

**NORTH VIRDEN SCALLION UNIT NO. 2**

**WATERFLOOD EOR PROJECT**

**ANNUAL REPORT FOR 2012**

**March 1, 2013**

**Tundra Oil and Gas Partnership**

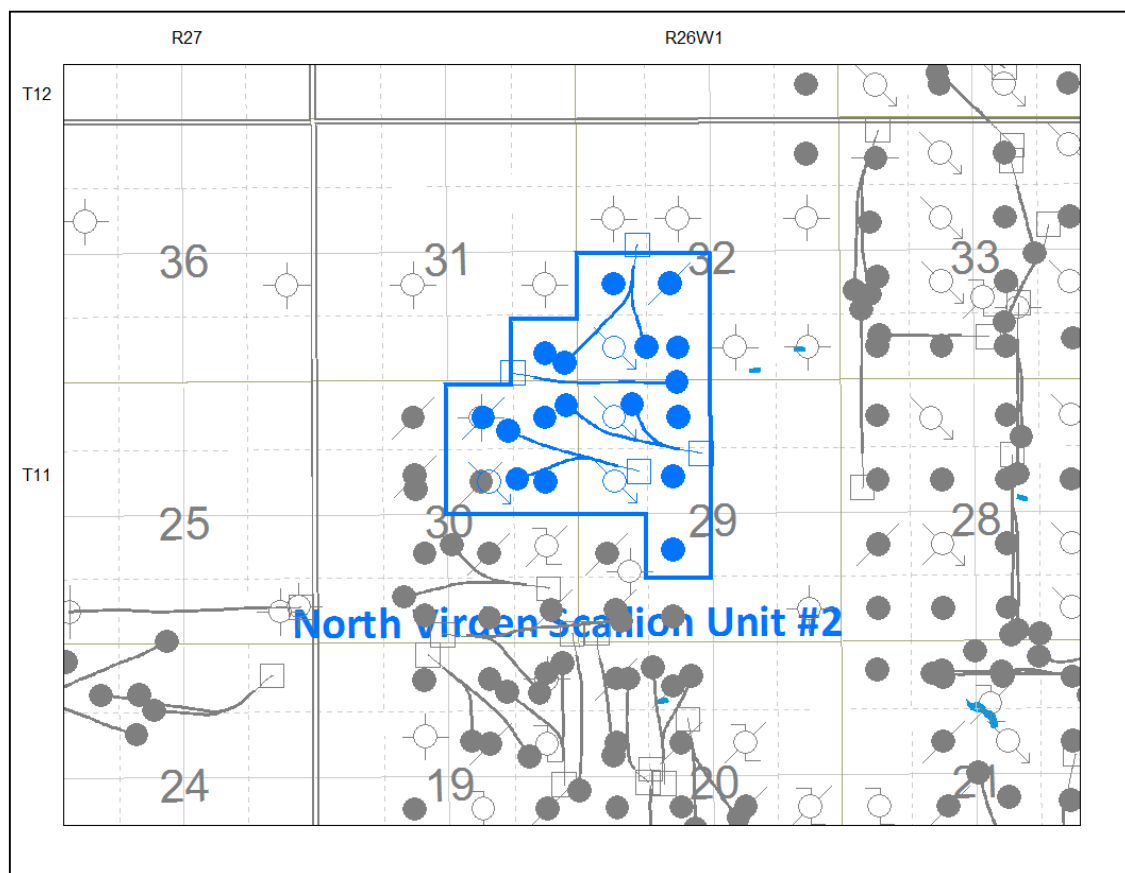
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## **INTRODUCTION**

North Virden Scallion Unit No. 2 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Board Order No. PM 59 effective August 1989 with Saskoil and Gas Corporation as Operator. Mountcliff Resources Ltd. acquired the unit from Saskoil and Gas Corporation and became operator in January 1993. Tundra acquired the unit from Mountcliff Resources Ltd. in January 2000 and is the current operator of the unit. The EOR project area contains 21 wells in 5 LSDs in Township 11, Range 26 W1 as shown in the figure below. Well list and well status is available in Appendix A.

**Figure 1: North Virden Scallion Unit No. 2 Area Outline**



In accordance with Section 73 of the Manitoba Drilling and Production Regulation, Tundra hereby submits the 2012 Annual Progress Report for North Virden Scallion Unit No. 2 as required by Board Order No. PM 59.

## **DISCUSSION**

### **Production History**

For the wells included in North Virden Scallion unit No. 2, production started November 1982 with 00/13-29-009-26W1/0 well. Oil production peaked at 59.2 m<sup>3</sup>/d in March 2000.

The Unit was producing 6.0 m<sup>3</sup>/d of oil and 73.2 m<sup>3</sup>/d of water at the end of 2012, with a WOR of 12.1 m<sup>3</sup>/m<sup>3</sup>. The rates and WOR are plotted in Figure 2.

**Figure 2: North Virden Scallion Unit No. 2 Production/Injection Rates and WOR vs. Time**

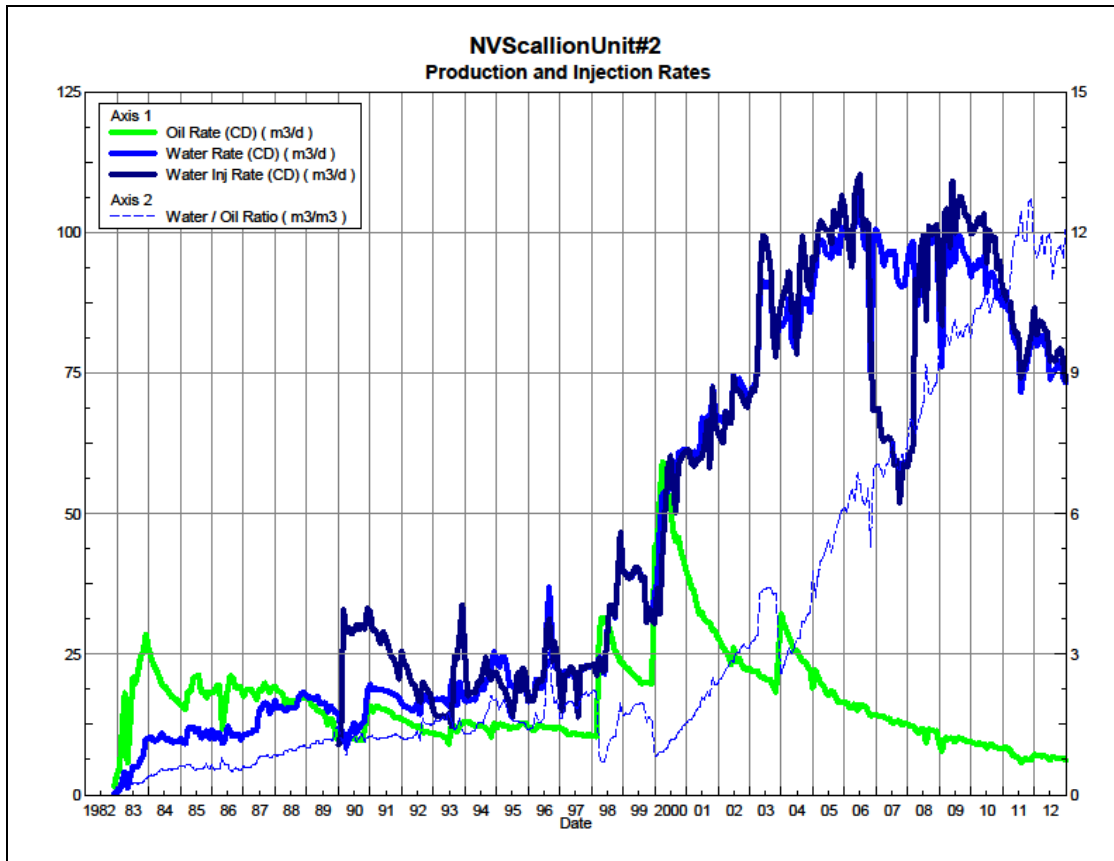
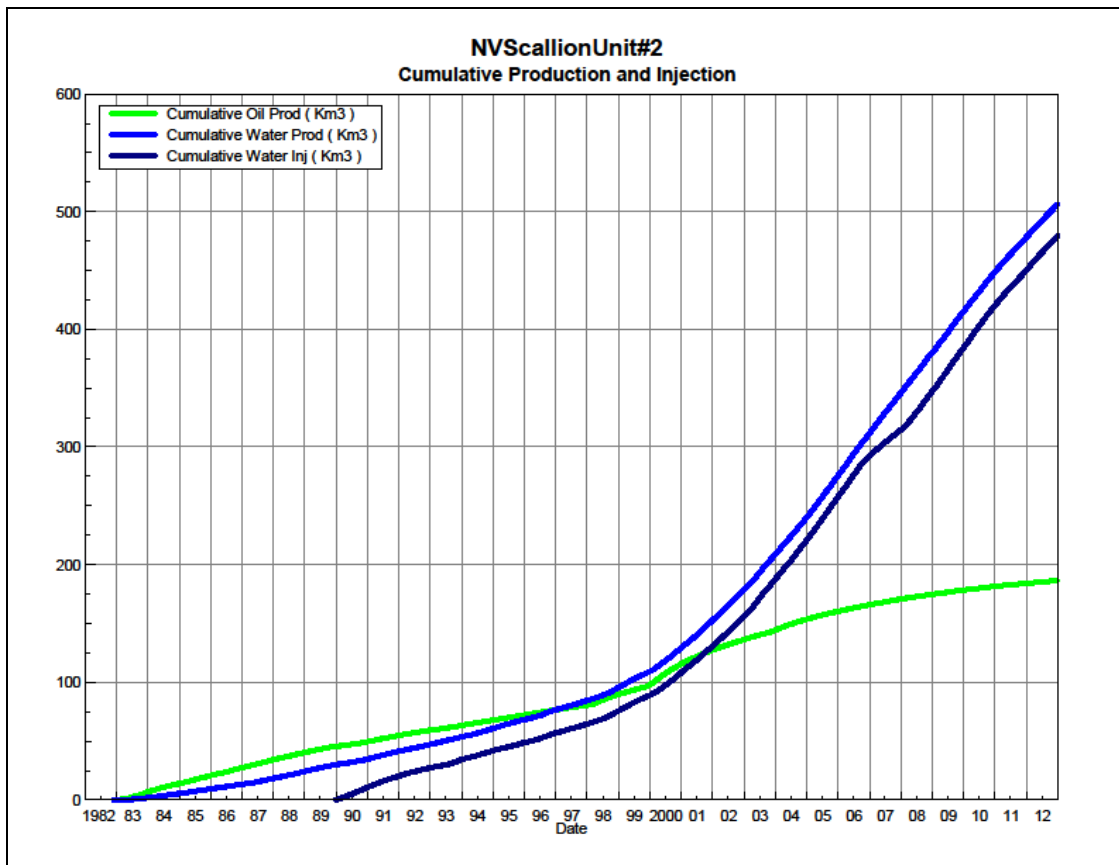


Figure 3 shows the cumulative production for North Virden Scallion Unit No. 2 to the end of December 2012 as 187 E<sup>3</sup>m<sup>3</sup> of oil, and 506 E<sup>3</sup>m<sup>3</sup> of water. The cumulative water injected is over 480 E<sup>3</sup>m<sup>3</sup>.

**Figure 3: North Virden Scallion Unit No. 2 Cumulative Oil, Water and Water Injected vs. Time**



### **Waterflood History**

As of December 2012 the Unit has 4 active vertical injectors in 3 injector patterns. Water injection started in December 1989. An overall summary for each injector pattern is presented in Appendix C.

Any future revisions to the waterflood development or surveillance plan would be based on new production or performance response data, technical studies, or observed reservoir behavior and reserves recovery interpretations.

### **Waterflood EOR Operating Strategy and Performance**

#### **Water Source and Quality**

Currently there is no source water being used at North Virden Scallion Unit No. 2. Produced water is re-injected back into the formation after filtration.

### **Injection Wellhead Pressures**

The average monthly wellhead injection pressures, for each injection well, are summarized in Appendix B, and show all injection pressures since 2003. The average injection pressure for each injection well was 7860 kPag for 2012.

### **Reservoir Pressure**

No reservoir pressure measurements were taken at North Virden Scallion Unit No. 2 in 2012.

### **Well Servicing**

No maintenance was required on the 21 wells in North Virden Scallion Unit No. 2 in 2012.

### **Voidage Replacement**

Cumulative voidage for the North Virden Scallion Unit No. 2 was 0.85 in December 2012. Tundra hopes to maintain this cumulative VRR, by keeping water injection at its current rate for the foreseeable future. Calculation, plots and tables of the Voidage replacement ratio on a monthly and cumulative basis for each injection pattern and for the project area are presented in Appendix D.

### **Waterflood Performance Discussion**

OOIP for North Virden Scallion Unit No. 2 is 554 E<sup>3</sup>m<sup>3</sup>. Current recovery factor within the unit is approximately 33.7%. Ultimate recovery factor for the North Virden Scallion Unit No. 2 is estimated to approach 36% by decline analysis.

Overall this waterflood has been quite effective as evident by the high estimated ultimate recovery factor. Likely the most significant factor that has contributed to this unit's high recovery factor was the application horizontal drilling technology. From 1998-2002, 4 Hz wells were drilled into the unit and since then the wells have recovered an average 20 E<sup>3</sup>m<sup>3</sup> each. A portion of the reserves recovered by each horizontal well can be attributed to production acceleration; however, decline analysis clearly indicates that incremental reserves were also encountered when the horizontal wells were drilled. These incremental reserves have contributed to the unit's overall high recovery factor.

Tundra has no definite plans to significantly alter the way in which the waterflood at North Virden Scallion Unit No. 2 is currently operating.

## **List of Appendices**

Appendix A: Well Name and Well Status

Appendix B: Monthly Injection Wellhead Pressures Table and Plots

Appendix C: North Virden Scallion Unit No. 2 Injection Pattern Summary

Appendix D: Injector Pattern Production/Injection Rates, Cumulative and VRRs  
Plots and Tables for the following injectors:

00/12-29-011-26W1/00

02/10-30-011-26W1/00

00/04-32-011-26W1/00

## Appendix A

UWI	Surface Location	Well Status
100/06-29-011-26W1/00		Capable of OIL Prod
100/11-29-011-26W1/00		Capable of OIL Prod
100/12-29-011-26W1/00		WTR Injection
100/13-29-011-26W1/00		WTR Injection
102/13-29-011-26W1/02	11-29-011-26W1	Capable of OIL Prod
100/14-29-011-26W1/00		Capable of OIL Prod
100/09-30-011-26W1/00		Capable of OIL Prod
102/09-30-011-26W1/02	12-29-011-26W1	Capable of OIL Prod
102/10-30-011-26W1/00		WTR Injection
102/15-30-011-26W1/00		ABD Producer
103/15-30-011-26W1/00	12-29-011-26W1	Capable of OIL Prod
100/16-30-011-26W1/00		Capable of OIL Prod
102/16-30-011-26W1/00	11-29-011-26W1	Capable of OIL Prod
100/01-31-011-26W1/00		Capable of OIL Prod
102/01-31-011-26W1/02	12-32-011-26W1	Capable of OIL Prod
100/03-32-011-26W1/00		Capable of OIL Prod
102/03-32-011-26W1/00	12-32-011-26W1	Capable of OIL Prod
103/03-32-011-26W1/00	01-31-011-26W1	Capable of OIL Prod
100/04-32-011-26W1/00		WTR Injection
100/05-32-011-26W1/00		Capable of OIL Prod
100/06-32-011-26W1/00		ABD Producer



## Appendix B

**Average Monthly Injection Pressure (kPag)**

Month	Injection Pressure			
	100/04-32	100/12-29	100/13-29	102/10-30
Jan-02				
Feb-02				
Mar-02				
Apr-02				
May-02				
Jun-02				
Jul-02				
Aug-02	6338	6279	0	6279
Sep-02	6338	6279	0	6279
Oct-02	6338	6279	0	6279
Nov-02	6338	6279	0	6279
Dec-02	6338	6279	0	6279
Jan-03	6338	6279	0	6279
Feb-03	6338	6279	0	6279
Mar-03	6338	6279	0	6279
Apr-03	6400	6333	253	6333
May-03	8200	7973	7818	7973
Jun-03	8200	8050	8050	8050
Jul-03	8200	8050	8050	8050
Aug-03	8406	8295	8295	8295
Sep-03	7923	8140	8140	8140
Oct-03	1200	5272	4629	5272
Nov-03	4774	5428	4774	5428
Dec-03	4800	4800	4800	4800
Jan-04	4800	4800	4800	4800
Feb-04	4800	4800	4800	4800
Mar-04	4800	4800	4800	4800
Apr-04	4800	4800	4800	4800
May-04	5465	5465	5465	5465
Jun-04	6633	6633	6633	6633
Jul-04	7290	7290	7290	7290
Aug-04	7732	7732	7732	7732
Sep-04	8190	8190	8190	8190
Oct-04	6906	6906	6906	6509
Nov-04	5681	5681	5681	5473
Dec-04	5530	5530	5530	5530
Jan-05	5591	5591	5591	5591
Feb-05	6112	6112	6112	6112
Mar-05	6555	6555	6555	6555
Apr-05	6539	6539	6539	6539
May-05	6506	6506	6506	6506
Jun-05	7029	7029	7029	7029
Jul-05	6460	6460	6460	6460
Aug-05	5934	5934	5934	5934
Sep-05	6077	6077	6077	6077
Oct-05	6537	6537	6537	6537
Nov-05	7199	7199	7199	7199
Dec-05	7452	7452	7452	7452

Month	Injection Pressure			
	100/04-32	100/12-29	100/13-29	102/10-30
Jan-06	7524	7524	7524	7524
Feb-06	7796	7796	7796	7796
Mar-06	7053	7053	7053	7053
Apr-06	6417	6417	6417	6417
May-06	6719	6719	6719	6719
Jun-06	7002	7002	7002	7002
Jul-06	6416	6416	6032	6416
Aug-06	5609	5609	5609	5609
Sep-06	5796	5796	5796	5796
Oct-06	4596	4804	4804	4804
Nov-06	5235	5235	5235	5235
Dec-06	5636	5636	5636	5636
Jan-07	5798	5798	5798	5798
Feb-07	5817	5817	5817	5817
Mar-07	5720	5720	5720	5720
Apr-07	5839	5839	5839	5839
May-07	5947	5947	5947	5947
Jun-07	5920	5920	5920	5920
Jul-07	6016	6016	6016	6016
Aug-07	5927	5927	5927	5927
Sep-07	5723	5955	5955	5961
Oct-07	5755	5755	5755	5790
Nov-07	5998	5998	5998	5998
Dec-07	6375	6375	6238	6375
Jan-08	6408	6408	6408	6408
Feb-08	6645	6645	6645	6645
Mar-08	6637	6637	6637	6637
Apr-08	6670	6670	6670	6670
May-08	7224	7224	7224	7224
Jun-08	6619	6619	6619	6619
Jul-08	6599	6599	6599	6599
Aug-08	6431	6431	6431	6431
Sep-08	6987	6987	6987	6987
Oct-08	6963	6963	6963	6963
Nov-08	6863	6863	6863	6863
Dec-08	6826	6826	6826	6826
Jan-09	6405	6405	6405	6405
Feb-09	7239	7239	7239	7239
Mar-09	7362	7362	7362	7362
Apr-09	6812	6812	6812	6812
May-09	7203	7203	7203	7203
Jun-09	6966	6966	6966	6966
Jul-09	5563	5563	5563	5563
Aug-09	5102	5102	5102	5102
Sep-09	4964	4964	4964	4964
Oct-09	4979	4979	4979	4979
Nov-09	4964	4964	4964	4964
Dec-09	4964	4964	4964	4964

