



Waterflood Progress Report

2014

East Manson Unit #1

Section 29 TWP 13 RNG 28 W1M

Prepared by:

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Figure 1: Rate vs Time of EMU #1

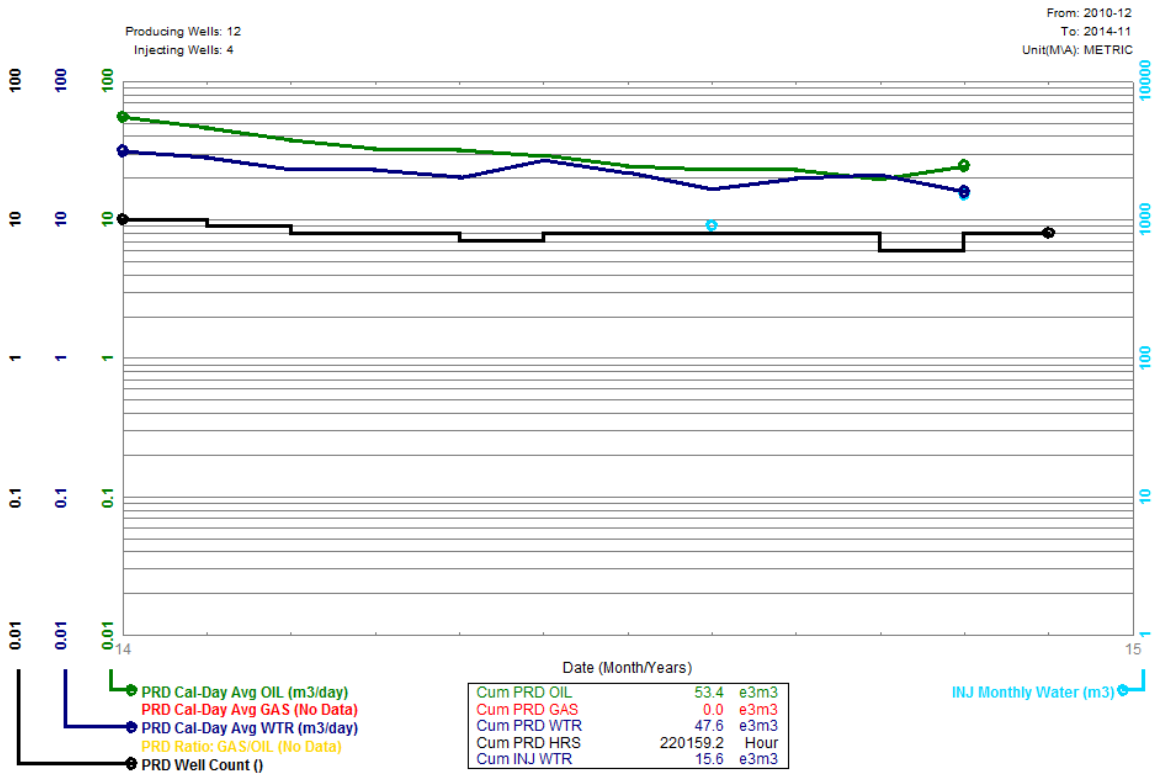


Figure 2: Rate vs Cum Production of EMU #1

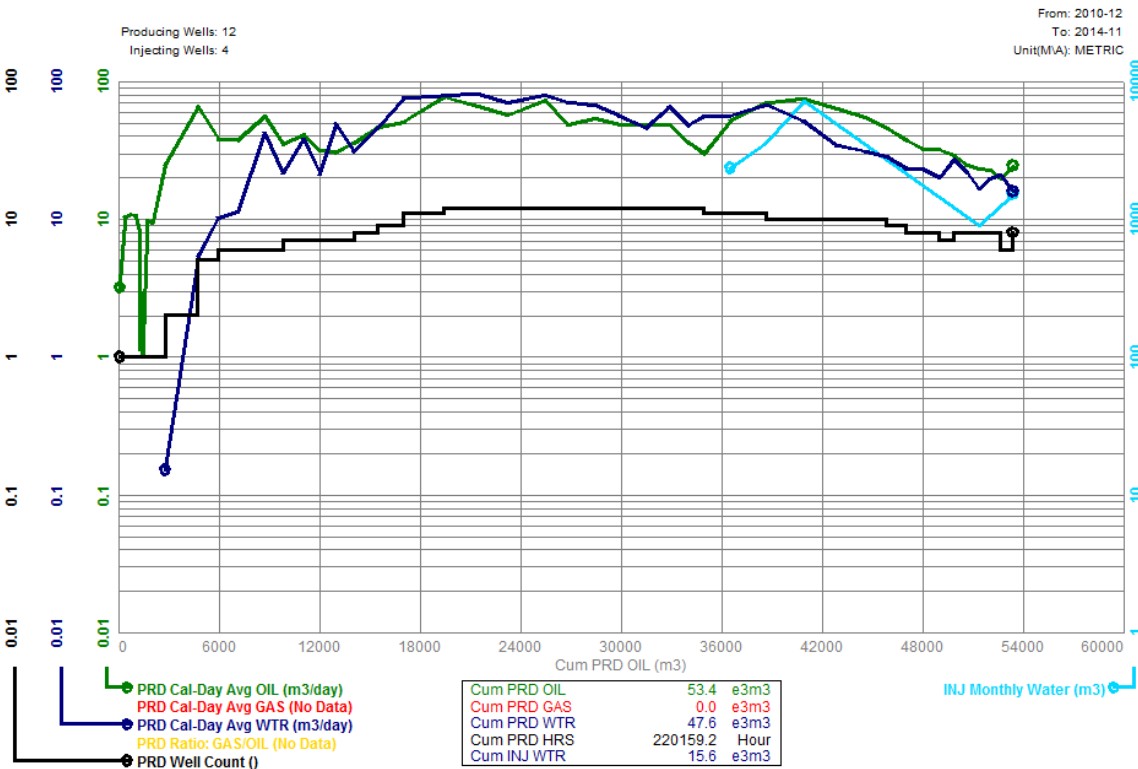
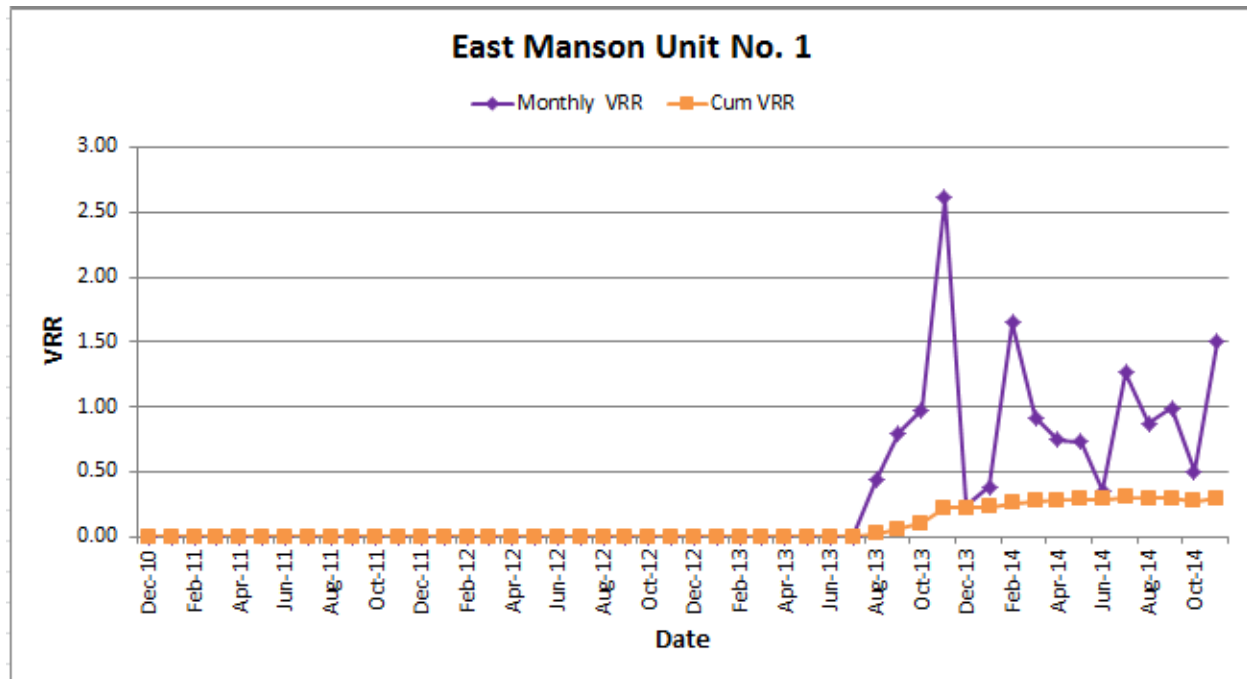


