Waskada Unit No. 5

Waterflood Progress Report

January 1st – December 31st, 2013

PennWest

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Senior Waterflood Engineer

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Introduction:

The Waskada Unit No.5 pressure maintenance project commenced water injection into the Lower Amaranth designed and in accordance with Manitoba Energy and Mines Approval No. PM 58.

Please refer to Attachment 1 – Area Map.

PRESSURE MAINTENANCE: Governed by Board Order No. PM 58

Unit Information

UNITIZED ZONE: Lower Amaranth
Original Unit, January 1, 1985 Board Order – Voluntary
First Enlargement, March 1, 1986 - Voluntary

POOL: Waskada Lower Amaranth A (03 29A)

This report documents the performance of the Waskada Unit No. 5 pressure maintenance project for the period of January 1 to December 31, 2013. The Unit had 17 active producers and no active injectors at the end of 2013. There were 2 new drills in 2013.

Please refer to Attachment 1A – Area Map of New Drills

Unit No. 5 is part of the main Waskada field. The Waskada field is situated on the northeast rim of the Williston Basin in southern Manitoba. It comprises a large portion of Township 1 and 2, Ranges 25 and 26 W1.

Geology

The Waskada Fields produce light density crude (approximately 36^{o} API), predominantly from the Lower Amaranth formation. This is an interlaminated, shallow marine to subtidal succession of sandstones, siltones, and shale progressively onlaps the Mississippian unconformity surface from basin center, up dip to the north and eastern basin limits in Saskatchewan and Manitoba. The fine grained reservoir rock has a complex reservoir characterization with 13 to 16 % porosity and permeability on the order of 0.5 to15 md. The Lower Amaranth, the oldest Mesozoic unit, is a clastic red bed sequence lying directly on the Paleozoic erosional surface. It consists of a series of dolomitic siltstones and sandstones interbedded with argillaceous siltstones and shales. The section is usually subdivided into a lower sandy unit and an overlying shale unit. The lower sequence is the oil production zone. The bulk of pay is found in the laminated sandstone/siltstone facies.

The Lower Amaranth has been classified into four general lithological types:

1. Interbedded shale/siltstone/sandstone by grain size, color and texture
2. Siltstone – This lithology occurs in distinct intervals up to two or three metres in thickness. It is generally light green in color and dolomitic.
3. Laminated sandstone – This occurs in distinct sandy intervals with a wide range of grain sizes and primary sedimentary structures.
4. Massive sandstone – This lithology occurs in thin intervals and usually associated with the laminated sandstones facies. Beds are usually light grey to reddish grey in color and coarse to medium – grained.

Discussion

Production and Injection Performance

Board Order No. PM 58 provided for pressure maintenance operations in Waskada Unit No.5. From the startup of injection in June 1984, injection rates fluctuated to the same degree in each injector, making it difficult to link any production responses to any injector. The Unit includes 9 injection wells; at the end of 2013 none are currently active. Injection ceased essentially in 2006. There are currently 17 active producers; 2 horizontal wells were drilled in 2013 briefly adding to Unit production.

Please refer to Attachment 2 – A Summary of the Unit Well List and History with New Drills
Please refer to Attachment 3 – A Production and Injection plot of the Unit.
Please refer to Attachment 3A – A Production Plot of the New Drills
Please refer to Attachment 4 – A Summary of Unit Annual Volumes and Rates.
Please refer to Attachment 5 – A Cumulative Production and Injection plot of the Unit.

Voidage Replacement Ratio Calculation:

The Cumulative VRR from production start is at 0.6; the Cumulative VRR from injection start is at 0.7. Both have dropped from 1.0 and 1.3 slightly in the last 4 years due to essentially no injection from 2006 onwards and the startup of new producers. Currently there are no active injectors in this Unit hence Monthly VRR is zero. PennWest has no plans to reactivate at this time any of the old injectors.

Please refer to Attachment 6 – A Unit Voidage Replacement Ratio Plot.
Please refer to Attachment 7 – Individual Injection Well Performance Plots (9).

Pressure Surveys:

There were no pressure surveys conducted in 2013.

Corrosion and Scale Prevention Program:

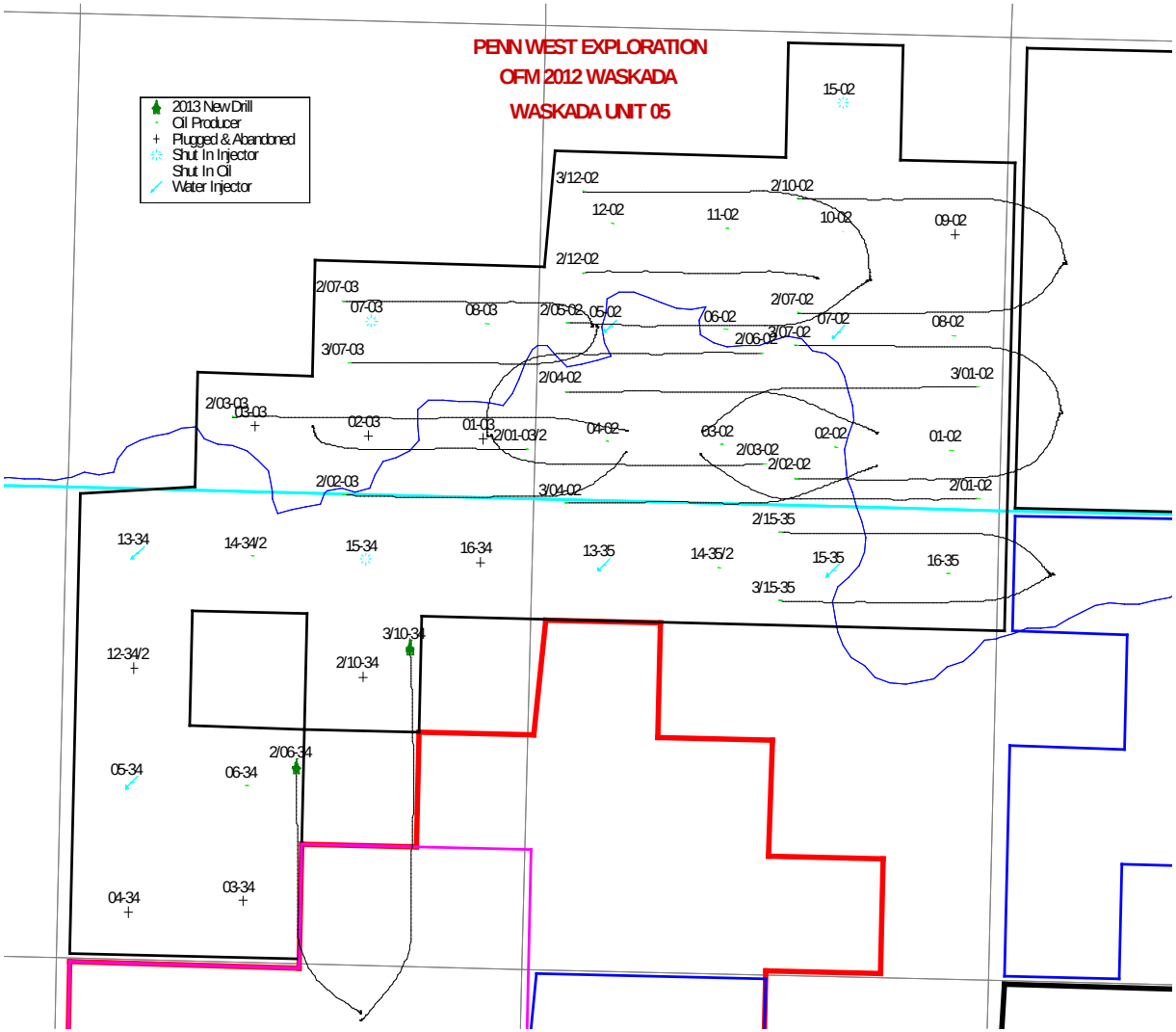
We currently inject ScalCor down all the new horizontal wells. PennWest will be installing cathodic protection on the wells. The new gathering system is Fibreglass and as such is not susceptible to corrosion.