Month	Injection Pressure			
	100/04-32	100/12-29	100/13-29	102/10-30
Jan-10	4964	4964	4964	4964
Feb-10	4856	4856	4856	4856
Mar-10	5104	5104	5104	5104
Apr-10	5171	5171	5171	5171
May-10	5171	5171	5171	5171
Jun-10	5171	5171	5171	5171
Jul-10	5171	5171	5171	5171
Aug-10	5224	5224	5224	5224
Sep-10	5240	5240	5240	5240
Oct-10	5240	5240	5240	5240
Nov-10	5056	5056	5056	5056
Dec-10	4550	4550	4550	4550
Jan-11	4479	4479	4479	4479
Feb-11	4299	4299	4299	4299
Mar-11	4274	4274	4274	4274
Apr-11	4274	4274	4274	4274
May-11	4274	4274	4274	4274
Jun-11	4274	4274	4274	4274
Jul-11	4274	4274	4274	4274
Aug-11	5303	5303	5303	0
Sep-11	5054	5054	5054	3282
Oct-11	6676	6676	6676	6676
Nov-11	6894	6894	6894	6894
Dec-11	7361	7361	7361	7361
Jan-12	7860	7860	7860	7860
Feb-12	7860	7860	7860	7860
Mar-12	7860	7860	7860	7860
Apr-12	7860	7860	7860	7860
May-12	7860	7860	7860	7860
Jun-12	7860	7860	7860	7860
Jul-12	7860	7860	7860	7860
Aug-12	7860	7860	7860	7860
Sep-12	7860	7860	7860	7860
Oct-12	7860	7860	7860	7860
Nov-12	7860	7860	7860	7860
Dec-12	7860	7860	7860	7860

## Appendix C

## North Virden Scallion Unit 2 Pattern Summary as of December 2012

Pattern Name	Injector Location (011-26W)	Injector Surf. Location (011-26W)	Status	No. of Supported Wells	Supported Wells (011-26W)	Allocation Factor	Pattern Prod Start Month	Inj Start Month	Oil Rate (m³/d)	Water Rate (m³/d)	WOR (m³/m³)	Water Injection (m³/d)	Cum Oil (E³m³)	Cum Water (E³m³)	Cum Inj Water (E³m³)	Monthly VRR	Cum VRR
00/12-29-011-26W1 Injector	00/12-29 00/13-29	Vertical Well	WTR Injection	10	06-29, 11-29, 14-29, 02/13-29 (Surf 11-29), 02/16-30 (Surf 11-29) 02/09-30 (Surf 12-29)	1.0	Nov 1982	Feb 1990	3.6	38.5	10.66	41.9	93.8	252.4	190.3	1.0	0.54
					03/15-30 (Surf 12-29)	0.75											
					09-30, 16-30	0.6											
					03/03-32 (Surf 01-31)	0.5											
						0.45											
02/10-30-011-26W1 Injector	02/10-30	Vertical Well	WTR Injection	7	02/15-30 01-31, 09-30, 16-30 03/15-30	1.0	Mar 1983	Dec 1989	0.4	7.9	21.77	-	28.3	84.2	151.1	-	1.33
					02/09-30	0.5											
					03/03-32 (Surf 01-31)	0.4											
						0.25											
						0.1											
00/04-32-011-26W1 Injector	00/04-32	Vertical Well	WTR Injection	7	03-32, 05-32, 06-32, 02/01-31 (Surf 12-32), 02/03-32 (Surf 12-32)	1.0	Nov 1982	Feb 1990	2.1	25.2	12.23	31.7	63.2	156.1	138.1	1.2	0.62
					01-31	0.5											
					03/03-32 (Surf 01-31)	0.45											

**Appendix D**  
**Rates and VRR**  
**Plots and Tables**

# Pattern: 12-29-11-26 Set: NVScallionUnit#2

Oil Formation Vol Factor : 1.05000 m3/m3

Water Formation Vol Factor : 1.00000 m3/m3

Water / Oil Ratio : 10.66 m3/m3

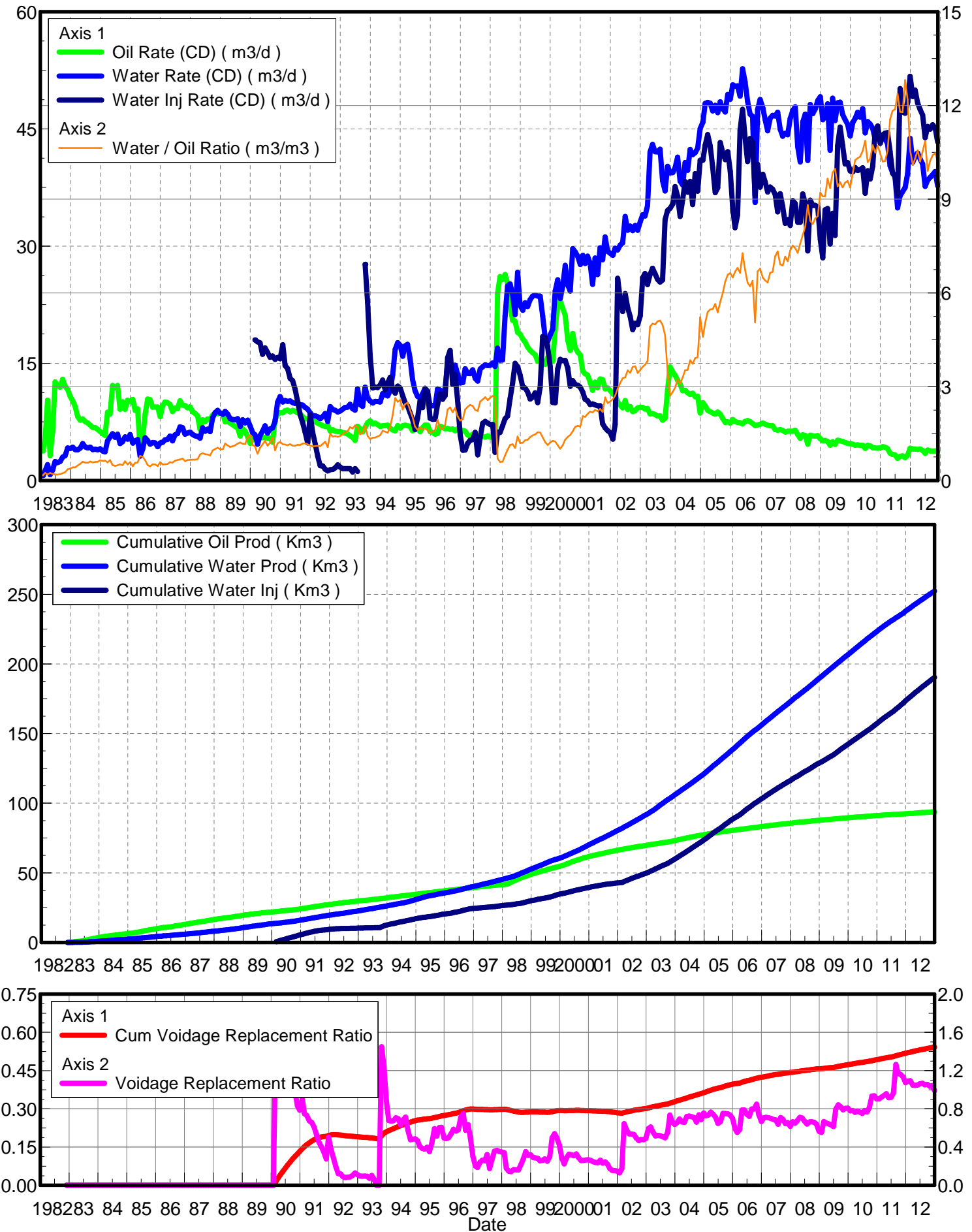
February 27, 2013

Operator: Tundra\_O&G\_Prtshp

Oil Rate (CD) : 3.61 m3/d

Water Rate (CD) : 38.49 m3/d

Water Inj Rate (CD) : 41.92 m3/d



Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
11/30/1982	1.61	0.15	0.09		0.05	0.00	0.00	0.000	0.000
12/31/1982	3.70	0.58	0.16		0.16	0.02	0.00	0.000	0.000
1/31/1983	3.79	0.63	0.17		0.28	0.04	0.00	0.000	0.000
2/28/1983	5.11	1.23	0.24		0.42	0.08	0.00	0.000	0.000
3/31/1983	10.29	2.01	0.20		0.74	0.14	0.00	0.000	0.000
4/30/1983	3.17	0.75	0.24		0.84	0.16	0.00	0.000	0.000
5/31/1983	6.21	1.32	0.21		1.03	0.20	0.00	0.000	0.000
6/30/1983	12.62	2.43	0.19		1.41	0.27	0.00	0.000	0.000
7/31/1983	12.16	2.28	0.19		1.79	0.35	0.00	0.000	0.000
8/31/1983	11.94	2.42	0.20		2.16	0.42	0.00	0.000	0.000
9/30/1983	12.97	2.98	0.23		2.54	0.51	0.00	0.000	0.000
10/31/1983	12.04	3.18	0.26		2.92	0.61	0.00	0.000	0.000
11/30/1983	11.66	4.16	0.36		3.27	0.73	0.00	0.000	0.000
12/31/1983	10.75	4.08	0.38		3.60	0.86	0.00	0.000	0.000
1/31/1984	10.20	4.28	0.42		3.92	0.99	0.00	0.000	0.000
2/29/1984	9.46	3.96	0.42		4.19	1.11	0.00	0.000	0.000
3/31/1984	8.20	3.91	0.48		4.45	1.23	0.00	0.000	0.000
4/30/1984	7.72	4.12	0.53		4.68	1.35	0.00	0.000	0.000
5/31/1984	7.87	4.71	0.60		4.92	1.50	0.00	0.000	0.000
6/30/1984	7.52	4.29	0.57		5.15	1.63	0.00	0.000	0.000
7/31/1984	7.37	4.17	0.57		5.38	1.76	0.00	0.000	0.000
8/31/1984	7.07	4.28	0.60		5.59	1.89	0.00	0.000	0.000
9/30/1984	6.79	3.95	0.58		5.80	2.01	0.00	0.000	0.000
10/31/1984	6.76	4.00	0.59		6.01	2.13	0.00	0.000	0.000
11/30/1984	6.54	3.91	0.60		6.20	2.25	0.00	0.000	0.000
12/31/1984	6.25	4.04	0.65		6.40	2.37	0.00	0.000	0.000
1/31/1985	5.99	3.75	0.63		6.58	2.49	0.00	0.000	0.000
2/28/1985	5.76	3.64	0.63		6.74	2.59	0.00	0.000	0.000
3/31/1985	8.72	5.08	0.58		7.02	2.75	0.00	0.000	0.000
4/30/1985	8.49	5.56	0.66		7.27	2.92	0.00	0.000	0.000
5/31/1985	12.17	5.99	0.49		7.65	3.10	0.00	0.000	0.000
6/30/1985	11.87	5.51	0.46		8.00	3.27	0.00	0.000	0.000
7/31/1985	12.14	5.93	0.49		8.38	3.45	0.00	0.000	0.000
8/31/1985	9.11	4.71	0.52		8.66	3.60	0.00	0.000	0.000
9/30/1985	10.06	4.96	0.49		8.96	3.75	0.00	0.000	0.000
10/31/1985	9.10	5.58	0.61		9.25	3.92	0.00	0.000	0.000
11/30/1985	10.28	5.27	0.51		9.55	4.08	0.00	0.000	0.000
12/31/1985	10.09	5.88	0.58		9.87	4.26	0.00	0.000	0.000
1/31/1986	10.37	4.77	0.46		10.19	4.41	0.00	0.000	0.000
2/28/1986	8.99	5.06	0.56		10.44	4.55	0.00	0.000	0.000
3/31/1986	9.15	5.23	0.57		10.72	4.71	0.00	0.000	0.000
4/30/1986	3.99	3.13	0.78		10.84	4.81	0.00	0.000	0.000
5/31/1986	5.30	4.01	0.76		11.01	4.93	0.00	0.000	0.000
6/30/1986	8.50	5.46	0.64		11.26	5.09	0.00	0.000	0.000
7/31/1986	10.42	5.11	0.49		11.59	5.25	0.00	0.000	0.000
8/31/1986	10.35	4.65	0.45		11.91	5.40	0.00	0.000	0.000
9/30/1986	9.37	4.85	0.52		12.19	5.54	0.00	0.000	0.000
10/31/1986	9.41	4.80	0.51		12.48	5.69	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
11/30/1986	9.41	4.33	0.46		12.76	5.82	0.00	0.000	0.000
12/31/1986	8.18	4.80	0.59		13.02	5.97	0.00	0.000	0.000
1/31/1987	9.57	4.88	0.51		13.31	6.12	0.00	0.000	0.000
2/28/1987	10.04	5.21	0.52		13.59	6.27	0.00	0.000	0.000
3/31/1987	9.97	5.27	0.53		13.90	6.43	0.00	0.000	0.000
4/30/1987	9.71	5.69	0.59		14.19	6.60	0.00	0.000	0.000
5/31/1987	8.82	5.06	0.57		14.47	6.76	0.00	0.000	0.000
6/30/1987	9.27	5.84	0.63		14.74	6.93	0.00	0.000	0.000
7/31/1987	9.18	6.00	0.65		15.03	7.12	0.00	0.000	0.000
8/31/1987	10.20	6.85	0.67		15.35	7.33	0.00	0.000	0.000
9/30/1987	9.63	6.76	0.70		15.63	7.53	0.00	0.000	0.000
10/31/1987	9.59	5.93	0.62		15.93	7.72	0.00	0.000	0.000
11/30/1987	9.29	6.05	0.65		16.21	7.90	0.00	0.000	0.000
12/31/1987	9.42	6.19	0.66		16.50	8.09	0.00	0.000	0.000
1/31/1988	8.79	5.87	0.67		16.77	8.27	0.00	0.000	0.000
2/29/1988	8.57	5.71	0.67		17.02	8.44	0.00	0.000	0.000
3/31/1988	8.28	5.64	0.68		17.28	8.61	0.00	0.000	0.000
4/30/1988	6.52	5.41	0.83		17.48	8.78	0.00	0.000	0.000
5/31/1988	7.78	6.76	0.87		17.72	8.99	0.00	0.000	0.000
6/30/1988	7.52	6.31	0.84		17.94	9.17	0.00	0.000	0.000
7/31/1988	7.88	6.57	0.83		18.19	9.38	0.00	0.000	0.000
8/31/1988	7.82	6.25	0.80		18.43	9.57	0.00	0.000	0.000
9/30/1988	8.36	8.00	0.96		18.68	9.81	0.00	0.000	0.000
10/31/1988	8.64	8.69	1.01		18.95	10.08	0.00	0.000	0.000
11/30/1988	8.55	8.98	1.05		19.20	10.35	0.00	0.000	0.000
12/31/1988	8.63	8.63	1.00		19.47	10.62	0.00	0.000	0.000
1/31/1989	8.46	8.46	1.00		19.73	10.88	0.00	0.000	0.000
2/28/1989	7.49	8.83	1.18		19.94	11.13	0.00	0.000	0.000
3/31/1989	7.57	8.50	1.12		20.18	11.39	0.00	0.000	0.000
4/30/1989	7.34	7.90	1.08		20.40	11.63	0.00	0.000	0.000
5/31/1989	7.13	7.80	1.10		20.62	11.87	0.00	0.000	0.000
6/30/1989	6.91	7.77	1.13		20.83	12.10	0.00	0.000	0.000
7/31/1989	6.71	7.91	1.18		21.03	12.35	0.00	0.000	0.000
8/31/1989	5.67	6.91	1.22		21.21	12.56	0.00	0.000	0.000
9/30/1989	6.63	7.78	1.17		21.41	12.80	0.00	0.000	0.000
10/31/1989	6.31	7.38	1.17		21.61	13.03	0.00	0.000	0.000
11/30/1989	5.59	7.72	1.38		21.77	13.26	0.00	0.000	0.000
12/31/1989	4.75	6.95	1.46		21.92	13.47	0.00	0.000	0.000
1/31/1990	5.36	6.08	1.13		22.09	13.66	0.00	0.000	0.000
2/28/1990	5.37	5.85	1.09	17.98	22.24	13.82	0.50	1.565	0.014
3/31/1990	5.43	4.65	0.86	17.75	22.41	13.97	1.05	1.714	0.028
4/30/1990	5.51	5.75	1.04	17.61	22.57	14.14	1.58	1.526	0.042
5/31/1990	5.47	6.30	1.15	16.13	22.74	14.34	2.08	1.340	0.054
6/30/1990	5.52	7.00	1.27	16.96	22.91	14.55	2.59	1.326	0.067
7/31/1990	5.43	6.06	1.12	16.39	23.07	14.73	3.10	1.394	0.080
8/31/1990	5.45	6.60	1.21	15.76	23.24	14.94	3.59	1.279	0.091
9/30/1990	4.91	6.73	1.37	15.93	23.39	15.14	4.07	1.341	0.102
10/31/1990	7.81	7.55	0.97	15.49	23.63	15.37	4.55	0.983	0.113

