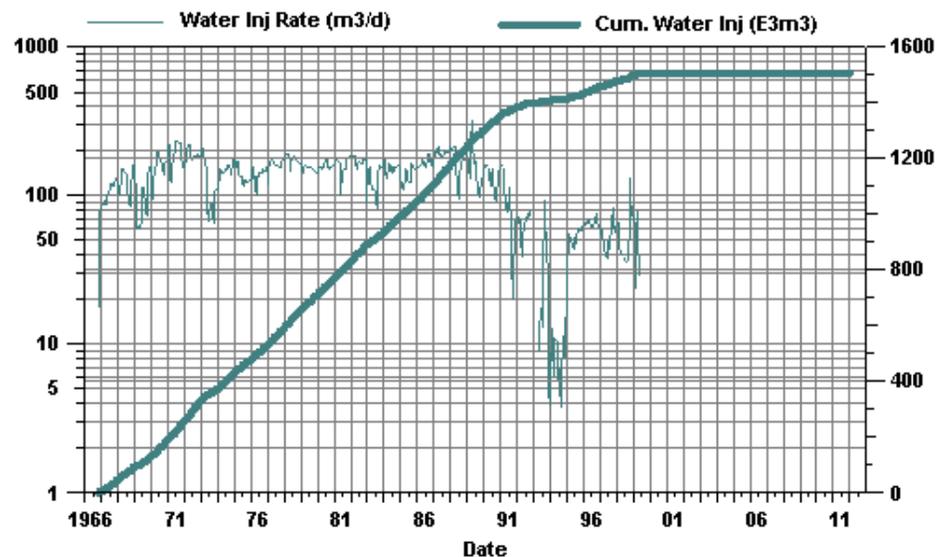
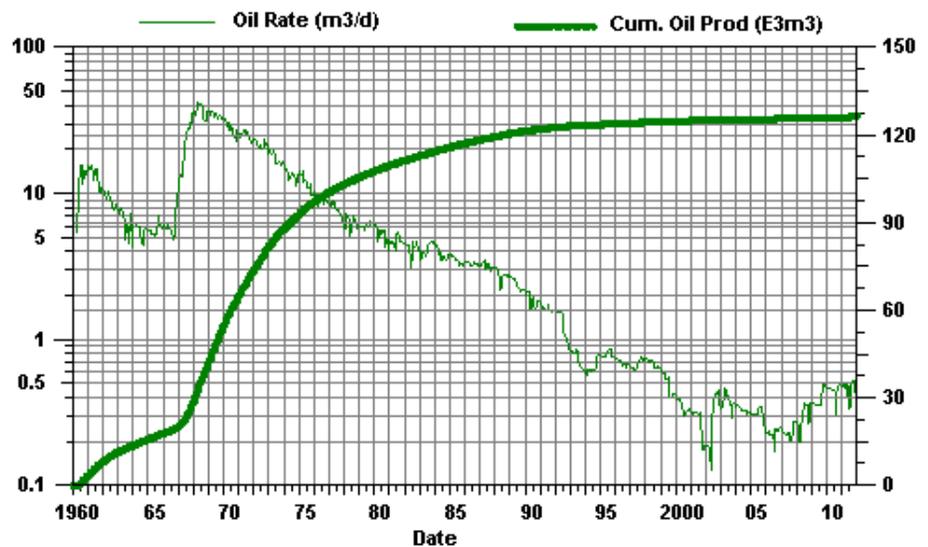
Cumulative Oil Produced (E3m3)	62.22
Cumulative Water Produced (E3m3)	216.78
Cumulative Water Injected (E3m3)	331.43
Cumulative Voidage Replacement Ratio	1.19

## Virden Roselea Unit #2 Total For Project



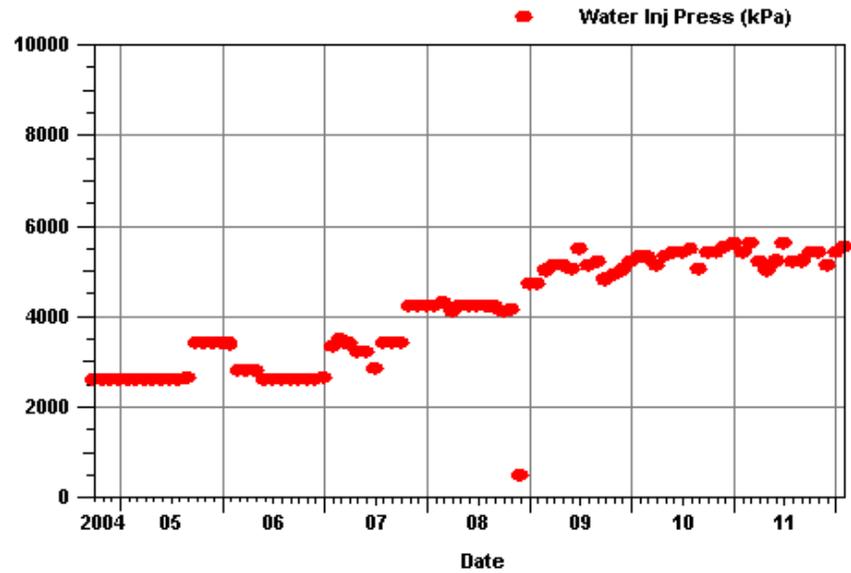
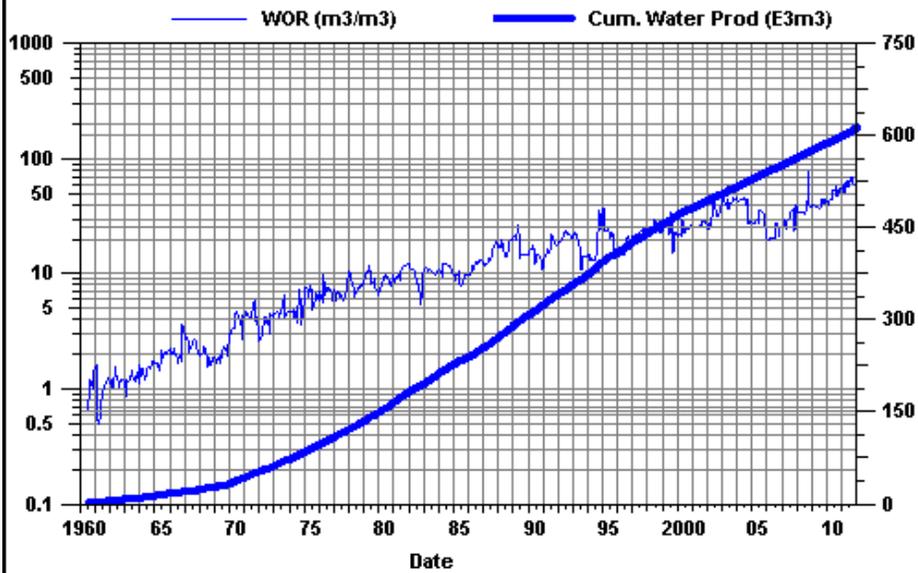
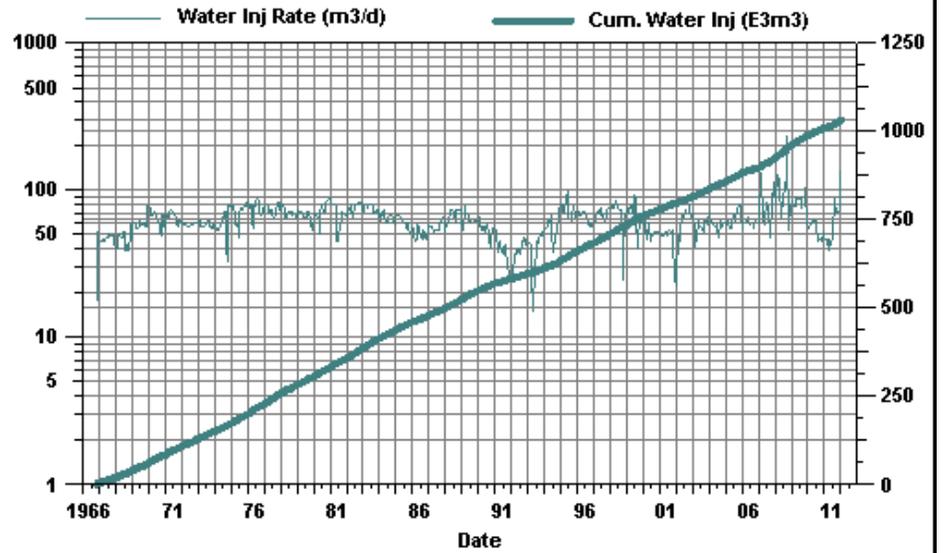
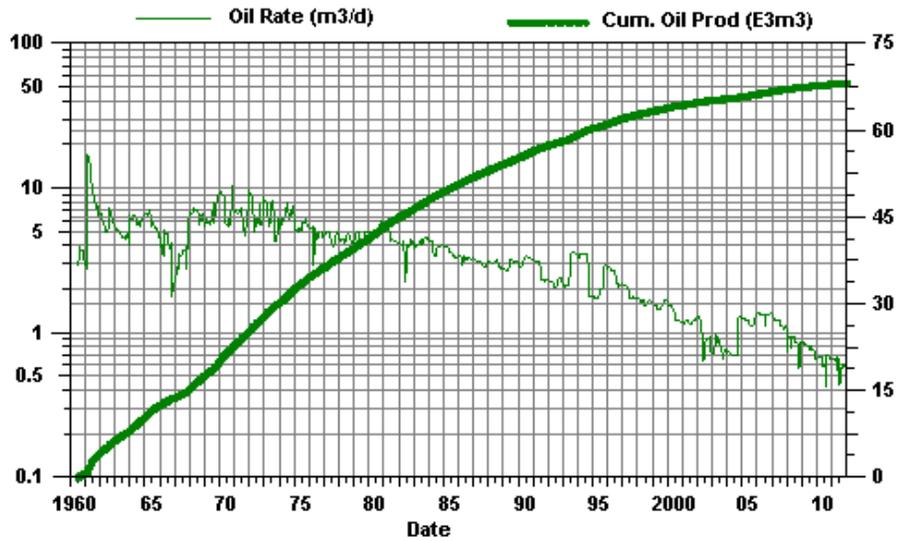
# Virден Roselea Unit #2