Summary and Recommendations

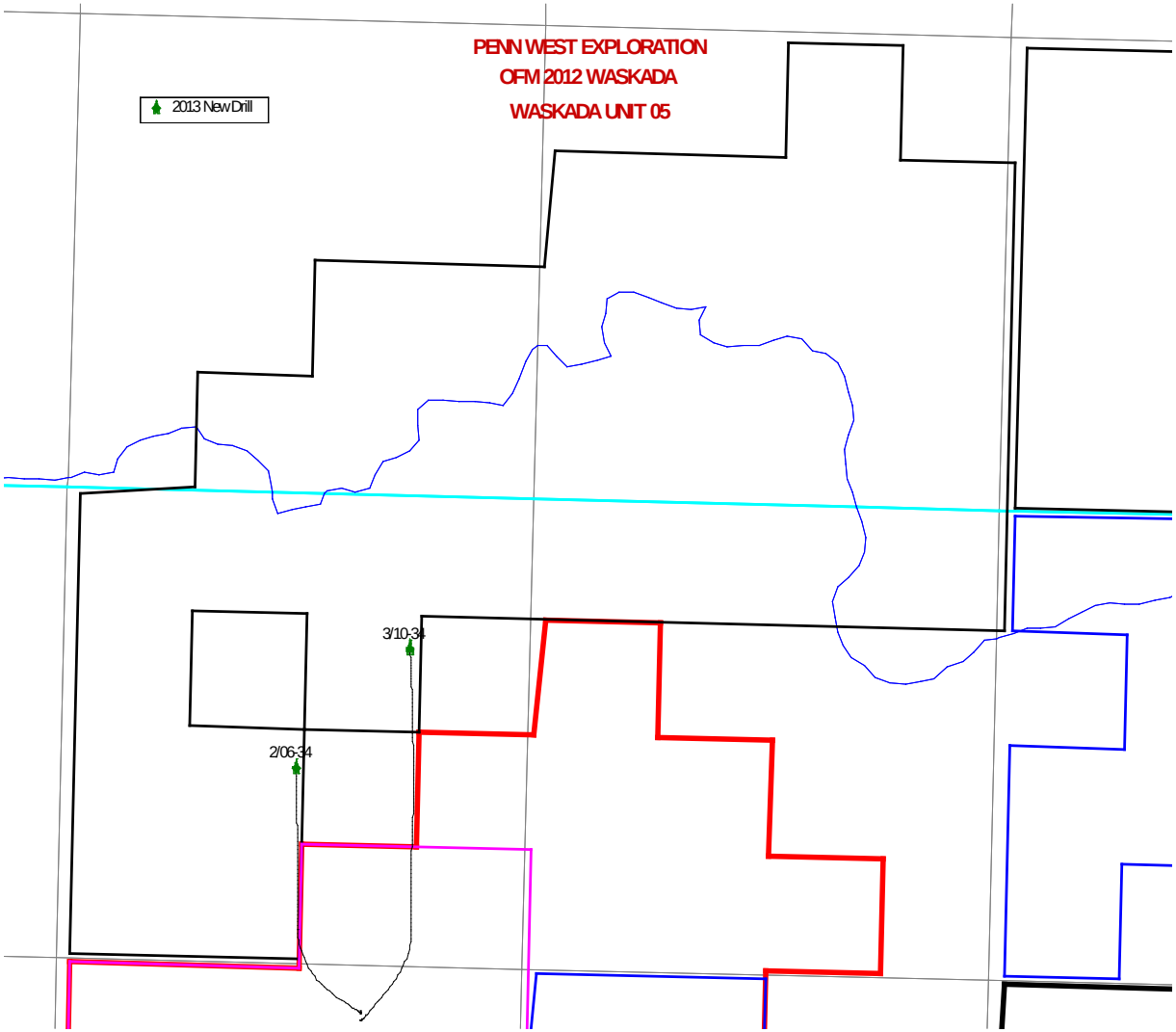
The behaviour of Waskada Unit 5 producers are indicated by good initial oil productivity, rapidly declining to low rates, with almost no discernible water flood response. It is also believed that fracture stimulation treatments, performed on these wells prior to initiation of water injection, "broke through" into the higher productivity Mississippian and that the majority of injected water to date has entered this zone. This is one of the major explanations for lack of waterflood response to date and the continued decline in oil productivities.

A horizontal producer and conversion of vertical producers to injector well pilot was contemplated for the Lower Amaranth targeting Unit 13 with results scalable to all Lower Amaranth Units. It is currently inactive pending evaluation of alternative schemes.

ATTACHMENT 1 – Unit Area Map



ATTACHMENT 1B – Area Map of New Drills



ATTACHMENT 2 Unit History: WASKADA UNIT 05														
					Kelly			Cum	Cum			Cum	Cum	
				New	Bushing	Total	First	Oil	Water	Last	First	Water	Gas	Last
Well	Completion	OPERATOR	STATUS	Drills	Elevation	Depth	Production	Prod	Prod	Production	Injection	Inj	Inj	Injection
	Date				m	m	Date	Mm3	Mm3	Date	Date	Mm3	MMscm	Date
02/06-34-001-26W1/0	1/20/2013	PENN_WEST	OIL	2013	467.5	1734	3/1/2013	0.86	3.26	1/1/2014		0	0	
03/10-34-001-26W1/0	1/28/2013	PENN_WEST	OIL	2013	467.3	2143	3/1/2013	0.94	9.34	12/1/2013		0	0	
00/03-34-001-26W1/0	2/9/1981	OMEGA_HYDROC	ABD-OIL	<N/A>	464.5	968.1	6/1/1981	1.54	5.83	12/1/1989		0	0	
00/04-34-001-26W1/0	6/23/1984	OMEGA_HYDROC	ABD-OIL	<N/A>	465	958	7/1/1984	0.35	10.3	2/1/1988		0	0	
00/05-34-001-26W1/0	6/27/1984	PENN_WEST	WTR-INJ	<N/A>	466.3	960	7/1/1984	0.82	4.44	2/1/1986	3/1/1986	20.34	0	4/1/1998
00/06-34-001-26W1/0	11/30/1983	PENN_WEST	OIL	<N/A>	465.1	937	2/1/1984	5.05	32.84	9/1/2008		0	0	
02/10-34-001-26W1/0	9/13/1983	OMEGA_HYDROC	ABD-OIL	<N/A>	465.5	949	12/1/1983	0.65	7.15	1/1/1990		0	0	
00/12-34-001-26W1/2	3/19/1984	PENN_WEST	ABD-OIL	<N/A>	467.5	961	6/1/1984	2.76	11.03	4/1/1996		0	0	
00/13-34-001-26W1/0	9/12/1983	PENN_WEST	WTR-INJ	<N/A>	464.9	951	10/1/1983	0.81	2.74	2/1/1986	3/1/1986	30.34	0	5/1/2000
00/14-34-001-26W1/2	6/28/1983	PENN_WEST	CMG-OIL	<N/A>	465.1	957	8/1/1983	2.19	4.04	11/1/2011		0	0	
00/15-34-001-26W1/0	10/29/1983	PENN_WEST	SUS-WTR-INJ	<N/A>	464.8	950	2/1/1984	0.46	1.77	2/1/1986	3/1/1986	52.44	0	4/1/1998
00/16-34-001-26W1/0	10/25/1983	OMEGA_HYDROC	ABD-OIL	<N/A>	466.5	951	1/1/1984	0.26	2	4/1/1989		0	0	
00/13-35-001-26W1/0	9/23/1983	PENN_WEST	WTR-INJ	<N/A>	467.5	956	10/1/1983	0.8	1.4	12/1/1984	1/1/1985	20.3	0	10/1/2003
00/14-35-001-26W1/2	9/20/1983	PENN_WEST	OIL	<N/A>	469.3	956	10/1/1983	6.01	6.25	4/1/2012		0	0	
00/15-35-001-26W1/0	9/17/1983	PENN_WEST	WTR-INJ	<N/A>	469.2	943	10/1/1983	1.24	0.28	12/1/1984	1/1/1985	24.85	0	2/1/2006
02/15-35-001-26W1/0	10/11/2011	PENN_WEST	OIL	<N/A>	470.5	1774	11/1/2011	2.94	2.55	1/1/2014		0	0	
03/15-35-001-26W1/0	10/5/2011	PENN_WEST	OIL	<N/A>	470.3	1767	11/1/2011	11.51	3.19	1/1/2014		0	0	
00/16-35-001-26W1/0	9/17/1983	PENN_WEST	OIL	<N/A>	470.3	948	10/1/1983	13.27	2.14	9/1/2012		0	0	
00/01-02-002-26W1/0	10/16/1983	PENN_WEST	OIL	<N/A>	469.7	952	11/1/1983	10.17	3.14	3/1/2012		0	0	
02/01-02-002-26W1/0	2/9/2010	PENN_WEST	OIL	<N/A>	471.5	1787	7/1/2010	4.22	2.95	9/1/2012		0	0	
03/01-02-002-26W1/0	2/14/2010	PENN_WEST	OIL	<N/A>	471.6	1781	7/1/2010	5.26	3.24	1/1/2014		0	0	
00/02-02-002-26W1/0	10/21/1983	PENN_WEST	OIL	<N/A>	468	954	11/1/1983	6.74	1.26	2/1/2011		0	0	
02/02-02-002-26W1/0	1/14/2011	PENN_WEST	OIL	<N/A>	471.2	1780	3/1/2011	1.65	3.14	1/1/2014		0	0	
00/03-02-002-26W1/0	12/5/1983	PENN_WEST	OIL	<N/A>	469.8	950	2/1/1984	4.78	1.64	11/1/2012		0	0	
02/03-02-002-26W1/0	2/23/2011	PENN_WEST	OIL	<N/A>	467.6	1766	9/1/2011	1.04	2.22	12/1/2013		0	0	
00/04-02-002-26W1/0	10/20/1983	PENN_WEST	OIL	<N/A>	467	955	11/1/1983	6.03	1.25	8/1/2011		0	0	
02/04-02-002-26W1/0	9/8/2009	PENN_WEST	OIL	<N/A>	469.8	1872	11/1/2009	5.26	3.31	1/1/2014		0	0	
03/04-02-002-26W1/0	9/2/2009	PENN_WEST	OIL	<N/A>	469.6	1866	11/1/2009	3.94	4.47	1/1/2014		0	0	
00/05-02-002-26W1/0	12/1/1983	PENN_WEST	WTR-INJ	<N/A>	465.8	945	1/1/1984	0.89	0.32	12/1/1984	1/1/1985	20.88	0	10/1/2003
02/05-02-002-26W1/0	1/19/2011	PENN_WEST	OIL	<N/A>	472	1849	2/1/2011	3.2	3	4/1/2013		0	0	
00/06-02-002-26W1/0	7/17/1983	PENN_WEST	OIL	<N/A>	468.4	950	8/1/1983	5.83	1.41	10/1/2013		0	0	
02/06-02-002-26W1/0	3/4/2011	PENN_WEST	OIL	<N/A>	467.5	1861	9/1/2011	0.91	2.02	4/1/2013		0	0	
00/07-02-002-26W1/0	10/16/1983	PENN_WEST	WTR-INJ	<N/A>	468.5	948	11/1/1983	0.72	0.3	12/1/1984	1/1/1985	21.33	0	6/1/2004
02/07-02-002-26W1/0	2/17/2011	PENN_WEST	OIL	<N/A>	469.7	1754	3/1/2011	1.75	1.83	1/1/2014		0	0	
03/07-02-002-26W1/0	1/21/2011	PENN_WEST	OIL	<N/A>	470.9	1785	3/1/2011	1.55	2.86	7/1/2013		0	0	
00/08-02-002-26W1/0	10/12/1983	PENN_WEST	OIL	<N/A>	466.4	948	11/1/1983	4.61	1.44	6/1/2008		0	0	
00/09-02-002-26W1/0	11/22/1983	PENN_WEST	ABD-OIL	<N/A>	469	951	1/1/1984	2.11	0.57	3/1/1991		0	0	
00/10-02-002-26W1/0	11/25/1983	PENN_WEST	SUS-OIL	<N/A>	469.4	941	1/1/1984	3.21	0.92	5/1/2008		0	0	
02/10-02-002-26W1/0	2/11/2011	PENN_WEST	OIL	<N/A>	471	1783	3/1/2011	2.34	3.29	12/1/2013		0	0	
00/11-02-002-26W1/0	11/26/1983	PENN_WEST	OIL	<N/A>	467.3	950	1/1/1984	7.3	9.13	6/1/2011		0	0	

