

TORC OIL & GAS LTD.

EAST MANSON UNIT #4

ENHANCED OIL RECOVERY (EOR) ANNUAL REPORT

Discussion

TORCs established waterflood in EMU#4 had a rebound year after integrity issues were encountered in the 03/05-12-014-29W1 well in 2016 and remediated. However the 03/05-12 well was shut in in 2017 as it had effectively watered out. After the well was shut in, waterflood drive continued to sweep oil to our immediately proximal producer at 02/05-12-014-29W1 which showed a measured increase in production from 7 m³/d to 19 m³/d. Flood performance within this unit continued to be strong, with a 33% production increase achieved due to the change in effective sweep efficiency. EMU#4 possesses the highest caliber reservoir in terms of conductivity, and will continue to perform admirably carrying forward with the highest anticipated recovery factor for these reasons.

The 00/11-12-014-29W1 and 00/05-12-014-29W1 injectors are strong support wells for their offset producers. Injectivity in these wells tapered somewhat through 2017, with instantaneous VRRs dropping below targeted rates. Attempts at FeS circulations on the 11-12-014-29W1 injection well proved unsuccessful, and an HCl acid stimulation program has been designed, as our loss of injectivity here is now assumed to be attributed to scale deposition as opposed to iron dropout in this particular case. Injection pressures within the unit are on the rise but still acceptable low. TORCs main objective within this unit is to maximize fluid recovery within the unit, ensuring wells are pumped off, and optimizing injection/recovery ratios carrying forward.

A FeS Reducer chemical injection at the north and south ends of our field was setup in 2015, and continues to perform well, as bi-weekly sampling of the water in two production tanks at the battery show little or no FeS. Continuous sampling a monitoring of injection water ensures water quality meets injection standards for the flood.