02-06



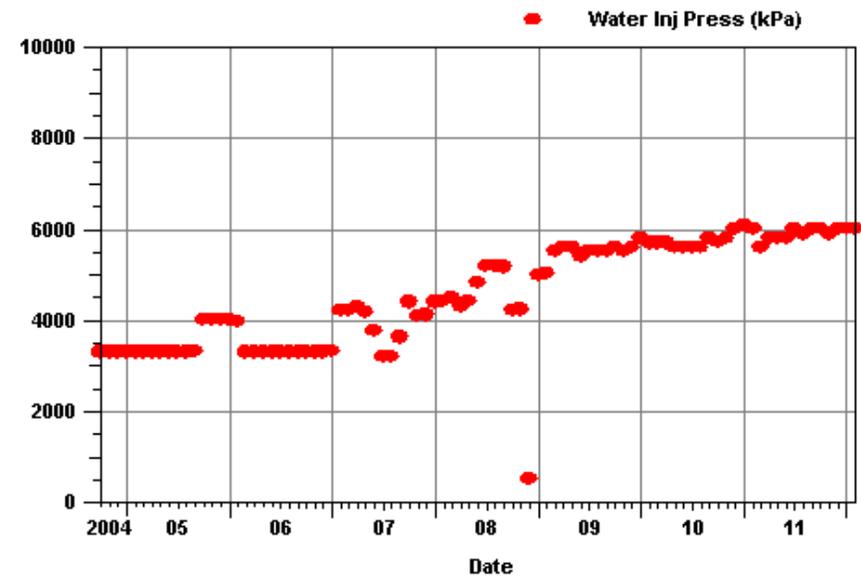
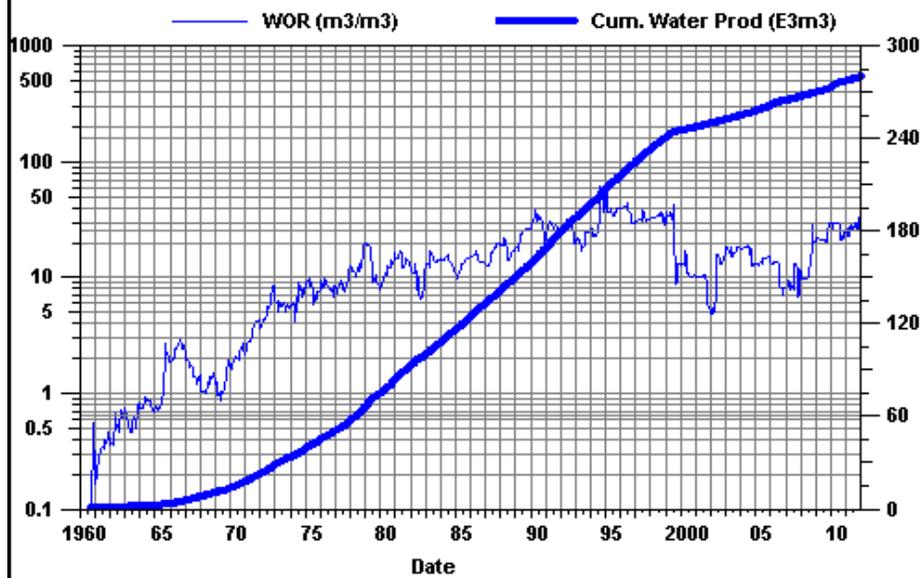
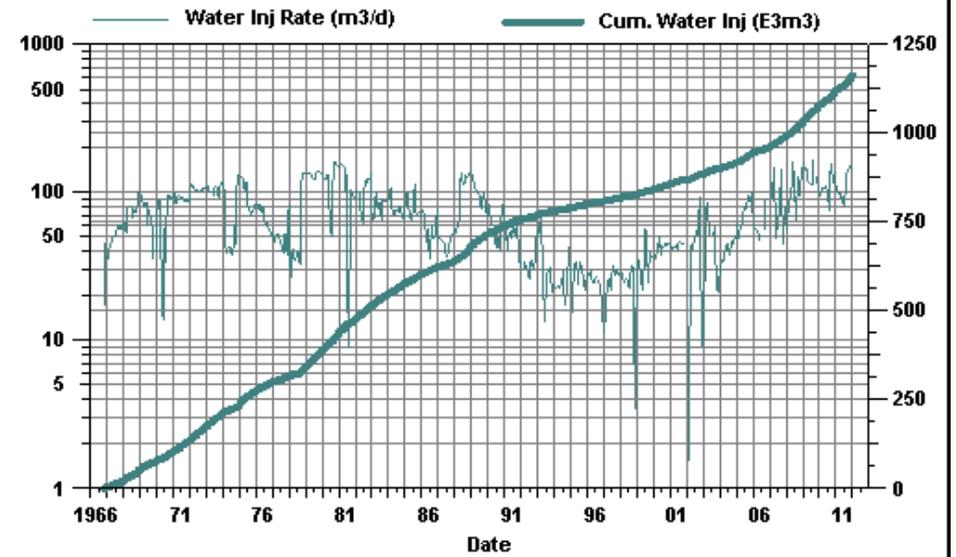
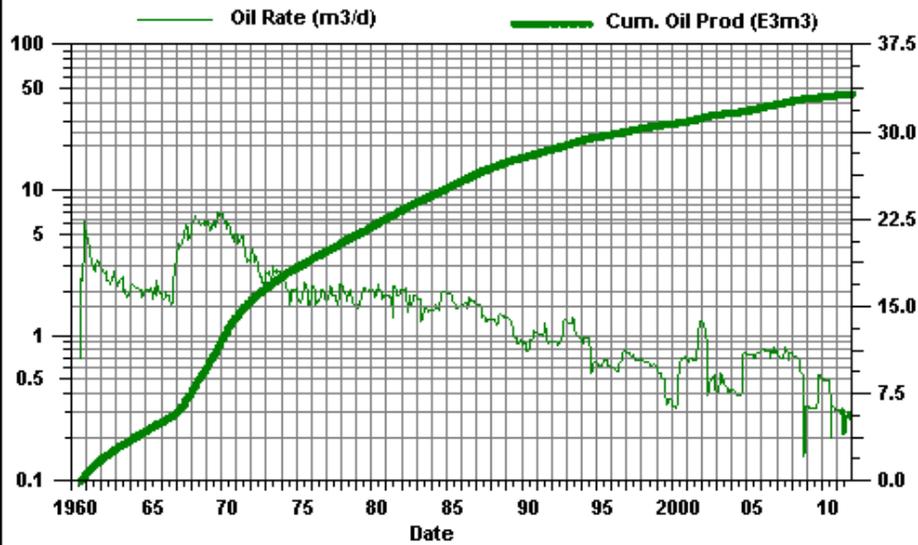
# Virден Roselea Unit #2

## 02-07



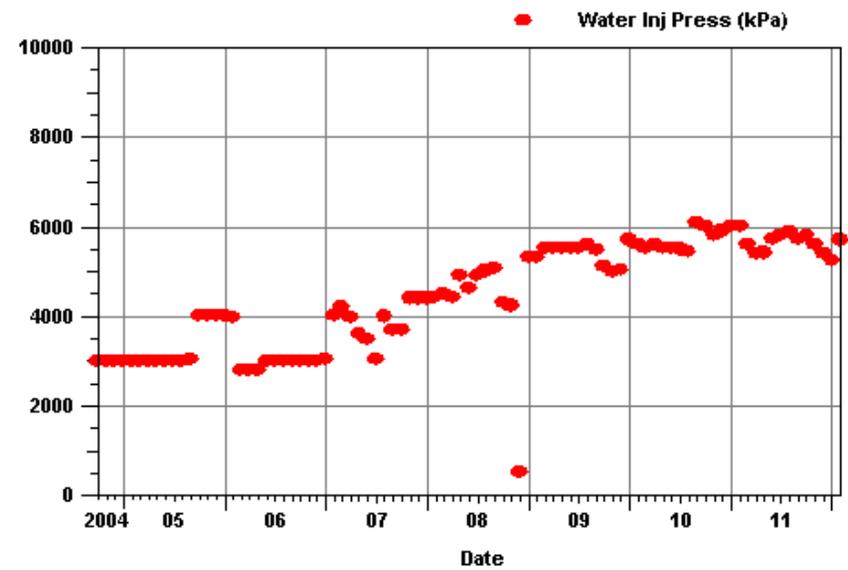
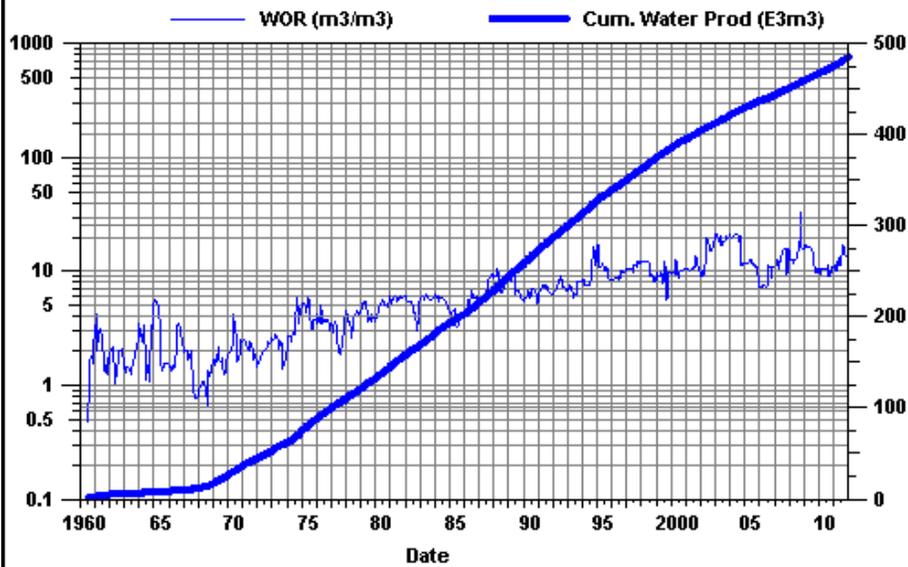
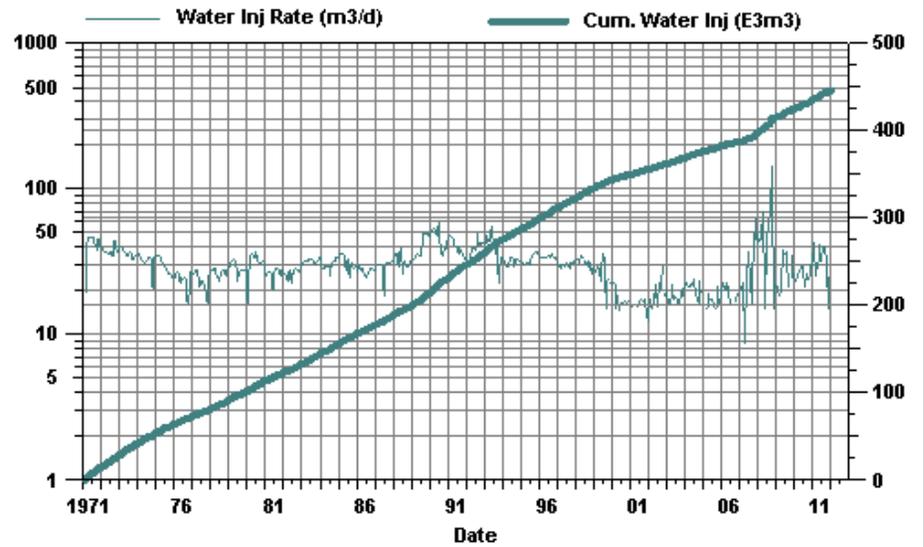
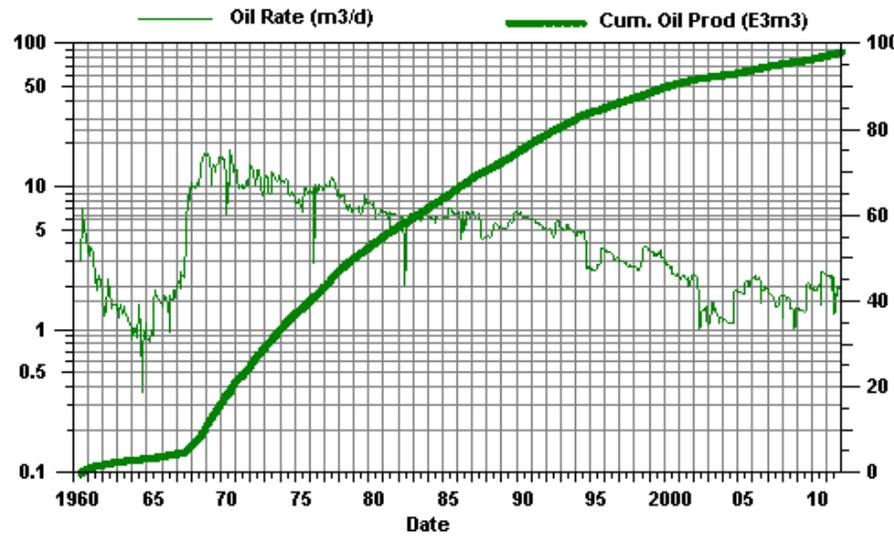
# Virден Roselea Unit #2