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
11/30/1990	8.47	10.03	1.18	15.73	23.89	15.68	5.02	0.832	0.123
12/31/1990	8.68	10.74	1.24	15.57	24.16	16.01	5.50	0.785	0.133
1/31/1991	8.66	10.05	1.16	17.38	24.42	16.32	6.04	0.908	0.144
2/28/1991	8.94	10.24	1.15	14.69	24.67	16.61	6.45	0.748	0.152
3/31/1991	9.00	10.14	1.13	14.31	24.95	16.92	6.89	0.731	0.160
4/30/1991	8.78	10.17	1.16	13.06	25.22	17.23	7.29	0.674	0.167
5/31/1991	8.97	9.97	1.11	12.77	25.50	17.53	7.68	0.659	0.173
6/30/1991	8.86	9.87	1.11	11.67	25.76	17.83	8.03	0.609	0.179
7/31/1991	8.66	9.90	1.14	10.09	26.03	18.14	8.34	0.531	0.184
8/31/1991	8.56	9.69	1.13	8.42	26.29	18.44	8.61	0.451	0.187
9/30/1991	8.18	9.64	1.18	7.39	26.54	18.73	8.83	0.406	0.189
10/31/1991	7.87	9.35	1.19	6.15	26.78	19.02	9.02	0.350	0.191
11/30/1991	7.90	9.13	1.16	4.81	27.02	19.29	9.16	0.276	0.192
12/31/1991	7.73	8.66	1.12	8.43	27.26	19.56	9.42	0.503	0.196
1/31/1992	7.63	8.28	1.09	6.13	27.50	19.82	9.61	0.376	0.197
2/29/1992	7.53	8.28	1.10	4.69	27.72	20.06	9.75	0.290	0.198
3/31/1992	7.35	8.13	1.11	3.11	27.94	20.31	9.85	0.196	0.198
4/30/1992	7.17	7.90	1.10	1.89	28.16	20.55	9.90	0.122	0.198
5/31/1992	7.00	8.18	1.17	1.85	28.38	20.80	9.96	0.119	0.197
6/30/1992	6.92	8.58	1.24	1.44	28.58	21.06	10.00	0.091	0.196
7/31/1992	7.10	7.57	1.07	1.23	28.80	21.29	10.04	0.082	0.195
8/31/1992	6.33	9.46	1.49	1.39	29.00	21.58	10.08	0.086	0.194
9/30/1992	6.49	9.09	1.40	1.41	29.19	21.86	10.13	0.089	0.193
10/31/1992	6.31	8.96	1.42	1.63	29.39	22.13	10.18	0.105	0.192
11/30/1992	6.26	8.75	1.40	2.00	29.58	22.40	10.24	0.130	0.192
12/31/1992	6.27	8.90	1.42	1.69	29.77	22.67	10.29	0.109	0.191
1/31/1993	6.12	9.13	1.49	1.50	29.96	22.96	10.34	0.096	0.190
2/28/1993	6.09	9.35	1.53	1.50	30.13	23.22	10.38	0.095	0.189
3/31/1993	5.96	9.39	1.57	1.50	30.32	23.51	10.42	0.096	0.188
4/30/1993	5.71	9.75	1.71	1.50	30.49	23.80	10.47	0.095	0.188
5/31/1993	5.54	9.20	1.66	1.10	30.66	24.09	10.50	0.073	0.187
6/30/1993	5.11	9.01	1.76	1.50	30.81	24.36	10.55	0.104	0.186
7/31/1993	6.94	11.74	1.69	1.14	31.03	24.72	10.58	0.060	0.185
8/31/1993	6.59	9.72	1.48		31.23	25.02	10.58	0.000	0.183
9/30/1993	6.21	9.49	1.53		31.42	25.31	10.58	0.000	0.182
10/31/1993	6.80	11.94	1.76	27.67	31.63	25.68	11.44	1.450	0.194
11/30/1993	7.41	10.54	1.42	22.78	31.85	25.99	12.13	1.244	0.204
12/31/1993	7.64	10.17	1.33	16.02	32.09	26.31	12.62	0.881	0.210
1/31/1994	7.23	9.90	1.37	11.85	32.31	26.62	12.99	0.678	0.215
2/28/1994	7.36	10.12	1.38	11.97	32.52	26.90	13.32	0.671	0.218
3/31/1994	7.16	10.09	1.41	11.88	32.74	27.21	13.69	0.675	0.222
4/30/1994	6.92	10.04	1.45	12.22	32.95	27.51	14.06	0.706	0.226
5/31/1994	7.00	11.11	1.59	12.85	33.17	27.86	14.46	0.696	0.231
6/30/1994	7.02	10.95	1.56	11.59	33.38	28.19	14.81	0.633	0.234
7/31/1994	7.08	10.81	1.53	12.48	33.60	28.52	15.19	0.684	0.238
8/31/1994	6.68	11.47	1.72	13.19	33.80	28.88	15.60	0.714	0.242
9/30/1994	6.45	13.51	2.09	11.70	34.00	29.28	15.95	0.576	0.246
10/31/1994	6.36	16.78	2.64	11.17	34.19	29.80	16.30	0.476	0.248

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemnt Ratio
11/30/1994	7.01	17.64	2.52	12.08	34.40	30.33	16.66	0.483	0.251
12/31/1994	6.71	17.30	2.58	11.84	34.61	30.87	17.03	0.486	0.253
1/31/1995	6.99	15.90	2.27	10.85	34.83	31.36	17.36	0.467	0.256
2/28/1995	7.07	17.21	2.43	10.00	35.03	31.84	17.64	0.406	0.257
3/31/1995	6.99	17.42	2.49	9.55	35.24	32.38	17.94	0.386	0.259
4/30/1995	6.93	15.65	2.26	8.69	35.45	32.85	18.20	0.379	0.260
5/31/1995	6.35	12.94	2.04	7.82	35.65	33.25	18.44	0.399	0.261
6/30/1995	6.66	11.48	1.72	6.51	35.85	33.60	18.64	0.352	0.262
7/31/1995	6.64	10.78	1.62	7.96	36.05	33.93	18.89	0.448	0.263
8/31/1995	6.23	10.54	1.69	10.14	36.25	34.26	19.20	0.594	0.265
9/30/1995	6.75	11.07	1.64	9.33	36.45	34.59	19.48	0.514	0.267
10/31/1995	7.11	11.80	1.66	11.65	36.67	34.96	19.84	0.605	0.270
11/30/1995	7.08	11.41	1.61	11.43	36.88	35.30	20.18	0.607	0.273
12/31/1995	6.25	9.50	1.52	7.95	37.08	35.59	20.43	0.495	0.274
1/31/1996	6.11	9.59	1.57	7.83	37.27	35.89	20.67	0.489	0.276
2/29/1996	5.92	9.53	1.61	7.85	37.44	36.17	20.90	0.498	0.277
3/31/1996	6.03	11.72	1.94	9.76	37.62	36.53	21.20	0.541	0.279
4/30/1996	6.95	11.57	1.67	11.08	37.83	36.88	21.54	0.587	0.281
5/31/1996	6.81	11.17	1.64	10.38	38.04	37.22	21.86	0.567	0.283
6/30/1996	6.62	11.75	1.78	10.85	38.24	37.58	22.18	0.580	0.285
7/31/1996	6.64	15.10	2.27	15.72	38.45	38.04	22.67	0.712	0.289
8/31/1996	6.53	15.29	2.34	16.64	38.65	38.52	23.19	0.751	0.293
9/30/1996	6.59	14.39	2.18	12.29	38.85	38.95	23.55	0.576	0.295
10/31/1996	6.36	14.75	2.32	13.57	39.05	39.41	23.98	0.634	0.298
11/30/1996	6.62	13.62	2.06	10.17	39.24	39.82	24.28	0.494	0.300
12/31/1996	6.51	12.47	1.92	5.86	39.45	40.20	24.46	0.303	0.300
1/31/1997	6.39	12.53	1.96	3.88	39.64	40.59	24.58	0.202	0.299
2/28/1997	6.30	14.29	2.27	3.90	39.82	40.99	24.69	0.187	0.298
3/31/1997	5.81	13.70	2.36	4.76	40.00	41.42	24.84	0.240	0.298
4/30/1997	5.65	13.68	2.42	5.15	40.17	41.83	24.99	0.263	0.298
5/31/1997	5.93	14.15	2.39	5.23	40.35	42.26	25.16	0.256	0.297
6/30/1997	5.79	13.08	2.26	6.15	40.53	42.66	25.34	0.321	0.297
7/31/1997	5.72	12.71	2.22	3.27	40.70	43.05	25.44	0.175	0.297
8/31/1997	5.66	14.27	2.52	5.55	40.88	43.49	25.61	0.275	0.296
9/30/1997	5.61	14.55	2.59	7.31	41.05	43.93	25.83	0.358	0.297
10/31/1997	5.56	14.81	2.67	7.55	41.22	44.39	26.07	0.366	0.297
11/30/1997	5.72	14.70	2.57	7.35	41.39	44.83	26.29	0.355	0.298
12/31/1997	5.56	14.75	2.65	7.17	41.56	45.29	26.51	0.348	0.298
1/31/1998	5.57	15.05	2.70	7.16	41.74	45.75	26.73	0.343	0.298
2/28/1998	5.46	14.59	2.67	3.59	41.89	46.16	26.83	0.177	0.298
3/31/1998	23.92	16.94	0.71	6.19	42.63	46.69	27.02	0.147	0.296
4/30/1998	26.10	15.40	0.59	6.15	43.42	47.15	27.21	0.144	0.293
5/31/1998	25.73	15.42	0.60	7.00	44.21	47.63	27.43	0.165	0.292
6/30/1998	26.37	21.04	0.80	7.91	45.00	48.26	27.66	0.162	0.290
7/31/1998	25.22	24.87	0.99	8.25	45.79	49.03	27.92	0.161	0.288
8/31/1998	22.25	25.16	1.13	10.48	46.48	49.81	28.24	0.216	0.286
9/30/1998	20.51	23.86	1.16	12.46	47.09	50.53	28.62	0.274	0.286
10/31/1998	20.36	21.22	1.04	14.99	47.72	51.18	29.08	0.352	0.287



Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
11/30/1998	18.95	26.64	1.41	14.55	48.29	51.98	29.52	0.313	0.287
12/31/1998	18.74	22.40	1.20	13.49	48.87	52.68	29.94	0.321	0.288
1/31/1999	18.08	21.78	1.20	11.91	49.43	53.35	30.31	0.292	0.288
2/28/1999	17.71	22.76	1.29	11.84	49.93	53.99	30.64	0.286	0.288
3/31/1999	17.09	22.28	1.30	11.33	50.46	54.68	30.99	0.282	0.288
4/30/1999	16.64	23.14	1.39	10.41	50.96	55.37	31.30	0.256	0.287
5/31/1999	16.35	23.60	1.44	10.66	51.46	56.11	31.63	0.262	0.287
6/30/1999	16.10	23.74	1.47	11.21	51.95	56.82	31.97	0.276	0.287
7/31/1999	15.30	23.60	1.54	9.96	52.42	57.55	32.28	0.251	0.287
8/31/1999	15.37	23.60	1.54	11.94	52.90	58.28	32.65	0.300	0.287
9/30/1999	15.26	21.05	1.38	18.41	53.35	58.91	33.20	0.497	0.289
10/31/1999	14.86	18.26	1.23	18.30	53.82	59.48	33.77	0.540	0.291
11/30/1999	15.74	17.81	1.13	17.09	54.29	60.01	34.28	0.498	0.293
12/31/1999	15.37	18.63	1.21	14.59	54.76	60.59	34.73	0.420	0.294
1/31/2000	15.25	19.35	1.27	9.98	55.24	61.19	35.04	0.282	0.294
2/29/2000	19.41	24.25	1.25	9.95	55.80	61.89	35.33	0.223	0.293
3/31/2000	22.81	25.68	1.13	14.29	56.51	62.69	35.77	0.288	0.293
4/30/2000	22.98	23.28	1.01	15.49	57.20	63.39	36.24	0.327	0.294
5/31/2000	22.05	24.86	1.13	15.33	57.88	64.16	36.71	0.319	0.294
6/30/2000	21.10	27.53	1.30	15.36	58.51	64.98	37.17	0.309	0.294
7/31/2000	17.99	25.03	1.39	14.39	59.07	65.76	37.62	0.328	0.294
8/31/2000	16.65	24.24	1.46	12.05	59.59	66.51	37.99	0.289	0.294
9/30/2000	18.82	29.68	1.58	12.77	60.15	67.40	38.38	0.258	0.294
10/31/2000	17.02	29.26	1.72	12.29	60.68	68.31	38.76	0.261	0.294
11/30/2000	16.40	28.68	1.75	12.18	61.17	69.17	39.12	0.265	0.293
12/31/2000	16.07	27.64	1.72	11.93	61.67	70.03	39.49	0.268	0.293
1/31/2001	13.99	28.81	2.06	11.31	62.10	70.92	39.84	0.260	0.293
2/28/2001	13.64	27.78	2.04	10.40	62.48	71.70	40.13	0.247	0.292
3/31/2001	13.48	28.70	2.13	10.21	62.90	72.59	40.45	0.238	0.292
4/30/2001	12.62	27.83	2.20	9.71	63.28	73.42	40.74	0.236	0.291
5/31/2001	11.54	25.11	2.18	9.80	63.64	74.20	41.05	0.263	0.291
6/30/2001	12.59	28.46	2.26	9.67	64.02	75.05	41.34	0.232	0.291
7/31/2001	11.88	26.37	2.22	9.57	64.39	75.87	41.63	0.246	0.290
8/31/2001	12.99	29.79	2.29	9.57	64.79	76.80	41.93	0.220	0.290
9/30/2001	12.89	28.26	2.19	7.26	65.17	77.64	42.15	0.174	0.289
10/31/2001	11.73	31.17	2.66	6.74	65.54	78.61	42.36	0.155	0.287
11/30/2001	11.82	29.32	2.48	6.37	65.89	79.49	42.55	0.153	0.286
12/31/2001	11.51	29.07	2.53	6.13	66.25	80.39	42.74	0.149	0.285
1/31/2002	11.06	28.82	2.61	5.28	66.59	81.28	42.90	0.131	0.284
2/28/2002	10.96	29.72	2.71	7.18	66.90	82.12	43.10	0.174	0.283
3/31/2002	10.05	29.51	2.94	25.86	67.21	83.03	43.90	0.646	0.286
4/30/2002	9.65	30.14	3.12	23.24	67.50	83.93	44.60	0.577	0.288
5/31/2002	9.30	30.43	3.27	21.64	67.79	84.88	45.27	0.538	0.290
6/30/2002	10.24	33.78	3.30	23.93	68.10	85.89	45.99	0.537	0.292
7/31/2002	9.09	32.02	3.52	22.12	68.38	86.88	46.68	0.532	0.294
8/31/2002	9.44	32.56	3.45	20.98	68.67	87.89	47.33	0.494	0.296
9/30/2002	8.80	31.98	3.63	19.30	68.93	88.85	47.91	0.468	0.297
10/31/2002	8.94	32.65	3.65	20.13	69.21	89.86	48.53	0.479	0.299

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
11/30/2002	9.31	32.03	3.44	19.93	69.49	90.83	49.13	0.477	0.300
12/31/2002	9.37	33.11	3.53	21.06	69.78	91.85	49.78	0.490	0.301
1/31/2003	9.34	33.99	3.64	25.97	70.07	92.91	50.59	0.593	0.304
2/28/2003	9.14	33.84	3.70	26.50	70.33	93.85	51.33	0.610	0.306
3/31/2003	9.20	35.18	3.82	25.06	70.61	94.94	52.10	0.559	0.308
4/30/2003	8.53	42.03	4.93	26.37	70.87	96.20	52.90	0.517	0.310
5/31/2003	8.57	43.01	5.02	27.16	71.13	97.54	53.74	0.522	0.312
6/30/2003	8.44	42.09	4.99	26.47	71.39	98.80	54.53	0.519	0.314
7/31/2003	8.26	42.05	5.09	25.74	71.64	100.10	55.33	0.507	0.316
8/31/2003	8.29	42.41	5.12	25.39	71.90	101.42	56.12	0.497	0.317
9/30/2003	7.71	38.37	4.98	25.67	72.13	102.57	56.89	0.552	0.319
10/31/2003	7.97	37.05	4.65	33.39	72.38	103.72	57.92	0.735	0.322
11/30/2003	11.57	40.21	3.47	34.57	72.73	104.92	58.96	0.660	0.325
12/31/2003	14.54	39.38	2.71	34.83	73.18	106.15	60.04	0.637	0.328
1/31/2004	13.88	39.40	2.84	35.40	73.61	107.37	61.14	0.656	0.331
2/29/2004	13.48	40.02	2.97	37.62	74.00	108.53	62.23	0.694	0.334
3/31/2004	12.82	41.39	3.23	36.38	74.40	109.81	63.35	0.663	0.337
4/30/2004	12.35	38.30	3.10	33.79	74.77	110.96	64.37	0.659	0.340
5/31/2004	11.49	37.84	3.29	35.90	75.12	112.13	65.48	0.719	0.343
6/30/2004	11.55	40.69	3.52	38.25	75.47	113.35	66.63	0.724	0.346
7/31/2004	11.22	39.70	3.54	36.89	75.82	114.58	67.77	0.717	0.349
8/31/2004	11.02	42.37	3.85	38.29	76.16	115.90	68.96	0.710	0.352
9/30/2004	11.17	41.70	3.73	35.31	76.49	117.15	70.02	0.661	0.355
10/31/2004	10.72	41.94	3.91	39.27	76.83	118.45	71.23	0.738	0.358
11/30/2004	10.79	42.54	3.94	37.02	77.15	119.73	72.35	0.687	0.360
12/31/2004	8.61	45.04	5.23	40.98	77.42	121.12	73.62	0.758	0.364
1/31/2005	9.98	45.86	4.60	40.99	77.73	122.54	74.89	0.728	0.367
2/28/2005	9.57	48.26	5.04	42.91	77.99	123.89	76.09	0.736	0.370
3/31/2005	8.97	48.39	5.40	44.28	78.27	125.39	77.46	0.766	0.373
4/30/2005	8.82	48.30	5.48	42.82	78.54	126.84	78.75	0.744	0.376
5/31/2005	8.62	47.31	5.49	40.07	78.80	128.31	79.99	0.711	0.379
6/30/2005	8.50	48.02	5.65	36.84	79.06	129.75	81.09	0.647	0.381
7/31/2005	8.75	47.08	5.38	37.45	79.33	131.21	82.25	0.666	0.383
8/31/2005	8.48	48.48	5.71	43.25	79.59	132.71	83.59	0.754	0.387
9/30/2005	7.93	47.55	6.00	41.98	79.83	134.14	84.85	0.751	0.389
10/31/2005	7.41	47.17	6.36	41.07	80.06	135.60	86.13	0.747	0.392
11/30/2005	7.51	49.42	6.58	42.08	80.29	137.08	87.39	0.734	0.395
12/31/2005	7.35	48.80	6.64	39.57	80.51	138.60	88.62	0.700	0.397
1/31/2006	7.79	50.64	6.50	34.81	80.75	140.17	89.69	0.592	0.399
2/28/2006	7.55	50.47	6.68	32.34	80.97	141.58	90.60	0.554	0.400
3/31/2006	7.42	50.51	6.80	33.99	81.20	143.15	91.65	0.583	0.401
4/30/2006	7.41	49.19	6.64	44.82	81.42	144.62	93.00	0.787	0.404
5/31/2006	7.25	52.70	7.27	47.51	81.64	146.26	94.47	0.788	0.407
6/30/2006	7.57	51.02	6.74	43.85	81.87	147.79	95.79	0.744	0.410
7/31/2006	7.67	48.52	6.33	40.83	82.11	149.29	97.05	0.722	0.412
8/31/2006	7.54	46.87	6.21	43.78	82.34	150.74	98.41	0.799	0.415
9/30/2006	7.29	46.59	6.39	43.27	82.56	152.14	99.71	0.798	0.417
10/31/2006	7.03	35.59	5.06	36.45	82.78	153.24	100.84	0.848	0.420

