

TORC OIL & GAS LTD.

EAST MANSON UNIT #4

ENHANCED OIL RECOVERY (EOR) ANNUAL REPORT

Discussion

TORCs established waterflood in EMU#4 had a somewhat tumultuous year, which is misleading upon data analysis due to wellbore integrity issues which in our 03/05-12 well which required servicing to restore production. Normalizing for the effect of lost production associated with this event, Flood performance continued to be strong, with production decline noted due to breakthrough, but decline arrested after this point. This possesses the highest caliber reservoir in terms of conductivity and volumetrics, 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 was varied throughout 2016, initially the mechanical issues in the 03/05-12 wellbore had been attributed to direct communication, when salinities were unable to confirm the presence of our casing leak in the well due to its location. Injection was cut back, while this problem was investigated and has been ramped back up now that servicing has restored production in the 03/05-12 well. As a result of this out of zone production attributed to the leak, unit VRRs are misleading, however they are now back on track as the unit returns to standard operation. This pattern has seen breakthrough in the 02/05-12-014-29W1 and 03/05-12-014-29W1 producers, an occurrence which TORC perceives to be due to the perpendicular orientation of these wellbores relative to their support injectors. Injection pressures within the unit remain the lowest of all flooded East Manson units, not frequently climbing higher than 100 psi at surface. Aside from the restoration of wellbore integrity in the 03/05-12 well, much of TORCs activity in the unit focused on increasing lift capacity on a well by well basis to ensure drawdown was maximized and the full benefit of the flood was realized.