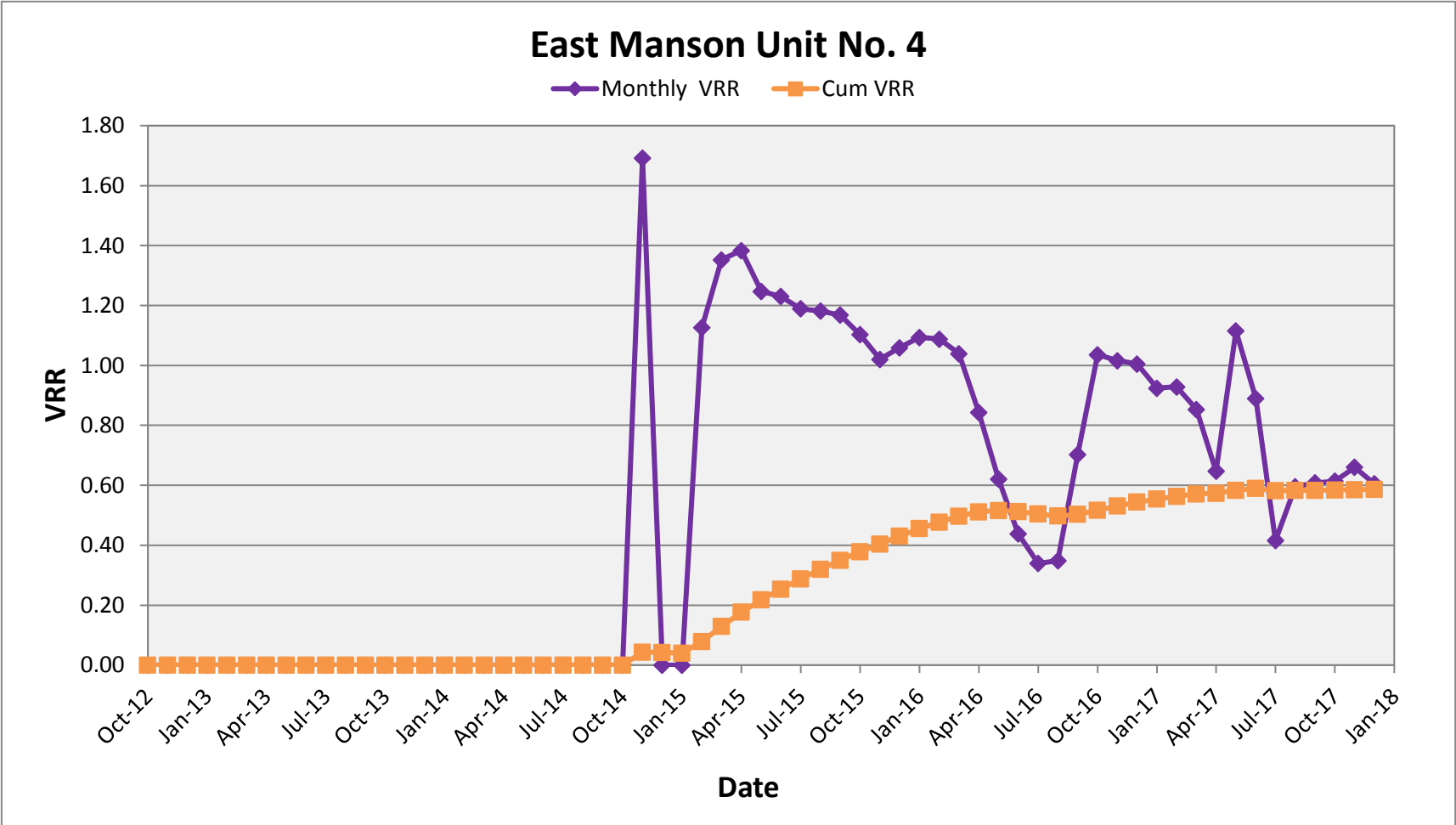
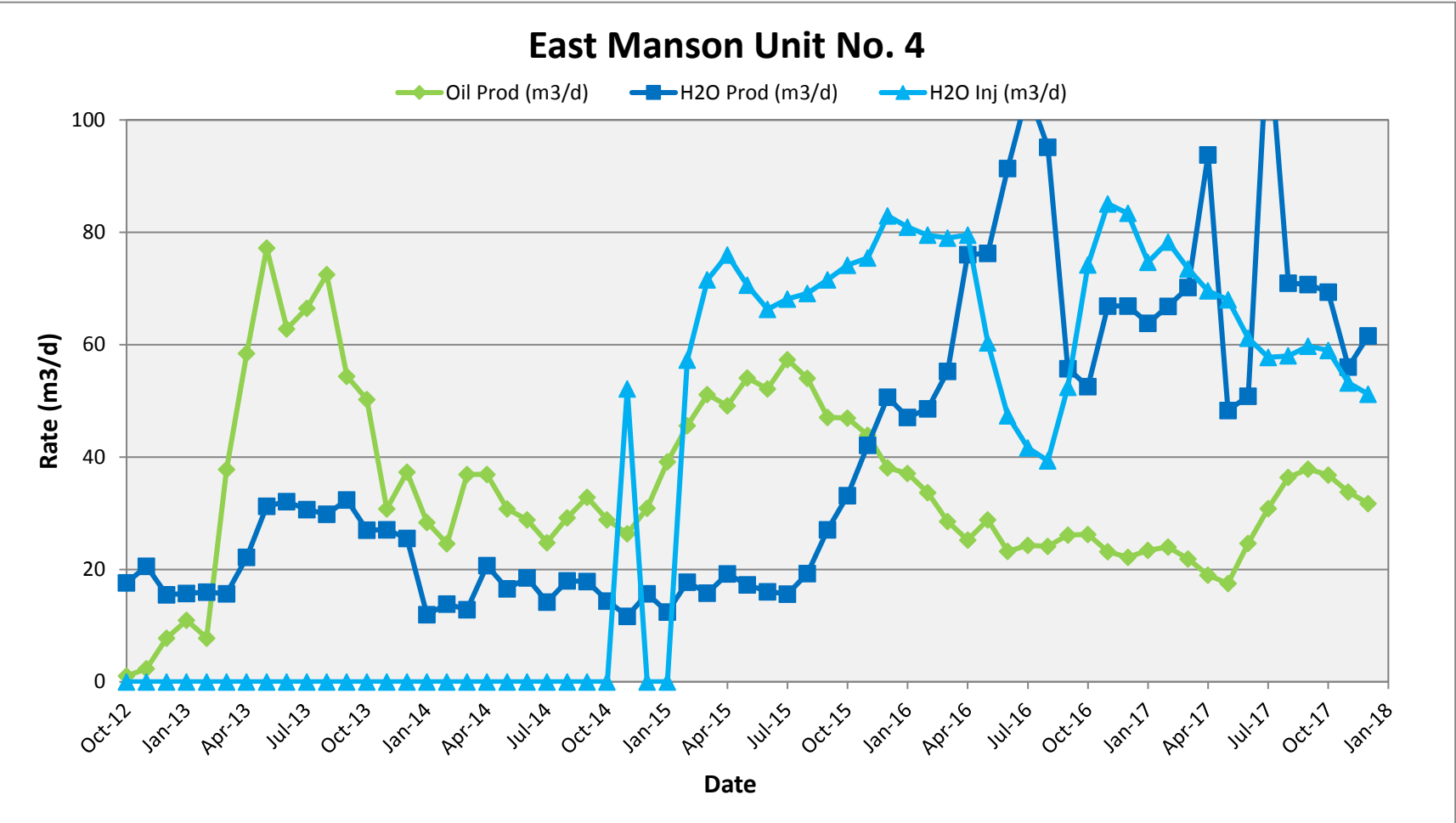
Extensions of the flood in EMU#4 continue to be deferred for the time being with the intent to allocate capital EMU#3 as running room in these units is far more substantial.