## 04-05



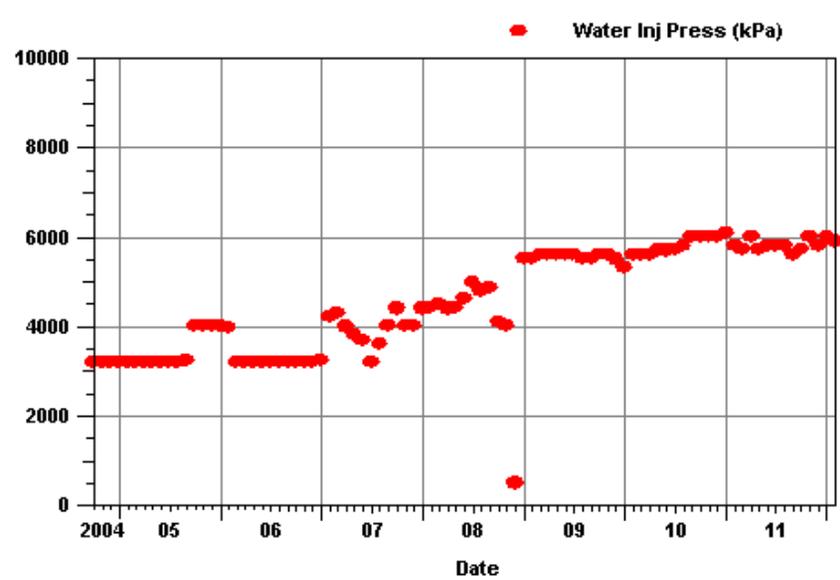
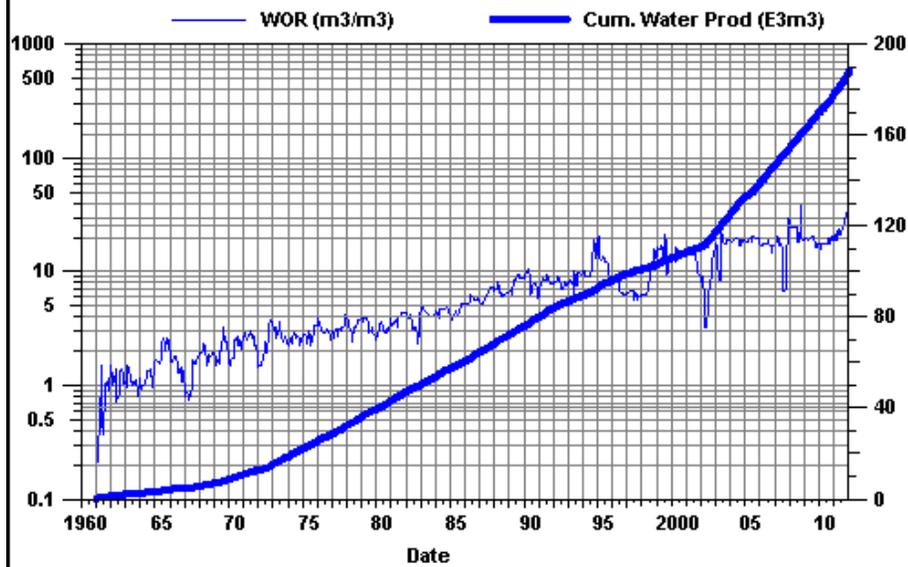
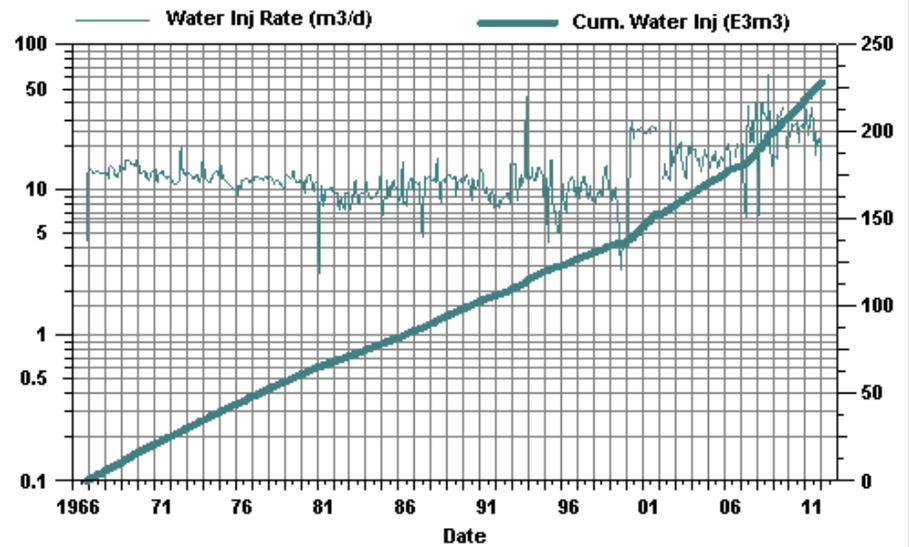
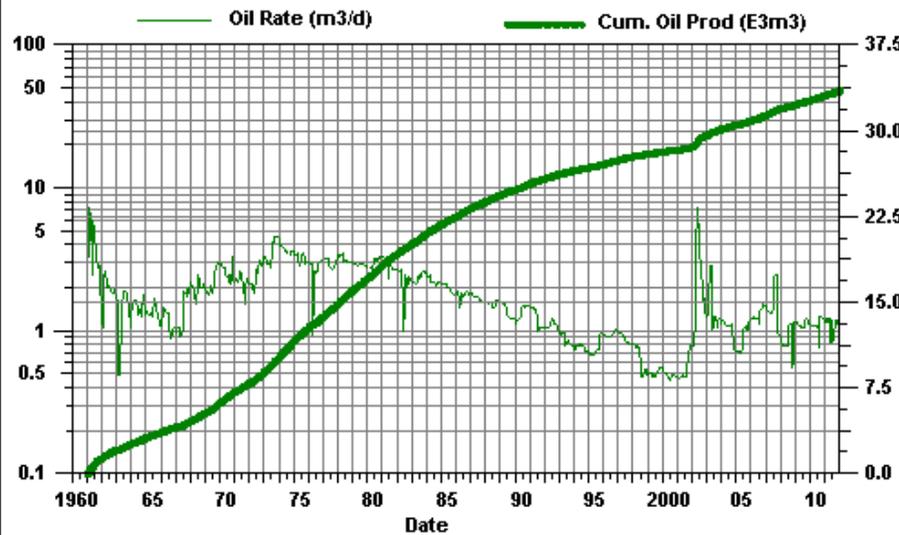
# Virден Roselea Unit #2

## 04-07



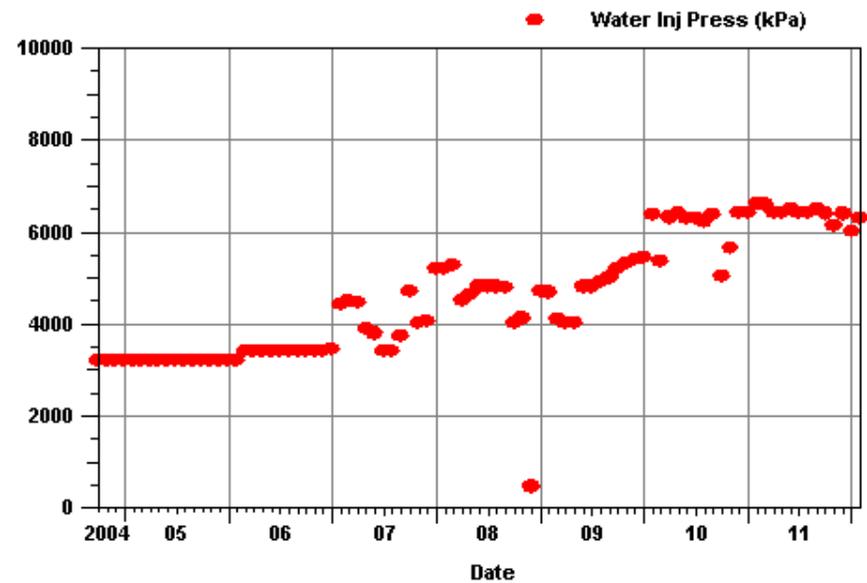
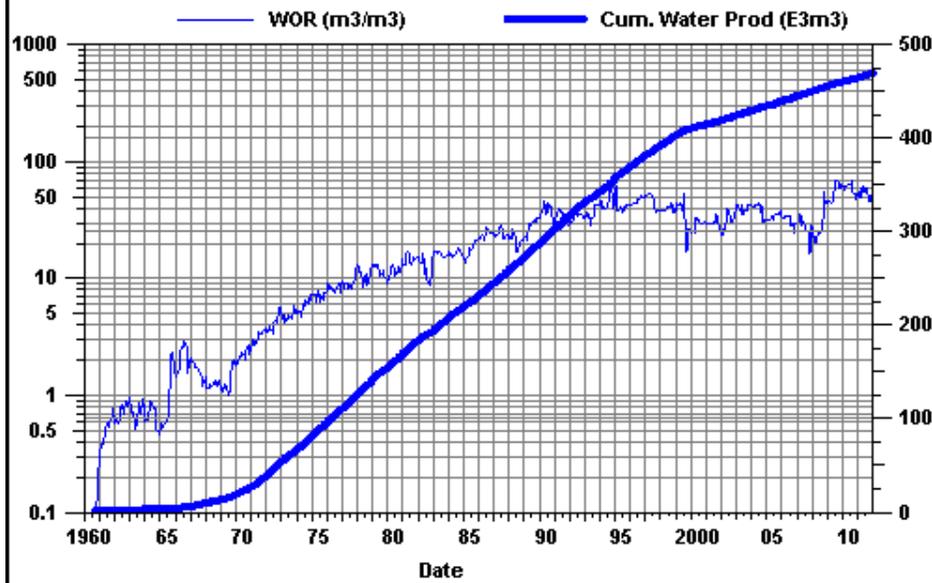
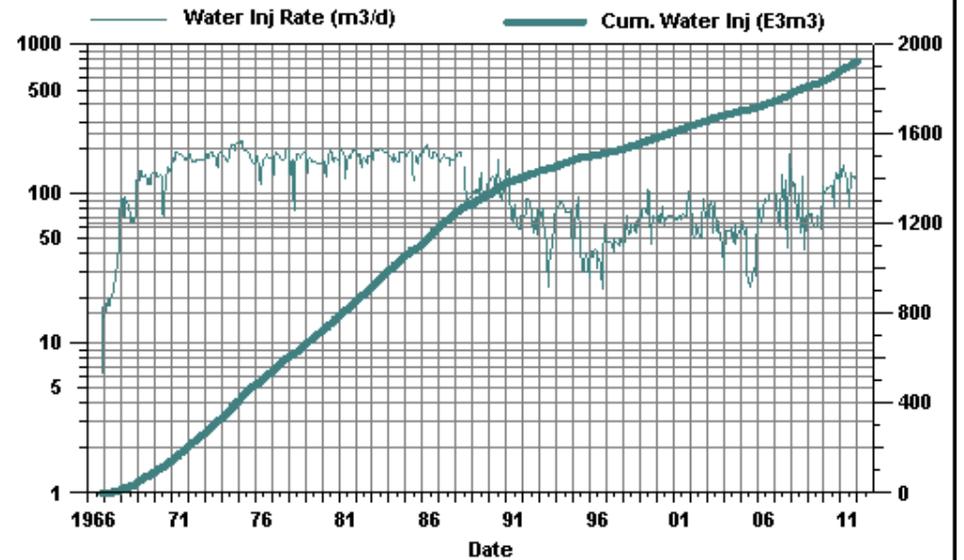
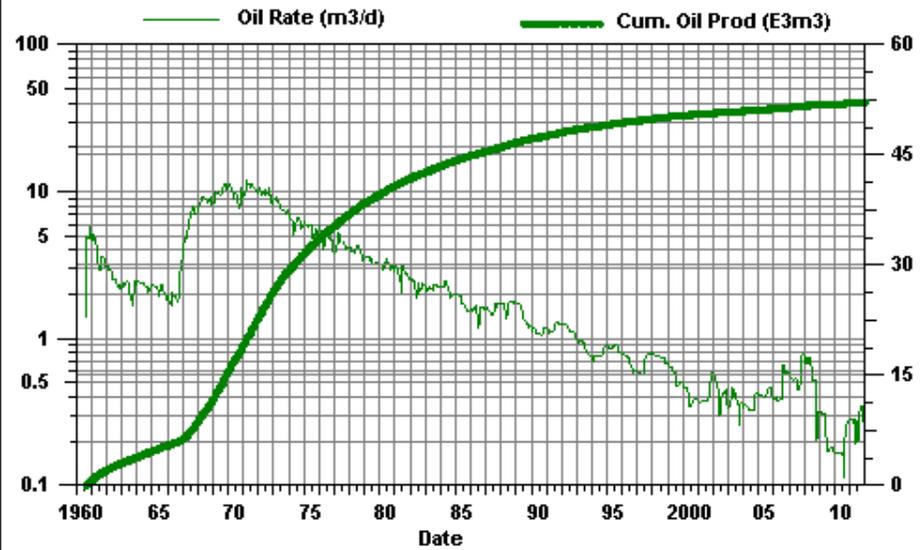
# Virden Roselea Unit #2