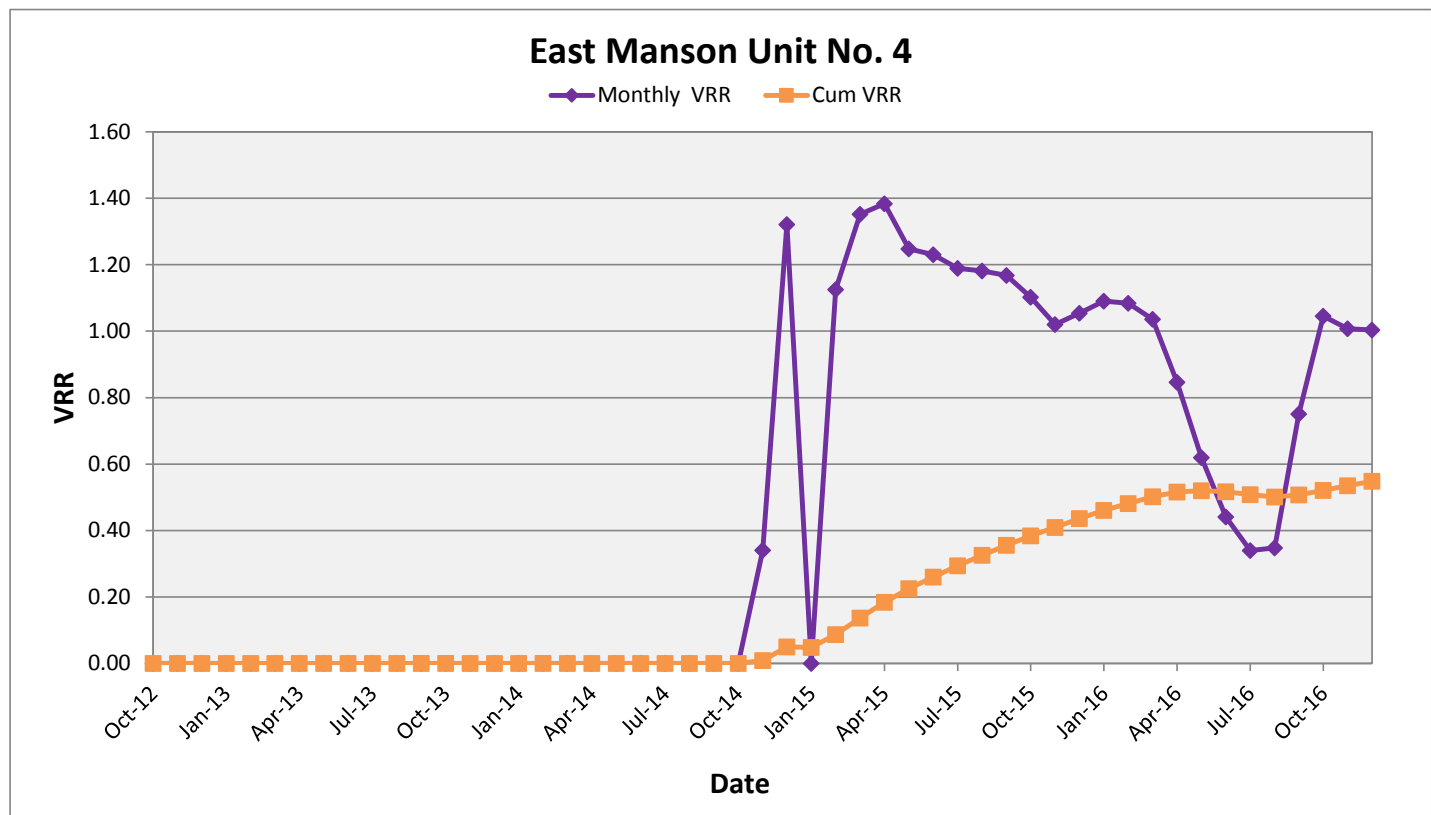
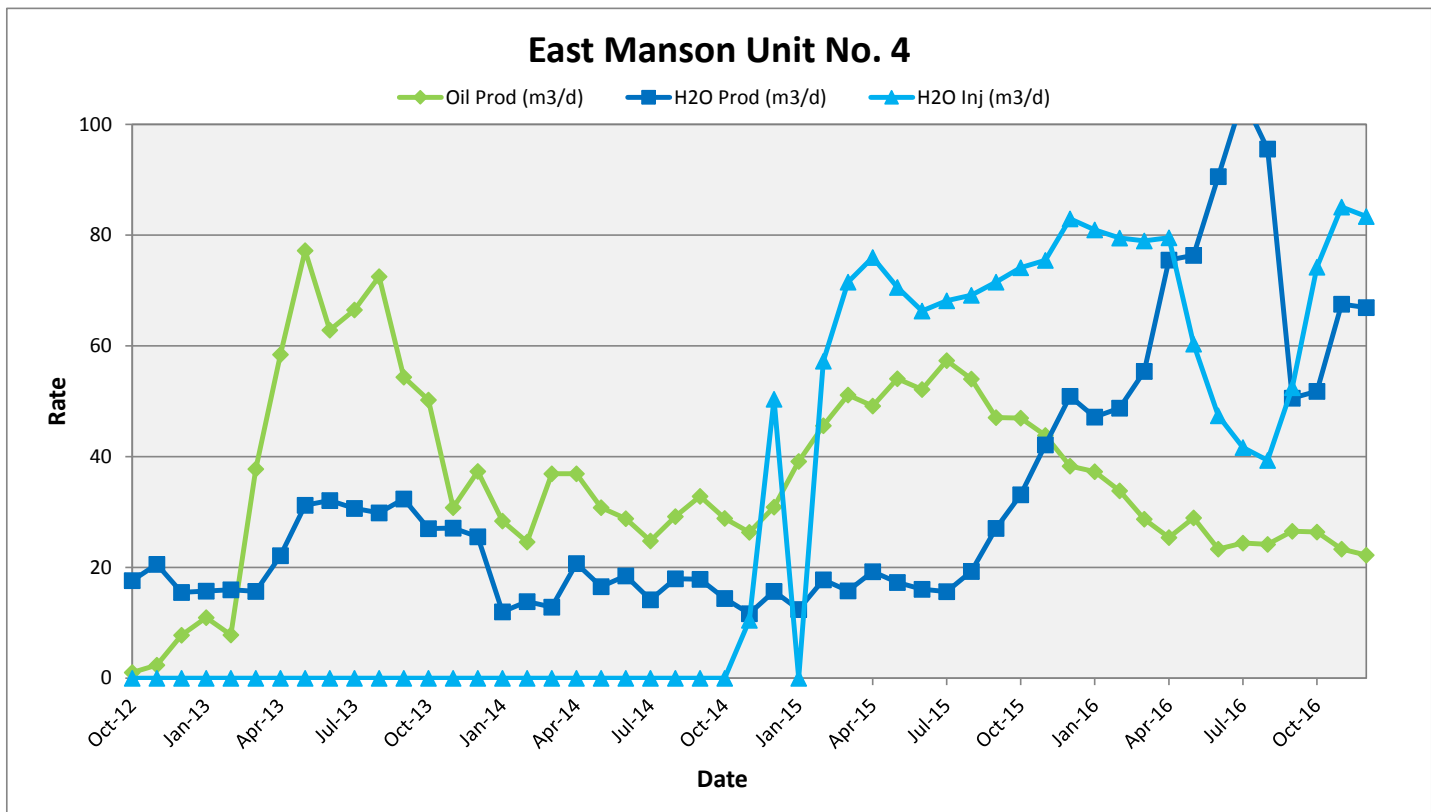
A FeS Reducer chemical injection at the north and south ends of our field was setup in 2015, and continues to perform well, as bi-weekly sampling of the water in two production tanks at the battery show little or no FeS. Continuous sampling a monitoring of injection water ensures water quality meets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