00/11-02-002-26W1/0	11/26/1983	PENN_WEST	OIL	<N/A>	467.3	950	1/1/1984	7.3	9.13	6/1/2011		0	0		
00/12-02-002-26W1/0	9/3/1983	PENN_WEST	OIL	<N/A>	469.7	950	9/1/1983	5.7	1.74	7/1/2011		0	0		
02/12-02-002-26W1/0	2/2/2010	PENN_WEST	OIL	<N/A>	470.1	1642	3/1/2010	5.48	4.64	1/1/2014		0	0		
03/12-02-002-26W1/0	1/11/2011	PENN_WEST	OIL	<N/A>	471.9	1850	2/1/2011	3.69	2.53	1/1/2014		0	0		
00/15-02-002-26W1/0	9/28/1982	PENN_WEST	SUS-WTR-INJ	<N/A>	469.2	948	11/1/1982	1.04	0.64	1/1/1986	3/1/1986	24.39	0	4/1/1998	
00/01-03-002-26W1/0	3/14/1984	PENN_WEST	ABD-OIL	<N/A>	466.5	951	5/1/1984	2.72	1.44	10/1/1996		0	0		
02/01-03-002-26W1/2	9/17/2010	PENN_WEST	OIL	<N/A>	466.7	1567	11/1/2010	2.64	2.85	1/1/2014		0	0		
00/02-03-002-26W1/0	2/27/1984	PENN_WEST	ABD-OIL	<N/A>	467	951.5	3/1/1984	1.65	0.9	4/1/1990		0	0		
02/02-03-002-26W1/0	2/23/2010	PENN_WEST	OIL	<N/A>	468.2	1792	7/1/2010	1.91	1.54	10/1/2012		0	0		
00/03-03-002-26W1/0	3/4/1984	PENN_WEST	ABD-OIL	<N/A>	465.6	950	3/1/1984	1.44	2.97	7/1/1986		0	0		
02/03-03-002-26W1/0	3/1/2010	PENN_WEST	OIL	<N/A>	468.6	2145	7/1/2010	9.17	6.72	1/1/2014		0	0		
00/07-03-002-26W1/0	8/24/1983	PENN_WEST	SUS-WTR-INJ	<N/A>	469.5	950	9/1/1983	1.41	0.72	2/1/1986	3/1/1986	27.11	0	4/1/1998	
02/07-03-002-26W1/0	2/26/2012	PENN_WEST	OIL	<N/A>	467.8	1683	3/1/2012	3.2	2.12	1/1/2014		0	0		
03/07-03-002-26W1/0	2/19/2012	PENN_WEST	OIL	<N/A>	467.8	1690	3/1/2012	3.85	3.29	1/1/2014		0	0		
00/08-03-002-26W1/0	3/23/1984	PENN_WEST	OIL	<N/A>	468.1	950	6/1/1984	5.11	2.52	8/1/2013		0	0		
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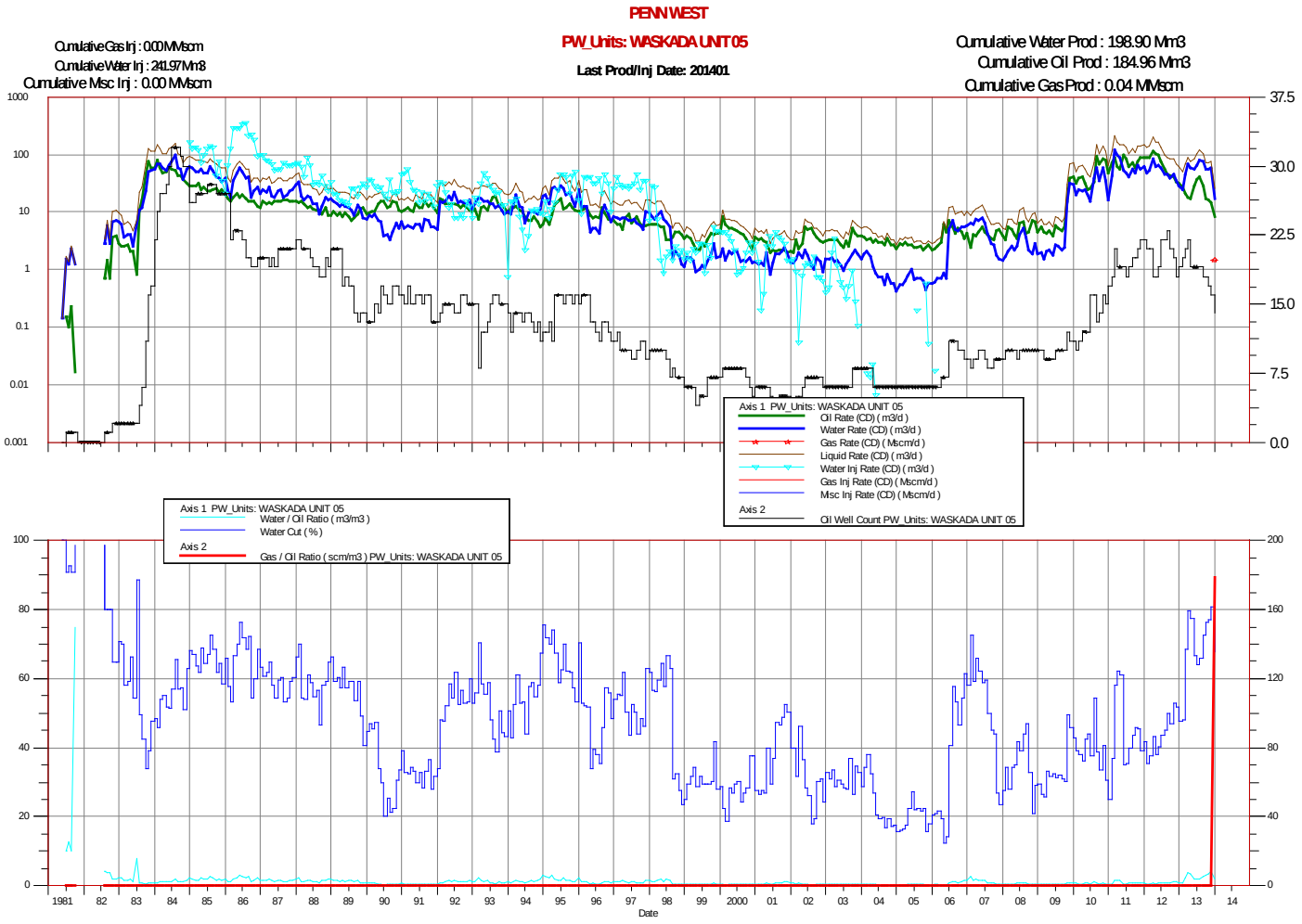
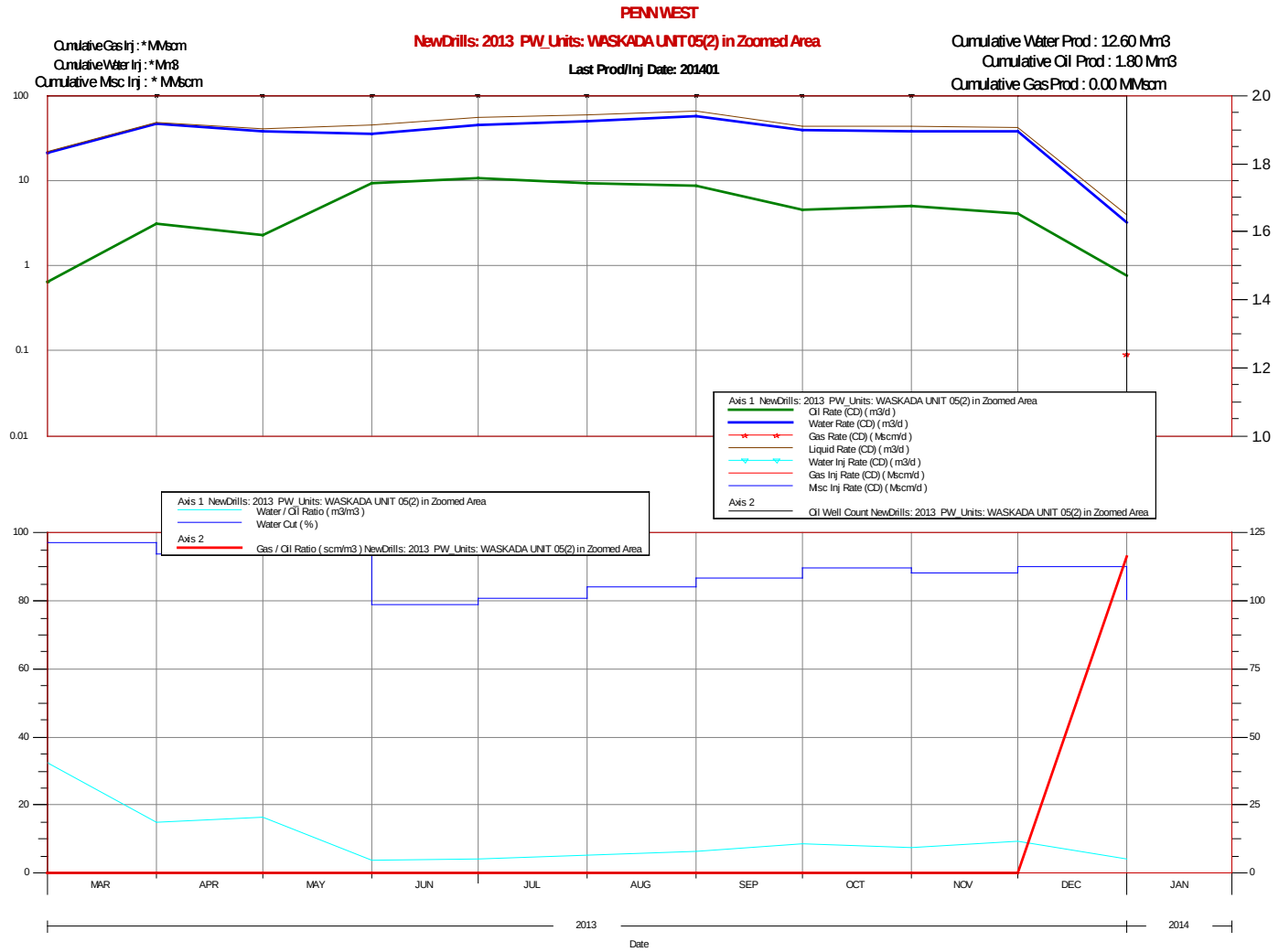
ATTACHMENT 3 – Unit Production and Injection Plot