## 04-08



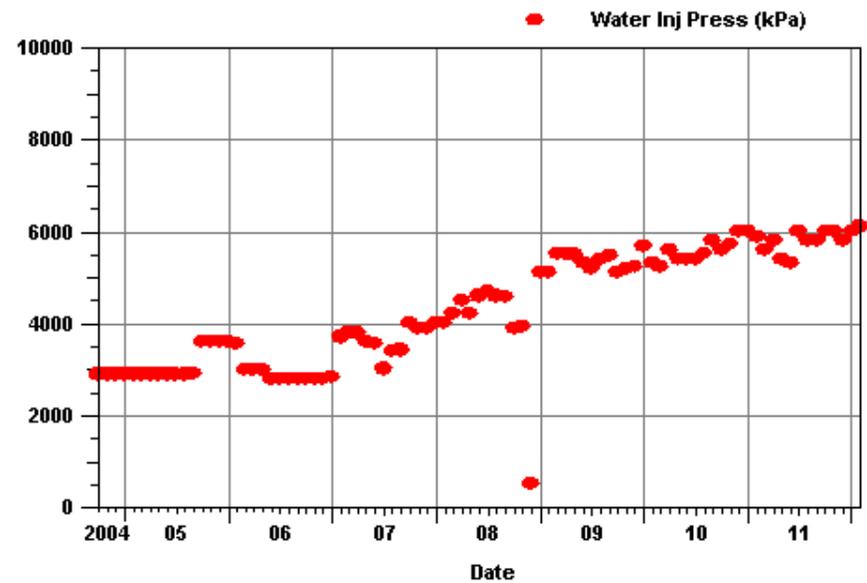
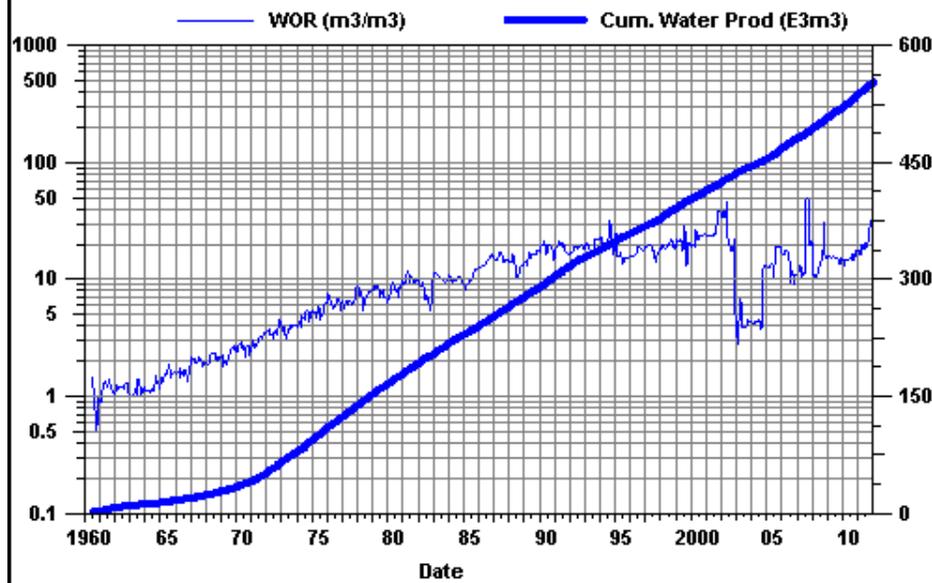
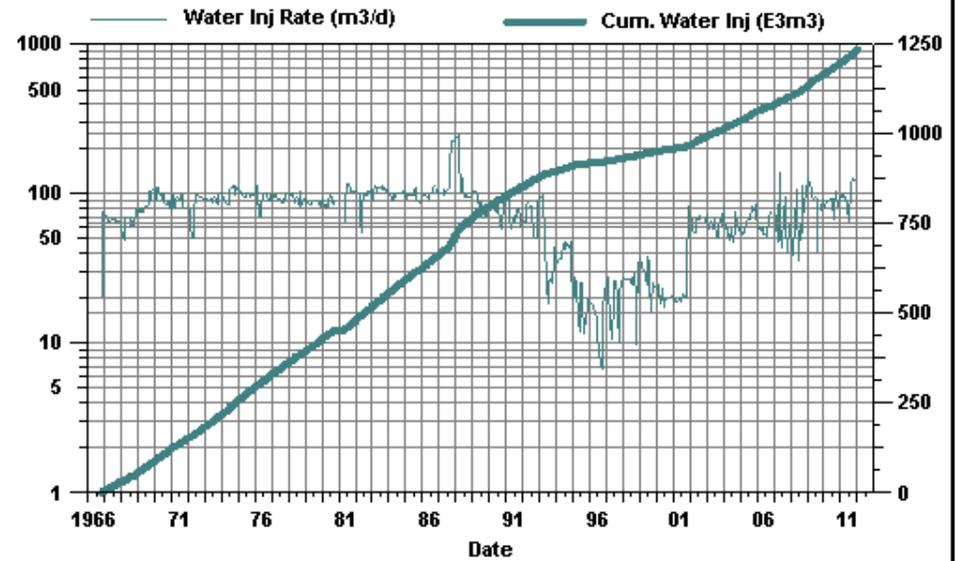
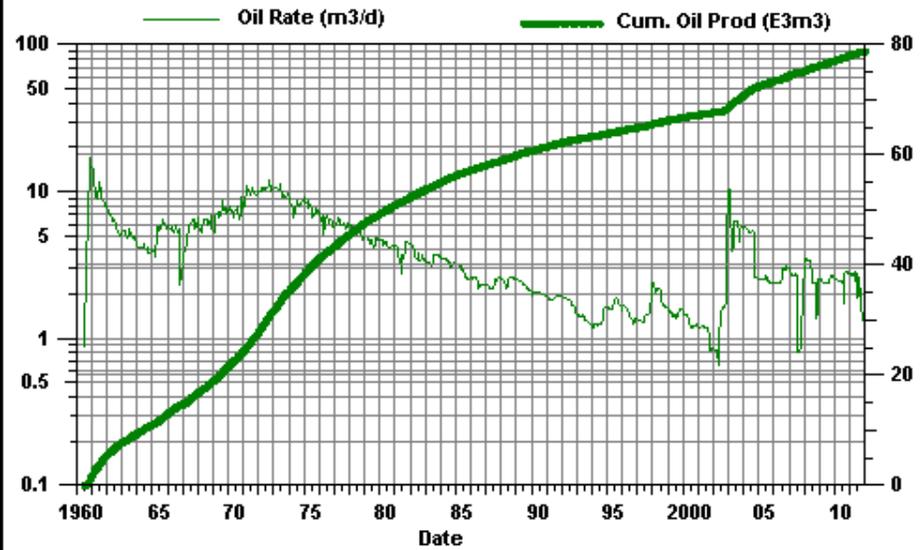
# Virден Roselea Unit #2