Extensions of the flood in EMU#4 are being considered but are going to be deferred for the time being with the intent to allocate capital to EMU#6 and EMU#3 as running room in these units is far more substantial.

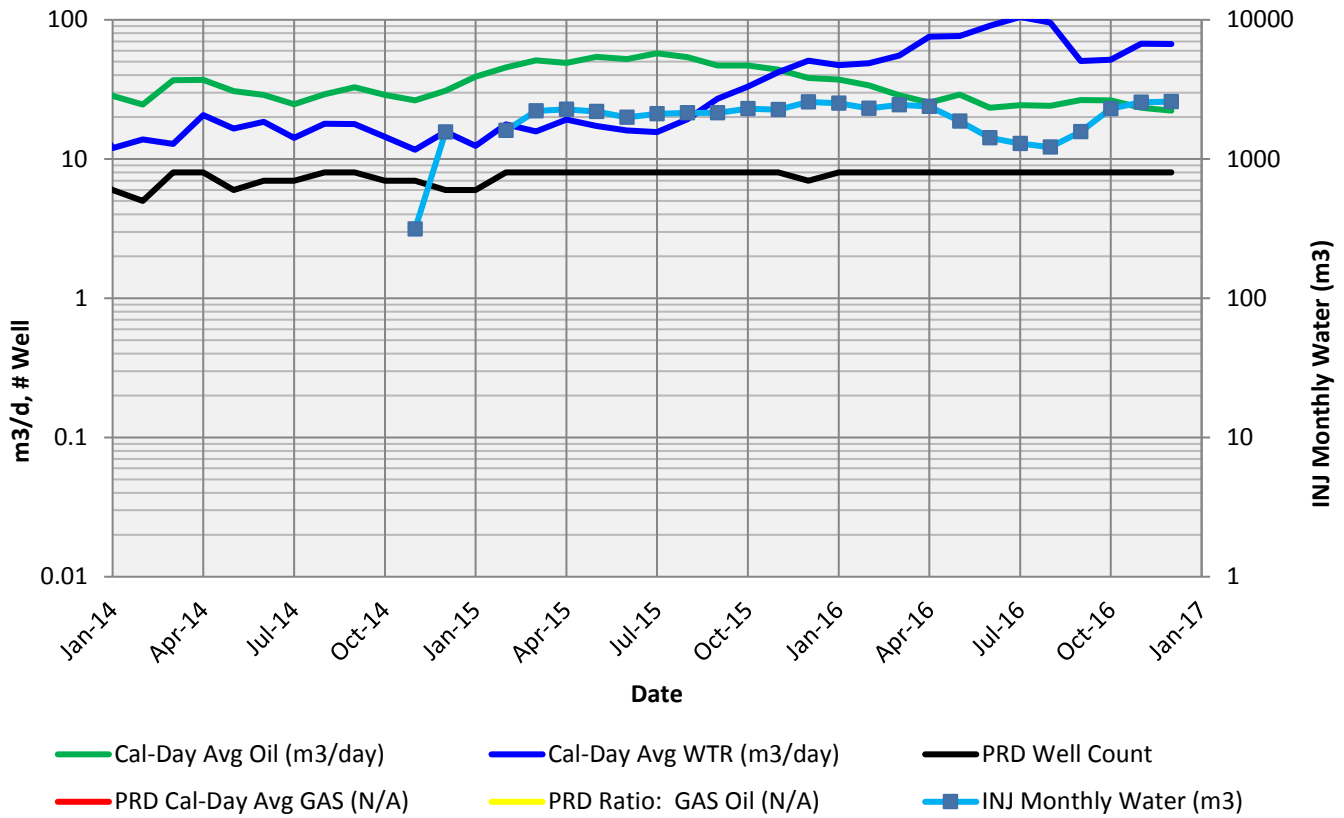
Operationally, the waterflood in East Manson Unit #4 continued to be low maintenance, with injectors capable of providing the deliverability required to support producing wells. Post repair of our injection pattern in the west, TORC projects a rebound in unit performance in 2017.