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
11/30/2006	7.10	47.49	6.69	40.47	82.99	154.67	102.05	0.737	0.422
12/31/2006	7.20	48.77	6.78	37.54	83.22	156.18	103.22	0.666	0.424
1/31/2007	7.35	47.69	6.49	39.18	83.44	157.66	104.43	0.707	0.426
2/28/2007	7.22	46.20	6.40	38.24	83.64	158.95	105.50	0.711	0.428
3/31/2007	7.07	44.76	6.33	36.91	83.86	160.34	106.65	0.707	0.429
4/30/2007	6.98	46.36	6.64	37.56	84.07	161.73	107.77	0.700	0.431
5/31/2007	7.00	46.74	6.68	37.27	84.29	163.18	108.93	0.689	0.433
6/30/2007	6.51	46.65	7.17	36.62	84.49	164.58	110.03	0.685	0.434
7/31/2007	6.43	47.14	7.33	34.38	84.69	166.04	111.09	0.638	0.436
8/31/2007	6.50	44.97	6.92	36.71	84.89	167.44	112.23	0.709	0.437
9/30/2007	6.40	44.05	6.88	35.07	85.08	168.76	113.28	0.691	0.439
10/31/2007	6.20	44.44	7.17	32.91	85.27	170.13	114.30	0.646	0.440
11/30/2007	6.30	44.24	7.02	33.40	85.46	171.46	115.30	0.657	0.441
12/31/2007	6.30	46.34	7.36	32.65	85.66	172.90	116.32	0.617	0.443
1/31/2008	6.30	47.33	7.52	35.84	85.85	174.37	117.43	0.664	0.444
2/29/2008	6.44	47.83	7.43	35.44	86.04	175.75	118.45	0.649	0.445
3/31/2008	5.87	42.73	7.28	33.03	86.22	177.08	119.48	0.676	0.446
4/30/2008	5.38	40.78	7.58	33.03	86.38	178.30	120.47	0.712	0.448
5/31/2008	5.84	45.87	7.85	36.68	86.56	179.72	121.61	0.705	0.449
6/30/2008	5.78	46.90	8.12	35.47	86.73	181.13	122.67	0.670	0.451
7/31/2008	4.65	40.96	8.82	29.39	86.88	182.40	123.58	0.641	0.452
8/31/2008	5.79	48.11	8.31	35.88	87.06	183.89	124.69	0.662	0.453
9/30/2008	5.72	46.95	8.21	35.22	87.23	185.30	125.75	0.665	0.454
10/31/2008	5.67	47.58	8.38	35.22	87.41	186.77	126.84	0.658	0.455
11/30/2008	5.75	48.63	8.46	34.99	87.58	188.23	127.89	0.640	0.456
12/31/2008	5.33	49.13	9.21	30.85	87.74	189.76	128.85	0.564	0.457
1/31/2009	5.08	46.17	9.09	28.48	87.90	191.19	129.73	0.553	0.458
2/28/2009	5.12	46.55	9.10	34.65	88.04	192.49	130.70	0.667	0.459
3/31/2009	4.99	48.22	9.66	34.81	88.20	193.98	131.78	0.651	0.460
4/30/2009	4.52	42.26	9.36	30.25	88.33	195.25	132.69	0.644	0.461
5/31/2009	4.97	48.92	9.85	34.20	88.49	196.77	133.75	0.632	0.462
6/30/2009	4.62	46.08	9.97	31.36	88.63	198.15	134.69	0.616	0.463
7/31/2009	5.14	48.33	9.41	42.84	88.79	199.65	136.02	0.797	0.464
8/31/2009	5.07	48.43	9.54	45.24	88.94	201.15	137.42	0.841	0.467
9/30/2009	5.00	46.85	9.38	42.86	89.09	202.56	138.71	0.823	0.468
10/31/2009	4.85	46.18	9.53	40.49	89.24	203.99	139.96	0.790	0.470
11/30/2009	4.76	45.58	9.58	40.70	89.39	205.36	141.18	0.805	0.472
12/31/2009	4.71	44.09	9.37	39.61	89.53	206.72	142.41	0.808	0.474
1/31/2010	4.65	45.86	9.86	39.52	89.68	208.14	143.63	0.779	0.475
2/28/2010	4.52	46.34	10.25	40.04	89.80	209.44	144.76	0.784	0.477
3/31/2010	4.57	47.14	10.31	39.67	89.94	210.90	145.99	0.764	0.478
4/30/2010	4.49	46.49	10.36	39.79	90.08	212.30	147.18	0.777	0.480
5/31/2010	4.51	47.59	10.55	40.02	90.22	213.77	148.42	0.765	0.481
6/30/2010	4.10	44.50	10.87	36.75	90.34	215.11	149.52	0.753	0.482
7/31/2010	4.51	45.92	10.18	39.65	90.48	216.53	150.75	0.783	0.484
8/31/2010	4.43	45.60	10.30	38.59	90.62	217.95	151.95	0.768	0.485
9/30/2010	4.20	45.06	10.73	40.22	90.75	219.30	153.15	0.813	0.487
10/31/2010	4.16	43.63	10.49	44.85	90.87	220.65	154.54	0.934	0.489

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
11/30/2010	4.12	44.15	10.71	45.38	91.00	221.97	155.91	0.936	0.491
12/31/2010	4.15	43.39	10.45	43.15	91.13	223.32	157.24	0.904	0.493
1/31/2011	4.33	44.23	10.21	44.19	91.26	224.69	158.61	0.906	0.495
2/28/2011	4.28	43.70	10.22	44.45	91.38	225.91	159.86	0.922	0.497
3/31/2011	4.09	43.11	10.54	44.52	91.51	227.25	161.24	0.939	0.499
4/30/2011	3.49	40.26	11.55	42.11	91.61	228.46	162.50	0.959	0.501
5/31/2011	3.33	39.42	11.83	39.34	91.72	229.68	163.72	0.917	0.502
6/30/2011	3.27	38.84	11.88	38.91	91.81	230.85	164.89	0.920	0.504
7/31/2011	2.82	34.88	12.37	36.49	91.90	231.93	166.02	0.964	0.506
8/31/2011	3.09	36.44	11.80	50.15	92.00	233.06	167.57	1.264	0.508
9/30/2011	3.14	36.98	11.78	47.15	92.09	234.17	168.99	1.171	0.511
10/31/2011	2.93	37.49	12.81	47.00	92.18	235.33	170.45	1.159	0.513
11/30/2011	3.22	39.24	12.19	48.33	92.28	236.50	171.90	1.134	0.516
12/31/2011	4.14	43.80	10.57	51.73	92.41	237.86	173.50	1.074	0.518
1/31/2012	4.04	40.74	10.09	49.14	92.53	239.13	175.02	1.092	0.520
2/29/2012	4.02	41.44	10.30	49.96	92.65	240.33	176.47	1.094	0.523
3/31/2012	3.97	41.91	10.57	48.30	92.77	241.63	177.97	1.048	0.525
4/30/2012	4.03	41.15	10.21	47.48	92.89	242.86	179.39	1.046	0.527
5/31/2012	3.85	40.51	10.53	46.77	93.01	244.12	180.84	1.050	0.529
6/30/2012	3.47	37.64	10.86	43.88	93.12	245.25	182.16	1.063	0.531
7/31/2012	3.88	38.43	9.90	45.33	93.24	246.44	183.56	1.066	0.533
8/31/2012	3.79	38.79	10.23	44.97	93.35	247.64	184.96	1.051	0.535
9/30/2012	3.76	39.14	10.41	45.54	93.47	248.81	186.32	1.057	0.537
10/31/2012	3.78	39.55	10.47	45.10	93.58	250.04	187.72	1.036	0.539
11/30/2012	3.68	37.68	10.23	43.31	93.69	251.17	189.02	1.042	0.541
12/31/2012	3.61	38.49	10.66	41.92	93.81	252.36	190.32	0.991	0.542

# Pattern: 02/10-30-11-26 Set: NVScallionUnit#2

Oil Formation Vol Factor : 1.05000 m3/m3

Water Formation Vol Factor : 1.00000 m3/m3

Water / Oil Ratio : 21.77 m3/m3

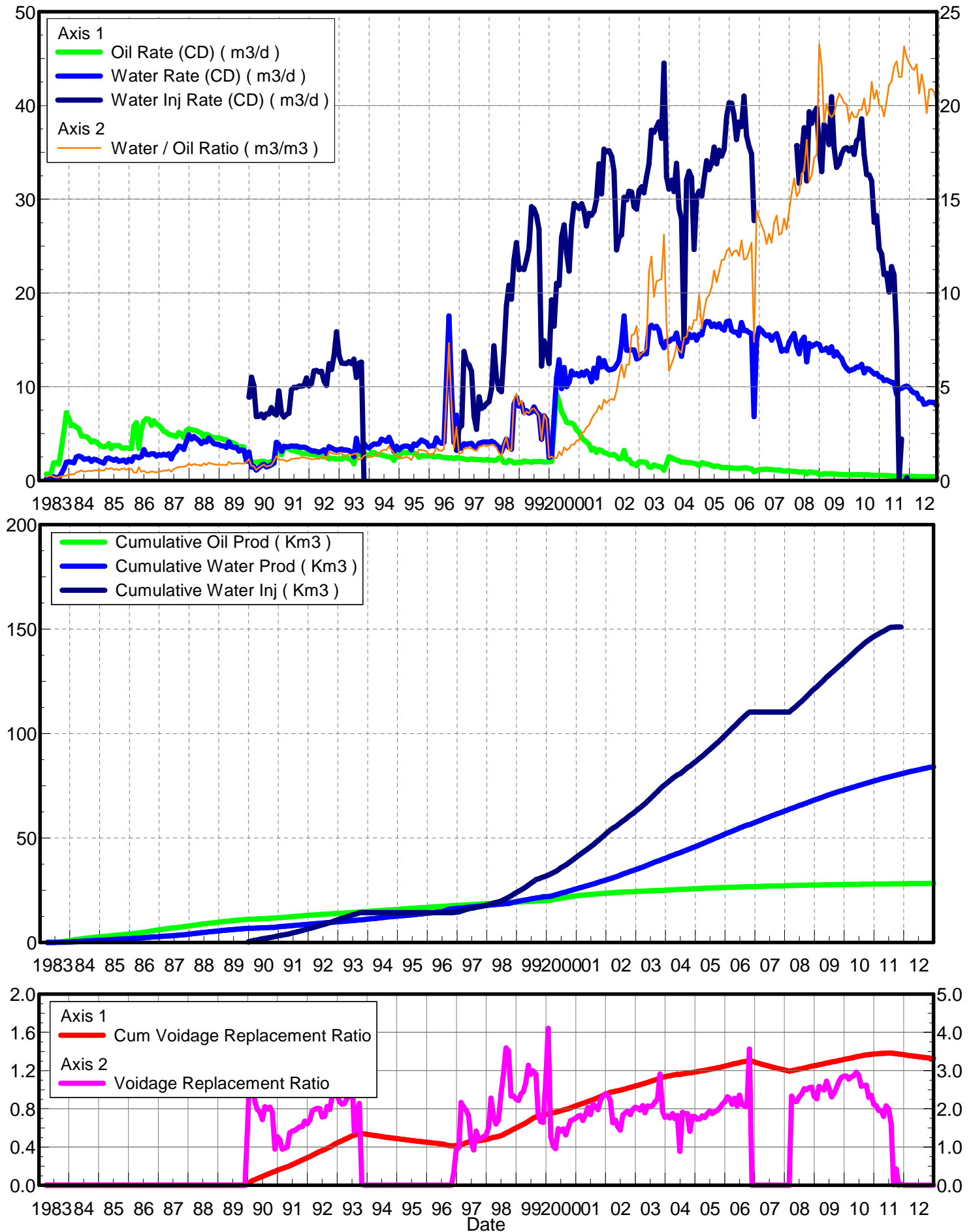
February 27, 2013

Operator: Tundra\_O&G\_Prtshp

Oil Rate (CD) : 0.36 m3/d

Water Rate (CD) : 7.88 m3/d

Water Inj Rate (CD) : 0.31 m3/d



Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/1983	0.68	0.14	0.20		0.02	0.00	0.00	0.000	0.000
4/30/1983	0.59	0.14	0.24		0.04	0.01	0.00	0.000	0.000
5/31/1983	0.85	0.21	0.25		0.07	0.02	0.00	0.000	0.000
6/30/1983	1.90	0.36	0.19		0.12	0.03	0.00	0.000	0.000
7/31/1983	1.90	0.31	0.16		0.18	0.04	0.00	0.000	0.000
8/31/1983	1.76	0.29	0.17		0.24	0.04	0.00	0.000	0.000
9/30/1983	3.42	0.73	0.21		0.34	0.07	0.00	0.000	0.000
10/31/1983	5.17	1.24	0.24		0.50	0.10	0.00	0.000	0.000
11/30/1983	7.23	1.96	0.27		0.72	0.16	0.00	0.000	0.000
12/31/1983	6.61	2.00	0.30		0.92	0.23	0.00	0.000	0.000
1/31/1984	5.86	1.95	0.33		1.10	0.29	0.00	0.000	0.000
2/29/1984	5.89	1.88	0.32		1.27	0.34	0.00	0.000	0.000
3/31/1984	5.71	2.52	0.44		1.45	0.42	0.00	0.000	0.000
4/30/1984	5.50	2.60	0.47		1.61	0.50	0.00	0.000	0.000
5/31/1984	4.74	2.51	0.53		1.76	0.57	0.00	0.000	0.000
6/30/1984	4.72	2.26	0.48		1.90	0.64	0.00	0.000	0.000
7/31/1984	4.68	2.30	0.49		2.05	0.71	0.00	0.000	0.000
8/31/1984	4.46	2.33	0.52		2.19	0.79	0.00	0.000	0.000
9/30/1984	4.08	2.04	0.50		2.31	0.85	0.00	0.000	0.000
10/31/1984	4.22	2.27	0.54		2.44	0.92	0.00	0.000	0.000
11/30/1984	4.08	2.20	0.54		2.56	0.98	0.00	0.000	0.000
12/31/1984	3.83	2.07	0.54		2.68	1.05	0.00	0.000	0.000
1/31/1985	3.64	1.95	0.53		2.79	1.11	0.00	0.000	0.000
2/28/1985	3.58	1.84	0.51		2.89	1.16	0.00	0.000	0.000
3/31/1985	3.67	2.33	0.64		3.01	1.23	0.00	0.000	0.000
4/30/1985	3.94	2.40	0.61		3.13	1.30	0.00	0.000	0.000
5/31/1985	3.40	2.27	0.67		3.23	1.37	0.00	0.000	0.000
6/30/1985	3.73	2.15	0.57		3.34	1.44	0.00	0.000	0.000
7/31/1985	3.72	2.28	0.61		3.46	1.51	0.00	0.000	0.000
8/31/1985	3.73	2.04	0.55		3.57	1.57	0.00	0.000	0.000
9/30/1985	3.48	2.12	0.61		3.68	1.64	0.00	0.000	0.000
10/31/1985	3.43	2.19	0.64		3.79	1.70	0.00	0.000	0.000
11/30/1985	3.48	1.96	0.56		3.89	1.76	0.00	0.000	0.000
12/31/1985	3.42	2.24	0.65		4.00	1.83	0.00	0.000	0.000
1/31/1986	3.42	2.05	0.60		4.10	1.90	0.00	0.000	0.000
2/28/1986	5.79	2.50	0.43		4.26	1.97	0.00	0.000	0.000
3/31/1986	6.17	2.53	0.41		4.46	2.04	0.00	0.000	0.000
4/30/1986	3.42	2.42	0.71		4.56	2.12	0.00	0.000	0.000
5/31/1986	5.50	2.56	0.47		4.73	2.20	0.00	0.000	0.000
6/30/1986	6.31	3.29	0.52		4.92	2.29	0.00	0.000	0.000
7/31/1986	6.58	2.77	0.42		5.12	2.38	0.00	0.000	0.000
8/31/1986	6.52	2.72	0.42		5.32	2.46	0.00	0.000	0.000
9/30/1986	5.88	2.84	0.48		5.50	2.55	0.00	0.000	0.000
10/31/1986	6.36	2.85	0.45		5.70	2.64	0.00	0.000	0.000
11/30/1986	6.02	2.60	0.43		5.88	2.72	0.00	0.000	0.000
12/31/1986	5.86	2.76	0.47		6.06	2.80	0.00	0.000	0.000
1/31/1987	5.58	2.69	0.48		6.23	2.88	0.00	0.000	0.000
2/28/1987	5.26	2.81	0.53		6.38	2.96	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/1987	5.14	2.69	0.52		6.54	3.05	0.00	0.000	0.000
4/30/1987	4.91	2.85	0.58		6.69	3.13	0.00	0.000	0.000
5/31/1987	4.85	2.30	0.47		6.84	3.20	0.00	0.000	0.000
6/30/1987	4.78	2.91	0.61		6.98	3.29	0.00	0.000	0.000
7/31/1987	4.67	3.16	0.68		7.13	3.39	0.00	0.000	0.000
8/31/1987	5.11	3.67	0.72		7.28	3.50	0.00	0.000	0.000
9/30/1987	4.95	3.58	0.72		7.43	3.61	0.00	0.000	0.000
10/31/1987	4.55	3.30	0.73		7.57	3.71	0.00	0.000	0.000
11/30/1987	5.31	4.14	0.78		7.73	3.84	0.00	0.000	0.000
12/31/1987	5.50	4.87	0.88		7.90	3.99	0.00	0.000	0.000
1/31/1988	5.40	4.39	0.81		8.07	4.12	0.00	0.000	0.000
2/29/1988	5.36	4.68	0.87		8.23	4.26	0.00	0.000	0.000
3/31/1988	5.33	4.48	0.84		8.39	4.40	0.00	0.000	0.000
4/30/1988	5.16	4.26	0.83		8.55	4.53	0.00	0.000	0.000
5/31/1988	5.05	3.95	0.78		8.70	4.65	0.00	0.000	0.000
6/30/1988	4.59	4.15	0.90		8.84	4.77	0.00	0.000	0.000
7/31/1988	4.94	4.12	0.83		8.99	4.90	0.00	0.000	0.000
8/31/1988	4.81	4.55	0.95		9.14	5.04	0.00	0.000	0.000
9/30/1988	4.66	4.20	0.90		9.28	5.17	0.00	0.000	0.000
10/31/1988	4.55	3.94	0.87		9.42	5.29	0.00	0.000	0.000
11/30/1988	4.54	3.86	0.85		9.56	5.41	0.00	0.000	0.000
12/31/1988	4.56	3.81	0.84		9.70	5.52	0.00	0.000	0.000
1/31/1989	4.45	3.68	0.83		9.84	5.64	0.00	0.000	0.000
2/28/1989	4.36	3.66	0.84		9.96	5.74	0.00	0.000	0.000
3/31/1989	4.33	3.50	0.81		10.10	5.85	0.00	0.000	0.000
4/30/1989	4.10	4.09	1.00		10.22	5.97	0.00	0.000	0.000
5/31/1989	4.07	3.60	0.88		10.34	6.08	0.00	0.000	0.000
6/30/1989	3.96	3.51	0.89		10.46	6.19	0.00	0.000	0.000
7/31/1989	3.82	3.52	0.92		10.58	6.30	0.00	0.000	0.000
8/31/1989	3.42	3.13	0.91		10.69	6.39	0.00	0.000	0.000
9/30/1989	3.63	3.26	0.90		10.80	6.49	0.00	0.000	0.000
10/31/1989	3.53	3.18	0.90		10.91	6.59	0.00	0.000	0.000
11/30/1989	2.08	2.06	0.99		10.97	6.65	0.00	0.000	0.000
12/31/1989	2.67	3.02	1.13	8.88	11.05	6.75	0.28	1.524	0.015
1/31/1990	1.80	1.41	0.78	11.02	11.11	6.79	0.62	3.339	0.033
2/28/1990	1.96	1.48	0.76	10.14	11.16	6.83	0.90	2.873	0.049
3/31/1990	1.95	1.10	0.56	6.81	11.22	6.87	1.11	2.164	0.060
4/30/1990	1.98	1.36	0.69	6.83	11.28	6.91	1.32	1.985	0.070
5/31/1990	2.03	1.56	0.77	7.07	11.35	6.95	1.54	1.912	0.081
6/30/1990	2.04	1.74	0.85	6.67	11.41	7.01	1.74	1.720	0.091
7/31/1990	1.92	1.43	0.75	7.10	11.47	7.05	1.96	2.057	0.102
8/31/1990	1.93	1.52	0.79	7.07	11.53	7.10	2.18	1.996	0.113
9/30/1990	2.05	1.66	0.81	7.77	11.59	7.15	2.41	2.043	0.125
10/31/1990	1.80	1.87	1.04	7.17	11.64	7.21	2.63	1.907	0.135
11/30/1990	3.15	4.06	1.29	6.98	11.74	7.33	2.84	0.947	0.145
12/31/1990	3.51	3.83	1.09	9.56	11.85	7.45	3.14	1.271	0.158
1/31/1991	2.76	3.10	1.13	7.11	11.93	7.54	3.36	1.185	0.167
2/28/1991	3.35	3.64	1.09	6.77	12.03	7.64	3.55	0.946	0.175