Figure 3: Injection Parameters

Month	Oil Rate (m ³ /d)	Gas Rate (m ³ /d)	Water Rate (m ³ /d)	Water Inj Rate (m ³ /d)	Water Inj Press (psi)	Cum Oil (m ³)	Cum Gas (e ³ m ³)	Cum Water (m ³)	Cum Inj Water (m ³)	GOR (m ³ /m ³)	WOR (m ³ /m ³)
Jan-14	54.8	0.0	31.1	27.1	300-500	44610.8	0.0	41075.4	16582.5	0	0.49
Feb-14	46.0	0.0	28.4	101.7	300-500	45898.9	0.0	41869.6	19431.5	0	2.21
Mar-14	37.6	0.0	23.2	46.3	300-500	47063.0	0.0	42590.1	20868.2	0	1.23
Apr-14	32.6	0.0	23.1	34.9	300-500	48039.8	0.0	43284.4	21915.9	0	1.07
May-14	31.9	0.0	20.2	31.6	300-500	49029.1	0.0	43911.1	22894.3	0	0.99
Jun-14	29.1	0.0	27.1	17.0	300-500	49900.6	0.0	44723.0	23403.2	0	0.58
Jul-14	24.6	0.0	21.9	50.3	300-500	50662.2	0.0	45403.0	24961.6	0	2.05
Aug-14	23.2	0.0	16.6	29.2	300-500	51382.0	0.0	45238.7	24309.8	0	1.26
Sep-14	22.8	0.0	19.9	36.0	300-500	52066.3	0.0	45318.8	24483.3	0	1.58
Oct-14	19.8	0.0	21.1	17.9	300-500	52679.2	0.0	43939.4	22469.5	0	0.90
Nov-14	24.4	0.0	16.0	50.8	300-500	53410.3	0.0	44390.5	24416.8	0	2.08

Figure 4: Monthly and Cum VRR vs Time for EMU #1



Discussion

In early 2014, Surge converted 2 wells to injection (100/04-29 and 100/11-29) increasing the total number of water injectors to 4... the existing injectors were 100/02-29 and 102/07-29. In late May, Surge experienced a pipeline break which resulted in the suspension of the 102/07-29 and 100/11-29 injectors, and injection was not restored until the line was replaced in November.

We have seen waterflood response in most of the producers in EMU #1. Figures 5 to 9 show rate-time production for the pertinent producers showing waterflood response.

Figure 5: Rate vs Time for 102/02-29 Producer (response from 100/02-29 injector, and also from the 100/15-20 injector in EMU #3)

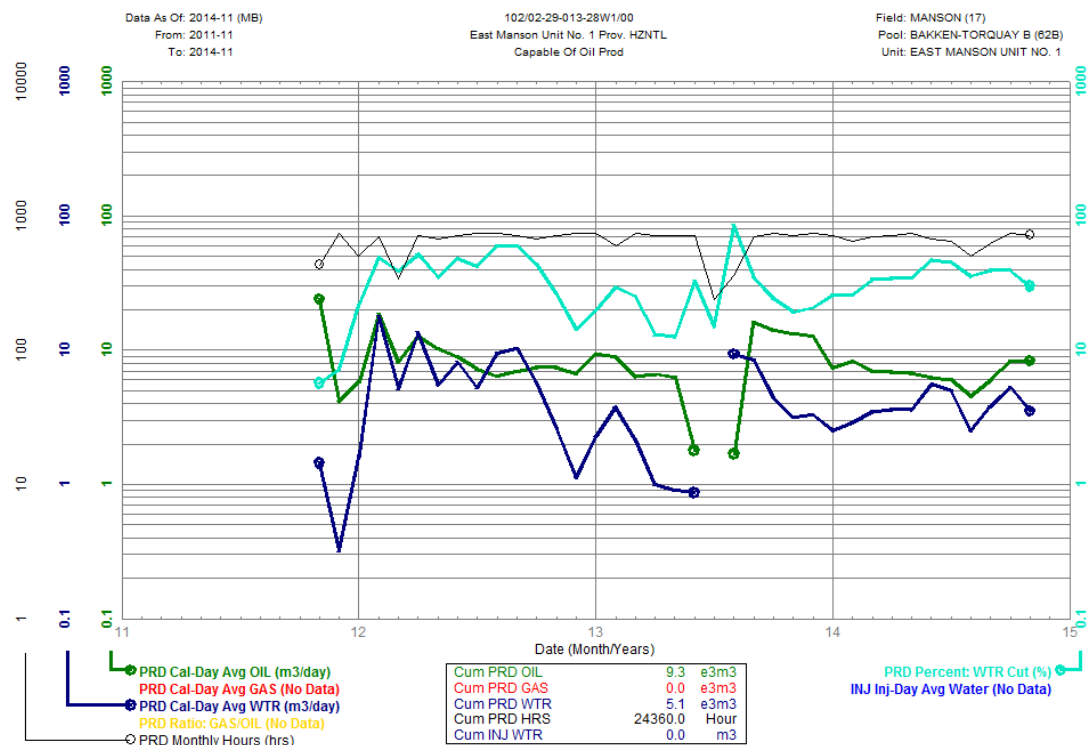


Figure 6: Rate vs Time for 100/7-29 Producer (response from 102/07-29 injector)