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	3,436	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	3,885	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	3,019	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	2,136	339.6	0	3,071	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	1,372	218.2	0	2,810	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	7,366	1,171.0	0	3,055	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	11,031	1,753.8	0	4,179	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	15,054	2,393.4	0	6,089	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	11,857	1,885.0	0	6,057	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	12,968	2,061.7	0	5,981	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	14,137	2,247.6	0	5,822	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	10,260	1,631.2	0	6,107	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	9,800	1,558.1	0	5,269	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	5,813	924.2	0	5,112	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	7,279	1,157.2	0	4,982	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	5,536	880.1	0	2,335	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	4,332	688.7	0	2,435	387.2	0	0	25	0	14	0	121,098	19253	0	11708	0	5	0	36.0%	32	0.00	0.0	37.8%	25821.7	0.000
Mar-14	31	7,200	1,144.7	0	2,500	397.4	0	0	37	0	13	0	128,298	20397	0	12106	0	8	0	25.8%	40	0.00	0.0	37.2%	27056.7	0.000
Apr-14	30	6,971	1,108.3	0	3,909	621.4	0	0	37	0	21	0	135,270	21506	0	12727	0	8	0	35.9%	48	0.00	0.0	37.2%	28490.3	0.000
May-14	31	6,003	954.3	0	3,228	513.2	0	0	31	0	17	0	141,272	22460	0	13240	0	6	0	35.0%	39	0.00	0.0	37.1%	29702.7	0.000
Jun-14	30	5,441	865.0	0	3,489	554.7	0	0	29	0	18	0	146,713	23325	0	13795	0	7	0	39.1%	40	0.00	0.0	37.2%	30891.7	0.000
Jul-14	31	4,834	768.5	0	2,767	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	5,691	904.7	0	3,501	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	6,201	985.9	0	3,370	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	5,625	894.3	0	2,808	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	4,972	790.4	0	2,202	350.0	1,980	315	26	0	12	10	174,035	27669	0	16124	315	7	0	30.7%	31	0.34	0.0	36.8%	36403.2	0.009
Dec-14	31	6,028	958.4	0	3,058	486.2	9,827	1,562	31	0	16	50	180,064	28627	0	16610	1877	6	0	33.7%	38	1.32	0.0	36.7%	37591.5	0.050
Jan-15	31	7,631	1,213.2	0	2,421	384.9	0	0	39	0	12	0	187,695	29840	0	16995	1877	6	0	24.1%	41	0.00	0.0	36.3%	38863.9	0.049
Feb-15	28	8,033	1,277.1	0	3,126	496.9	10,080	1,603	46	0	18	57	195,728	31117	0	17492	3480	8	0	28.0%	51	1.13	0.0	36.0%	40295.6	0.087
Mar-15	31	9,970	1,585.0	0	3,076	489.1	13,950	2,218	51	0	16	72	205,697	32702	0	17981	5697	8	0	23.6%	53	1.35	0.0	35.5%	41944.2	0.137