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/1991	3.50	3.57	1.02	7.04	12.13	7.76	3.76	0.971	0.184
4/30/1991	3.38	3.60	1.06	7.17	12.24	7.86	3.98	1.004	0.192
5/31/1991	3.20	3.68	1.15	9.66	12.33	7.98	4.28	1.372	0.204
6/30/1991	3.18	3.65	1.15	9.92	12.43	8.09	4.58	1.419	0.217
7/31/1991	3.09	3.66	1.18	9.91	12.53	8.20	4.88	1.434	0.229
8/31/1991	3.06	3.58	1.17	10.07	12.62	8.31	5.20	1.484	0.241
9/30/1991	2.88	3.54	1.23	10.07	12.71	8.42	5.50	1.533	0.253
10/31/1991	2.88	3.56	1.24	10.13	12.80	8.53	5.81	1.539	0.265
11/30/1991	2.89	3.47	1.20	10.93	12.88	8.63	6.14	1.680	0.277
12/31/1991	2.83	3.30	1.17	10.09	12.97	8.73	6.45	1.609	0.289
1/31/1992	2.79	3.15	1.13	10.33	13.06	8.83	6.77	1.700	0.300
2/29/1992	2.75	3.15	1.14	11.69	13.14	8.92	7.11	1.934	0.313
3/31/1992	2.68	3.10	1.15	11.73	13.22	9.02	7.48	1.984	0.326
4/30/1992	2.62	3.01	1.15	11.59	13.30	9.11	7.82	2.012	0.339
5/31/1992	2.56	3.11	1.22	11.64	13.38	9.21	8.18	2.008	0.352
6/30/1992	2.53	3.27	1.29	10.60	13.45	9.30	8.50	1.789	0.363
7/31/1992	2.60	2.88	1.11	10.14	13.53	9.39	8.82	1.807	0.374
8/31/1992	2.32	3.60	1.56	12.46	13.61	9.51	9.20	2.063	0.387
9/30/1992	2.38	3.46	1.46	11.81	13.68	9.61	9.56	1.984	0.399
10/31/1992	2.32	3.30	1.42	13.30	13.75	9.71	9.97	2.317	0.413
11/30/1992	2.31	3.22	1.40	15.86	13.82	9.81	10.45	2.811	0.430
12/31/1992	2.31	3.28	1.42	13.37	13.89	9.91	10.86	2.345	0.443
1/31/1993	2.25	3.37	1.49	12.51	13.96	10.01	11.25	2.182	0.456
2/28/1993	2.51	3.24	1.29	12.48	14.03	10.11	11.60	2.124	0.467
3/31/1993	2.46	3.25	1.32	12.48	14.11	10.21	11.98	2.138	0.479
4/30/1993	2.28	3.19	1.40	12.66	14.18	10.30	12.36	2.265	0.491
5/31/1993	2.22	3.01	1.36	12.47	14.24	10.39	12.75	2.337	0.503
6/30/1993	1.77	2.52	1.42	12.93	14.30	10.47	13.14	2.953	0.516
7/31/1993	3.13	4.49	1.43	10.99	14.39	10.61	13.48	1.412	0.524
8/31/1993	2.93	3.24	1.11	12.52	14.48	10.71	13.87	1.981	0.535
9/30/1993	2.68	3.09	1.15	12.63	14.57	10.80	14.25	2.139	0.546
10/31/1993	3.02	3.97	1.31	0.16	14.66	10.93	14.25	0.022	0.542
11/30/1993	2.64	3.60	1.37		14.74	11.03	14.25	0.000	0.538
12/31/1993	2.72	3.48	1.28		14.82	11.14	14.25	0.000	0.534
1/31/1994	3.01	3.74	1.24		14.92	11.26	14.25	0.000	0.529
2/28/1994	2.97	3.89	1.31		15.00	11.37	14.25	0.000	0.526
3/31/1994	2.79	3.88	1.39		15.09	11.49	14.25	0.000	0.522
4/30/1994	2.78	3.90	1.40		15.17	11.60	14.25	0.000	0.518
5/31/1994	2.76	4.40	1.59		15.25	11.74	14.25	0.000	0.513
6/30/1994	2.63	4.29	1.63		15.33	11.87	14.25	0.000	0.510
7/31/1994	2.56	4.16	1.62		15.41	12.00	14.25	0.000	0.506
8/31/1994	2.53	4.59	1.82		15.49	12.14	14.25	0.000	0.502
9/30/1994	2.47	4.00	1.62		15.57	12.26	14.25	0.000	0.498
10/31/1994	2.12	3.08	1.45		15.63	12.36	14.25	0.000	0.495
11/30/1994	2.88	3.65	1.27		15.72	12.47	14.25	0.000	0.492
12/31/1994	2.54	3.30	1.30		15.80	12.57	14.25	0.000	0.489
1/31/1995	3.00	3.53	1.18		15.89	12.68	14.25	0.000	0.485
2/28/1995	2.99	3.65	1.22		15.97	12.78	14.25	0.000	0.482



Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/1995	2.93	3.66	1.25		16.06	12.89	14.25	0.000	0.479
4/30/1995	2.99	3.63	1.21		16.15	13.00	14.25	0.000	0.476
5/31/1995	3.01	3.28	1.09		16.25	13.10	14.25	0.000	0.472
6/30/1995	2.92	3.89	1.33		16.33	13.22	14.25	0.000	0.469
7/31/1995	2.80	3.72	1.33		16.42	13.34	14.25	0.000	0.466
8/31/1995	2.45	4.03	1.64		16.50	13.46	14.25	0.000	0.463
9/30/1995	2.66	4.32	1.62		16.58	13.59	14.25	0.000	0.460
10/31/1995	2.62	4.19	1.60		16.66	13.72	14.25	0.000	0.457
11/30/1995	2.60	4.04	1.55		16.74	13.84	14.25	0.000	0.454
12/31/1995	2.63	3.64	1.39		16.82	13.95	14.25	0.000	0.451
1/31/1996	2.61	3.71	1.42		16.90	14.07	14.25	0.000	0.448
2/29/1996	2.53	3.69	1.46		16.97	14.18	14.25	0.000	0.445
3/31/1996	2.57	4.54	1.76		17.05	14.32	14.25	0.000	0.442
4/30/1996	2.58	4.12	1.60		17.13	14.44	14.25	0.000	0.439
5/31/1996	2.50	3.96	1.58		17.21	14.56	14.25	0.000	0.437
6/30/1996	2.44	4.07	1.67		17.28	14.69	14.25	0.000	0.434
7/31/1996	2.44	10.73	4.40		17.36	15.02	14.25	0.000	0.429
8/31/1996	2.40	17.55	7.32		17.43	15.56	14.25	0.000	0.421
9/30/1996	2.42	9.79	4.04		17.50	15.86	14.25	0.000	0.416
10/31/1996	2.34	4.04	1.73		17.58	15.98	14.25	0.000	0.414
11/30/1996	2.43	6.97	2.86	3.21	17.65	16.19	14.35	0.337	0.413
12/31/1996	2.39	3.42	1.43	5.53	17.72	16.30	14.52	0.933	0.416
1/31/1997	2.35	3.44	1.46	5.84	17.80	16.40	14.70	0.990	0.419
2/28/1997	2.32	3.92	1.69	13.77	17.86	16.51	15.09	2.167	0.428
3/31/1997	2.21	3.84	1.74	12.60	17.93	16.63	15.48	2.043	0.436
4/30/1997	2.25	3.92	1.75	12.33	18.00	16.75	15.85	1.963	0.445
5/31/1997	2.32	3.96	1.71	11.65	18.07	16.87	16.21	1.822	0.452
6/30/1997	2.23	3.63	1.62	6.85	18.13	16.98	16.41	1.146	0.456
7/31/1997	2.24	3.53	1.57	5.45	18.20	17.09	16.58	0.927	0.458
8/31/1997	2.22	3.96	1.79	8.93	18.27	17.21	16.86	1.420	0.463
9/30/1997	2.20	4.04	1.84	7.68	18.34	17.33	17.09	1.210	0.467
10/31/1997	2.18	4.11	1.89	7.87	18.41	17.46	17.33	1.229	0.471
11/30/1997	2.24	4.08	1.82	8.21	18.47	17.58	17.58	1.275	0.475
12/31/1997	2.18	4.10	1.88	8.41	18.54	17.71	17.84	1.318	0.480
1/31/1998	2.18	4.18	1.91	9.82	18.61	17.84	18.14	1.518	0.485
2/28/1998	2.14	4.05	1.89	14.37	18.67	17.95	18.55	2.283	0.494
3/31/1998	2.17	3.80	1.75	10.96	18.74	18.07	18.89	1.806	0.500
4/30/1998	2.40	3.53	1.47	9.70	18.81	18.18	19.18	1.604	0.506
5/31/1998	2.35	3.07	1.31	9.47	18.88	18.27	19.47	1.707	0.511
6/30/1998	1.93	3.72	1.93	13.66	18.94	18.38	19.88	2.377	0.519
7/31/1998	1.90	4.40	2.31	18.65	19.00	18.52	20.46	2.918	0.532
8/31/1998	2.15	3.54	1.64	20.83	19.06	18.63	21.11	3.590	0.546
9/30/1998	2.07	3.33	1.61	19.33	19.13	18.73	21.69	3.514	0.559
10/31/1998	1.87	8.11	4.33	23.50	19.18	18.98	22.41	2.333	0.573
11/30/1998	1.91	8.85	4.62	25.38	19.24	19.25	23.18	2.338	0.587
12/31/1998	1.96	7.92	4.03	22.47	19.30	19.49	23.87	2.251	0.600
1/31/1999	1.92	8.18	4.27	22.63	19.36	19.75	24.57	2.221	0.613
2/28/1999	2.08	7.24	3.48	22.50	19.42	19.95	25.20	2.385	0.625

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/1999	2.03	7.44	3.67	23.49	19.48	20.18	25.93	2.454	0.638
4/30/1999	2.00	7.19	3.60	24.74	19.54	20.40	26.67	2.665	0.652
5/31/1999	1.92	7.30	3.80	29.22	19.60	20.62	27.58	3.136	0.669
6/30/1999	2.04	7.83	3.84	28.96	19.66	20.86	28.45	2.905	0.685
7/31/1999	2.00	7.32	3.66	28.22	19.73	21.08	29.32	2.993	0.702
8/31/1999	2.05	7.07	3.45	26.78	19.79	21.30	30.15	2.905	0.717
9/30/1999	2.03	4.40	2.17	12.19	19.85	21.43	30.52	1.869	0.722
10/31/1999	1.96	6.89	3.52	14.90	19.91	21.65	30.98	1.665	0.728
11/30/1999	1.99	6.46	3.25	14.04	19.97	21.84	31.40	1.644	0.733
12/31/1999	2.04	2.47	1.21	12.48	20.03	21.92	31.79	2.706	0.740
1/31/2000	2.02	2.57	1.27	19.26	20.10	22.00	32.39	4.105	0.751
2/29/2000	5.70	6.85	1.20	16.46	20.26	22.20	32.86	1.283	0.756
3/31/2000	9.19	10.92	1.19	21.03	20.55	22.54	33.51	1.022	0.760
4/30/2000	8.41	12.86	1.53	20.81	20.80	22.92	34.14	0.959	0.763
5/31/2000	7.31	9.80	1.34	25.95	21.03	23.22	34.94	1.485	0.771
6/30/2000	6.82	12.05	1.77	27.26	21.23	23.59	35.76	1.419	0.779
7/31/2000	6.21	9.99	1.61	24.28	21.42	23.90	36.51	1.470	0.787
8/31/2000	6.12	10.49	1.71	22.33	21.61	24.22	37.21	1.320	0.793
9/30/2000	6.11	11.67	1.91	27.21	21.80	24.57	38.02	1.504	0.801
10/31/2000	5.91	11.27	1.91	29.55	21.98	24.92	38.94	1.691	0.811
11/30/2000	5.37	11.41	2.13	29.30	22.14	25.26	39.82	1.719	0.821
12/31/2000	5.15	11.12	2.16	29.00	22.30	25.61	40.72	1.754	0.831
1/31/2001	4.56	11.53	2.53	29.52	22.44	25.96	41.63	1.809	0.841
2/28/2001	4.32	11.22	2.60	28.81	22.56	26.28	42.44	1.828	0.849
3/31/2001	4.11	11.67	2.84	27.13	22.69	26.64	43.28	1.697	0.858
4/30/2001	3.87	11.38	2.94	28.49	22.81	26.98	44.13	1.845	0.867
5/31/2001	3.22	10.52	3.27	28.28	22.91	27.31	45.01	2.035	0.876
6/30/2001	3.41	11.97	3.51	28.72	23.01	27.67	45.87	1.846	0.885
7/31/2001	2.99	10.94	3.66	29.95	23.10	28.01	46.80	2.127	0.895
8/31/2001	3.28	13.05	3.98	33.77	23.20	28.41	47.85	2.048	0.907
9/30/2001	3.19	12.08	3.78	30.57	23.30	28.77	48.76	1.980	0.916
10/31/2001	2.97	12.78	4.31	35.34	23.39	29.17	49.86	2.224	0.928
11/30/2001	2.91	12.01	4.13	35.08	23.48	29.53	50.91	2.328	0.940
12/31/2001	2.76	11.79	4.28	35.18	23.56	29.90	52.00	2.396	0.952
1/31/2002	2.73	11.85	4.35	34.56	23.65	30.26	53.07	2.349	0.963
2/28/2002	2.78	11.93	4.28	32.96	23.73	30.60	54.00	2.220	0.973
3/31/2002	2.58	12.32	4.78	24.59	23.81	30.98	54.76	1.636	0.978
4/30/2002	2.30	12.79	5.57	25.94	23.87	31.36	55.54	1.707	0.984
5/31/2002	2.37	14.63	6.18	26.21	23.95	31.82	56.35	1.531	0.989
6/30/2002	3.19	17.54	5.50	30.21	24.04	32.34	57.26	1.446	0.994
7/31/2002	2.25	13.89	6.16	29.92	24.11	32.77	58.18	1.840	1.002
8/31/2002	2.24	13.88	6.19	30.85	24.18	33.20	59.14	1.900	1.009
9/30/2002	1.80	13.95	7.74	30.77	24.24	33.62	60.06	1.943	1.017
10/31/2002	1.78	13.91	7.80	29.19	24.29	34.05	60.97	1.849	1.024
11/30/2002	1.58	12.96	8.23	28.93	24.34	34.44	61.84	1.979	1.031
12/31/2002	1.99	13.09	6.59	30.94	24.40	34.85	62.80	2.038	1.038
1/31/2003	1.98	13.46	6.79	31.32	24.46	35.27	63.77	2.016	1.046
2/28/2003	1.97	13.51	6.85	30.68	24.52	35.64	64.63	1.968	1.053