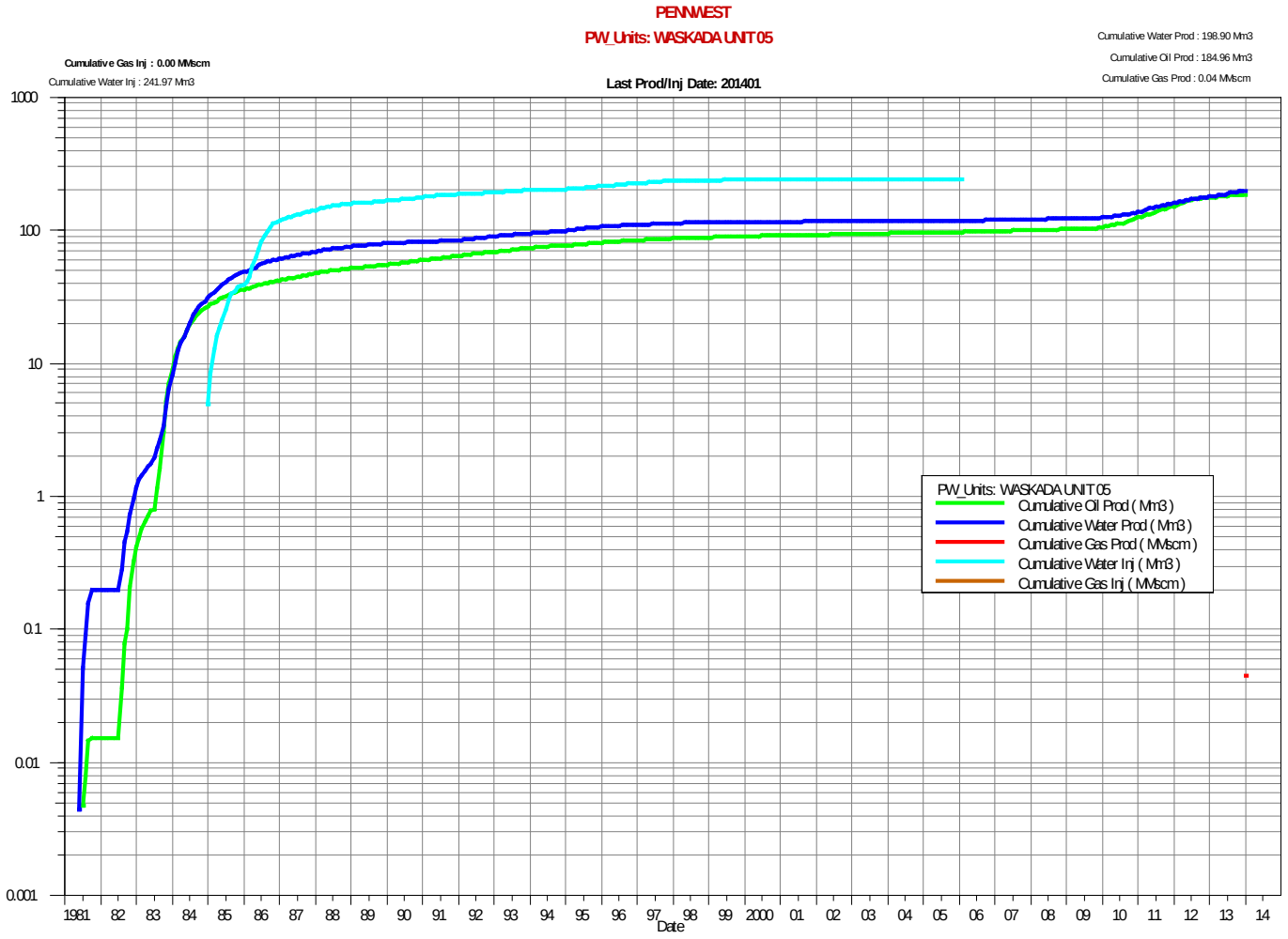


ATTACHMENT 3A – 2013 New Drills Production Plot

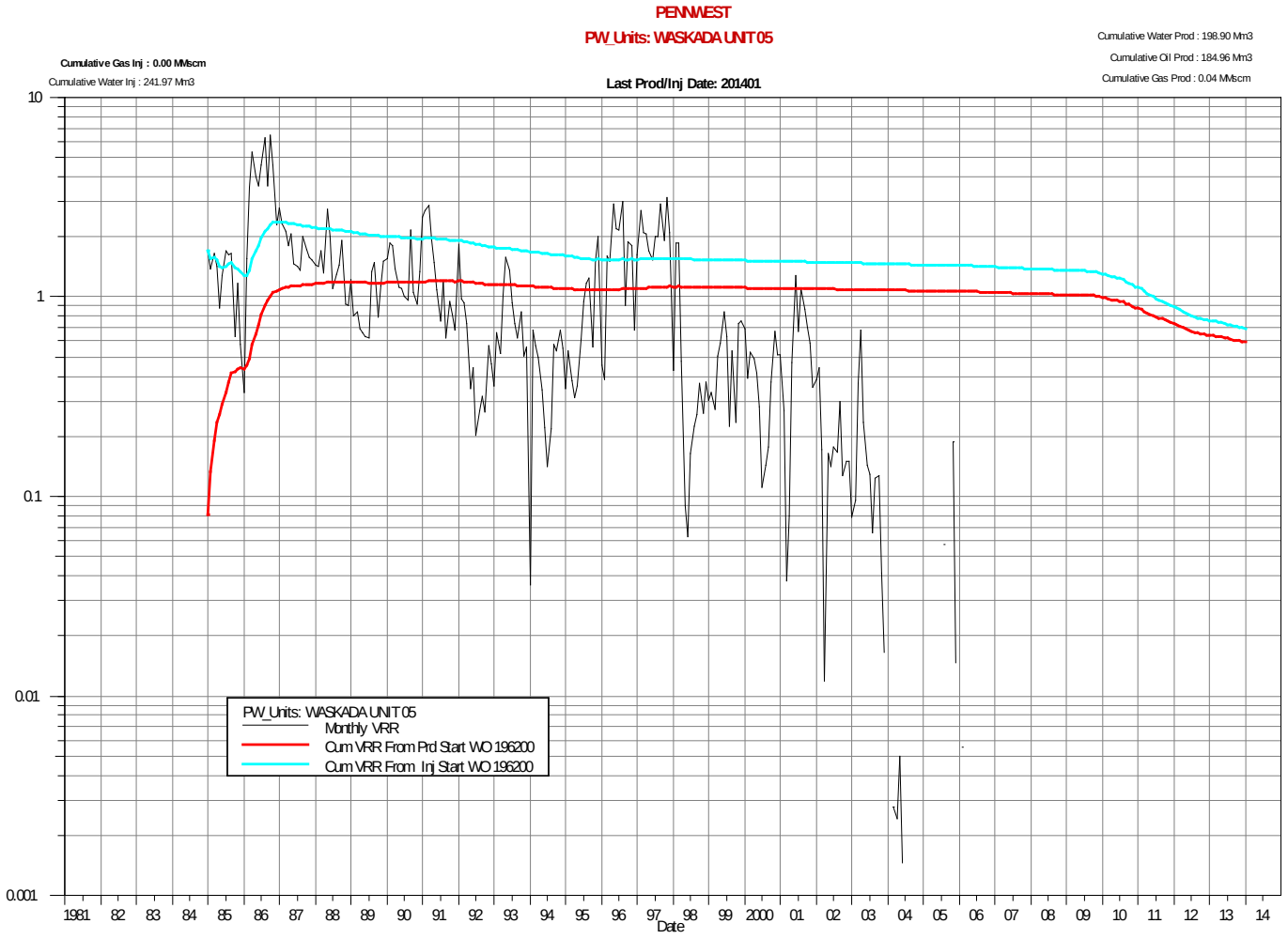


ATTACHMENT 4	PW_Units: WASKADA UNIT 05								
Rates and Volume History									
	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	
	Oil	Oil	Water	Water	Water	Water Inj	Gas	Gas Inj	
	Prod	Rate	Prod	Rate	Inj	Rate	Inj	Rate	
Date	m3	m3/d	m3	m3/d	m3	m3/d	Mscm	Mscm/d	
1/1/1981	15.1	0.04	196.8	0.54					
1/1/1982	310.7	0.85	758	2.08					
1/1/1983	6802.3	18.64	5551.1	15.21					
1/1/1984	18806	51.38	22873.8	62.5					
1/1/1985	9417.8	25.8	18212.2	49.9	38316	104.97	0	0	
1/1/1986	6226	17.06	12759.1	34.96	75812	207.7	0	0	
1/1/1987	5464.4	14.97	7974	21.85	25875	70.89	0	0	
1/1/1988	4449.7	12.16	6636.2	18.13	17778	48.57	0	0	
1/1/1989	3361.7	9.21	4542	12.44	7984	21.87	0	0	
1/1/1990	4526.2	12.4	2268	6.21	9757	26.73	0	0	
1/1/1991	4438.6	12.16	2154.8	5.9	10083	27.62	0	0	
1/1/1992	4824	13.18	5584.1	15.26	6146	16.79	0	0	
1/1/1993	4716.5	12.92	4984.2	13.66	8476	23.22	0	0	