Apr-15	30	9,272	1,474.1	0	3,629	577.0	14,340	2,280	49	0	19	76	214,970	34176	0	18558	7977	8	0	28.1%	55	1.38	0.0	35.2%	43600.2	0.184
May-15	31	10,550	1,677.2	0	3,371	536.0	13,764	2,188	54	0	17	71	225,519	35854	0	19094	10166	8	0	24.2%	57	1.25	0.0	34.7%	45363.3	0.225
Jun-15	30	9,839	1,564.3	0	3,030	481.7	12,516	1,990	52	0	16	66	235,359	37418	0	19576	12155	8	0	23.5%	54	1.23	0.0	34.3%	46989.3	0.260
Jul-15	31	11,182	1,777.8	0	3,049	484.8	13,287	2,112	57	0	16	68	246,541	39196	0	20060	14268	8	0	21.4%	58	1.19	0.0	33.9%	48774.3	0.294
Aug-15	31	10,538	1,675.3	0	3,757	597.3	13,482	2,143	54	0	19	69	257,079	40871	0	20658	16411	8	0	26.3%	59	1.18	0.0	33.6%	50597.6	0.326
Sep-15	30	8,884	1,412.4	0	5,107	812.0	13,500	2,146	47	0	27	72	265,963	42283	0	21470	18557	8	0	36.5%	62	1.17	0.0	33.7%	52444.7	0.356
Oct-15	31	9,158	1,456.0	0	6,460	1,027.1	14,458	2,299	47	0	33	74	275,121	43739	0	22497	20856	8	0	41.4%	68	1.10	0.0	34.0%	54539.9	0.384
Nov-15	30	8,276	1,315.8	0	7,947	1,263.4	14,239	2,264	44	0	42	75	283,397	45055	0	23760	23120	8	0	49.0%	74	1.02	0.0	34.5%	56770.3	0.409
Dec-15	31	7,468	1,187.3	0	9,923	1,577.6	16,173	2,571	38	0	51	83	290,865	46242	0	25338	25691	7	0	57.1%	79	1.05	0.0	35.4%	59222.6	0.436
Jan-16	31	7,273	1,156.2	0	9,192	1,461.3	15,784	2509.4	37	0	47	80.9	298,138	47399	0	26799	28200	8	0	55.8%	75	1.09	0.0	36.1%	61535.3	0.461
Feb-16	29	6,175	981.8	0	8,894	1,414.1	14,500	2305.2814	34	0	49	79.5	304,313	48380	0	28213	30506	8	0	59.0%	74	1.08	0.0	36.8%	63673.3	0.482
Mar-16	31	5,603	890.8	0	10,800	1,717.1	15,399	2448.2464	29	0	55	79.0	309,916	49271	0	29930	32954	8	0	65.8%	77	1.04	0.0	37.8%	66049.3	0.501
Apr-16	30	4,795	762.4	0	14,246	2,264.8	15,008	2386.0286	25	0	75	79.5	314,712	50034	0	32195	35340	8	0	74.8%	94	0.85	0.0	39.2%	68882.3	0.516
May-16	31	5,646	897.7	0	14,894	2,367.9	11,769	1871.0238	29	0	76	60.4	320,358	50931	0	34563	37211	8	0	72.5%	98	0.62	0.0	40.4%	71917.5	0.520
Jun-16	30	4,404	700.1	0	17,092	2,717.3	8,941	1421.4483	23	0	91	47.4	324,761	51631	0	37280	38632	8	0	79.5%	108	0.44	0.0	41.9%	75159.7	0.517
Jul-16	31	4,759	756.6	0	20,443	3,250.1	8,121	1291.1081	24	0	105	41.6	329,520	52388	0	40530	39923	8	0	81.1%	123	0.34	0.0	43.6%	78978.6	0.508
Aug-16	31	4,710	748.9	0	18,629	2,961.7	7,671	1219.5056	24	0	96	39.3	334,231	53137	0	43492	41143	8	0	79.8%	114	0.35	0.0	45.0%	82502.1	0.501
Sep-16	30	5,011	796.7	0	9,546	1,517.6	9,900	1573.9682	27	0	51	52.5	339,242	53933	0	45010	42717	8	0	65.6%	70	0.75	0.0	45.5%	84609.0	0.507
Oct-16	31	5,147	818.2	0	10,101	1,605.9	14,469	2300.3688	26	0	52	74.2	344,388	54752	0	46615	45017	8	0	66.2%	71	1.05	0.0	46.0%	86820.3	0.521
Nov-16	30	4,398	699.3	0	12,742	2,025.7	16,056	2552.5644	23	0	68	85.1	348,787	55451	0	48641	47570	8	0	74.3%	85	1.01	0.0	46.7%	89366.8	0.535
Dec-16	31	4,337	689.5	0	13,051	2,074.9	16,259	2584.9682	22	0	67	83.4	353,123	56140	0	50716	50155	8	0	75.1%	84	1.00				