08-06



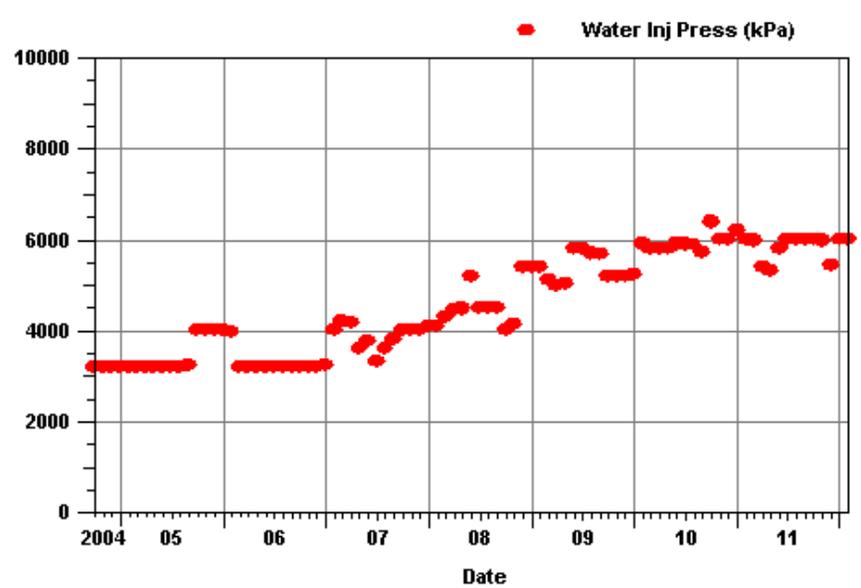
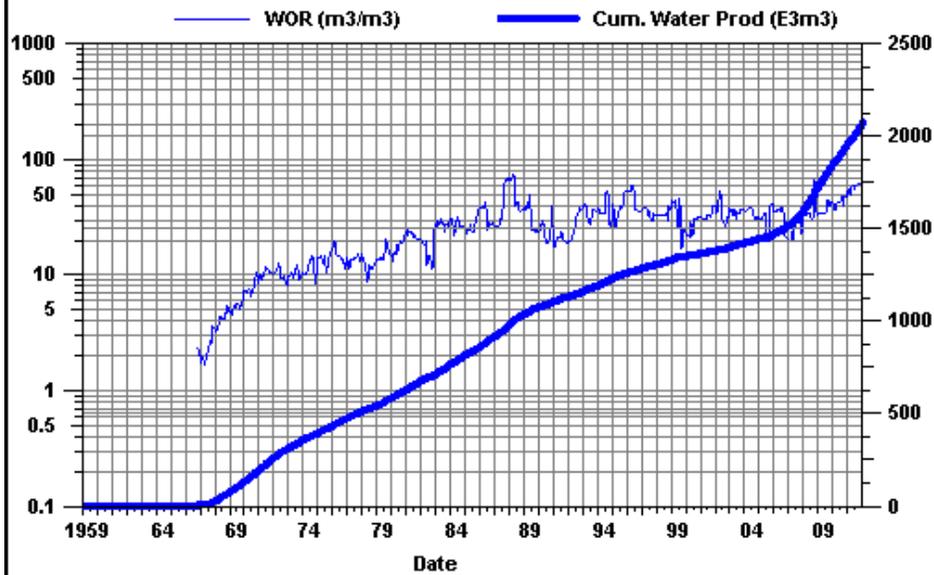
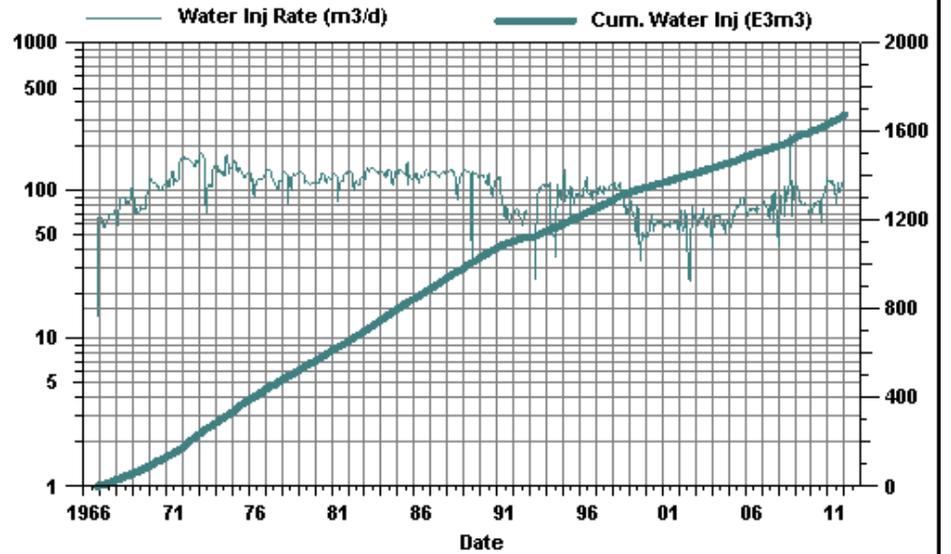
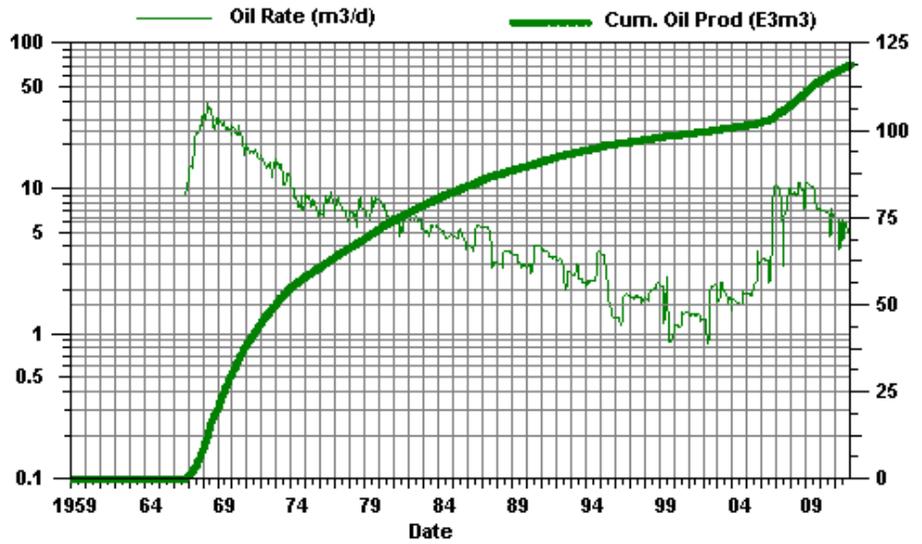
# Virден Roselea Unit #2

## 10-06



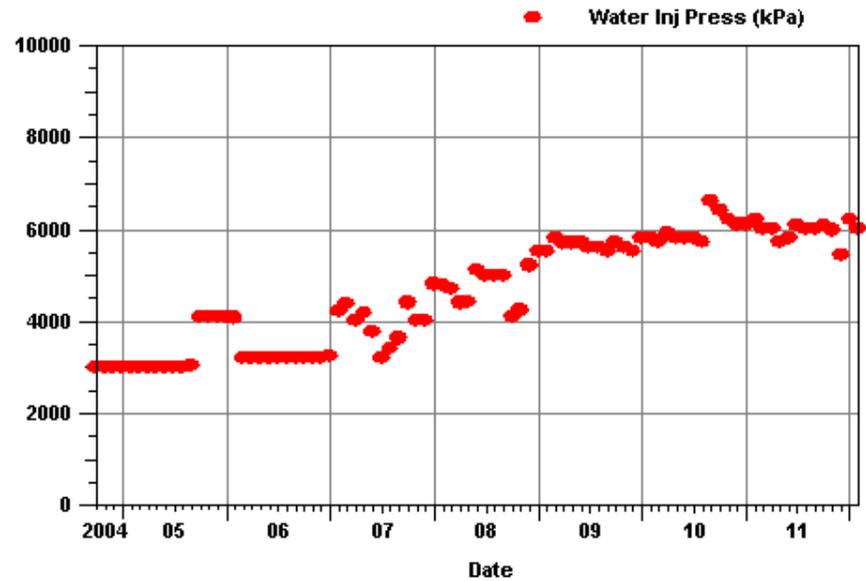
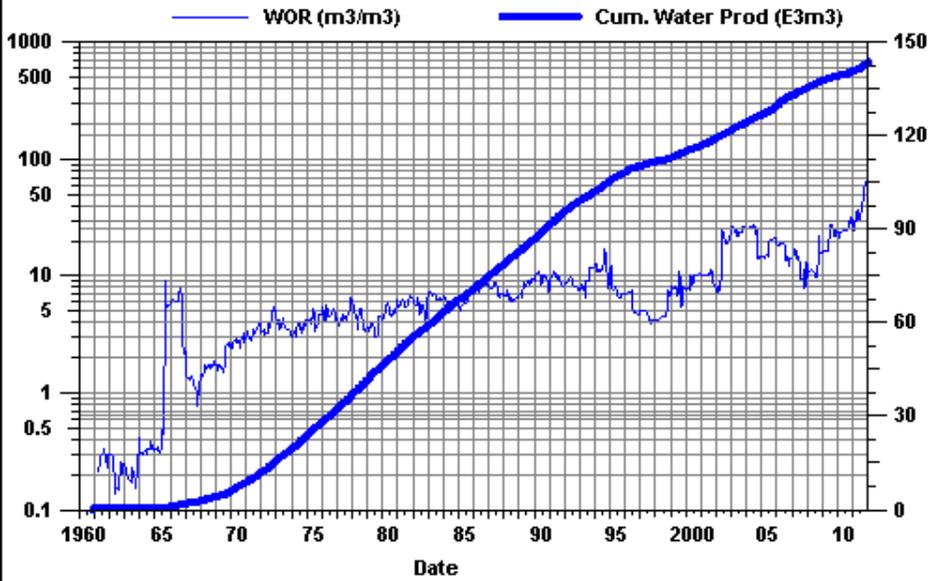
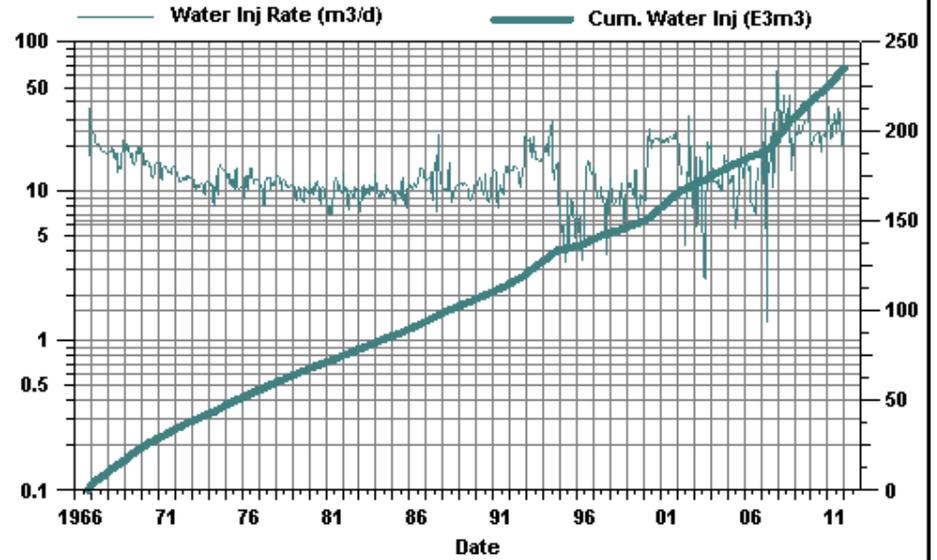
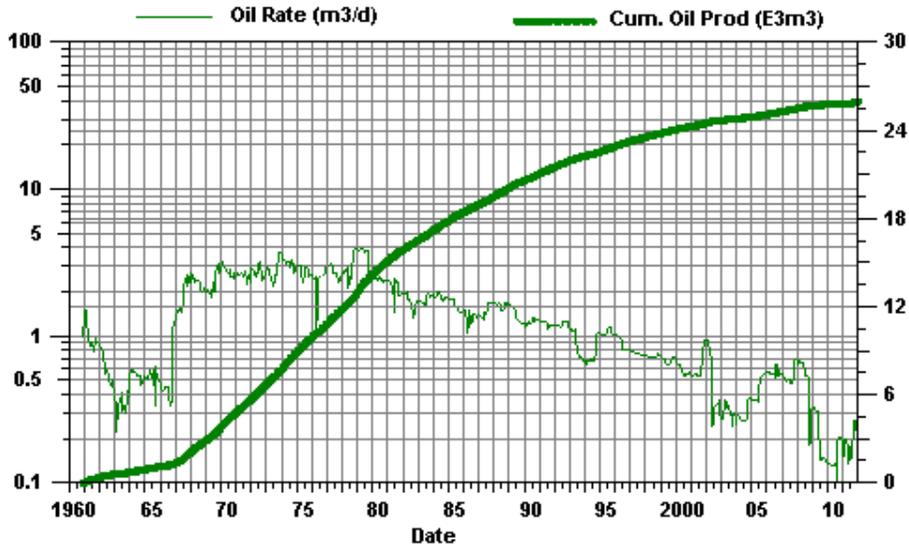
# Virден Roselea Unit #2