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/2003	1.91	13.52	7.06	32.32	24.58	36.06	65.63	2.081	1.061
4/30/2003	1.46	16.23	11.13	33.73	24.62	36.55	66.64	1.899	1.068
5/31/2003	1.39	16.55	11.94	37.35	24.66	37.06	67.80	2.074	1.077
6/30/2003	1.66	16.25	9.80	37.13	24.71	37.55	68.91	2.064	1.085
7/31/2003	1.55	16.44	10.62	37.68	24.76	38.06	70.08	2.086	1.094
8/31/2003	1.50	16.02	10.68	38.26	24.81	38.56	71.27	2.174	1.103
9/30/2003	1.37	14.70	10.73	36.50	24.85	39.00	72.36	2.261	1.112
10/31/2003	1.08	14.16	13.10	44.52	24.88	39.44	73.74	2.910	1.125
11/30/2003	1.78	14.85	8.35	32.40	24.94	39.88	74.71	1.938	1.131
12/31/2003	2.54	14.83	5.85	31.08	25.01	40.34	75.68	1.777	1.136
1/31/2004	2.42	15.09	6.24	32.04	25.09	40.81	76.67	1.817	1.142
2/29/2004	2.30	15.10	6.57	30.80	25.16	41.25	77.56	1.759	1.146
3/31/2004	2.18	15.72	7.20	33.82	25.22	41.73	78.61	1.878	1.152
4/30/2004	2.08	14.43	6.93	28.99	25.29	42.17	79.48	1.744	1.157
5/31/2004	1.94	13.25	6.82	27.92	25.35	42.58	80.35	1.826	1.161
6/30/2004	1.97	15.01	7.61	15.18	25.41	43.03	80.80	0.888	1.159
7/31/2004	1.92	14.76	7.67	32.03	25.47	43.49	81.79	1.909	1.165
8/31/2004	1.90	15.62	8.21	32.97	25.52	43.97	82.82	1.872	1.170
9/30/2004	1.90	15.25	8.05	32.30	25.58	44.43	83.78	1.874	1.175
10/31/2004	1.82	15.55	8.55	24.63	25.64	44.91	84.55	1.411	1.177
11/30/2004	1.75	14.98	8.56	30.32	25.69	45.36	85.46	1.804	1.181
12/31/2004	1.57	15.56	9.90	30.86	25.74	45.84	86.41	1.793	1.186
1/31/2005	1.92	15.55	8.11	30.34	25.80	46.32	87.36	1.727	1.190
2/28/2005	1.84	16.61	9.03	32.19	25.85	46.79	88.26	1.736	1.194
3/31/2005	1.74	16.95	9.72	34.10	25.90	47.31	89.31	1.815	1.199
4/30/2005	1.71	16.93	9.89	33.15	25.96	47.82	90.31	1.770	1.203
5/31/2005	1.59	16.42	10.31	33.80	26.00	48.33	91.36	1.868	1.208
6/30/2005	1.49	16.69	11.19	35.56	26.05	48.83	92.42	1.947	1.213
7/31/2005	1.55	16.37	10.59	33.78	26.10	49.34	93.47	1.878	1.218
8/31/2005	1.50	16.70	11.15	35.22	26.14	49.86	94.56	1.927	1.223
9/30/2005	1.38	16.21	11.76	34.60	26.19	50.34	95.60	1.959	1.228
10/31/2005	1.36	16.04	11.77	35.34	26.23	50.84	96.69	2.022	1.234
11/30/2005	1.38	16.92	12.23	38.85	26.27	51.35	97.86	2.114	1.240
12/31/2005	1.37	17.01	12.40	40.29	26.31	51.88	99.11	2.184	1.247
1/31/2006	1.34	15.99	11.98	40.23	26.35	52.37	100.36	2.313	1.254
2/28/2006	1.30	15.83	12.22	38.99	26.39	52.81	101.45	2.268	1.260
3/31/2006	1.29	15.81	12.28	36.36	26.43	53.30	102.58	2.118	1.266
4/30/2006	1.29	15.45	11.97	38.24	26.47	53.77	103.72	2.276	1.272
5/31/2006	1.32	16.83	12.79	37.74	26.51	54.29	104.89	2.072	1.277
6/30/2006	1.36	15.98	11.77	41.00	26.55	54.77	106.12	2.356	1.284
7/31/2006	1.35	15.98	11.85	36.77	26.59	55.26	107.26	2.114	1.289
8/31/2006	1.29	15.78	12.23	35.63	26.63	55.75	108.37	2.079	1.294
9/30/2006	1.24	15.67	12.68	34.85	26.67	56.22	109.41	2.054	1.299
10/31/2006	0.92	6.81	7.40	27.71	26.70	56.43	110.27	3.565	1.306
11/30/2006	1.04	14.95	14.41		26.73	56.88	110.27	0.000	1.298
12/31/2006	1.16	16.26	14.01		26.76	57.39	110.27	0.000	1.290
1/31/2007	1.18	16.00	13.56		26.80	57.88	110.27	0.000	1.282
2/28/2007	1.18	15.66	13.28		26.83	58.32	110.27	0.000	1.275

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/2007	1.22	15.42	12.62		26.87	58.80	110.27	0.000	1.267
4/30/2007	1.18	15.52	13.15		26.91	59.27	110.27	0.000	1.260
5/31/2007	1.18	14.97	12.67		26.94	59.73	110.27	0.000	1.253
6/30/2007	1.12	15.41	13.74		26.98	60.19	110.27	0.000	1.246
7/31/2007	1.11	15.65	14.12		27.01	60.68	110.27	0.000	1.238
8/31/2007	1.13	14.84	13.10		27.05	61.14	110.27	0.000	1.232
9/30/2007	1.05	13.79	13.19		27.08	61.55	110.27	0.000	1.225
10/31/2007	1.00	13.97	13.97		27.11	61.98	110.27	0.000	1.219
11/30/2007	1.03	13.83	13.39		27.14	62.40	110.27	0.000	1.213
12/31/2007	1.02	14.75	14.39		27.17	62.86	110.27	0.000	1.207
1/31/2008	0.99	15.24	15.33		27.20	63.33	110.27	0.000	1.200
2/29/2008	0.97	15.69	16.11		27.23	63.78	110.27	0.000	1.194
3/31/2008	0.94	14.29	15.15	35.71	27.26	64.23	111.38	2.337	1.200
4/30/2008	0.88	13.51	15.37	31.70	27.29	64.63	112.33	2.196	1.204
5/31/2008	0.91	14.90	16.36	34.74	27.31	65.09	113.41	2.191	1.209
6/30/2008	0.92	15.29	16.54	37.63	27.34	65.55	114.54	2.315	1.215
7/31/2008	0.70	12.64	18.17	31.94	27.36	65.94	115.53	2.389	1.220
8/31/2008	0.92	14.62	15.95	39.33	27.39	66.40	116.75	2.524	1.227
9/30/2008	0.88	14.30	16.29	38.10	27.42	66.83	117.89	2.503	1.233
10/31/2008	0.84	14.48	17.21	39.25	27.44	67.28	119.10	2.555	1.239
11/30/2008	0.84	14.61	17.37	39.72	27.47	67.71	120.30	2.564	1.246
12/31/2008	0.62	14.49	23.27	35.23	27.49	68.16	121.39	2.327	1.251
1/31/2009	0.63	13.88	22.06	32.95	27.51	68.59	122.41	2.266	1.256
2/28/2009	0.73	13.91	19.08	37.97	27.53	68.98	123.47	2.587	1.261
3/31/2009	0.70	14.11	20.08	37.58	27.55	69.42	124.64	2.531	1.267
4/30/2009	0.70	13.64	19.54	35.83	27.57	69.83	125.71	2.494	1.273
5/31/2009	0.74	14.26	19.38	40.94	27.59	70.27	126.98	2.723	1.279
6/30/2009	0.68	13.27	19.56	35.47	27.62	70.67	128.05	2.536	1.285
7/31/2009	0.68	13.72	20.20	33.39	27.64	71.09	129.08	2.314	1.289
8/31/2009	0.64	13.30	20.64	33.74	27.66	71.51	130.13	2.414	1.294
9/30/2009	0.64	13.03	20.43	34.83	27.68	71.90	131.17	2.542	1.299
10/31/2009	0.61	12.34	20.14	35.39	27.69	72.28	132.27	2.725	1.305
11/30/2009	0.60	11.95	20.06	35.50	27.71	72.64	133.33	2.824	1.311
12/31/2009	0.61	11.68	19.14	35.16	27.73	73.00	134.42	2.853	1.316
1/31/2010	0.60	11.80	19.65	35.48	27.75	73.37	135.52	2.854	1.322
2/28/2010	0.61	11.89	19.38	34.79	27.77	73.70	136.50	2.776	1.327
3/31/2010	0.62	12.09	19.39	36.23	27.79	74.07	137.62	2.842	1.333
4/30/2010	0.61	12.10	19.75	36.53	27.80	74.44	138.72	2.866	1.339
5/31/2010	0.63	12.38	19.78	38.56	27.82	74.82	139.91	2.959	1.345
6/30/2010	0.56	11.46	20.36	34.72	27.84	75.16	140.95	2.882	1.350
7/31/2010	0.61	11.95	19.48	32.63	27.86	75.54	141.97	2.592	1.355
8/31/2010	0.60	11.87	19.72	32.59	27.88	75.90	142.98	2.607	1.359
9/30/2010	0.55	11.61	21.25	31.95	27.89	76.25	143.93	2.621	1.364
10/31/2010	0.56	11.36	20.35	27.54	27.91	76.60	144.79	2.305	1.367
11/30/2010	0.55	11.41	20.80	28.24	27.93	76.95	145.64	2.355	1.370
12/31/2010	0.55	11.07	20.00	24.70	27.95	77.29	146.40	2.119	1.373
1/31/2011	0.55	11.01	19.93	24.15	27.96	77.63	147.15	2.084	1.375
2/28/2011	0.55	10.65	19.42	21.96	27.98	77.93	147.76	1.957	1.377

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
3/31/2011	0.53	10.73	20.19	22.09	27.99	78.26	148.45	1.957	1.379
4/30/2011	0.50	10.59	21.09	20.08	28.01	78.58	149.05	1.806	1.380
5/31/2011	0.49	10.47	21.29	22.81	28.03	78.90	149.76	2.077	1.382
6/30/2011	0.47	10.45	22.06	21.93	28.04	79.22	150.42	2.003	1.384
7/31/2011	0.41	9.22	22.36	15.63	28.05	79.50	150.90	1.620	1.385
8/31/2011	0.45	9.74	21.51	0.12	28.07	79.81	150.91	0.012	1.381
9/30/2011	0.46	9.82	21.53	4.43	28.08	80.10	151.04	0.431	1.378
10/31/2011	0.43	9.97	23.15		28.09	80.41	151.04	0.000	1.374
11/30/2011	0.45	10.07	22.58	0.31	28.11	80.71	151.05	0.029	1.370
12/31/2011	0.45	9.93	22.26		28.12	81.02	151.05	0.000	1.366
1/31/2012	0.43	9.50	21.99		28.13	81.31	151.05	0.000	1.363
2/29/2012	0.43	9.35	21.89		28.15	81.58	151.05	0.000	1.359
3/31/2012	0.42	9.31	22.19		28.16	81.87	151.05	0.000	1.355
4/30/2012	0.42	8.73	20.65		28.17	82.13	151.05	0.000	1.352
5/31/2012	0.40	8.70	21.66		28.18	82.40	151.05	0.000	1.349
6/30/2012	0.39	8.13	20.96		28.20	82.65	151.05	0.000	1.346
7/31/2012	0.42	8.19	19.60		28.21	82.90	151.05	0.000	1.342
8/31/2012	0.40	8.38	20.84		28.22	83.16	151.05	0.000	1.339
9/30/2012	0.40	8.33	20.88		28.23	83.41	151.05	0.000	1.336
10/31/2012	0.40	8.33	20.71		28.25	83.67	151.05	0.000	1.333
11/30/2012	0.40	7.96	20.09		28.26	83.91	151.05	0.000	1.330
12/31/2012	0.36	7.88	21.77		28.27	84.15	151.05	0.000	1.327

# Pattern: 04-32-11-26 Set: NVScallionUnit#2

Oil Formation Vol Factor : 1.05000 m3/m3

Water Formation Vol Factor : 1.00000 m3/m3

Water / Oil Ratio : 12.23 m3/m3

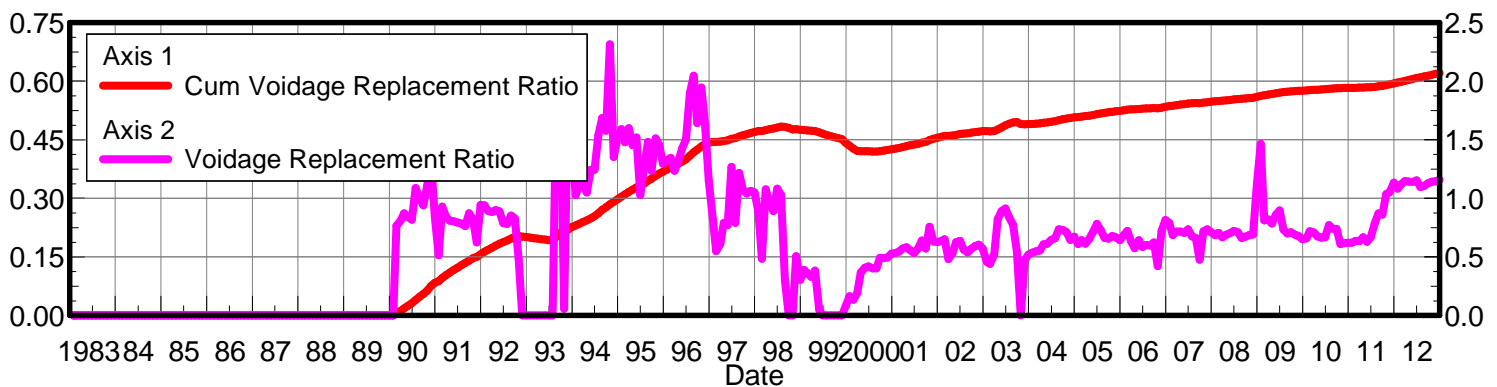
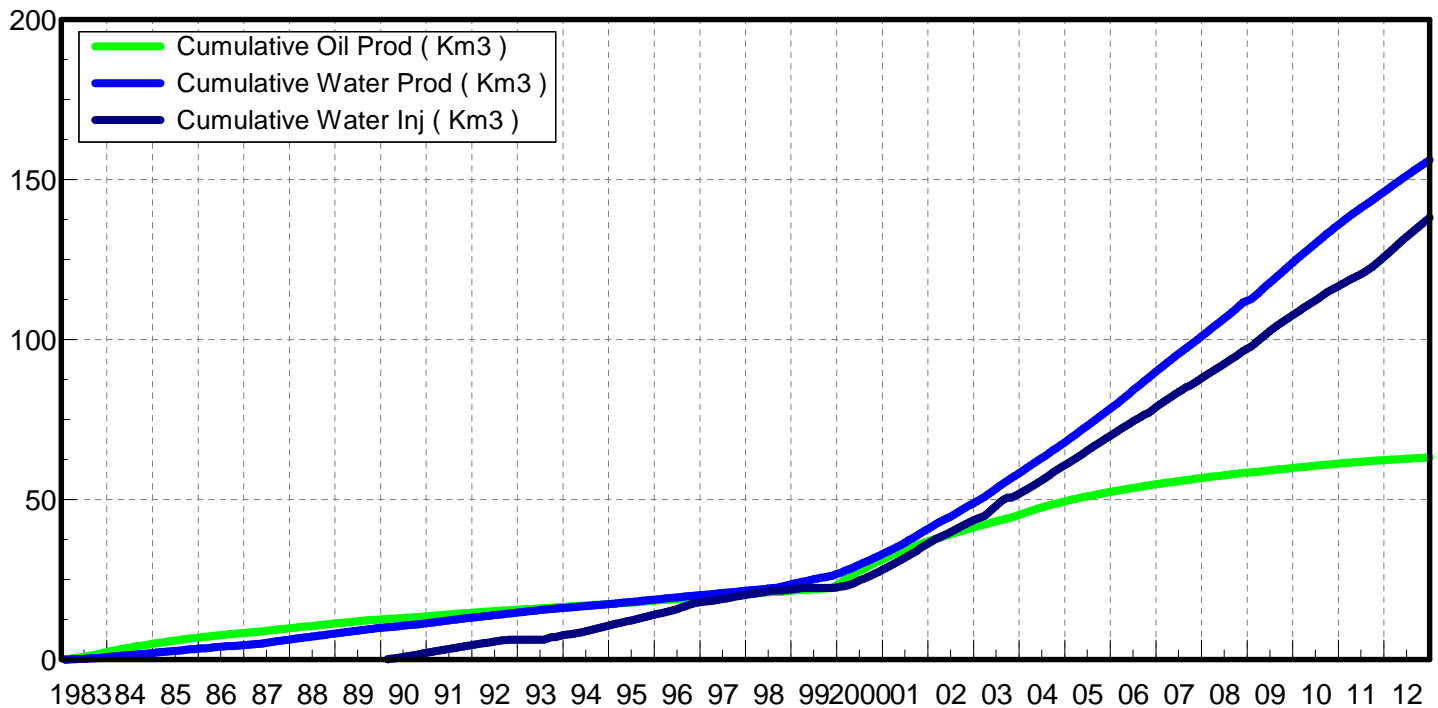
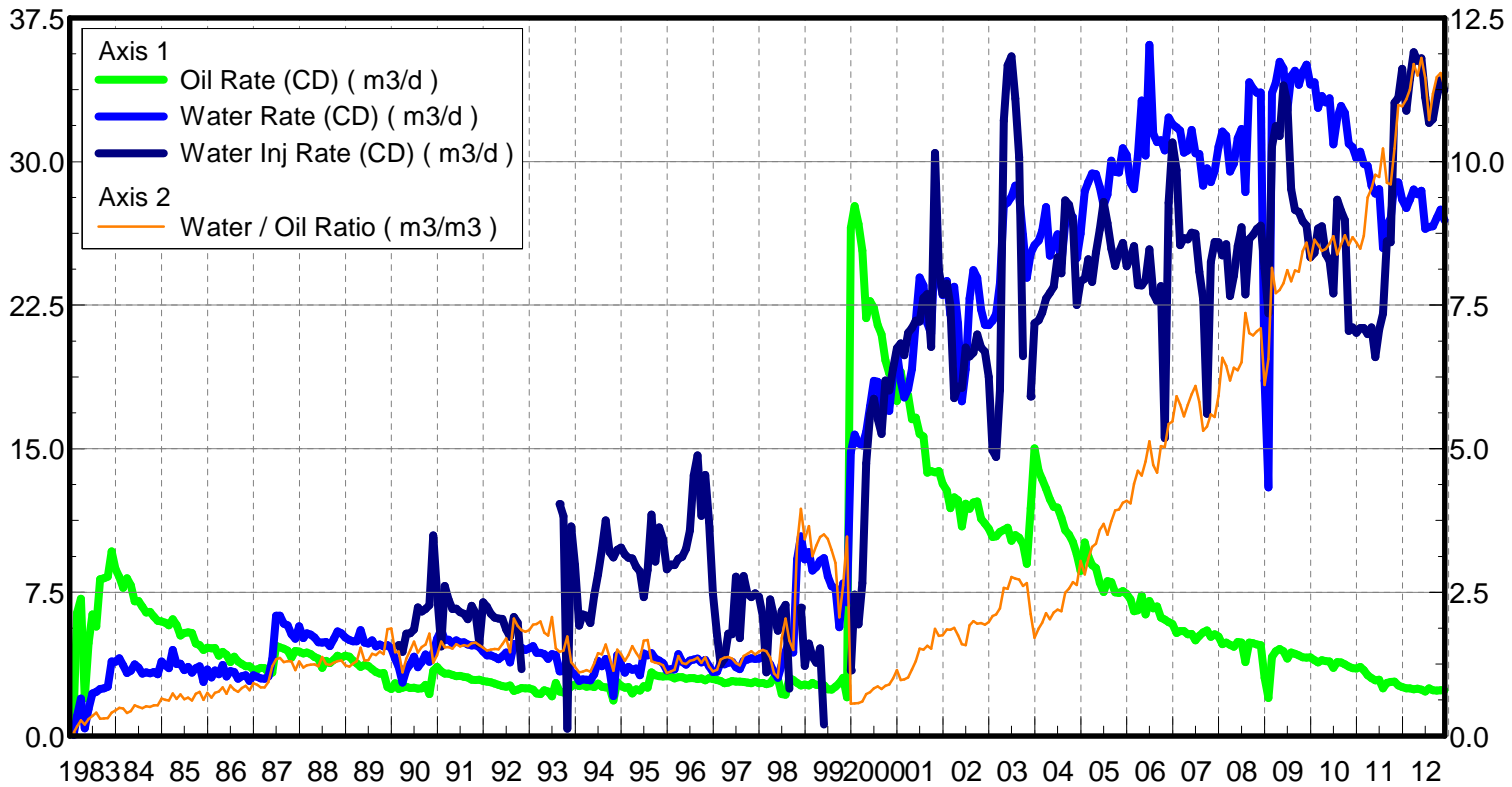
February 27, 2013