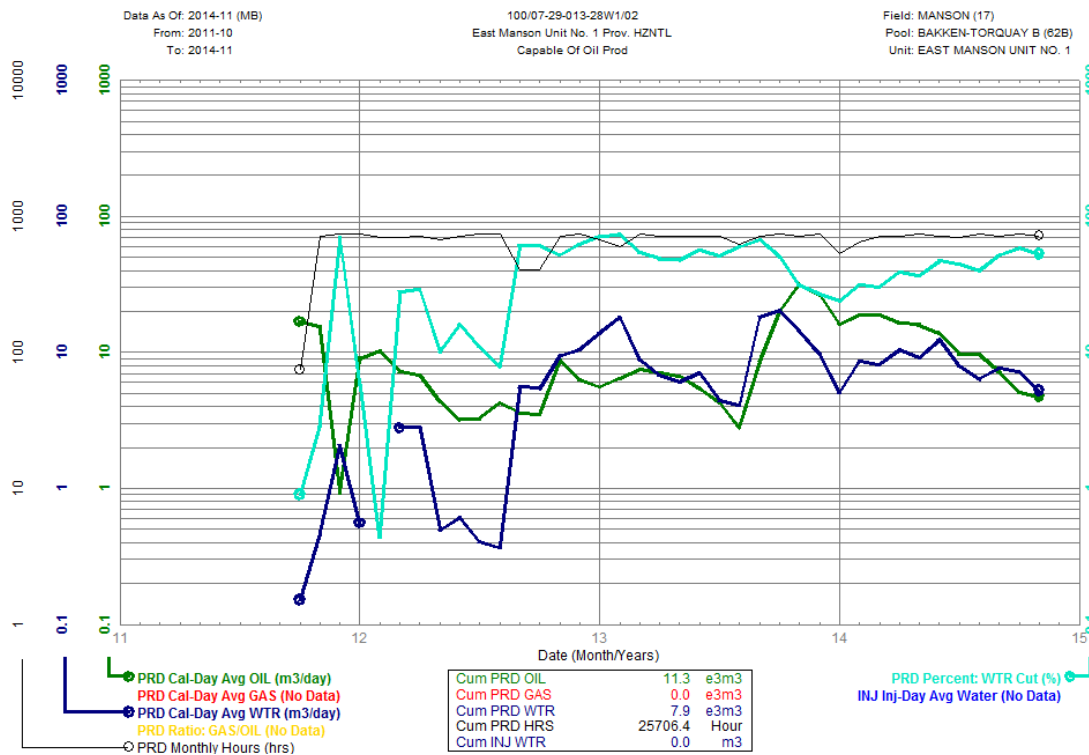


Figure 7: Rate vs Time for 100/10-29 Producer (response from 102/07-29 & 100/11-29 injectors)