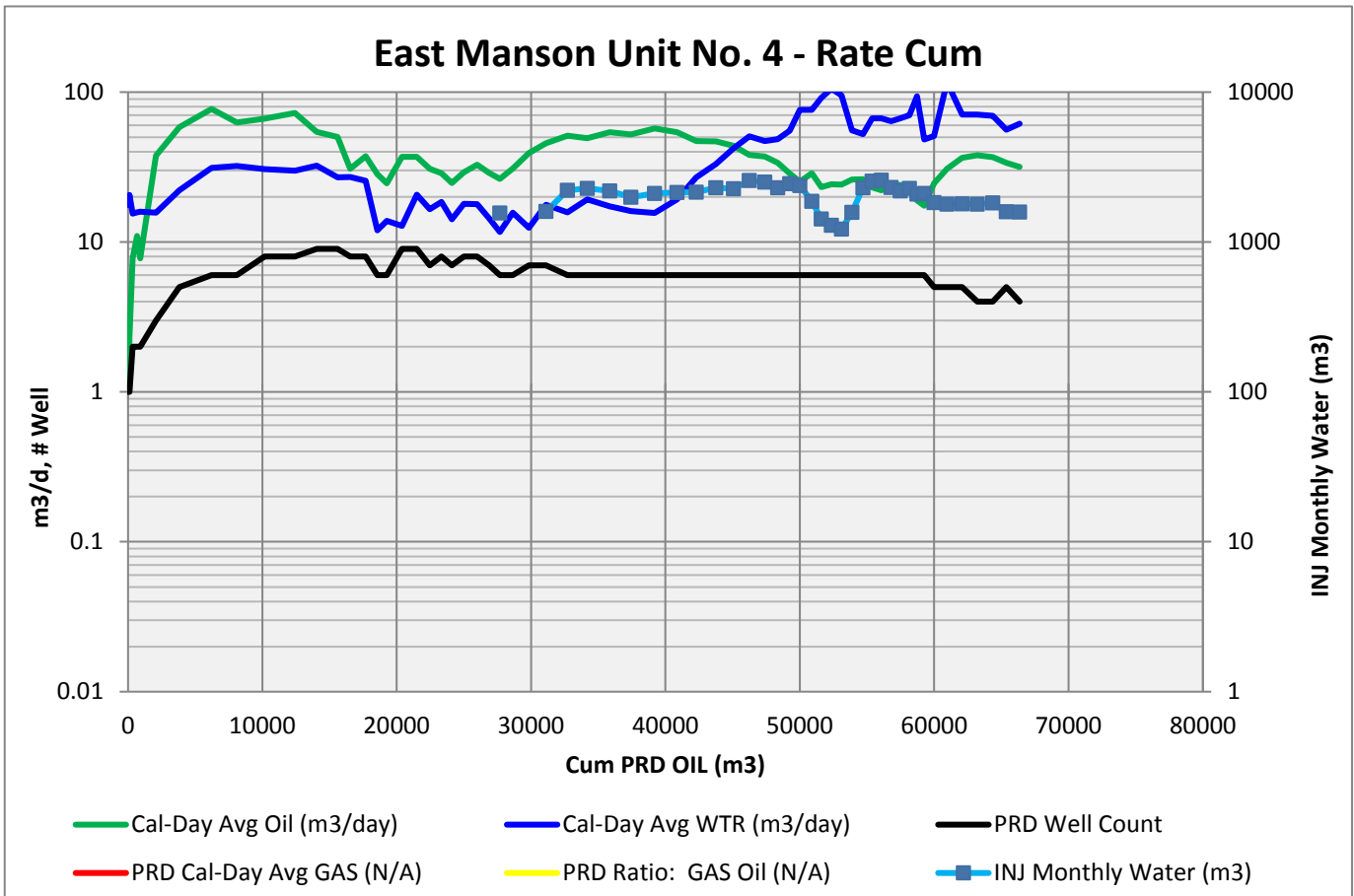
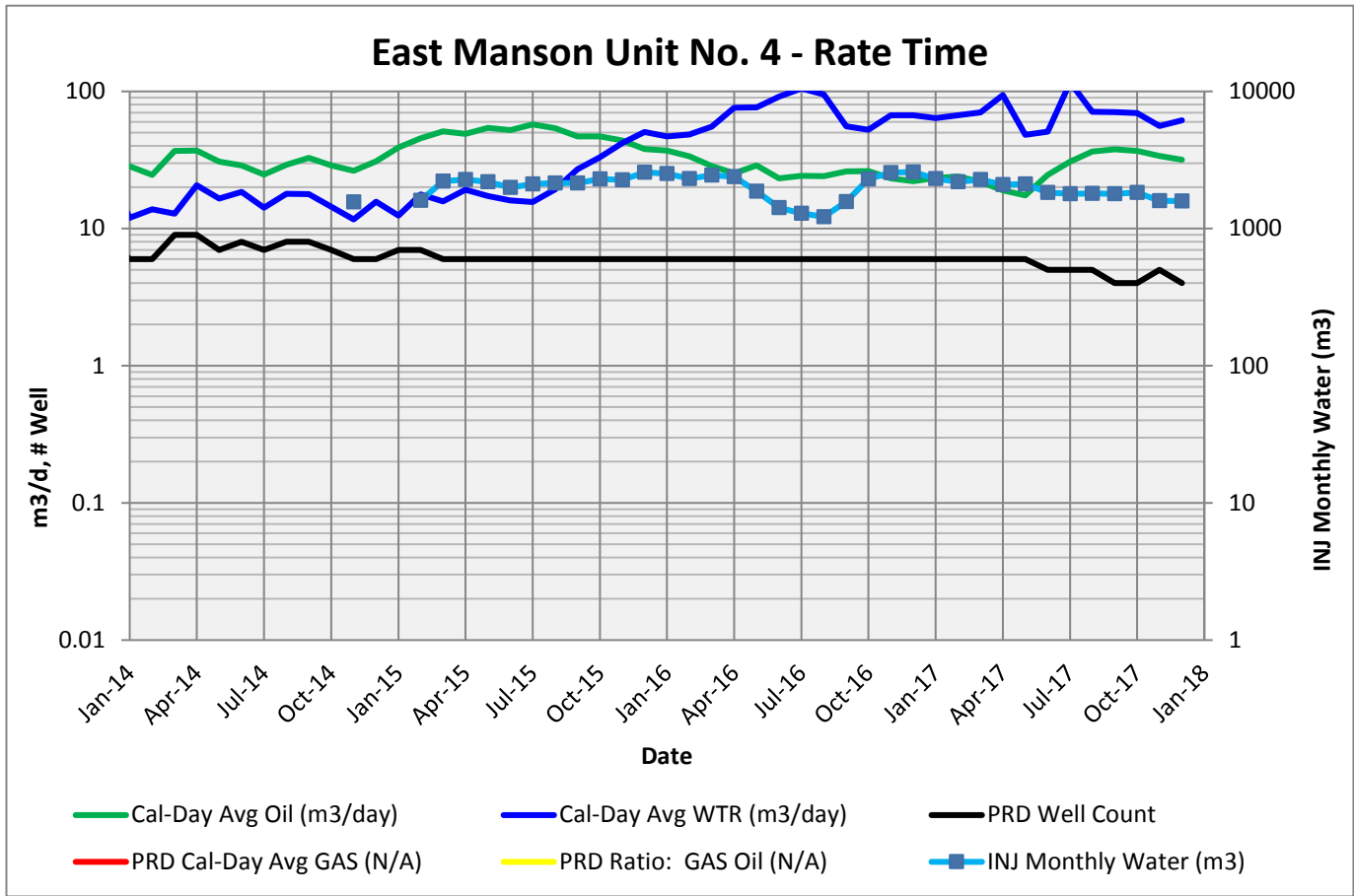
Operationally, the waterflood in East Manson Unit #4 continued to be low maintenance, with injectors capable of providing the deliverability required to support producing wells. Unit performance has been exceptional from a recovery perspective.