1/1/1994	3345.8	9.17	4038.6	11.06	3292	9.02	0	0	
1/1/1995	4083.8	11.19	7705.3	21.11	10010	27.42	0	0	
1/1/1996	3455	9.44	3653.4	9.98	10941	29.89	0	0	
1/1/1997	2460.8	6.74	2678.3	7.34	11485	31.46	0	0	
1/1/1998	1785.7	4.89	2161.3	5.92	2491	6.82	0	0	
1/1/1999	1191.5	3.26	538.7	1.48	921	2.52	0	0	
1/1/2000	1684.7	4.6	632	1.73	985	2.69	0	0	
1/1/2001	954.8	2.62	593.2	1.63	900	2.47	0	0	
1/1/2002	1283.7	3.52	540.4	1.48	367	1	0	0	
1/1/2003	1228.6	3.37	554.7	1.52	328	0.9	0	0	
1/1/2004	1162	3.17	398.7	1.09	2	0	0	0	
1/1/2005	938.7	2.57	234.4	0.64	25	0.07	0	0	
1/1/2006	1552.5	4.25	1128.9	3.09	1	0	0	0	
1/1/2007	1514.9	4.15	1824	5					
1/1/2008	1865.8	5.1	996.9	2.72					
1/1/2009	3106.1	8.51	2077.9	5.69					
1/1/2010	18021.9	49.38	11614.2	31.82					
1/1/2011	26298.6	72.05	22318.7	61.15					
1/1/2012	26399	72.13	19641.6	53.67					
1/1/2013	9015.8	24.7	20539.4	56.27					
	---		---		---				
	184708.7		198364.9		241973				Sum
3/11/2014 15:58	/								

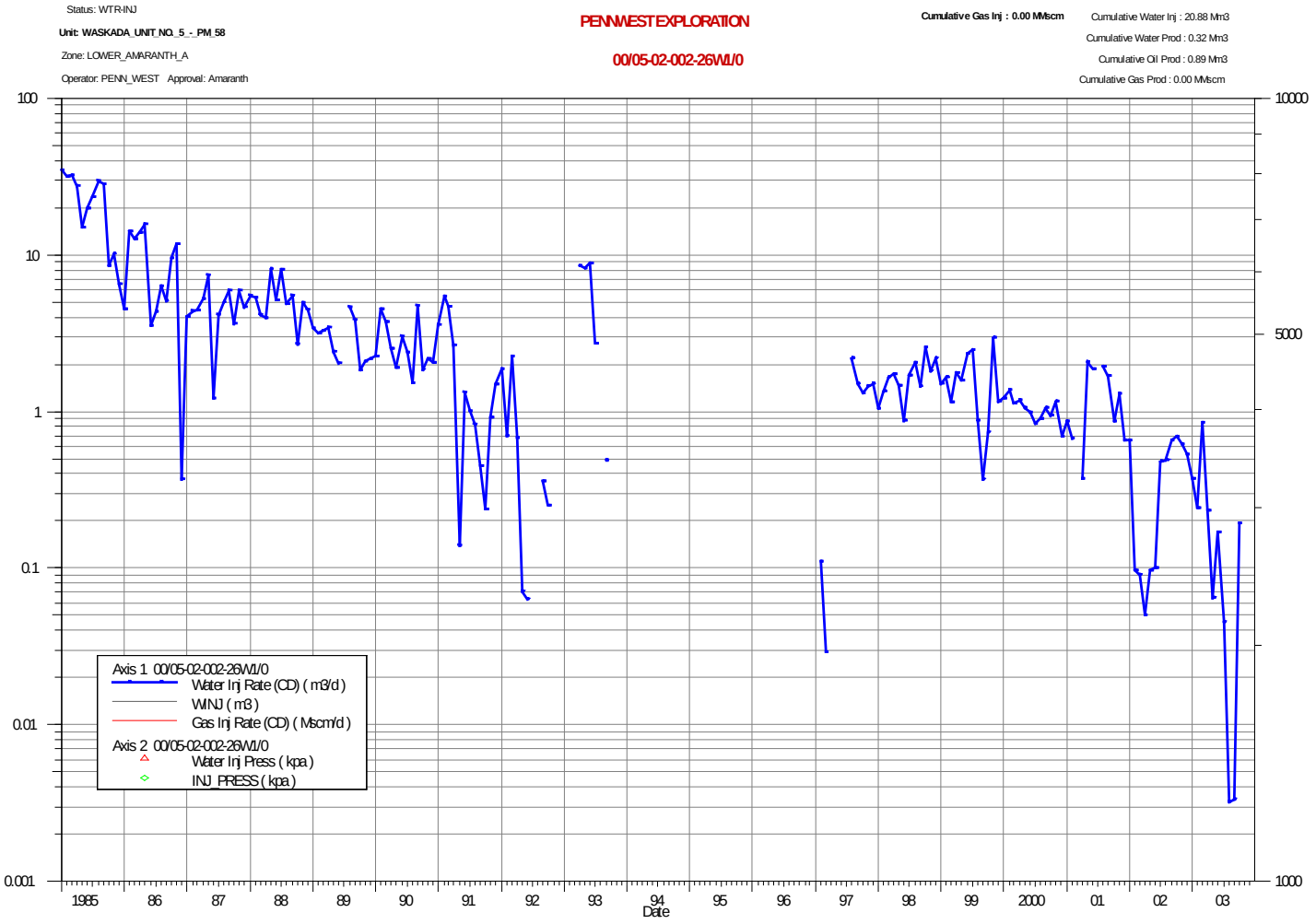
ATTACHMENT 5 – Unit Cumulative Production and Injection Plot