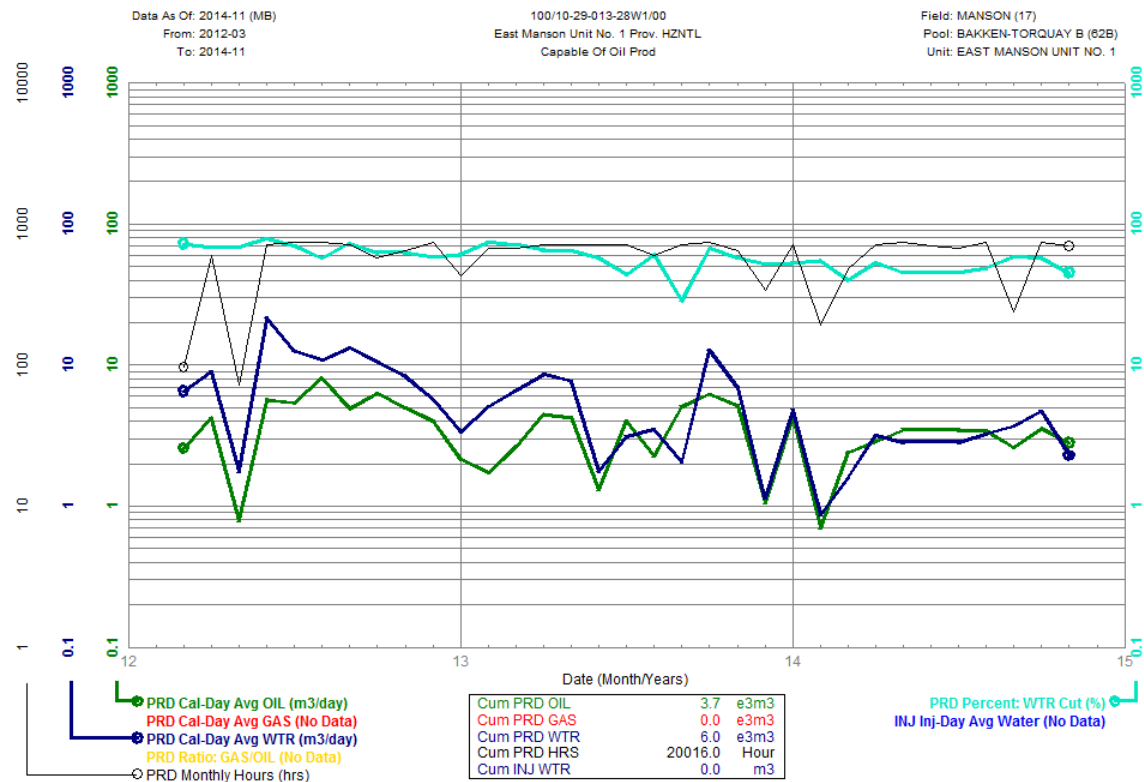


Figure 8: Rate vs Time for 102/12-29 Producer (response from 100/11-29 injector)

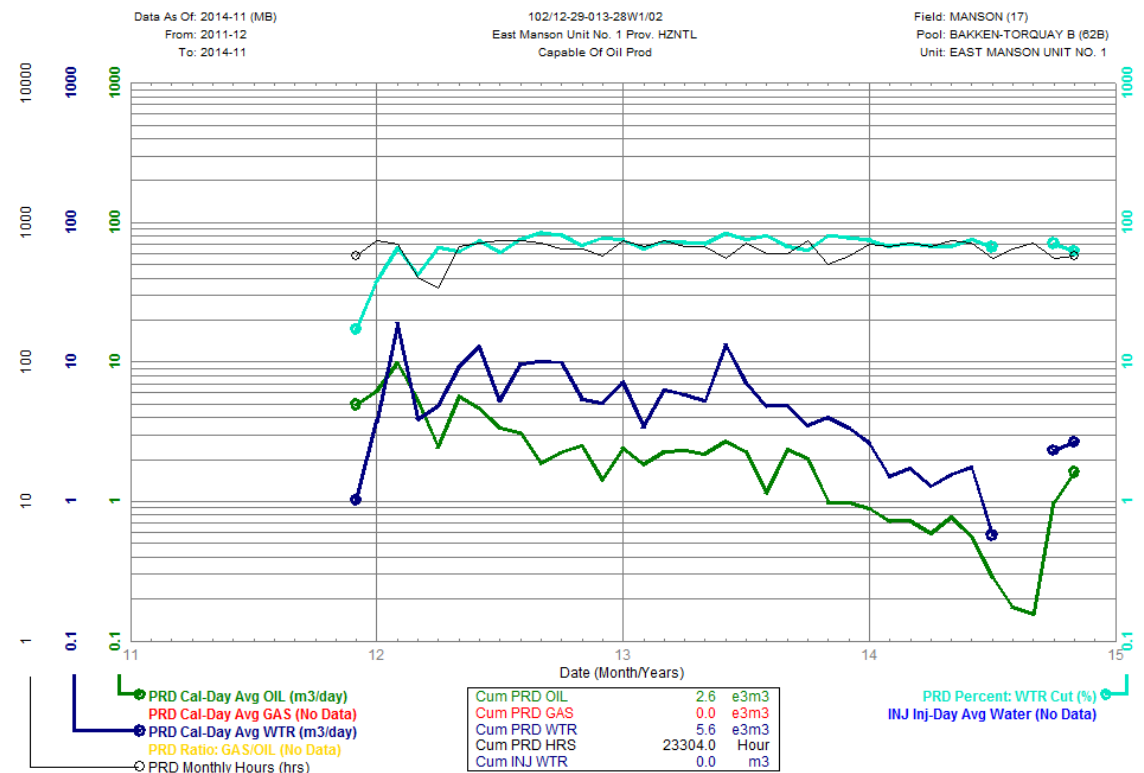


Figure 9: Rate vs Time for 100/05-29 Producer (response from 100/04-29 injector)