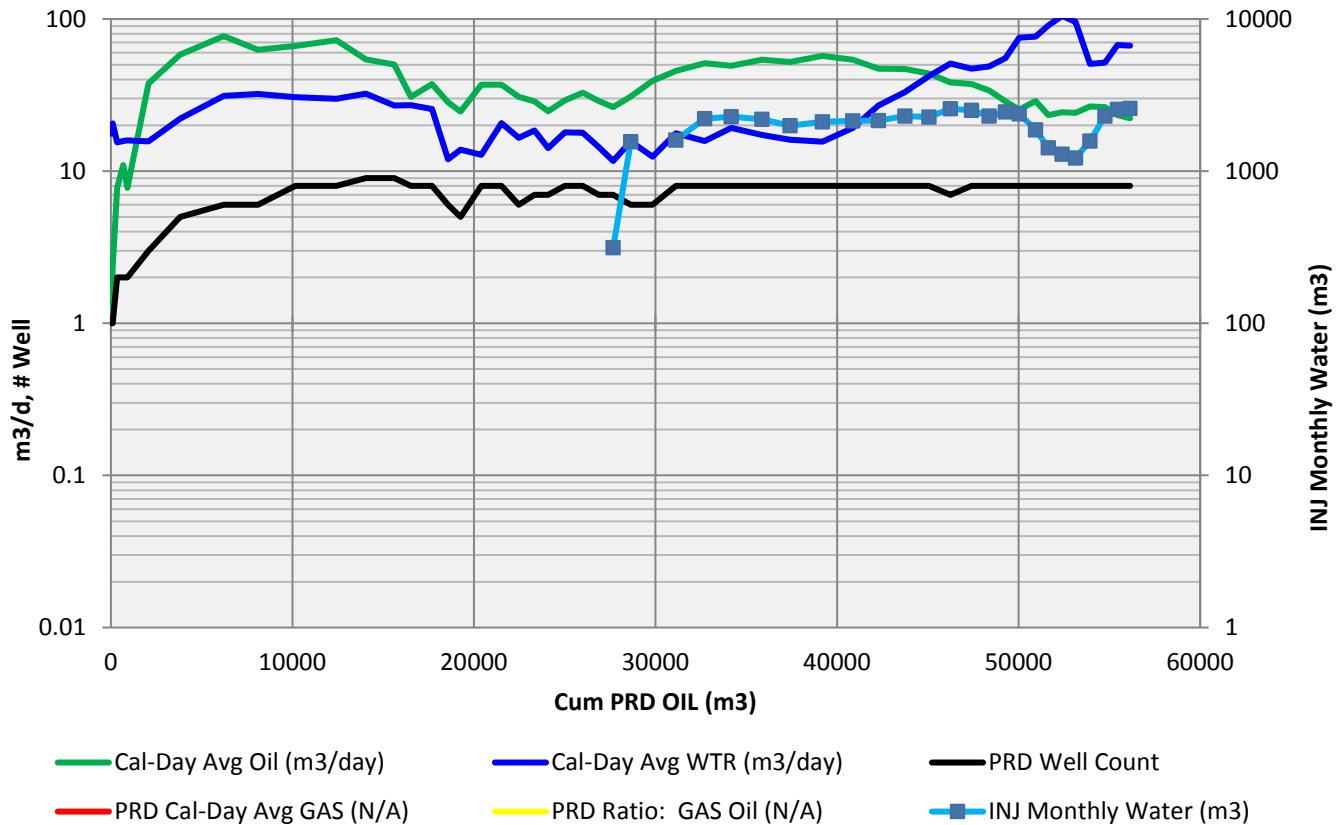
	Date	Oil Prod (m3/d)	Gas Prod (e3m3/d)	H2O Prod (m3/d)	H2O Inj (m3/d)	Monthly VRR	Cum VRR	Cum PRD Oil (m3)	Cum PRD Gas (e3m3)	Cum PRD Water (m3)	Cum INJ Water (m3)
EMU No.4	Dec-2016	22	-	67	83	1.00	0.548	56,140	-	50,716	50,155