## 10-36



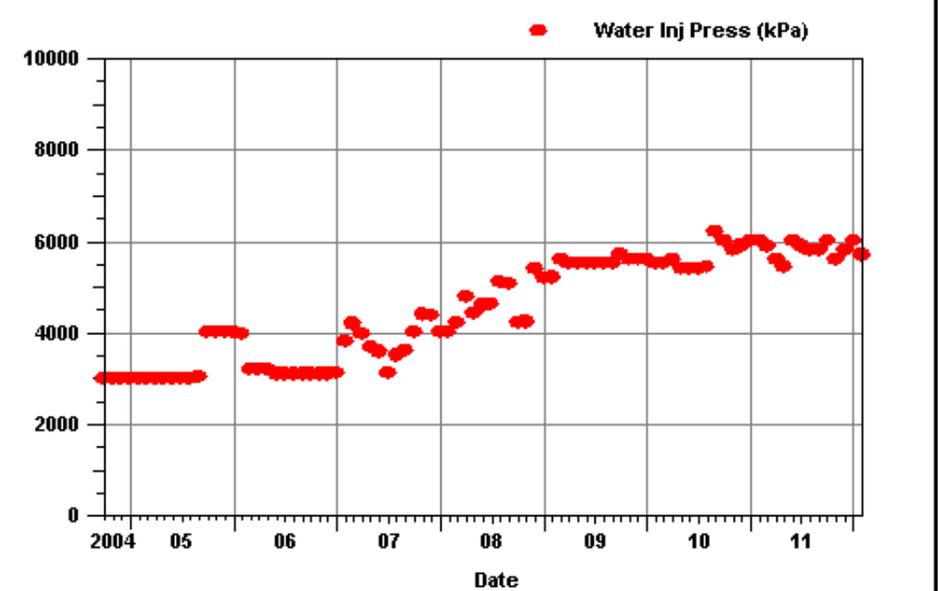
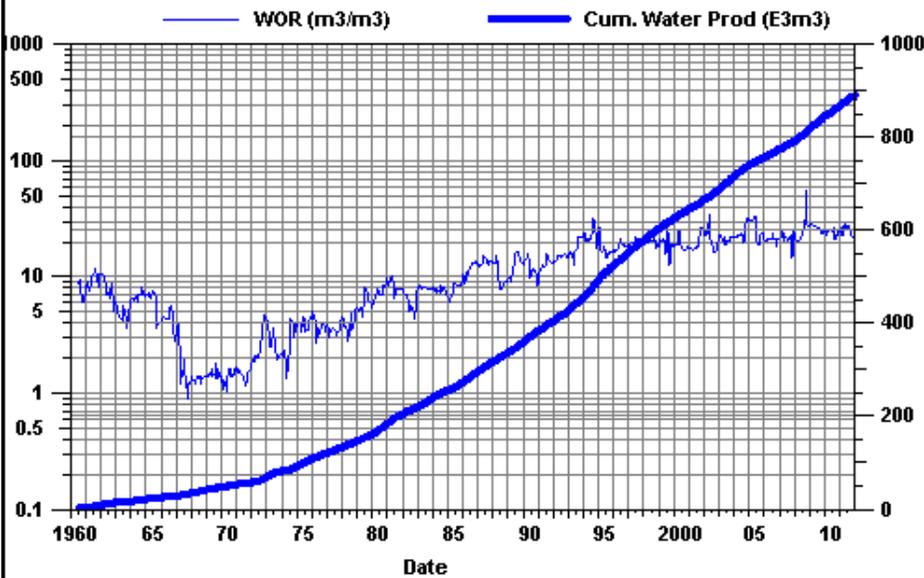
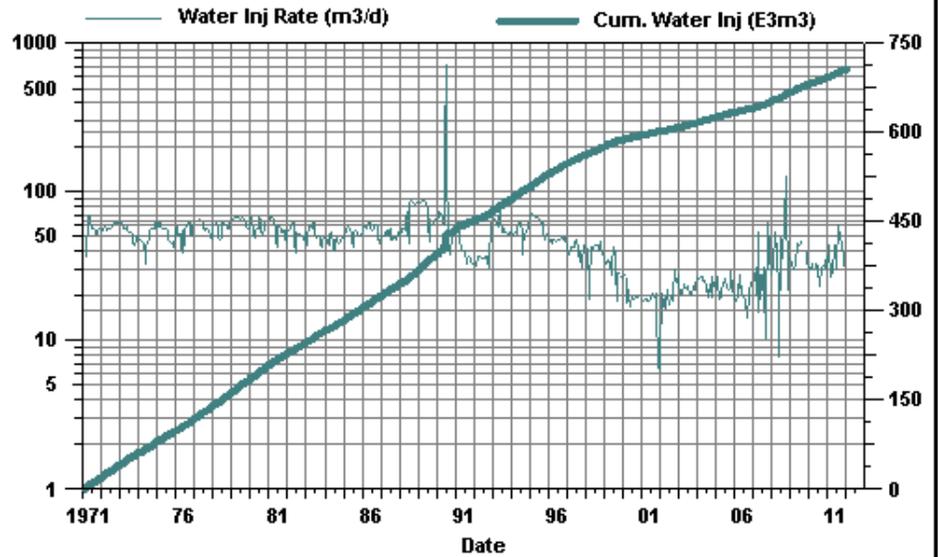
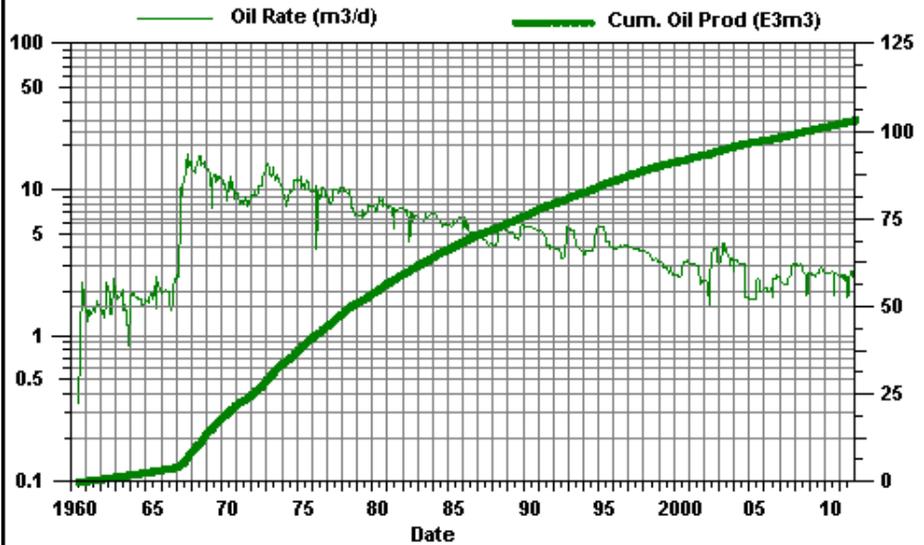
# Virден Roselea Unit #2

## 12-05



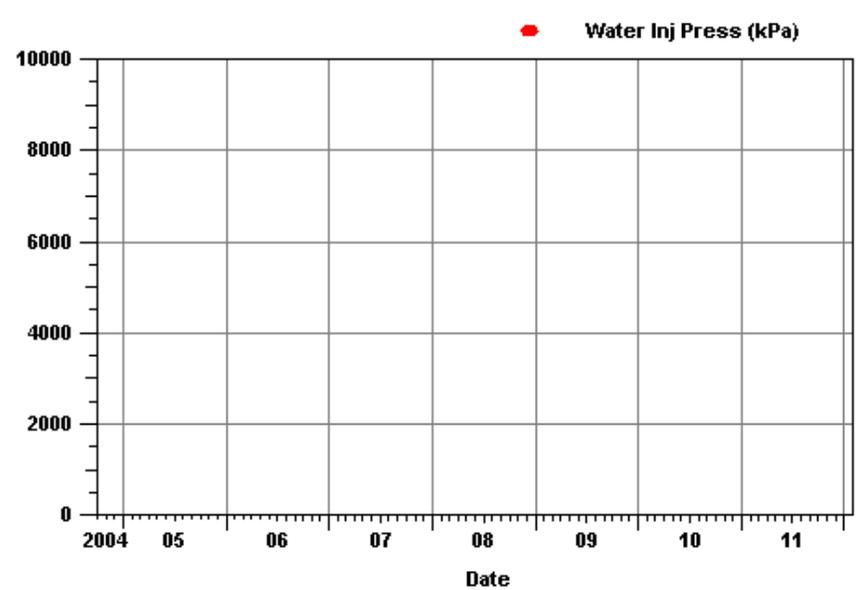
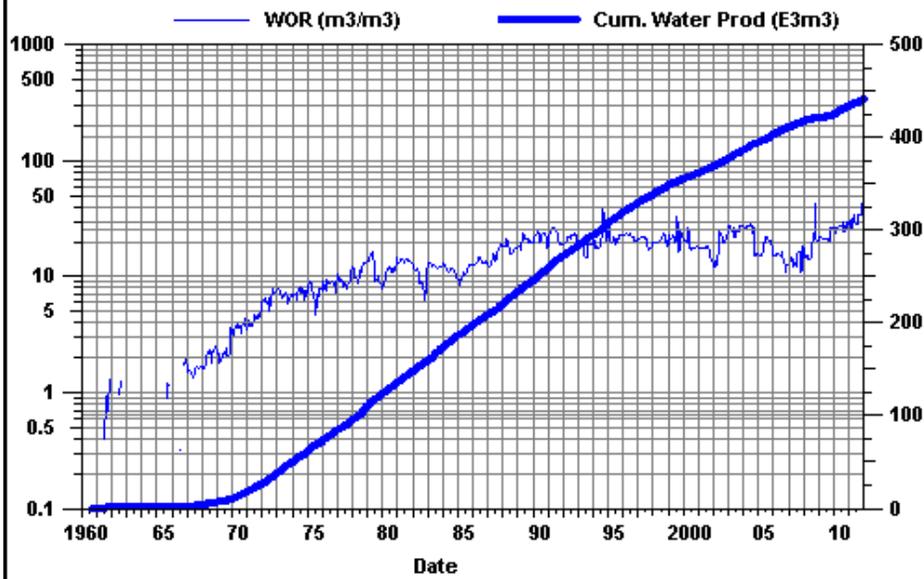
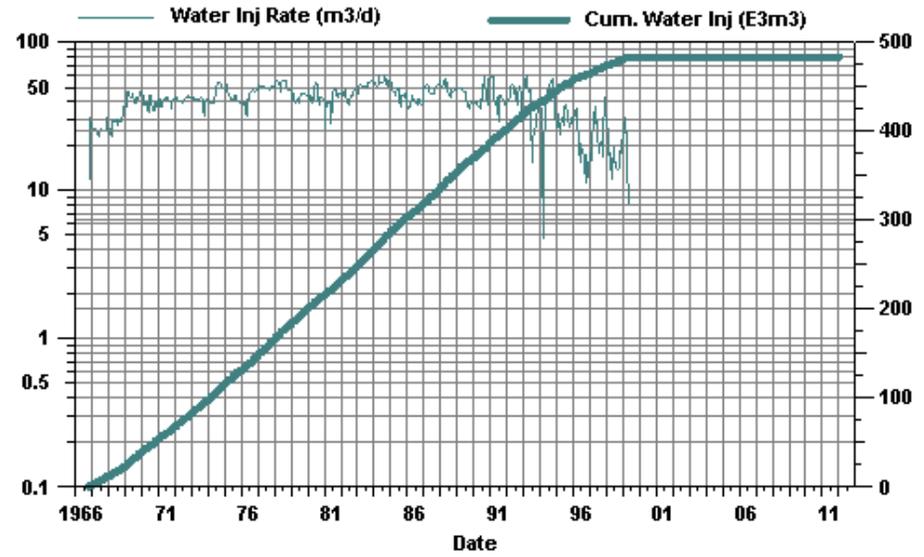
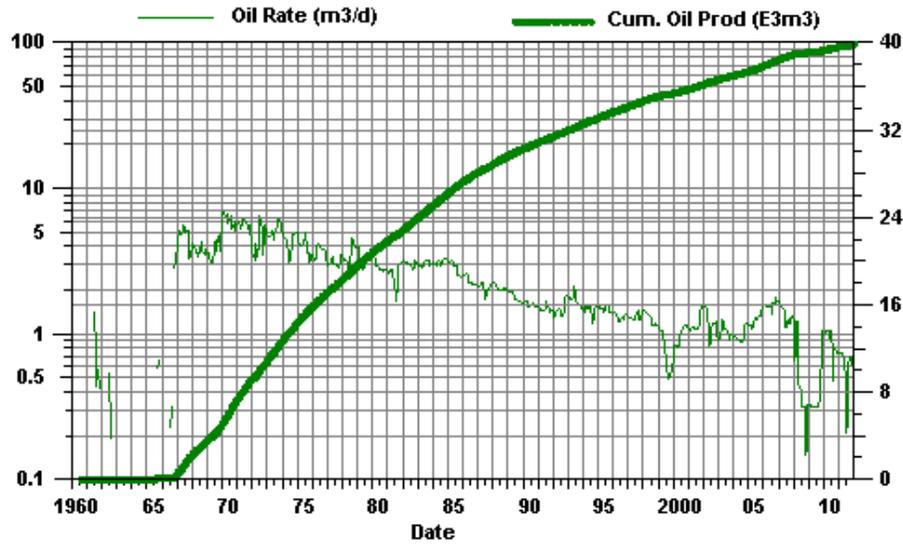
# Virden Roselea Unit #2

