Ebor Unit No. 3

Waterflood Progress Report 2019

January 1st through December 31st 2019

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:

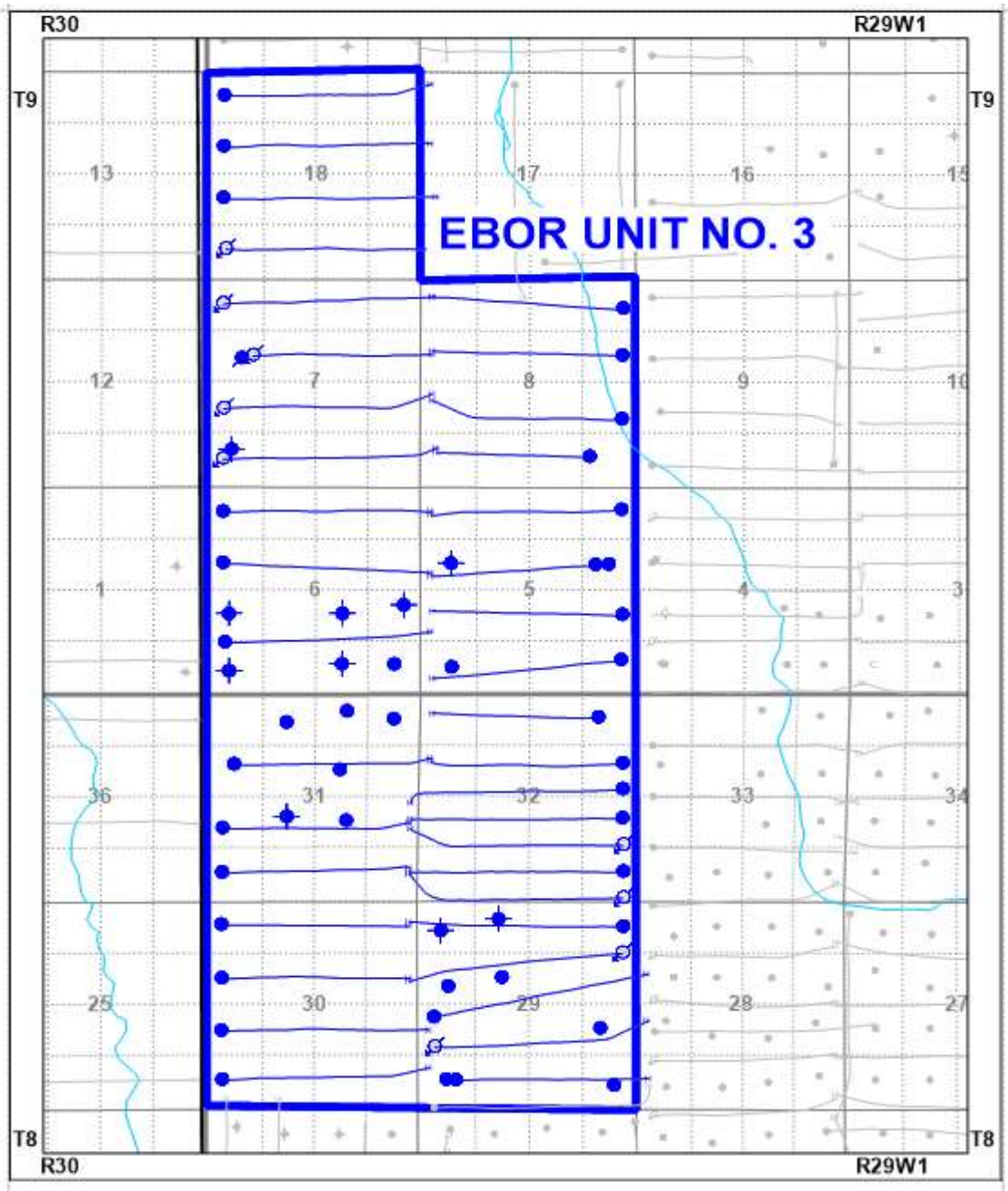
Tundra Oil and Gas

May 28, 2020

INTRODUCTION

Ebor Unit No. 3 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Board Order No. 62 effective October 2017. The Unit area contains 11 abandoned/suspended wells, 42 producing wells and 9 injection wells, in Townships 8 & 9, Ranges 29 W1 as shown in the figure below.