East Manson Unit No. 4 - Rate Time



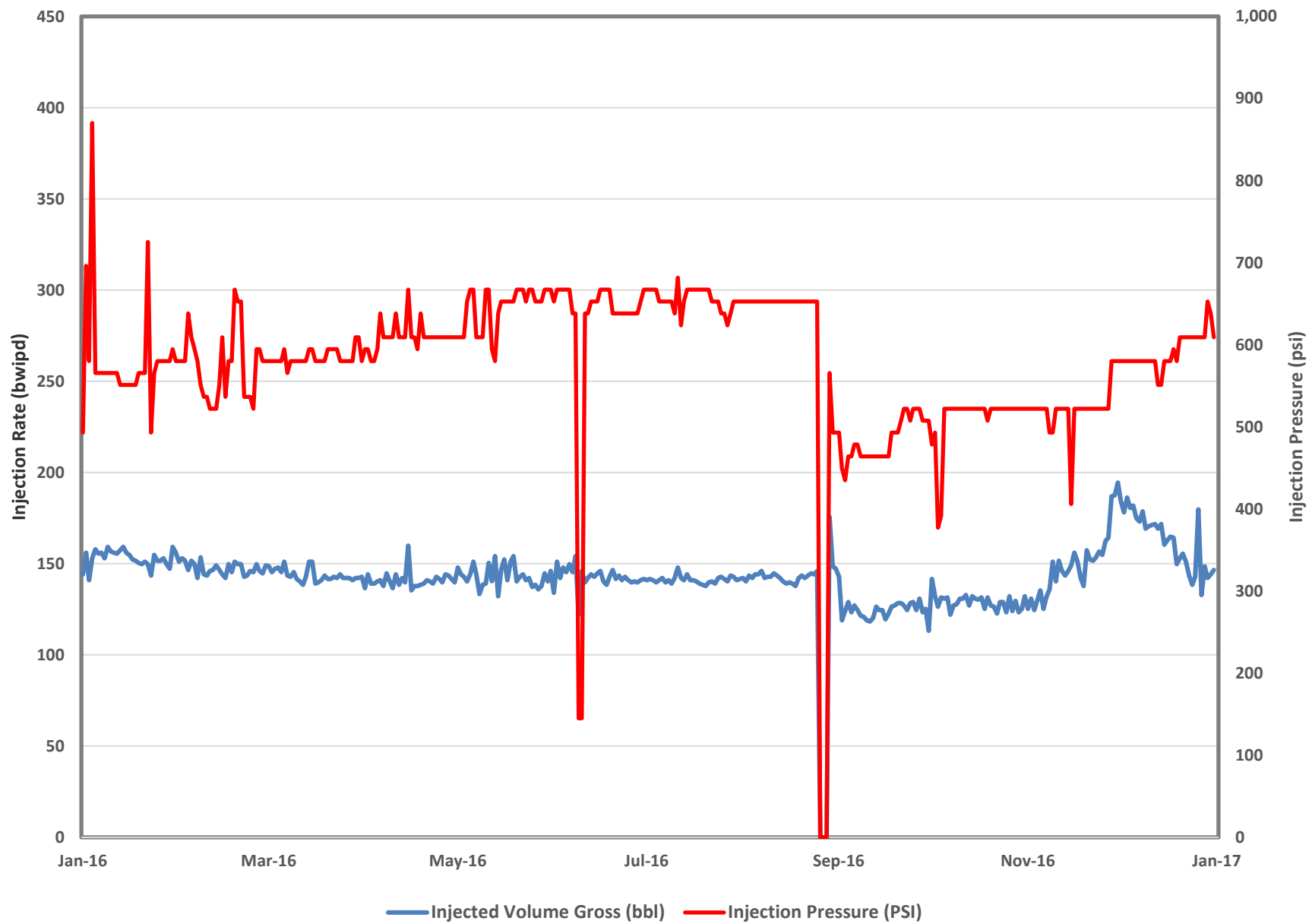
East Manson Unit No. 4 - Rate Cum



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)	Water Inj Press (psi)	Cum Oil (m3)	Cum Gas (e3m3)	Cum Water (m3)	Cum Inj Water (m3)	GOR (m3/m3)	WOR (m3/m3)
Jan-16	37.3	0.0	47.1	80.9	665	47,399	-	26,799	28,200	0	1.26
Feb-16	33.9	0.0	48.8	79.5	502	48,380	-	28,213	30,506	0	1.44
Mar-16	28.7	0.0	55.4	79.0	485	49,271	-	29,930	32,954	0	1.93
Apr-16	25.4	0.0	75.5	79.5	505	50,034	-	32,195	35,340	0	2.97
May-16	29.0	0.0	76.4	60.4	371	50,931	-	34,563	37,211	0	2.64
Jun-16	23.3	0.0	90.6	47.4	309	51,631	-	37,280	38,632	0	3.88
Jul-16	24.4	0.0	104.8	41.6	328	52,388	-	40,530	39,923	0	4.30
Aug-16	24.2	0.0	95.5	39.3	288	53,137	-	43,492	41,143	0	3.95
Sep-16	26.6	0.0	50.6	52.5	308	53,933	-	45,010	42,717	0	1.90
Oct-16	26.4	0.0	51.8	74.2	448	54,752	-	46,615	45,017	0	1.96
Nov-16	23.3	0.0	67.5	85.1	425	55,451	-	48,641	47,570	0	2.90
Dec-16	22.2	0.0	66.9	83.4	503	56,140	-	50,716	50,155	0	3.01

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



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