East Manson Unit No. 4 (Section 12-14-29W1) - VRR Table																										
Month	Days	Monthly Oil Prod (bbl)	Monthly Oil Prod (m3)	Monthly Gas Prod (E3m3)	Monthly H2O Prod (bbl)	Monthly H2O Prod (m3)	Monthly H2O Inj (bbl)	Monthly H2O Inj (m3)	Oil Prod (m3/d)	Gas Prod (E3m3/d)	H2O Prod (m3/d)	H2O Inj (m3/d)	Cum Oil (bbl)	Cum Oil (m3)	Cum Gas (E3m3)	Cum H2O (m3)	Cum H2O Inj (m3)	Prod Well Count	GOR (m3/m3)	H2OCut %	Voidage (rm3/d)	Monthly VRR	Cum GOR (m3/m3)	H2OCut %	Cum Void (rm3)	Cum VRR
Oct-12	31	201	32.0	0	3,437	546.2	0	0	1	0	18	0	201	32	0	546	0	1	0	94.5%	18	0.00	0.0	94.5%	572.3	0.000
Nov-12	30	442	70.2	0	3,886	617.6	0	0	2	0	21	0	643	102	0	1164	0	1	0	89.8%	22	0.00	0.0	91.9%	1244.3	0.000
Dec-12	31	1,513	240.5	0	3,021	480.0	0	0	8	0	15	0	2,156	343	0	1644	0	2	0	66.6%	21	0.00	0.0	82.7%	1902.3	0.000
Jan-13	31	2,137	339.6	0	3,073	488.3	0	0	11	0	16	0	4,292	682	0	2132	0	2	0	59.0%	24	0.00	0.0	75.8%	2641.0	0.000
Feb-13	28	1,373	218.2	0	2,812	446.8	0	0	8	0	16	0	5,664	901	0	2579	0	2	0	67.2%	22	0.00	0.0	74.1%	3249.4	0.000
Mar-13	31	7,369	1,171.0	0	3,056	485.7	0	0	38	0	16	0	13,030	2072	0	3065	0	3	0	29.3%	43	0.00	0.0	59.7%	4592.4	0.000
Apr-13	30	11,036	1,753.8	0	4,181	664.4	0	0	58	0	22	0	24,061	3825	0	3729	0	5	0	27.5%	65	0.00	0.0	49.4%	6540.4	0.000
May-13	31	15,061	2,393.4	0	6,092	968.0	0	0	77	0	31	0	39,116	6219	0	4697	0	6	0	28.8%	88	0.00	0.0	43.0%	9260.4	0.000
Jun-13	30	11,862	1,885.0	0	6,060	963.0	0	0	63	0	32	0	50,972	8104	0	5660	0	6	0	33.8%	78	0.00	0.0	41.1%	11604.3	0.000
Jul-13	31	12,974	2,061.7	0	5,983	950.8	0	0	67	0	31	0	63,940	10165	0	6611	0	8	0	31.6%	79	0.00	0.0	39.4%	14065.0	0.000
Aug-13	31	14,144	2,247.6	0	5,825	925.6	0	0	73	0	30	0	78,078	12413	0	7536	0	8	0	29.2%	83	0.00	0.0	37.8%	16636.0	0.000
Sep-13	30	10,265	1,631.2	0	6,110	970.9	0	0	54	0	32	0	88,338	14044	0	8507	0	9	0	37.3%	72	0.00	0.0	37.7%	18802.5	0.000
Oct-13	31	9,805	1,558.1	0	5,271	837.6	0	0	50	0	27	0	98,138	15602	0	9345	0	9	0	35.0%	64	0.00	0.0	37.5%	20781.8	0.000
Nov-13	30	5,816	924.2	0	5,114	812.7	0	0	31	0	27	0	103,952	16527	0	10158	0	8	0	46.8%	50	0.00	0.0	38.1%	22273.3	0.000
Dec-13	31	7,282	1,157.2	0	4,985	792.1	0	0	37	0	26	0	111,230	17684	0	10950	0	8	0	40.6%	53	0.00	0.0	38.2%	23914.1	0.000
Jan-14	31	5,538	880.1	0	2,337	371.3	0	0	28	0	12	0	116,766	18564	0	11321	0	6	0	29.7%	33	0.00	0.0	37.9%	24929.8	0.000
Feb-14	28	4,334	688.7	0	2,437	387.2	0	0	25	0	14	0	121,098	19253	0	11708	0	6	0	36.0%	32	0.00	0.0	37.8%	25821.7	0.000
Mar-14	31	7,203	1,144.7	0	2,501	397.4	0	0	37	0	13	0	128,298	20397	0	12106	0	9	0	25.8%	40	0.00	0.0	37.2%	27056.7	0.000
Apr-14	30	6,974	1,108.3	0	3,910	621.4	0	0	37	0	21	0	135,270	21506	0	12727	0	9	0	35.9%	48	0.00	0.0	37.2%	28490.3	0.000
May-14	31	6,005	954.3	0	3,230	513.2	0	0	31	0	17	0	141,272	22460	0	13240	0	7	0	35.0%	39	0.00	0.0	37.1%	29702.7	0.000
Jun-14	30	5,443	865.0	0	3,491	554.7	0	0	29	0	18	0	146,713	23325	0	13795	0	8	0	39.1%	40	0.00	0.0	37.2%	30891.7	0.000
Jul-14	31	4,836	768.5	0	2,768	439.9	0	0	25	0	14	0	151,547	24093	0	14235	0	7	0	36.4%	32	0.00	0.0	37.1%	31894.8	0.000
Aug-14	31	5,693	904.7	0	3,503	556.6	0	0	29	0	18	0	157,237	24998	0	14791	0	8	0	38.1%	39	0.00	0.0	37.2%	33114.6	0.000
Sep-14	30	6,204	985.9	0	3,372	535.8	0	0	33	0	18	0	163,439	25984	0	15327	0	8	0	35.2%	42	0.00	0.0	37.1%	34372.9	0.000
Oct-14	31	5,628	894.3	0	2,810	446.5	0	0	29	0	14	0	169,064	26878	0	15774	0	7	0	33.3%	36	0.00	0.0	37.0%	35474.4	0.000