Figure 1: Ebor Unit No. 3 Area Outline



Ebor Unit No. 3

Tundra Oil and Gas (Tundra), as the operator of the Ebor Unit No. 3 Enhanced Oil Recovery (EOR) project hereby submits the 2019 EOR report as per section 73 of the Drilling and Production Regulations.

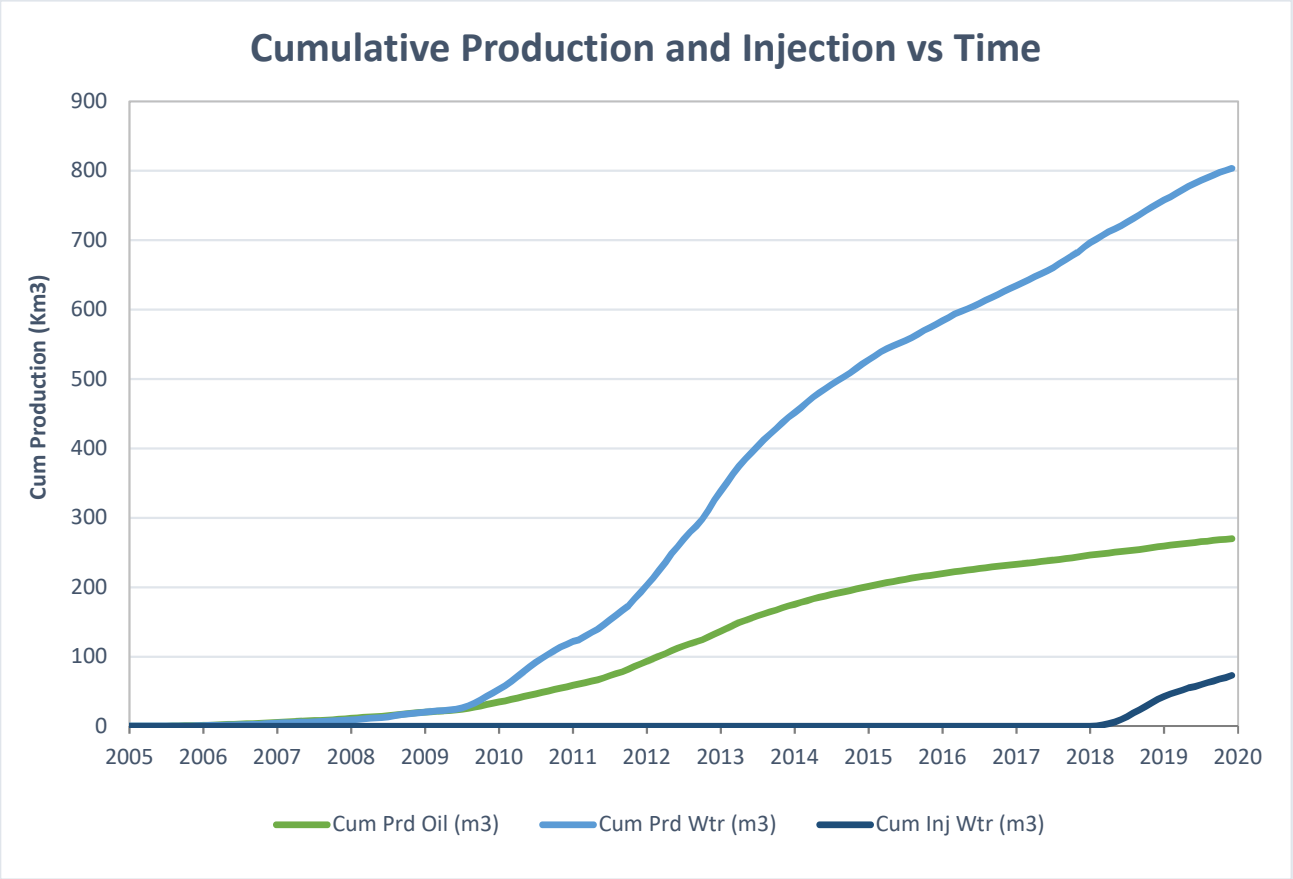
a) Monthly oil and water production rates, injection rate, GOR and WOR