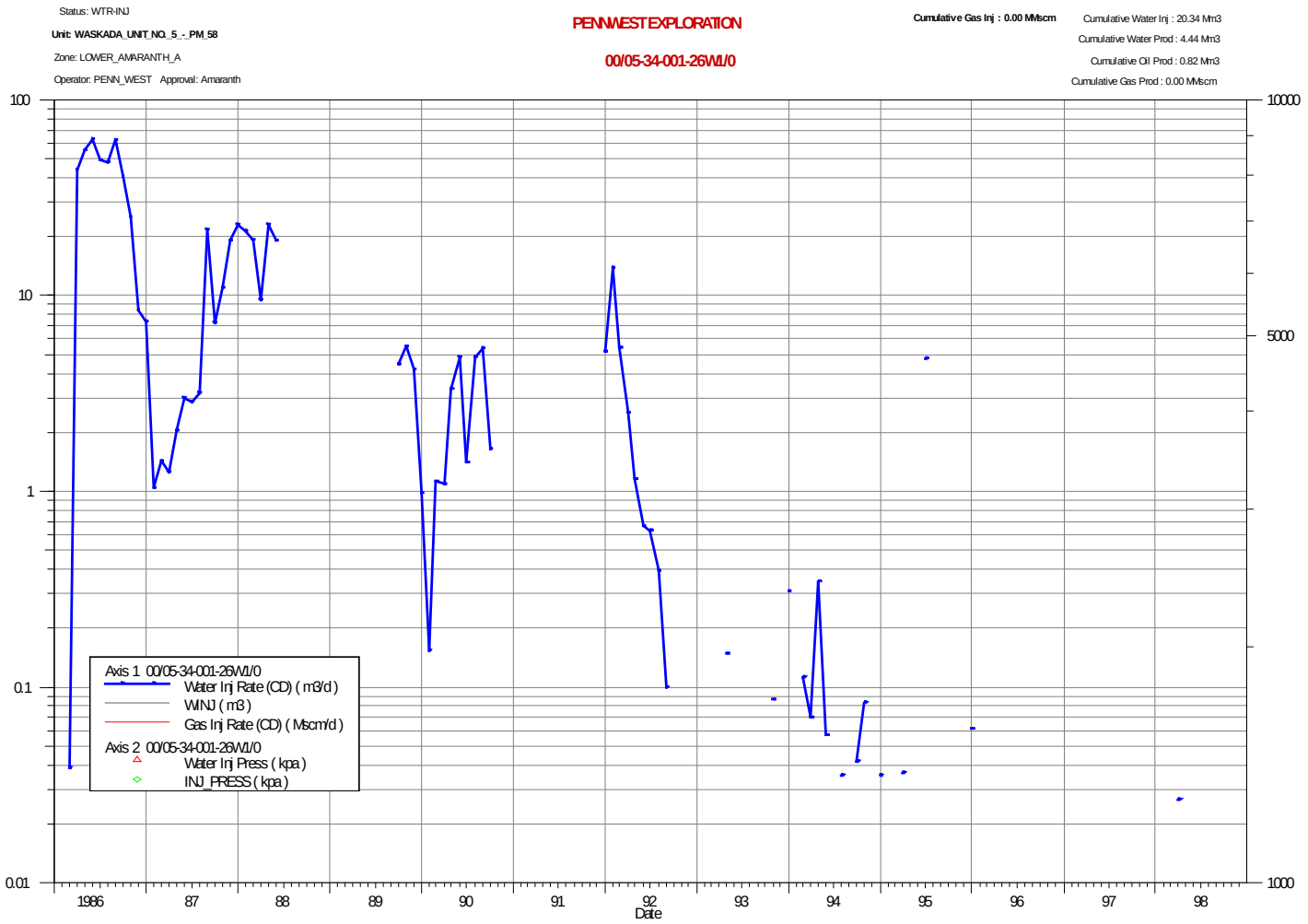


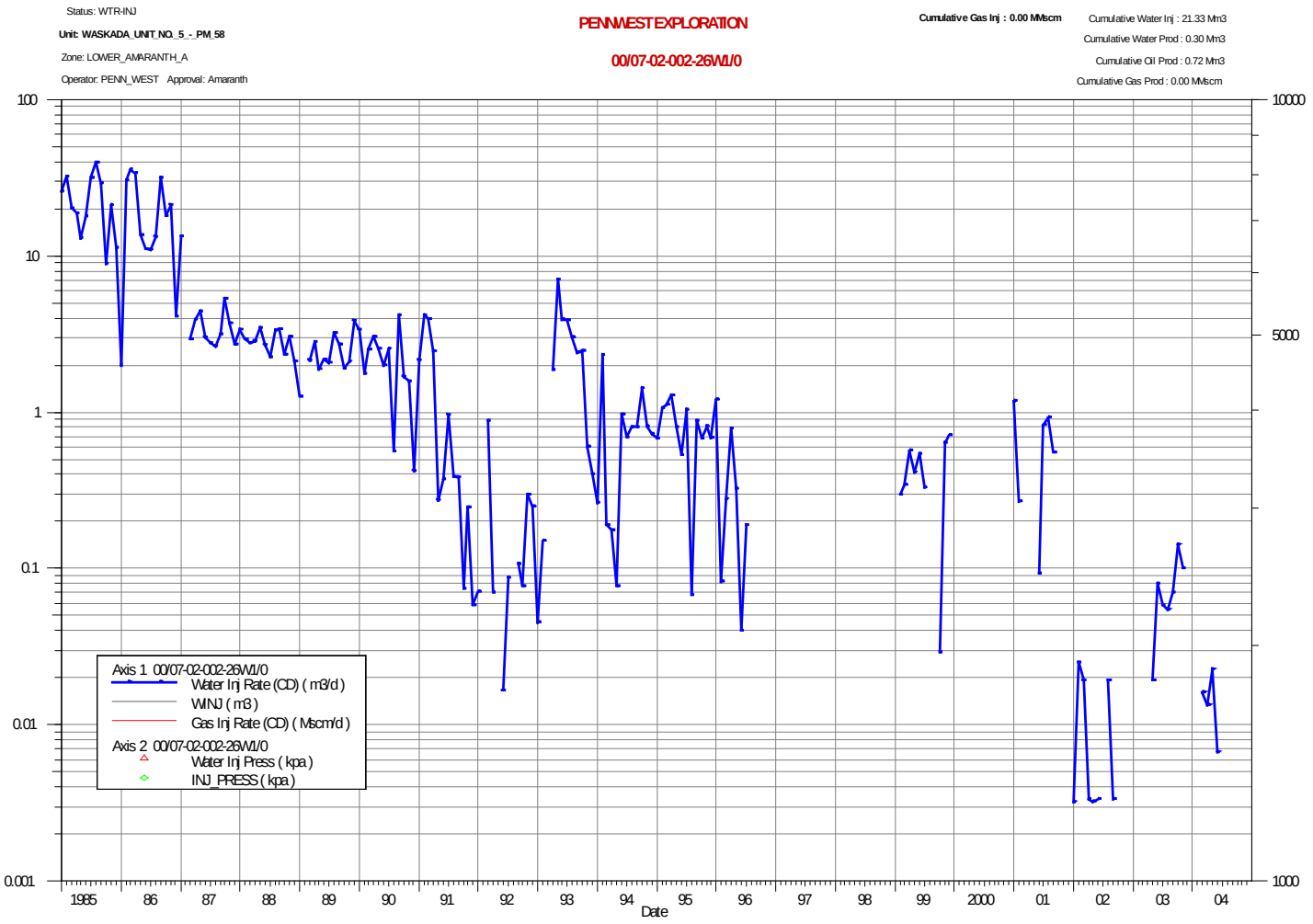
ATTACHMENT 6 – Unit Voidage Replacement Ratio Plot



ATTACHMENT 7 – Individual Injection Well Performance Plots (9 Wells)




Status: WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/05-34-001-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 20.34 Mm3
Cumulative Water Prod : 4.44 Mm3
Cumulative Oil Prod : 0.82 Mm3
Cumulative Gas Prod : 0.00 MMscm
100
10
1
0.1
0.01
10000
5000
1000
1986
87
88
89
90
91
92
93
94
95
96
97
98
Date
Axis 1 00/05-34-001-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/05-34-001-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)


Status: WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/07-02-002-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 21.33 Mm3
Cumulative Water Prod : 0.30 Mm3
Cumulative Oil Prod : 0.72 Mm3
Cumulative Gas Prod : 0.00 MMscm
100
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1985
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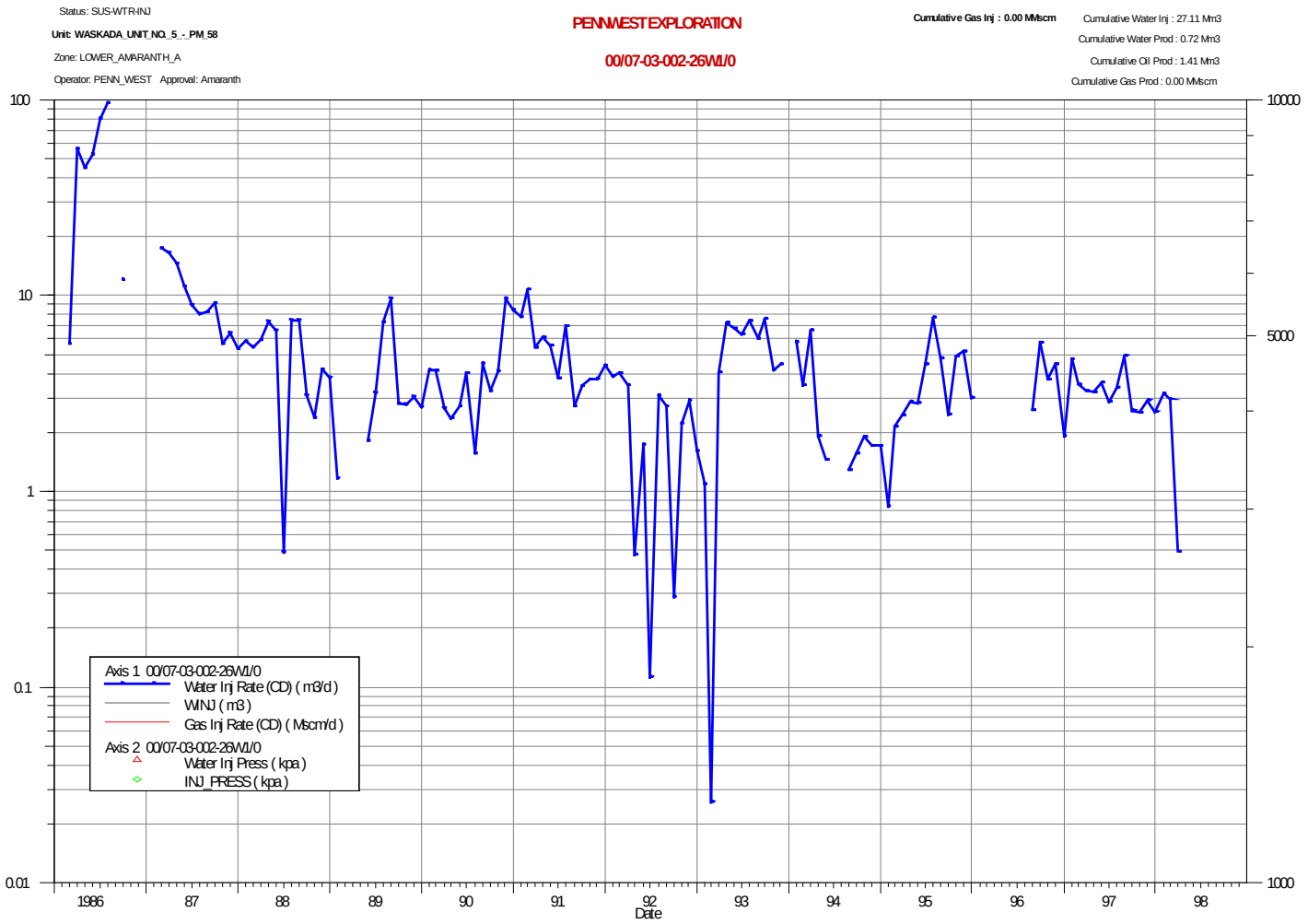
Date
Axis 1 00/07-02-002-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/07-02-002-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)