Operator: Tundra\_O&G\_Prtshp

Oil Rate (CD) : 2.06 m3/d

Water Rate (CD) : 25.16 m3/d

Water Inj Rate (CD) : 31.65 m3/d



Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/1983	0.97	0.05	0.05		0.03	0.00	0.00	0.000	0.000
2/28/1983	6.44	1.05	0.16		0.21	0.03	0.00	0.000	0.000
3/31/1983	7.15	1.95	0.27		0.43	0.09	0.00	0.000	0.000
4/30/1983	1.97	0.39	0.20		0.49	0.10	0.00	0.000	0.000
5/31/1983	4.86	1.41	0.29		0.64	0.15	0.00	0.000	0.000
6/30/1983	6.35	2.21	0.35		0.83	0.21	0.00	0.000	0.000
7/31/1983	5.71	2.30	0.40		1.01	0.28	0.00	0.000	0.000
8/31/1983	8.18	2.45	0.30		1.26	0.36	0.00	0.000	0.000
9/30/1983	8.23	2.49	0.30		1.51	0.44	0.00	0.000	0.000
10/31/1983	8.32	2.57	0.31		1.77	0.51	0.00	0.000	0.000
11/30/1983	9.63	3.89	0.40		2.06	0.63	0.00	0.000	0.000
12/31/1983	8.72	3.87	0.44		2.33	0.75	0.00	0.000	0.000
1/31/1984	8.29	4.06	0.49		2.58	0.88	0.00	0.000	0.000
2/29/1984	7.74	3.69	0.48		2.81	0.98	0.00	0.000	0.000
3/31/1984	8.23	3.28	0.40		3.06	1.09	0.00	0.000	0.000
4/30/1984	7.87	3.41	0.43		3.30	1.19	0.00	0.000	0.000
5/31/1984	7.03	3.74	0.53		3.52	1.30	0.00	0.000	0.000
6/30/1984	7.04	3.56	0.51		3.73	1.41	0.00	0.000	0.000
7/31/1984	6.75	3.26	0.48		3.94	1.51	0.00	0.000	0.000
8/31/1984	6.44	3.32	0.52		4.14	1.62	0.00	0.000	0.000
9/30/1984	6.48	3.27	0.50		4.33	1.71	0.00	0.000	0.000
10/31/1984	6.22	3.33	0.53		4.52	1.82	0.00	0.000	0.000
11/30/1984	6.02	3.22	0.54		4.71	1.91	0.00	0.000	0.000
12/31/1984	5.98	3.88	0.65		4.89	2.03	0.00	0.000	0.000
1/31/1985	5.90	3.69	0.63		5.07	2.15	0.00	0.000	0.000
2/28/1985	5.77	3.54	0.61		5.24	2.25	0.00	0.000	0.000
3/31/1985	6.09	4.49	0.74		5.42	2.39	0.00	0.000	0.000
4/30/1985	5.80	3.75	0.65		5.60	2.50	0.00	0.000	0.000
5/31/1985	5.24	3.77	0.72		5.76	2.62	0.00	0.000	0.000
6/30/1985	5.38	3.43	0.64		5.92	2.72	0.00	0.000	0.000
7/31/1985	5.41	3.61	0.67		6.09	2.83	0.00	0.000	0.000
8/31/1985	5.37	3.30	0.62		6.26	2.93	0.00	0.000	0.000
9/30/1985	4.83	3.53	0.73		6.40	3.04	0.00	0.000	0.000
10/31/1985	4.74	3.64	0.77		6.55	3.15	0.00	0.000	0.000
11/30/1985	4.49	2.81	0.63		6.68	3.24	0.00	0.000	0.000
12/31/1985	4.61	3.47	0.75		6.83	3.34	0.00	0.000	0.000
1/31/1986	4.57	3.05	0.67		6.97	3.44	0.00	0.000	0.000
2/28/1986	4.59	3.43	0.75		7.10	3.53	0.00	0.000	0.000
3/31/1986	4.18	3.22	0.77		7.23	3.63	0.00	0.000	0.000
4/30/1986	4.38	3.70	0.84		7.36	3.74	0.00	0.000	0.000
5/31/1986	4.23	3.10	0.73		7.49	3.84	0.00	0.000	0.000
6/30/1986	3.85	3.38	0.88		7.60	3.94	0.00	0.000	0.000
7/31/1986	4.14	3.34	0.81		7.73	4.05	0.00	0.000	0.000
8/31/1986	3.89	2.98	0.77		7.85	4.14	0.00	0.000	0.000
9/30/1986	3.75	3.13	0.83		7.96	4.23	0.00	0.000	0.000
10/31/1986	3.63	3.16	0.87		8.08	4.33	0.00	0.000	0.000
11/30/1986	3.63	2.88	0.79		8.19	4.42	0.00	0.000	0.000
12/31/1986	3.45	3.16	0.92		8.29	4.51	0.00	0.000	0.000

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/1987	3.47	3.09	0.89		8.40	4.61	0.00	0.000	0.000
2/28/1987	3.56	3.01	0.85		8.50	4.69	0.00	0.000	0.000
3/31/1987	3.54	2.99	0.84		8.61	4.79	0.00	0.000	0.000
4/30/1987	3.31	3.11	0.94		8.71	4.88	0.00	0.000	0.000
5/31/1987	3.30	4.00	1.21		8.81	5.00	0.00	0.000	0.000
6/30/1987	4.70	6.27	1.33		8.95	5.19	0.00	0.000	0.000
7/31/1987	4.63	6.28	1.36		9.10	5.39	0.00	0.000	0.000
8/31/1987	4.56	5.86	1.28		9.24	5.57	0.00	0.000	0.000
9/30/1987	4.45	5.78	1.30		9.37	5.74	0.00	0.000	0.000
10/31/1987	4.09	5.31	1.30		9.50	5.91	0.00	0.000	0.000
11/30/1987	4.43	5.08	1.15		9.63	6.06	0.00	0.000	0.000
12/31/1987	4.40	5.72	1.30		9.77	6.24	0.00	0.000	0.000
1/31/1988	4.30	5.11	1.19		9.90	6.39	0.00	0.000	0.000
2/29/1988	4.36	5.35	1.23		10.03	6.55	0.00	0.000	0.000
3/31/1988	4.27	5.29	1.24		10.16	6.71	0.00	0.000	0.000
4/30/1988	4.12	5.14	1.25		10.28	6.87	0.00	0.000	0.000
5/31/1988	4.04	4.90	1.21		10.41	7.02	0.00	0.000	0.000
6/30/1988	3.55	4.87	1.37		10.51	7.17	0.00	0.000	0.000
7/31/1988	3.93	4.91	1.25		10.64	7.32	0.00	0.000	0.000
8/31/1988	3.81	4.69	1.23		10.75	7.46	0.00	0.000	0.000
9/30/1988	3.97	5.05	1.27		10.87	7.62	0.00	0.000	0.000
10/31/1988	4.20	5.45	1.30		11.00	7.78	0.00	0.000	0.000
11/30/1988	4.09	5.36	1.31		11.13	7.95	0.00	0.000	0.000
12/31/1988	4.19	5.14	1.23		11.26	8.10	0.00	0.000	0.000
1/31/1989	4.14	5.00	1.21		11.38	8.26	0.00	0.000	0.000
2/28/1989	3.93	4.93	1.25		11.49	8.40	0.00	0.000	0.000
3/31/1989	3.79	4.93	1.30		11.61	8.55	0.00	0.000	0.000
4/30/1989	3.60	5.53	1.54		11.72	8.72	0.00	0.000	0.000
5/31/1989	3.70	4.87	1.32		11.83	8.87	0.00	0.000	0.000
6/30/1989	3.66	4.82	1.32		11.94	9.01	0.00	0.000	0.000
7/31/1989	3.49	4.99	1.43		12.05	9.17	0.00	0.000	0.000
8/31/1989	3.33	4.68	1.40		12.16	9.31	0.00	0.000	0.000
9/30/1989	3.25	4.78	1.47		12.25	9.46	0.00	0.000	0.000
10/31/1989	3.28	4.68	1.43		12.36	9.60	0.00	0.000	0.000
11/30/1989	2.56	4.75	1.86		12.43	9.74	0.00	0.000	0.000
12/31/1989	2.45	4.58	1.87		12.51	9.88	0.00	0.000	0.000
1/31/1990	2.76	4.02	1.46		12.59	10.01	0.00	0.000	0.000
2/28/1990	2.46	3.61	1.47	4.74	12.66	10.11	0.13	0.766	0.006
3/31/1990	2.52	2.78	1.10	4.39	12.74	10.20	0.27	0.809	0.011
4/30/1990	2.56	3.45	1.35	5.35	12.82	10.30	0.43	0.871	0.018
5/31/1990	2.50	3.73	1.49	5.35	12.89	10.42	0.59	0.842	0.025
6/30/1990	2.52	4.14	1.64	5.55	12.97	10.54	0.76	0.819	0.032
7/31/1990	2.47	3.58	1.45	6.72	13.05	10.65	0.97	1.088	0.040
8/31/1990	2.49	3.85	1.55	6.49	13.12	10.77	1.17	1.004	0.048
9/30/1990	2.67	4.25	1.59	6.63	13.20	10.90	1.37	0.941	0.055
10/31/1990	2.18	3.87	1.78	6.82	13.27	11.02	1.58	1.107	0.063
11/30/1990	3.41	4.34	1.27	10.48	13.37	11.15	1.90	1.322	0.075
12/31/1990	3.61	5.08	1.41	7.44	13.49	11.31	2.13	0.839	0.084



Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/1991	3.37	5.53	1.64	4.67	13.59	11.48	2.27	0.515	0.088
2/28/1991	3.25	5.01	1.54	7.83	13.68	11.62	2.49	0.929	0.096
3/31/1991	3.25	5.02	1.54	7.11	13.78	11.77	2.71	0.843	0.103
4/30/1991	3.19	4.84	1.52	6.63	13.88	11.92	2.91	0.810	0.110
5/31/1991	3.13	4.99	1.60	6.65	13.97	12.07	3.12	0.804	0.116
6/30/1991	3.13	4.88	1.56	6.46	14.07	12.22	3.31	0.792	0.123
7/31/1991	3.09	4.88	1.58	6.38	14.16	12.37	3.51	0.785	0.129
8/31/1991	3.06	4.77	1.56	6.10	14.26	12.52	3.70	0.764	0.134
9/30/1991	2.93	4.72	1.61	6.80	14.35	12.66	3.90	0.872	0.141
10/31/1991	2.92	4.75	1.62	6.43	14.44	12.81	4.10	0.822	0.147
11/30/1991	2.94	4.63	1.58	4.82	14.53	12.95	4.24	0.625	0.151
12/31/1991	2.87	4.40	1.53	6.99	14.61	13.08	4.46	0.942	0.157
1/31/1992	2.83	4.20	1.48	6.75	14.70	13.21	4.67	0.940	0.163
2/29/1992	2.80	4.20	1.50	6.38	14.78	13.33	4.86	0.894	0.168
3/31/1992	2.73	4.13	1.51	6.17	14.87	13.46	5.05	0.883	0.174
4/30/1992	2.66	4.01	1.51	6.12	14.95	13.58	5.23	0.900	0.179
5/31/1992	2.60	4.15	1.60	6.11	15.03	13.71	5.42	0.889	0.184
6/30/1992	2.57	4.36	1.70	5.56	15.11	13.84	5.59	0.788	0.188
7/31/1992	2.64	3.84	1.46	5.18	15.19	13.96	5.75	0.783	0.192
8/31/1992	2.35	4.81	2.04	6.20	15.26	14.11	5.94	0.852	0.197
9/30/1992	2.41	4.62	1.91	5.92	15.33	14.25	6.12	0.827	0.202
10/31/1992	2.50	4.60	1.84	3.48	15.41	14.39	6.22	0.482	0.204
11/30/1992	2.48	4.50	1.81		15.48	14.53	6.22	0.000	0.202
12/31/1992	2.48	4.57	1.84		15.56	14.67	6.22	0.000	0.201
1/31/1993	2.42	4.69	1.94		15.64	14.81	6.22	0.000	0.199
2/28/1993	2.22	4.33	1.95		15.70	14.93	6.22	0.000	0.198
3/31/1993	2.18	4.35	1.99		15.77	15.07	6.22	0.000	0.197
4/30/1993	2.38	4.27	1.80		15.84	15.20	6.22	0.000	0.196
5/31/1993	2.31	4.03	1.75		15.91	15.32	6.22	0.000	0.194
6/30/1993	2.06	4.27	2.07		15.97	15.45	6.22	0.000	0.193
7/31/1993	2.77	4.23	1.53		16.06	15.58	6.22	0.000	0.192
8/31/1993	2.31	3.37	1.46	12.11	16.13	15.69	6.60	2.088	0.202
9/30/1993	2.27	3.38	1.49	11.48	16.20	15.79	6.94	1.989	0.212
10/31/1993	2.39	4.13	1.73	0.38	16.27	15.92	6.96	0.058	0.211
11/30/1993	2.59	3.33	1.28	10.94	16.35	16.02	7.28	1.809	0.220
12/31/1993	2.68	3.21	1.20	8.92	16.43	16.11	7.56	1.481	0.227
1/31/1994	2.60	2.87	1.10	5.76	16.51	16.20	7.74	1.027	0.231
2/28/1994	2.64	2.95	1.12	6.35	16.59	16.29	7.92	1.109	0.235
3/31/1994	2.56	2.94	1.15	6.28	16.67	16.38	8.11	1.116	0.239
4/30/1994	2.59	2.90	1.12	5.90	16.74	16.46	8.29	1.049	0.243
5/31/1994	2.55	3.22	1.26	7.33	16.82	16.56	8.52	1.245	0.249
6/30/1994	2.73	3.93	1.44	8.44	16.90	16.68	8.77	1.243	0.255
7/31/1994	2.56	3.64	1.42	9.73	16.98	16.80	9.07	1.539	0.262
8/31/1994	2.53	4.02	1.59	11.26	17.06	16.92	9.42	1.687	0.270
9/30/1994	2.52	3.44	1.37	9.60	17.14	17.02	9.71	1.578	0.277
10/31/1994	1.84	2.09	1.13	9.31	17.19	17.09	10.00	2.314	0.284
11/30/1994	2.81	4.22	1.50	9.72	17.28	17.21	10.29	1.355	0.291
12/31/1994	2.62	3.73	1.42	9.83	17.36	17.33	10.59	1.516	0.298

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/1995	2.52	3.30	1.31	9.47	17.44	17.43	10.89	1.591	0.305
2/28/1995	2.56	3.60	1.41	9.30	17.51	17.53	11.15	1.479	0.310
3/31/1995	2.22	3.46	1.56	9.26	17.58	17.64	11.43	1.600	0.317
4/30/1995	2.43	3.51	1.44	8.83	17.65	17.75	11.70	1.456	0.322
5/31/1995	2.36	3.17	1.34	8.58	17.72	17.84	11.97	1.521	0.328
6/30/1995	2.60	4.31	1.66	7.25	17.80	17.97	12.18	1.029	0.332
7/31/1995	2.52	4.20	1.67	8.66	17.88	18.10	12.45	1.265	0.338
8/31/1995	3.32	4.32	1.30	11.56	17.98	18.24	12.81	1.481	0.345
9/30/1995	3.17	4.04	1.28	9.11	18.08	18.36	13.08	1.237	0.350
10/31/1995	3.11	3.94	1.26	10.88	18.17	18.48	13.42	1.510	0.357
11/30/1995	3.10	3.80	1.23	10.28	18.27	18.59	13.73	1.458	0.363
12/31/1995	3.12	3.43	1.10	8.70	18.36	18.70	14.00	1.297	0.369
1/31/1996	3.10	3.49	1.13	8.95	18.46	18.81	14.28	1.327	0.374
2/29/1996	3.01	3.47	1.15	8.91	18.55	18.91	14.53	1.345	0.379
3/31/1996	3.06	4.27	1.39	9.25	18.64	19.04	14.82	1.237	0.384
4/30/1996	3.06	3.88	1.27	9.36	18.73	19.16	15.10	1.320	0.389
5/31/1996	2.98	3.72	1.25	9.77	18.83	19.27	15.40	1.427	0.395
6/30/1996	3.02	3.94	1.31	10.72	18.92	19.39	15.73	1.508	0.401
7/31/1996	3.02	3.99	1.32	13.60	19.01	19.52	16.15	1.900	0.409
8/31/1996	2.96	4.04	1.36	14.65	19.10	19.64	16.60	2.048	0.418
9/30/1996	3.01	3.84	1.28	11.50	19.19	19.76	16.95	1.643	0.425
10/31/1996	2.90	3.97	1.37	13.64	19.28	19.88	17.37	1.946	0.433
11/30/1996	3.02	3.64	1.21	11.17	19.37	19.99	17.71	1.642	0.439
12/31/1996	2.96	3.34	1.13	7.43	19.47	20.09	17.94	1.152	0.443
1/31/1997	2.92	3.35	1.15	5.25	19.56	20.20	18.10	0.819	0.444
2/28/1997	2.87	3.82	1.33	3.76	19.64	20.30	18.20	0.549	0.445
3/31/1997	2.75	3.74	1.36	4.04	19.72	20.42	18.33	0.609	0.446
4/30/1997	2.79	3.83	1.37	5.34	19.81	20.53	18.49	0.791	0.447
5/31/1997	2.87	3.86	1.34	5.32	19.89	20.65	18.65	0.772	0.449
6/30/1997	2.83	3.58	1.27	8.32	19.98	20.76	18.90	1.269	0.453
7/31/1997	2.83	3.49	1.23	5.11	20.07	20.87	19.06	0.790	0.455
8/31/1997	2.81	3.91	1.39	8.35	20.15	20.99	19.32	1.215	0.458
9/30/1997	2.79	3.98	1.43	7.41	20.24	21.11	19.54	1.072	0.461
10/31/1997	2.75	4.05	1.47	7.24	20.32	21.24	19.77	1.043	0.464
11/30/1997	2.84	4.03	1.42	7.45	20.41	21.36	19.99	1.063	0.467
12/31/1997	2.75	4.04	1.47	7.27	20.49	21.48	20.22	1.050	0.470
1/31/1998	2.76	4.13	1.49	6.25	20.58	21.61	20.41	0.889	0.472
2/28/1998	2.71	3.99	1.47	3.32	20.65	21.72	20.50	0.486	0.472
3/31/1998	2.74	3.74	1.36	7.13	20.74	21.84	20.72	1.077	0.475
4/30/1998	3.04	3.31	1.09	6.23	20.83	21.94	20.91	0.957	0.477
5/31/1998	2.99	3.04	1.02	5.50	20.92	22.03	21.08	0.891	0.479
6/30/1998	2.19	3.72	1.70	6.52	20.99	22.14	21.28	1.084	0.482
7/31/1998	2.15	4.40	2.05	6.85	21.06	22.28	21.49	1.029	0.484
8/31/1998	3.04	5.04	1.66	2.46	21.15	22.43	21.56	0.299	0.483
9/30/1998	2.92	4.36	1.50		21.24	22.57	21.56	0.000	0.481
10/31/1998	2.77	9.22	3.33		21.32	22.85	21.56	0.000	0.477
11/30/1998	2.64	10.42	3.95	6.69	21.40	23.16	21.77	0.508	0.477
12/31/1998	2.69	9.22	3.43	3.65	21.49	23.45	21.88	0.303	0.476