## 12-06



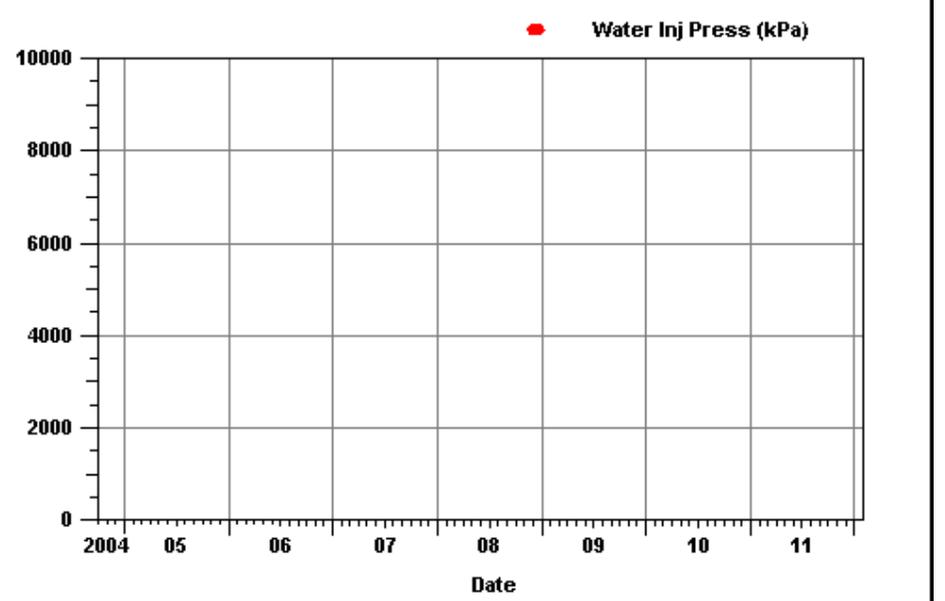
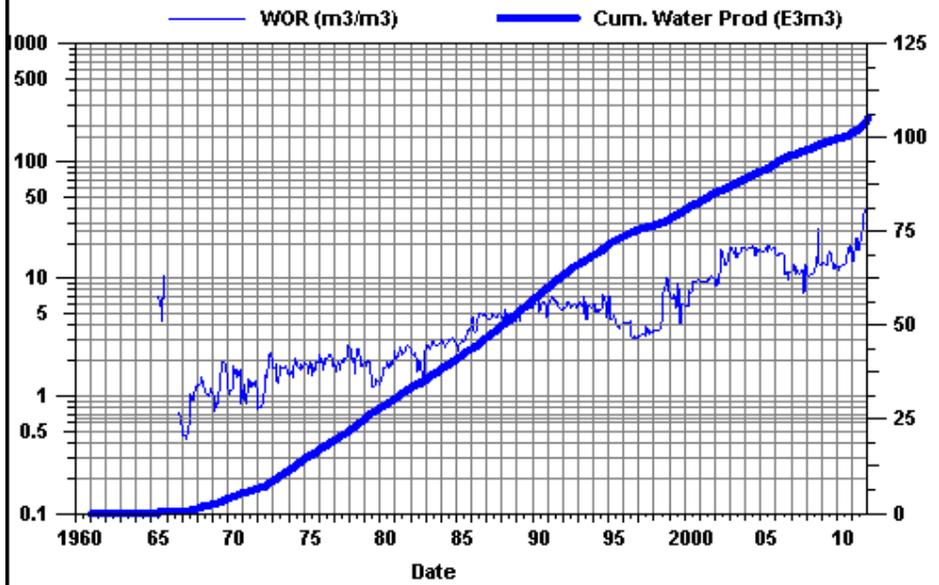
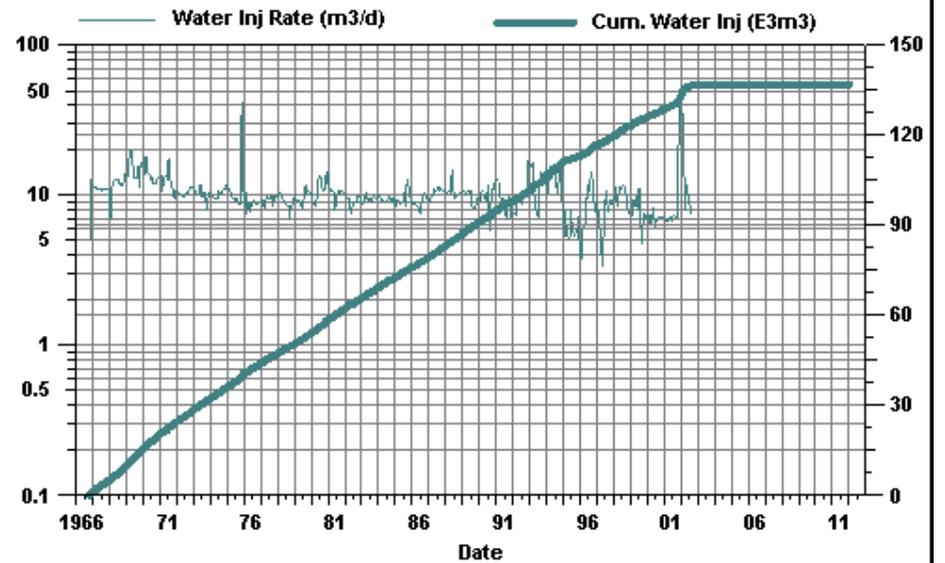
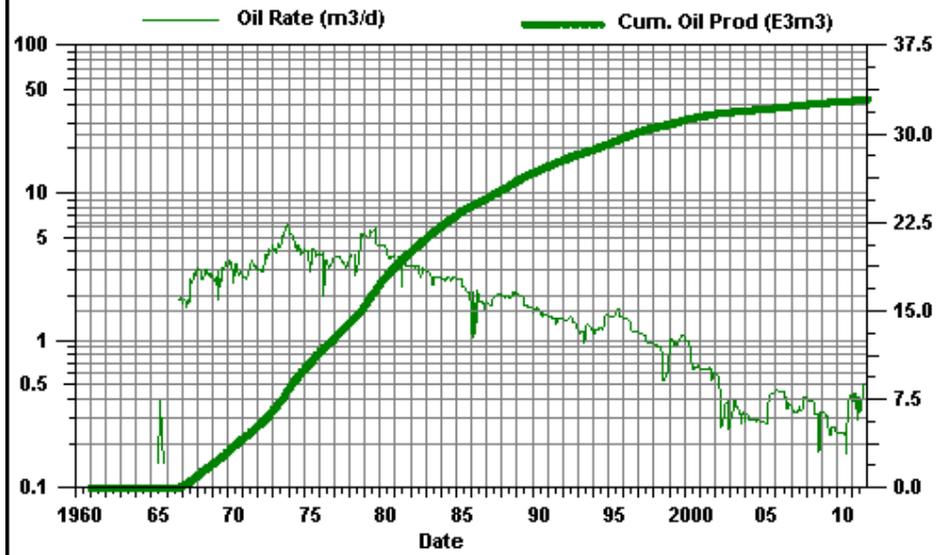
# Virден Roselea Unit #2