Status: SUS-WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/07-03-002-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 27.11 Mm3
Cumulative Water Prod : 0.72 Mm3
Cumulative Oil Prod : 1.41 Mm3
Cumulative Gas Prod : 0.00 MMscm
100
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0.01
10000
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1000
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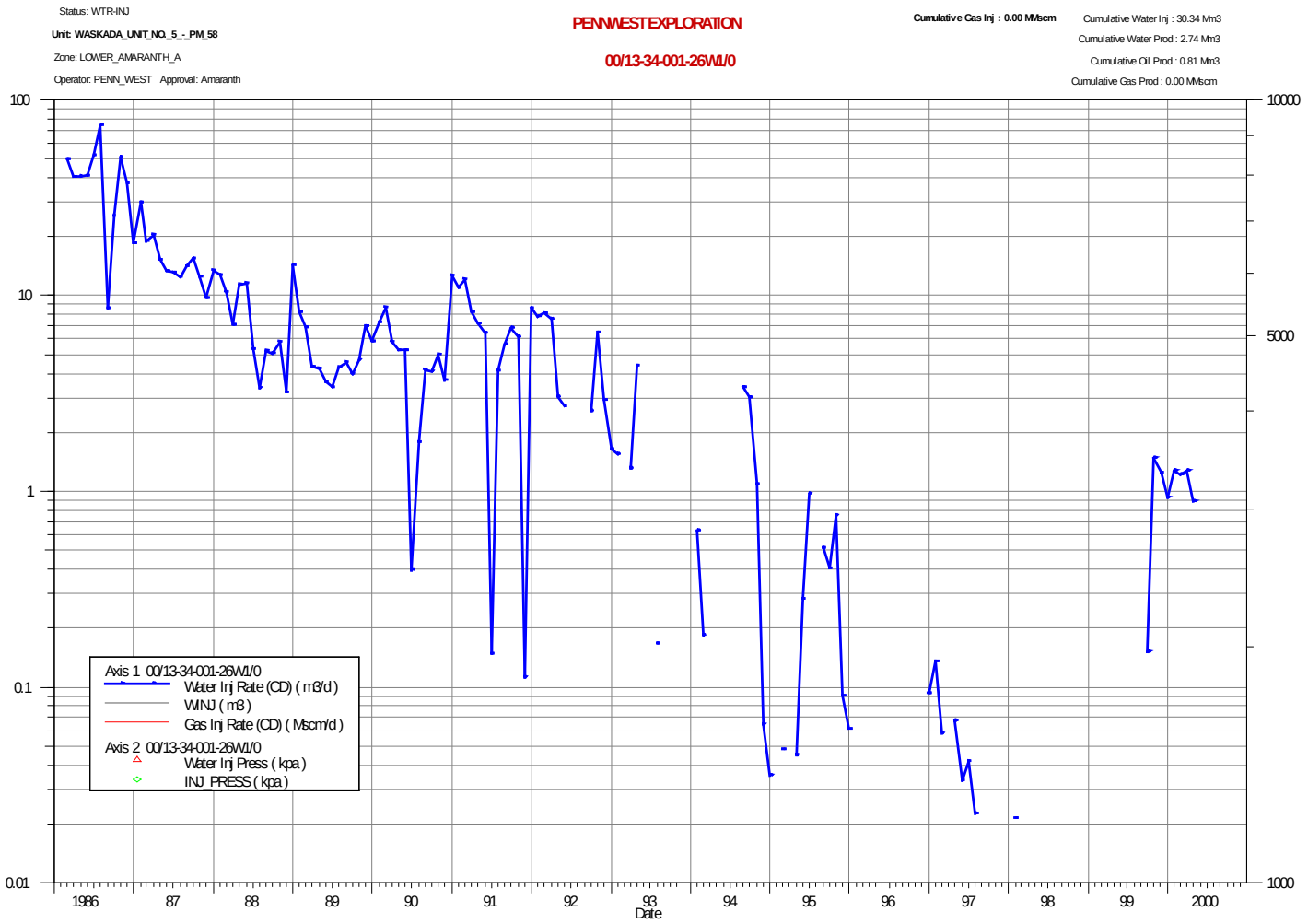
Date
Axis 1 00/07-03-002-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/07-03-002-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)


Status: WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/13-34-001-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 30.34 Mm3
Cumulative Water Prod : 2.74 Mm3
Cumulative Oil Prod : 0.81 Mm3
Cumulative Gas Prod : 0.00 MMscm
100
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0.1
0.01
10000
5000
1000
Axis 1 00/13-34-001-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/13-34-001-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)
1986
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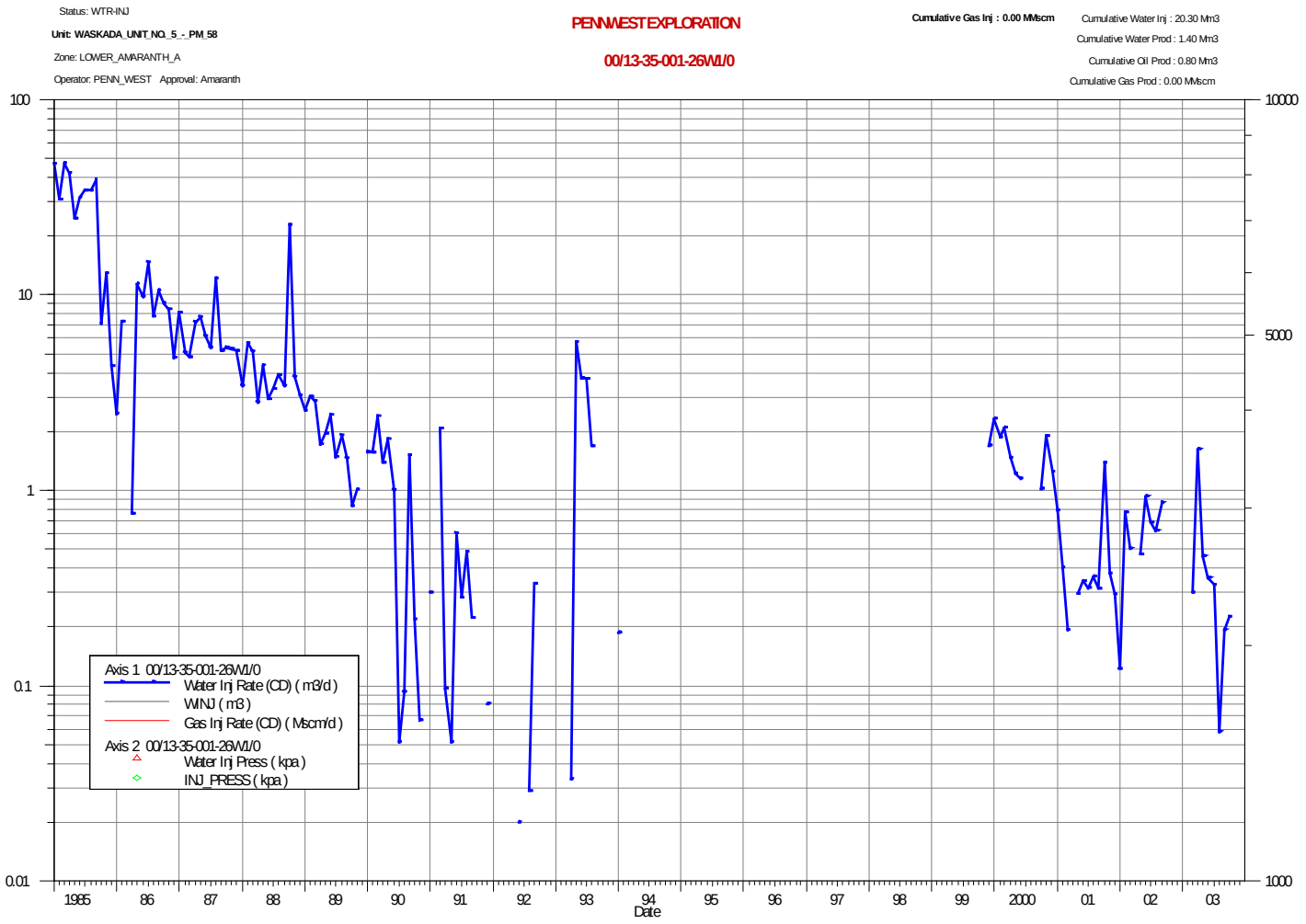
Date


Status: WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/13-35-001-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 20.30 Mm3
Cumulative Water Prod : 1.40 Mm3
Cumulative Oil Prod : 0.80 Mm3
Cumulative Gas Prod : 0.00 MMscm
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1985
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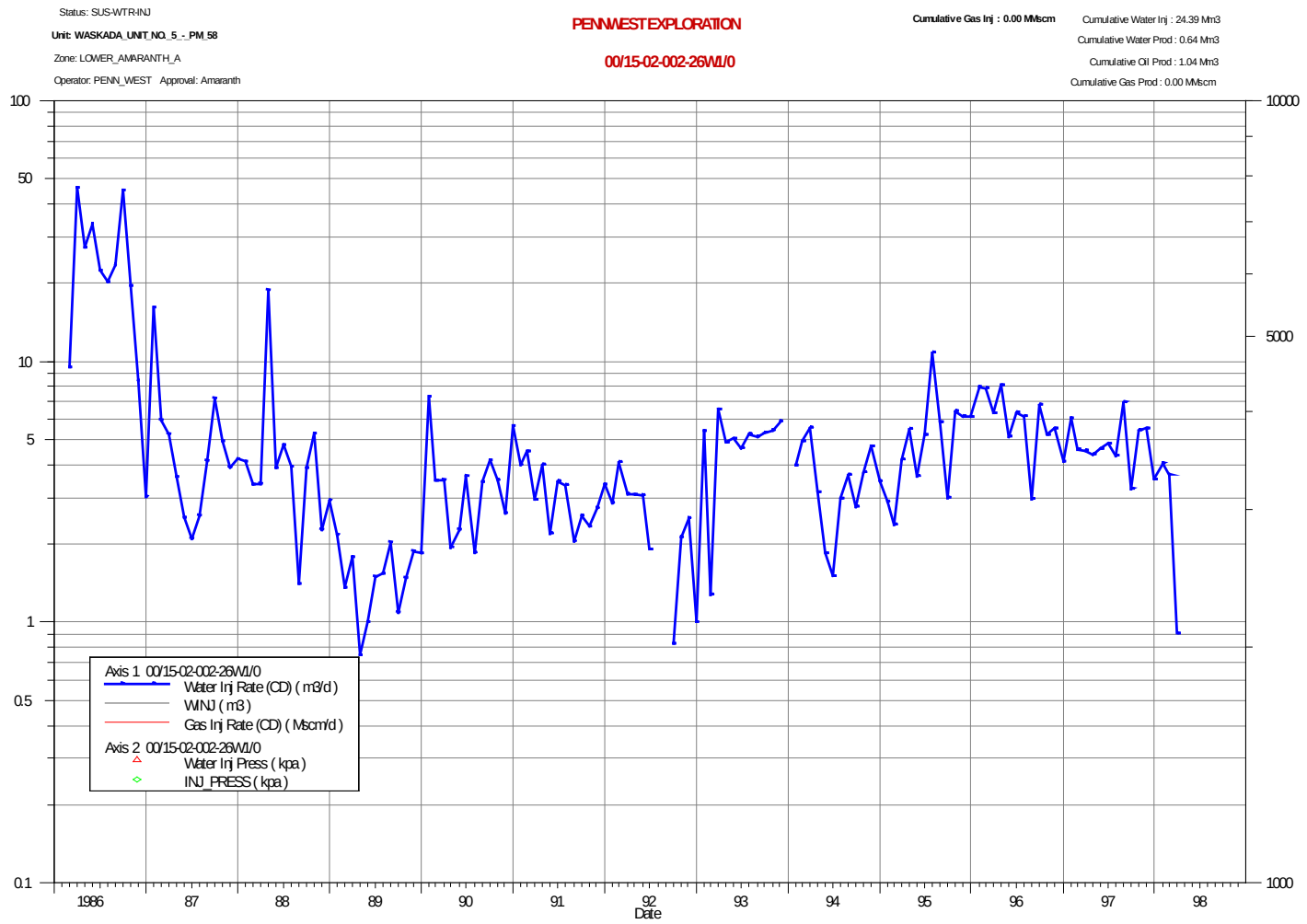
Date
Axis 1 00/13-35-001-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/13-35-001-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)