Nov-14	30	4,974	790.4	0	2,203	350.0	9,834	1,563	26	0	12	52	174,035	27669	0	16124	1563	6	0	30.7%	31	1.69	0.0	36.8%	36403.2	0.043
Dec-14	31	6,031	958.4	0	3,060	486.2	0	0	31	0	16	0	180,064	28627	0	16610	1563	6	0	33.7%	38	0.00	0.0	36.7%	37591.5	0.042
Jan-15	31	7,635	1,213.2	0	2,422	384.9	0	0	39	0	12	0	187,695	29840	0	16995	1563	7	0	24.1%	41	0.00	0.0	36.3%	38863.9	0.040
Feb-15	28	8,037	1,277.1	0	3,127	496.9	10,088	1,604	46	0	18	57	195,728	31117	0	17492	3167	7	0	28.0%	51	1.13	0.0	36.0%	40295.6	0.079
Mar-15	31	9,974	1,585.0	0	3,078	489.1	13,953	2,218	51	0	16	72	205,697	32702	0	17981	5386	6	0	23.6%	53	1.35	0.0	35.5%	41944.2	0.129
Apr-15	30	9,276	1,474.1	0	3,631	577.0	14,339	2,280	49	0	19	76	214,970	34176	0	18558	7665	6	0	28.1%	55	1.38	0.0	35.2%	43600.2	0.177
May-15	31	10,554	1,677.2	0	3,373	536.0	13,763	2,188	54	0	17	71	225,519	35854	0	19094	9853	6	0	24.2%	57	1.25	0.0	34.7%	45363.3	0.218
Jun-15	30	9,844	1,564.3	0	3,031	481.7	12,517	1,990	52	0	16	66	235,359	37418	0	19576	11843	6	0	23.5%	54	1.23	0.0	34.3%	46989.3	0.253
Jul-15	31	11,187	1,777.8	0	3,051	484.8	13,287	2,112	57	0	16	68	246,541	39196	0	20060	13955	6	0	21.4%	58	1.19	0.0	33.9%	48774.3	0.288
Aug-15	31	10,542	1,675.3	0	3,759	597.3	13,482	2,143	54	0	19	69	257,079	40871	0	20658	16099	6	0	26.3%	59	1.18	0.0	33.6%	50597.6	0.320
Sep-15	30	8,888	1,412.4	0	5,110	812.0	13,501	2,146	47	0	27	72	265,963	42283	0	21470	18245	6	0	36.5%	62	1.17	0.0	33.7%	52444.7	0.350
Oct-15	31	9,162	1,456.0	0	6,463	1,027.1	14,458	2,299	47	0	33	74	275,121	43739	0	22497	20544	6	0	41.4%	68	1.10	0.0	34.0%	54539.9	0.379
Nov-15	30	8,280	1,315.8	0	7,950	1,263.4	14,239	2,264	44	0	42	75	283,397	45055	0	23760	22808	6	0	49.0%	74	1.02	0.0	34.5%	56770.3	0.404
Dec-15	31	7,424	1,180.2	0	9,880	1,570.8	16,173	2,571	38	0	51	83	290,821	46235	0	25331	25379	6	0	57.1%	79	1.06	0.0	35.4%	59210.6	0.431
Jan-16	31	7,237	1,150.5	0	9,181	1,459.7	15,784	2509.3	37	0	47	80.9	298,058	47386	0	26791	27888	6	0	55.9%	74	1.09	0.0	36.1%	61517.6	0.456
Feb-16	29	6,143	976.6	0	8,868	1,409.8	14,500	2305.2512	34	0	49	79.5	304,201	48363	0	28200	30193	6	0	59.1%	73	1.09	0.0	36.8%	63647.5	0.477
Mar-16	31	5,570	885.5	0	10,775	1,713.0	15,399	2448.2162	29	0	55	79.0	309,771	49248	0	29913	32642	6	0	65.9%	76	1.04	0.0	37.8%	66015.6	0.497
Apr-16	30	4,767	757.8	0	14,343	2,280.3	15,008	2385.9889	25	0	76	79.5	314,537	50006	0	32194	35028	6	0	75.1%	95	0.84	0.0	39.2%	68860.8	0.511
May-16	31	5,621	893.7	0	14,878	2,365.3	11,769	1871.0541	29	0	76	60.4	320,159	50900	0	34559	36899	6	0	72.6%	98	0.62	0.0	40.4%	71890.5	0.516
Jun-16	30	4,379	696.2	0	17,249	2,742.3	8,941	1421.4483	23	0	91	47.4	324,538	51596	0	37301	38320	6	0	79.8%	109	0.44	0.0	42.0%	75155.0	0.512
Jul-16	31	4,733	752.4	0	20,502	3,259.4	8,121	1291.089	24	0	105	41.6	329,271	52348	0	40561	39611	6	0	81.2%	123	0.34	0.0	43.7%	78980.3	0.504
Aug-16	31	4,701	747.3	0	18,558	2,950.3	7,671	1219.5564	24	0	95	39.3	333,972	53096	0	43511	40831	6	0	79.8%	113	0.35	0.0	45.0%	82491.2	0.497
Sep-16	30	4,924	782.9	0	10,515	1,671.7	9,900	1573.9173	26	0	56	52.5	338,896	53879	0	45183	42405	6	0	68.1%	75	0.70	0.0	45.6%	84742.9	0.503
Oct-16	31	5,121	814.2	0	10,252	1,629.8	14,469	2300.3498	26	0	53	74.2	344,017	54693	0	46813	44705	6	0	66.7%	72	1.04	0.0	46.1%	86975.3	0.517
Nov-16	30	4,374	695.4	0	12,622	2,006.7	16,054	2552.3641	23	0	67	85.1	348,391	55388	0	48819	47257	6	0	74.3%	84	1.02	0.0	46.8%	89499.9	0.531
Dec-16	31	4,317	686.3	0	13,040	2,073.1	16,260	2584.9793	22	0	67	83.4	352,708	56074	0	50892	49842	6	0	75.1%	83	1.01				