## 12-31



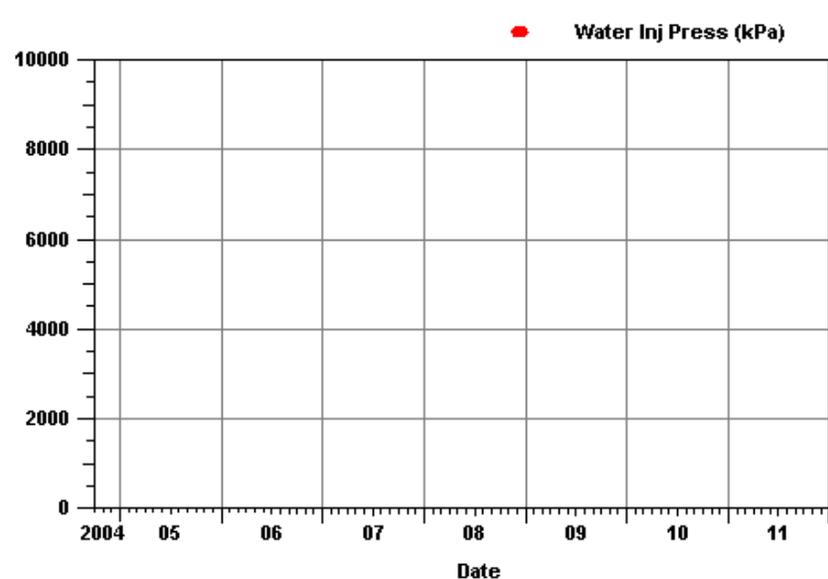
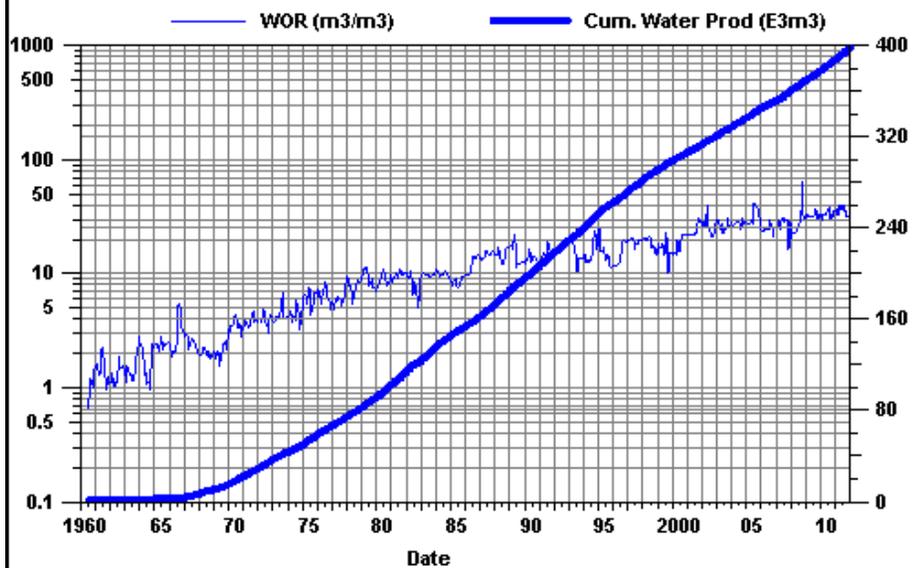
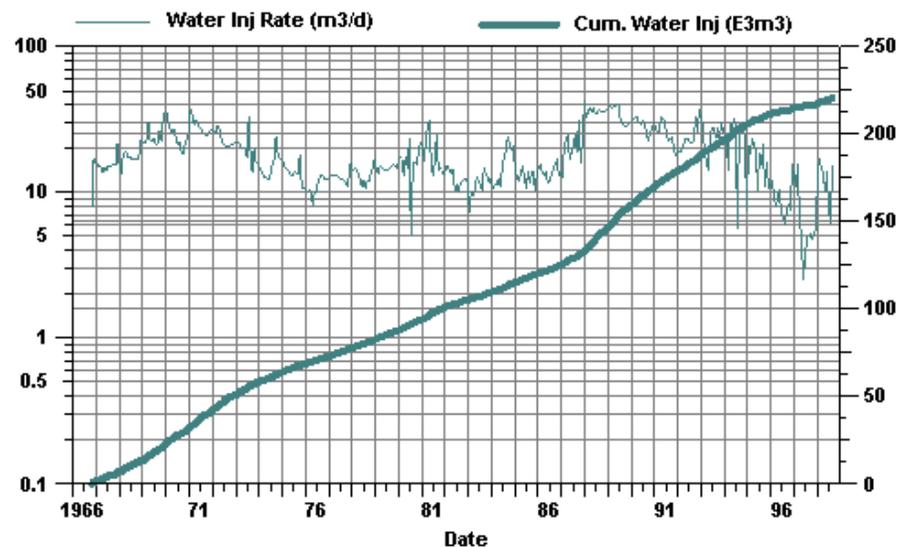
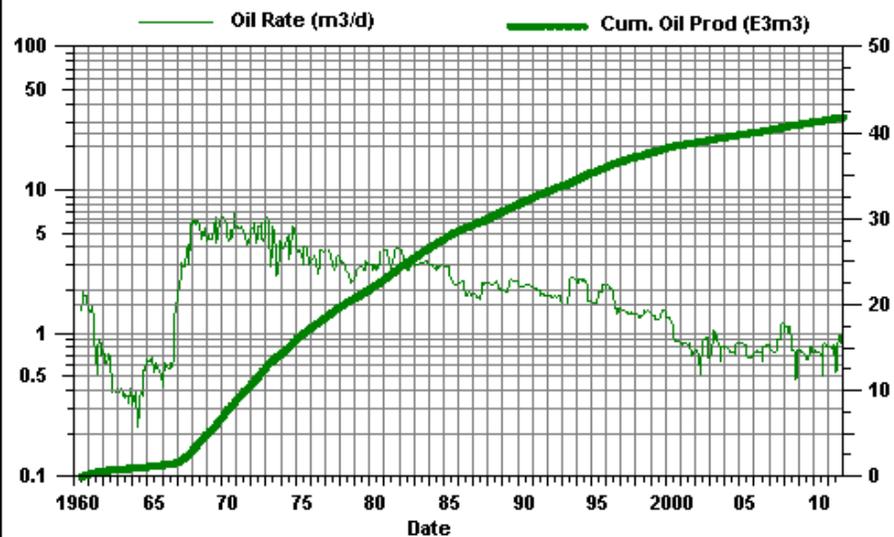
# Virден Roselea Unit #2

## 14-05



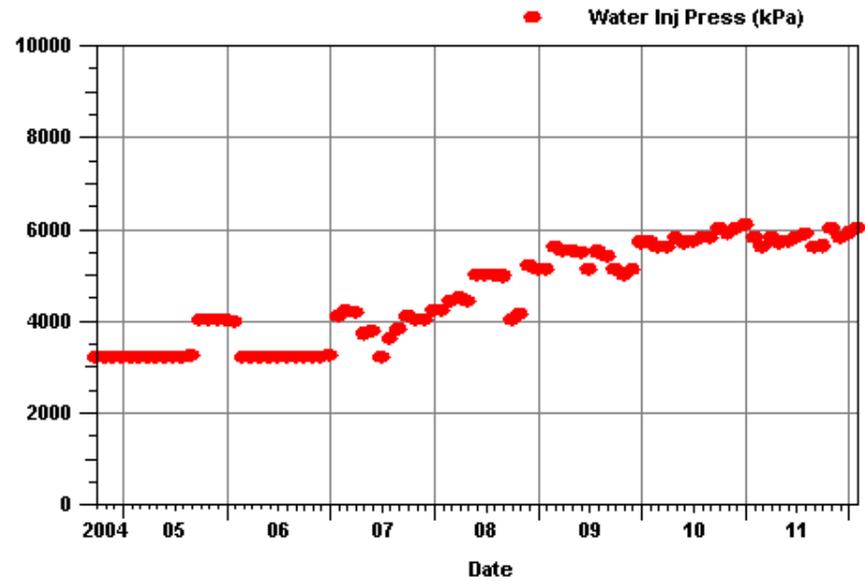
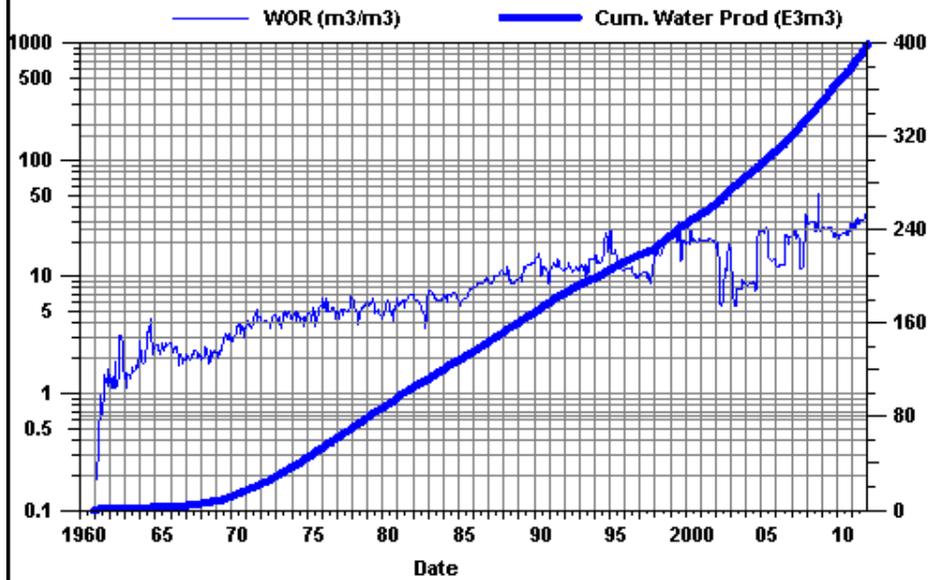
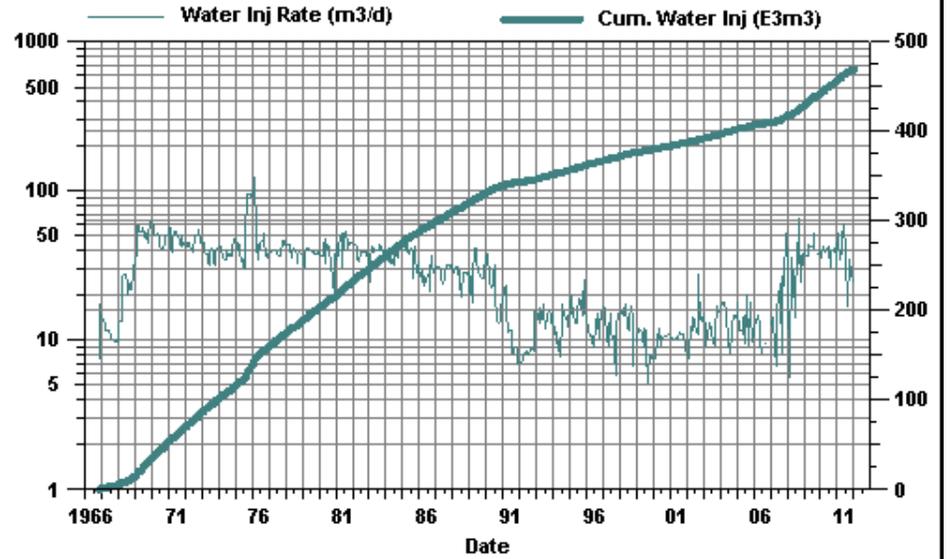
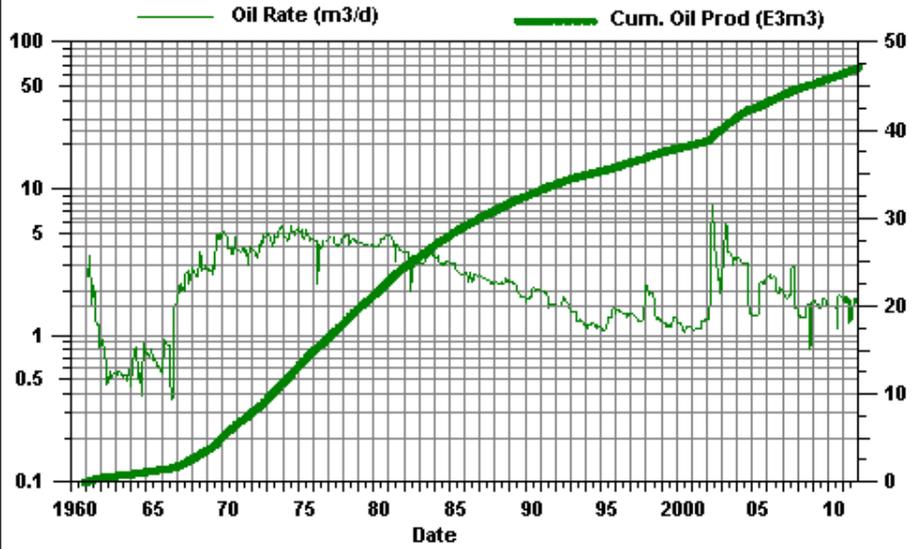
# Virден Roselea Unit #2

14-06



# Virден Roselea Unit #2

## 16-06



# Virден Roselea Unit #2

## 10-05