Status: SUS-WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/15-02-002-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 24.39 Mm3
Cumulative Water Prod : 0.64 Mm3
Cumulative Oil Prod : 1.04 Mm3
Cumulative Gas Prod : 0.00 MMscm
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10000
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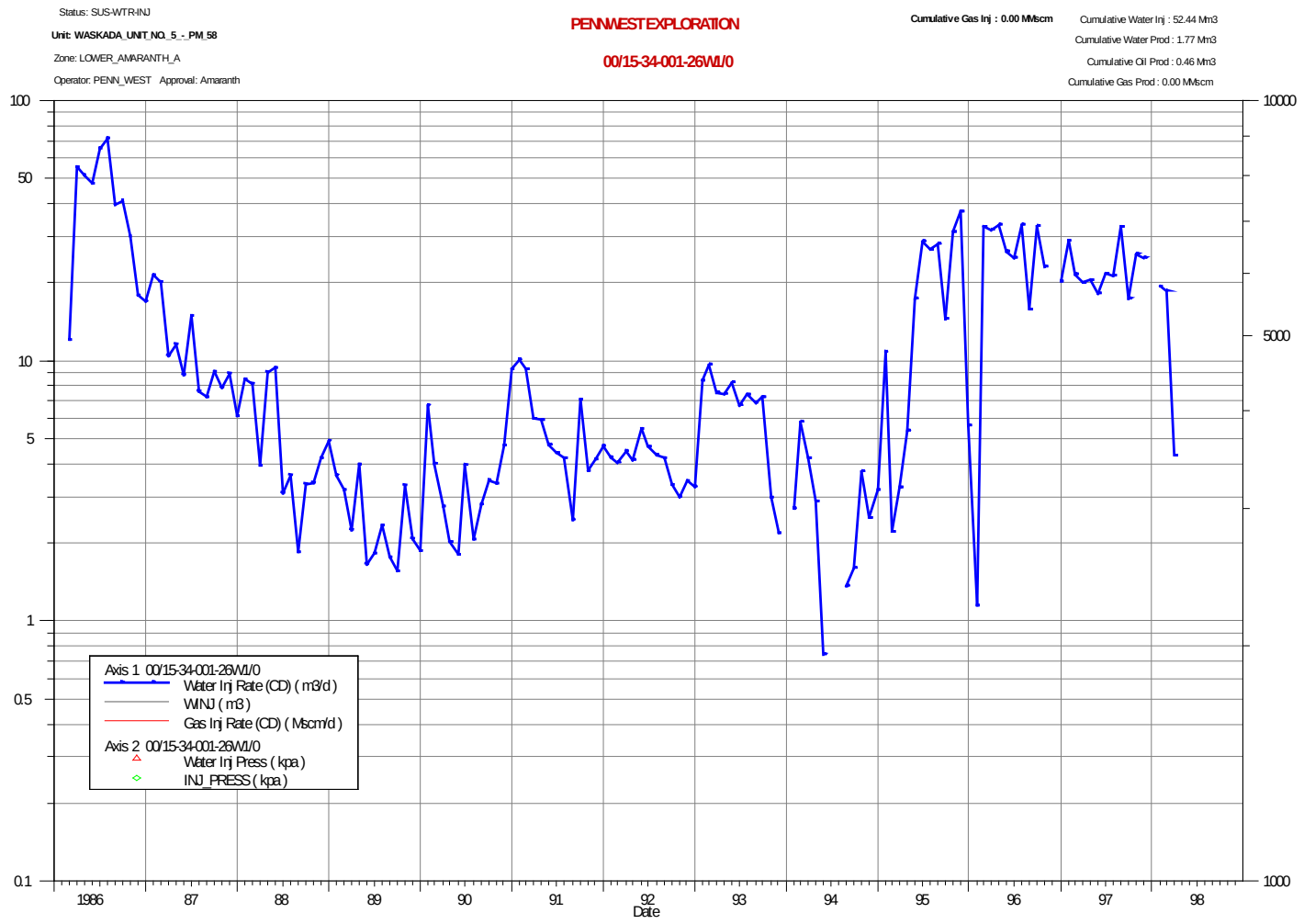
Date
Axis 1 00/15-02-002-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/15-02-002-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)


Status: SUS-WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/15-34-001-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 52.44 Mm3
Cumulative Water Prod : 1.77 Mm3
Cumulative Oil Prod : 0.46 Mm3
Cumulative Gas Prod : 0.00 MMscm
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Axis 1 00/15-34-001-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/15-34-001-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)
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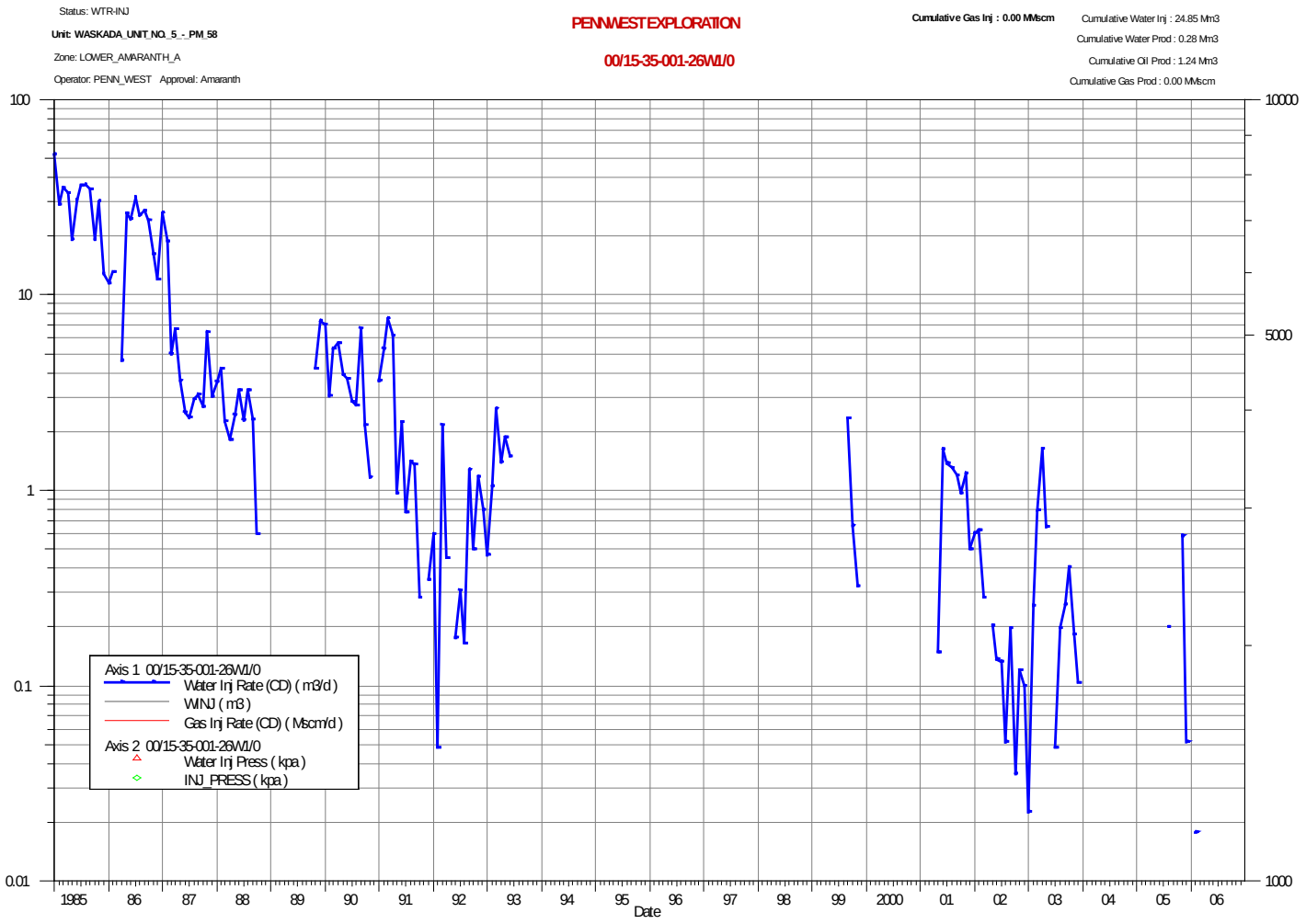
Date


Status: WTR-INJ
Unit: WASKADA_UNIT_NO_5_-_PM_58
Zone: LOWER_AMARANTH_A
Operator: PENN_WEST Approval: Amaranth
PENNWEST EXPLORATION
00/15-35-001-26W1/0
Cumulative Gas Inj : 0.00 MMscm
Cumulative Water Inj : 24.85 Mm3
Cumulative Water Prod : 0.28 Mm3
Cumulative Oil Prod : 1.24 Mm3
Cumulative Gas Prod : 0.00 MMscm
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1000
Axis 1 00/15-35-001-26W1/0
Water Inj Rate (CD) (m3/d)
WINJ (m3)
Gas Inj Rate (CD) (Mscm/d)
Axis 2 00/15-35-001-26W1/0
Water Inj Press (kpa)
INJ_PRESS (kpa)
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