EMU No.4

Date	Oil Prod (m3/d)	Gas Prod (e3m3/d)	H2O Prod (m3/d)	H2O Inj (m3/d)	Monthly VRR	Cum VRR	Cum PRD Oil (m3)	Cum PRD Gas (e3m3)	Cum PRD Water (m3)	Cum INJ Water (m3)
Dec-2017	32	-	62	51	0.60	0.586	66,359	-	76,431	73,054

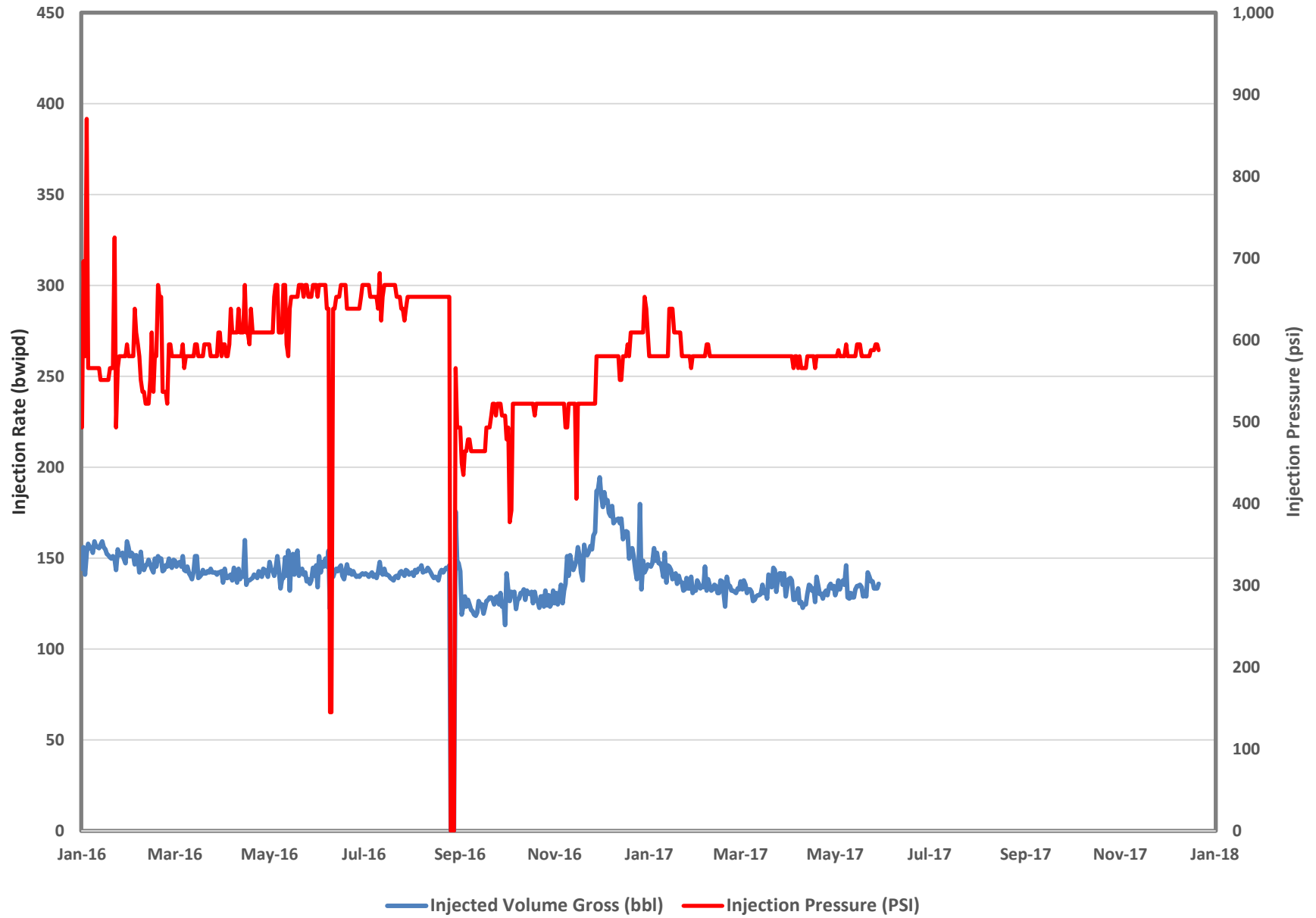




East Manson Unit No. 4 - Injection Parameters

Month	Oil Rate (m3/d)	Gas Rate (e3m3/d)	Water Rate (m3/d)	Water Inj Rate (m3/d)	05-12 Water Inj Press (psi)	11-12 Water Inj Press (psi)	Cum Oil (m3)	Cum Gas (e3m3)	Cum Water (m3)	Cum Inj Water (m3)	GOR (m3/m3)	WOR (m3/m3)
Jan-17	23.4	0.0	63.8	74.7	590	522	56,799	-	52,871	52,158	0	2.73
Feb-17	24.0	0.0	66.9	78.3	581	361	57,471	-	54,743	54,350	0	2.79
Mar-17	21.9	0.0	70.2	73.5	580	282	58,149	-	56,920	56,629	0	3.21
Apr-17	19.0	0.0	93.8	69.6	577	318	58,718	-	59,734	58,716	0	4.95
May-17	17.5	0.0	48.3	68.0	584	429	59,260	-	61,231	60,825	0	2.76
Jun-17	24.7	0.0	50.9	61.2	585	467	60,000	-	62,757	62,660	0	2.06
Jul-17	30.8	0.0	116.4	57.7	386	415	60,956	-	66,367	64,450	0	3.78
Aug-17	36.4	0.0	71.0	58.0	581	458	62,085	-	68,568	66,249	0	1.95
Sep-17	37.9	0.0	70.7	59.8	580	506	63,221	-	70,690	68,042	0	1.87
Oct-17	36.8	0.0	69.4	59.0	576	518	64,362	-	72,840	69,870	0	1.88
Nov-17	33.8	0.0	56.1	53.2	580	581	65,375	-	74,521	71,466	0	1.66
Dec-17	31.7	0.0	61.6	51.2	580	574	66,359	-	76,431	73,054	0	1.94

00/05-12-014-29W1 Rate vs Pressure



00/11-12-014-29W1 Rate vs Pressure