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/1999	2.63	9.60	3.65	4.82	21.57	23.75	22.03	0.389	0.475
2/28/1999	2.76	8.64	3.13	4.14	21.64	23.99	22.14	0.359	0.474
3/31/1999	2.66	8.82	3.31	3.83	21.73	24.26	22.26	0.329	0.473
4/30/1999	2.65	9.15	3.46	4.57	21.81	24.54	22.40	0.383	0.472
5/31/1999	2.65	9.28	3.51	0.59	21.89	24.83	22.42	0.049	0.469
6/30/1999	2.43	8.33	3.43		21.96	25.08	22.42	0.000	0.466
7/31/1999	2.41	7.81	3.24		22.04	25.32	22.42	0.000	0.463
8/31/1999	2.56	7.71	3.01		22.12	25.56	22.42	0.000	0.460
9/30/1999	2.75	5.67	2.06		22.20	25.73	22.42	0.000	0.457
10/31/1999	3.04	7.96	2.62		22.29	25.97	22.42	0.000	0.454
11/30/1999	2.01	6.97	3.47		22.35	26.18	22.42	0.000	0.451
12/31/1999	26.54	14.82	0.56	3.42	23.18	26.64	22.52	0.080	0.442
1/31/2000	27.67	15.73	0.57	7.38	24.03	27.13	22.75	0.165	0.435
2/29/2000	26.74	15.29	0.57	5.83	24.81	27.57	22.92	0.134	0.427
3/31/2000	25.35	15.17	0.60	7.97	25.59	28.04	23.17	0.191	0.422
4/30/2000	21.82	15.86	0.73	14.23	26.25	28.52	23.60	0.367	0.421
5/31/2000	22.71	17.22	0.76	16.78	26.95	29.05	24.12	0.409	0.420
6/30/2000	22.35	18.55	0.83	17.61	27.62	29.61	24.64	0.419	0.420
7/31/2000	21.46	18.50	0.86	16.55	28.29	30.18	25.16	0.403	0.420
8/31/2000	20.96	17.15	0.82	15.76	28.94	30.71	25.65	0.403	0.420
9/30/2000	19.61	17.09	0.87	18.57	29.53	31.23	26.20	0.493	0.421
10/31/2000	18.93	16.97	0.90	18.05	30.11	31.75	26.76	0.490	0.422
11/30/2000	18.86	18.89	1.00	19.18	30.68	32.32	27.34	0.496	0.424
12/31/2000	17.49	20.07	1.15	20.25	31.22	32.94	27.97	0.527	0.426
1/31/2001	19.02	18.52	0.97	20.50	31.81	33.52	28.60	0.533	0.427
2/28/2001	18.01	17.67	0.98	19.88	32.32	34.01	29.16	0.544	0.429
3/31/2001	17.79	18.11	1.02	21.05	32.87	34.57	29.81	0.572	0.432
4/30/2001	16.54	19.16	1.16	21.31	33.36	35.15	30.45	0.583	0.434
5/31/2001	16.62	21.67	1.30	21.69	33.88	35.82	31.12	0.554	0.436
6/30/2001	15.76	23.94	1.52	21.63	34.35	36.54	31.77	0.534	0.438
7/31/2001	15.64	23.53	1.50	22.87	34.84	37.27	32.48	0.573	0.440
8/31/2001	13.75	21.55	1.57	23.07	35.26	37.93	33.20	0.641	0.443
9/30/2001	13.83	21.01	1.52	20.31	35.68	38.56	33.81	0.572	0.445
10/31/2001	13.77	25.65	1.86	30.44	36.10	39.36	34.75	0.759	0.450
11/30/2001	13.83	24.05	1.74	24.35	36.52	40.08	35.48	0.631	0.452
12/31/2001	13.16	23.03	1.75	23.07	36.93	40.79	36.19	0.626	0.455
1/31/2002	12.81	23.75	1.85	23.63	37.32	41.53	36.93	0.635	0.457
2/28/2002	11.89	22.00	1.85	22.49	37.66	42.15	37.56	0.652	0.460
3/31/2002	12.46	23.46	1.88	17.64	38.04	42.87	38.10	0.483	0.460
4/30/2002	12.31	21.54	1.75	18.24	38.41	43.52	38.65	0.529	0.461
5/31/2002	10.94	17.48	1.60	18.18	38.75	44.06	39.21	0.628	0.463
6/30/2002	12.12	19.14	1.58	20.28	39.12	44.64	39.82	0.636	0.465
7/31/2002	11.85	22.83	1.93	19.82	39.48	45.34	40.44	0.562	0.466
8/31/2002	12.19	24.33	2.00	20.02	39.86	46.10	41.06	0.539	0.467
9/30/2002	12.24	23.93	1.95	20.97	40.23	46.82	41.69	0.570	0.468
10/31/2002	11.34	22.27	1.96	20.29	40.58	47.51	42.32	0.594	0.470
11/30/2002	11.09	21.47	1.94	20.07	40.91	48.15	42.92	0.606	0.471
12/31/2002	10.82	21.45	1.98	18.74	41.25	48.82	43.50	0.571	0.472

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/2003	10.40	21.68	2.09	14.90	41.57	49.49	43.96	0.457	0.472
2/28/2003	10.43	22.05	2.11	14.57	41.86	50.11	44.37	0.442	0.472
3/31/2003	10.65	23.64	2.22	18.06	42.19	50.84	44.93	0.519	0.472
4/30/2003	10.75	27.70	2.58	32.13	42.52	51.67	45.89	0.824	0.477
5/31/2003	10.87	27.85	2.56	35.03	42.85	52.53	46.98	0.892	0.482
6/30/2003	10.18	28.16	2.77	35.50	43.16	53.38	48.04	0.914	0.487
7/31/2003	10.49	28.75	2.74	33.29	43.48	54.27	49.08	0.837	0.491
8/31/2003	10.35	28.21	2.72	30.23	43.80	55.14	50.01	0.773	0.495
9/30/2003	10.02	26.14	2.61	19.83	44.10	55.93	50.61	0.541	0.495
10/31/2003	8.98	23.92	2.66		44.38	56.67	50.61	0.000	0.490
11/30/2003	11.88	25.20	2.12	17.73	44.74	57.43	51.14	0.471	0.490
12/31/2003	15.02	25.63	1.71	21.55	45.20	58.22	51.81	0.520	0.490
1/31/2004	13.83	25.87	1.87	21.71	45.63	59.02	52.48	0.537	0.491
2/29/2004	13.40	26.39	1.97	22.10	46.02	59.79	53.12	0.546	0.491
3/31/2004	12.91	27.61	2.14	22.84	46.42	60.64	53.83	0.555	0.492
4/30/2004	12.36	25.08	2.03	23.13	46.79	61.40	54.52	0.608	0.493
5/31/2004	11.96	25.67	2.15	23.45	47.16	62.19	55.25	0.613	0.495
6/30/2004	11.92	26.20	2.20	25.00	47.52	62.98	56.00	0.646	0.496
7/31/2004	11.39	24.69	2.17	24.16	47.87	63.74	56.75	0.659	0.498
8/31/2004	10.73	26.78	2.49	27.97	48.21	64.57	57.62	0.735	0.500
9/30/2004	10.51	26.98	2.57	27.73	48.52	65.38	58.45	0.730	0.502
10/31/2004	10.13	27.10	2.68	26.87	48.84	66.22	59.28	0.712	0.505
11/30/2004	9.49	24.95	2.63	22.51	49.12	66.97	59.96	0.645	0.506
12/31/2004	8.61	26.24	3.05	23.74	49.39	67.78	60.69	0.673	0.507
1/31/2005	10.11	28.43	2.81	23.87	49.70	68.67	61.43	0.611	0.508
2/28/2005	9.38	28.92	3.08	24.89	49.96	69.48	62.13	0.642	0.510
3/31/2005	8.92	29.37	3.29	23.71	50.24	70.39	62.86	0.612	0.511
4/30/2005	8.77	29.35	3.35	25.25	50.50	71.27	63.62	0.655	0.512
5/31/2005	7.99	28.66	3.59	26.45	50.75	72.16	64.44	0.714	0.514
6/30/2005	7.51	27.71	3.69	27.88	50.98	72.99	65.28	0.783	0.516
7/31/2005	8.08	28.28	3.50	26.78	51.23	73.86	66.11	0.728	0.518
8/31/2005	8.04	30.04	3.74	25.45	51.48	74.79	66.90	0.661	0.519
9/30/2005	7.50	29.46	3.93	24.54	51.70	75.68	67.63	0.657	0.520
10/31/2005	7.47	29.43	3.94	25.26	51.93	76.59	68.42	0.678	0.522
11/30/2005	7.56	30.69	4.06	25.74	52.16	77.51	69.19	0.666	0.523
12/31/2005	7.42	30.35	4.09	24.54	52.39	78.45	69.95	0.643	0.524
1/31/2006	7.14	28.89	4.05	25.00	52.61	79.35	70.73	0.687	0.525
2/28/2006	6.51	28.56	4.39	25.59	52.79	80.15	71.44	0.723	0.527
3/31/2006	6.56	30.31	4.62	23.55	53.00	81.09	72.17	0.633	0.528
4/30/2006	7.32	33.19	4.53	23.52	53.22	82.08	72.88	0.575	0.528
5/31/2006	6.34	30.31	4.78	23.81	53.41	83.02	73.62	0.644	0.529
6/30/2006	7.04	36.09	5.13	25.41	53.62	84.10	74.38	0.584	0.530
7/31/2006	6.67	31.44	4.71	23.11	53.83	85.08	75.09	0.601	0.530
8/31/2006	6.77	31.01	4.58	22.70	54.04	86.04	75.80	0.596	0.531
9/30/2006	6.17	31.11	5.04	23.49	54.23	86.97	76.50	0.625	0.532
10/31/2006	6.08	30.57	5.03	15.56	54.41	87.92	76.98	0.421	0.531
11/30/2006	5.95	32.31	5.43	27.84	54.59	88.89	77.82	0.722	0.532
12/31/2006	5.84	31.96	5.48	31.00	54.77	89.88	78.78	0.814	0.534

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/2007	5.38	31.78	5.91	29.55	54.94	90.87	79.70	0.789	0.536
2/28/2007	5.48	31.62	5.77	25.63	55.09	91.75	80.41	0.686	0.538
3/31/2007	5.47	30.46	5.56	26.00	55.26	92.70	81.22	0.718	0.539
4/30/2007	5.30	30.57	5.76	25.93	55.42	93.61	82.00	0.717	0.540
5/31/2007	5.32	31.64	5.95	26.29	55.59	94.59	82.81	0.706	0.541
6/30/2007	4.99	30.42	6.10	26.23	55.74	95.51	83.60	0.735	0.543
7/31/2007	5.23	30.39	5.81	24.24	55.90	96.45	84.35	0.676	0.544
8/31/2007	5.41	28.74	5.31	22.80	56.07	97.34	85.06	0.662	0.545
9/30/2007	5.50	29.64	5.39	16.82	56.23	98.23	85.56	0.475	0.544
10/31/2007	5.17	28.93	5.60	24.74	56.39	99.13	86.33	0.720	0.545
11/30/2007	5.32	29.52	5.55	25.80	56.55	100.01	87.10	0.735	0.546
12/31/2007	5.20	30.76	5.92	25.77	56.71	100.97	87.90	0.712	0.548
1/31/2008	4.79	31.56	6.58	25.10	56.86	101.94	88.68	0.686	0.549
2/29/2008	4.87	31.35	6.44	25.69	57.00	102.85	89.43	0.705	0.550
3/31/2008	4.76	29.48	6.19	22.97	57.15	103.77	90.14	0.666	0.550
4/30/2008	4.66	29.90	6.41	24.03	57.29	104.66	90.86	0.691	0.551
5/31/2008	4.90	31.22	6.37	25.58	57.44	105.63	91.65	0.703	0.552
6/30/2008	4.88	31.70	6.50	26.57	57.59	106.58	92.45	0.721	0.553
7/31/2008	3.86	28.41	7.36	23.06	57.71	107.46	93.16	0.711	0.554
8/31/2008	4.87	34.14	7.01	25.95	57.86	108.52	93.97	0.661	0.555
9/30/2008	4.85	33.80	6.97	26.17	58.00	109.54	94.75	0.673	0.556
10/31/2008	4.77	33.59	7.04	26.49	58.15	110.58	95.57	0.686	0.557
11/30/2008	4.73	33.60	7.10	26.66	58.29	111.59	96.37	0.691	0.558
12/31/2008	3.03	18.54	6.11	24.41	58.39	112.16	97.13	1.123	0.560
1/31/2009	1.98	12.97	6.56	22.06	58.45	112.56	97.82	1.466	0.562
2/28/2009	4.12	33.58	8.15	30.78	58.57	113.50	98.68	0.812	0.564
3/31/2009	4.43	34.12	7.71	31.85	58.70	114.56	99.66	0.822	0.566
4/30/2009	4.54	35.20	7.76	31.33	58.84	115.62	100.60	0.784	0.567
5/31/2009	4.42	34.86	7.88	33.97	58.98	116.70	101.66	0.860	0.569
6/30/2009	4.03	32.67	8.11	33.07	59.10	117.68	102.65	0.896	0.571
7/31/2009	4.35	34.46	7.92	28.56	59.23	118.74	103.53	0.732	0.572
8/31/2009	4.29	34.73	8.10	27.47	59.36	119.82	104.39	0.700	0.573
9/30/2009	4.21	34.00	8.08	27.37	59.49	120.84	105.21	0.712	0.574
10/31/2009	4.11	34.69	8.44	26.89	59.62	121.92	106.04	0.689	0.575
11/30/2009	4.08	35.07	8.59	26.65	59.74	122.97	106.84	0.677	0.575
12/31/2009	4.11	34.03	8.28	25.00	59.87	124.02	107.62	0.652	0.576
1/31/2010	3.95	34.14	8.64	25.23	59.99	125.08	108.40	0.659	0.576
2/28/2010	3.84	32.79	8.55	26.50	60.10	126.00	109.14	0.720	0.577
3/31/2010	3.96	33.42	8.44	26.61	60.22	127.04	109.96	0.708	0.578
4/30/2010	3.90	33.08	8.48	25.17	60.34	128.03	110.72	0.677	0.579
5/31/2010	3.88	33.30	8.57	24.81	60.46	129.06	111.49	0.664	0.579
6/30/2010	3.55	30.89	8.70	23.10	60.56	129.99	112.18	0.667	0.580
7/31/2010	3.85	32.27	8.38	28.00	60.68	130.99	113.05	0.771	0.581
8/31/2010	3.84	32.90	8.56	27.42	60.80	132.01	113.90	0.742	0.582
9/30/2010	3.73	32.53	8.72	26.94	60.92	132.98	114.71	0.739	0.582
10/31/2010	3.62	30.93	8.55	21.15	61.03	133.94	115.36	0.609	0.583
11/30/2010	3.54	30.75	8.68	21.34	61.13	134.87	116.00	0.619	0.583
12/31/2010	3.51	30.15	8.59	21.05	61.24	135.80	116.66	0.622	0.583

Date	Oil Rate (CD) m3/d	Water Rate (CD) m3/d	Water Oil Ratio m3/m3	Water Inj Rate (CD) m3/d	Cum Oil Prod Km3	Cum Water Prod Km3	Cum Water Inj Km3	Voidage Replacement Ratio	Cum Voidage Replacemt Ratio
1/31/2011	3.60	30.52	8.48	21.30	61.35	136.75	117.32	0.621	0.583
2/28/2011	3.43	29.87	8.70	21.30	61.45	137.58	117.91	0.636	0.583
3/31/2011	3.18	29.77	9.37	20.99	61.55	138.51	118.56	0.634	0.584
4/30/2011	3.02	28.75	9.53	21.34	61.64	139.37	119.20	0.669	0.584
5/31/2011	2.90	28.33	9.77	19.78	61.73	140.25	119.82	0.630	0.584
6/30/2011	2.94	28.56	9.73	21.22	61.82	141.10	120.45	0.671	0.585
7/31/2011	2.49	25.48	10.23	22.06	61.89	141.89	121.14	0.785	0.586
8/31/2011	2.77	26.69	9.63	25.83	61.98	142.72	121.94	0.872	0.587
9/30/2011	2.81	27.02	9.60	25.78	62.06	143.53	122.71	0.860	0.588
10/31/2011	2.83	28.93	10.23	33.08	62.15	144.43	123.74	1.037	0.590
11/30/2011	2.63	28.90	10.98	33.33	62.23	145.29	124.74	1.052	0.592
12/31/2011	2.56	28.01	10.96	34.84	62.31	146.16	125.82	1.135	0.595
1/31/2012	2.49	27.57	11.08	32.65	62.39	147.02	126.83	1.082	0.597
2/29/2012	2.49	28.00	11.25	34.29	62.46	147.83	127.82	1.120	0.599
3/31/2012	2.44	28.54	11.70	35.71	62.54	148.71	128.93	1.148	0.601
4/30/2012	2.46	28.29	11.50	35.26	62.61	149.56	129.99	1.142	0.604
5/31/2012	2.41	28.48	11.80	35.40	62.68	150.45	131.09	1.141	0.606
6/30/2012	2.31	26.49	11.46	33.35	62.75	151.24	132.09	1.153	0.608
7/31/2012	2.48	26.58	10.72	32.02	62.83	152.06	133.08	1.097	0.610
8/31/2012	2.38	26.62	11.18	32.22	62.90	152.89	134.08	1.106	0.612
9/30/2012	2.36	27.06	11.47	33.36	62.97	153.70	135.08	1.130	0.614
10/31/2012	2.38	27.48	11.54	34.24	63.05	154.55	136.14	1.142	0.617
11/30/2012	2.38	26.93	11.30	33.73	63.12	155.36	137.15	1.146	0.619
12/31/2012	2.06	25.16	12.23	31.65	63.18	156.14	138.13	1.158	0.621