MONTH	Cal Dly Oil m^3/day	Cal Dly Wtr m^3/day	Cal Inj Wtr m^3/day	WOR m^3/m^3	GOR m^3/m^3
Jan-2019	38.23	159.55	137.09	4.17	0.00
Feb-2019	39.66	166.79	129.00	4.21	0.00
Mar-2019	37.38	165.65	84.10	4.43	0.26
Apr-2019	32.51	169.92	100.21	5.23	0.00
May-2019	32.70	164.47	97.45	5.03	0.00
Jun-2019	31.32	149.10	65.08	4.76	0.00
Jul-2019	30.98	129.76	93.90	4.19	0.00
Aug-2019	29.25	121.50	85.21	4.15	0.00
Sep-2019	31.83	126.86	78.91	3.99	1.36
Oct-2019	31.49	130.65	80.84	4.15	0.00
Nov-2019	26.83	95.03	82.00	3.54	0.00
Dec-2019	25.87	91.45	103.04	3.53	0.00

b) Cumulative volume of oil, gas and water produced and fluid injected

2019 PRODUCTION	
Produced Oil (m^3)	11,788
Produced Gas (m^3)	2
Produced Water (m^3)	50,751
Fluid Injected (m^3)	34,528
CUMULATIVE PRODUCTION	
Produced Oil (m^3)	270,062
Produced Water (m^3)	803,432

Ebor Unit No. 3



c) Monthly wellhead injection pressure for each injection well

MONTH	02/12-07 Inj		00/09-29 Inj		02/05-29 Inj		00/13-07 Inj		00/05-07 Inj		02/04-07 Inj	
	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)
Jan-2019	748.2	3587	952.3	3255	665.7	3391	792.0	2877	1091.5	3572	0.0	0
Feb-2019	670.3	4045	865.5	3594	501.4	3479	574.3	2609	1000.6	4020	0.0	0
Mar-2019	427.8	3669	780.3	3949	452.0	3290	474.2	2585	472.8	3094	0.0	0
Apr-2019	579.7	4101	654.9	3858	413.7	3447	666.4	2925	691.5	3198	0.0	0
May-2019	560.6	4222	549.4	3738	364.4	3372	726.5	3294	820.2	3609	0.0	0
Jun-2019	360.0	4007	308.0	3046	289.8	3432	468.5	3075	526.0	3418	0.0	0
Jul-2019	522.4	4480	362.8	3967	368.3	3493	753.5	3835	903.9	4187	0.0	0
Aug-2019	432.0	4478	320.3	4039	394.0	3820	634.2	3966	801.6	4358	59.3	3
Sep-2019	385.2	4467	282.5	3966	324.5	3989	536.0	3969	704.8	4447	134.2	9
Oct-2019	391.5	4457	267.8	3980	347.7	3951	556.2	3967	721.7	4430	221.0	-47
Nov-2019	360.9	4476	330.3	4070	313.9	4062	509.9	3977	635.1	4460	298.3	-94
Dec-2019	361.9	4475	614.0	4459	382.0	4478	509.7	3980	621.4	4473	305.8	-94
Total	5800.4		6288.1		4817.4		7201.4		8991.1		1018.6	
Avg Inj P		4205		3827		3684		3422		3939		-19

MONTH	02/01-32 Inj		03/08-32 Inj		00/04-18 Inj		EBOR3	
	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)	Inj Water (m^3)	Avg Inj P (kPa)
Jan-2019	0.0	0	0.0	0	0.0	0	4249.7	3336
Feb-2019	0.0	0	0.0	0	0.0	0	3612.1	3549
Mar-2019	0.0	0	0.0	0	0.0	0	2607.1	3317
Apr-2019	0.0	0	0.0	0	0.0	0	3006.2	3506
May-2019	0.0	0	0.0	0	0.0	0	3021.1	3647
Jun-2019	0.0	0	0.0	0	0.0	0	1952.3	3396
Jul-2019	0.0	0	0.0	0	0.0	0	2910.9	3992
Aug-2019	0.0	0	0.0	0	0.0	0	2641.4	3790
Sep-2019	0.0	0	0.0	0	0.0	0	2367.2	3474
Oct-2019	0.0	0	0.0	0	0.0	0	2505.9	3456
Nov-2019	0.0	0	0.0	0	11.7	-66	2460.1	3396
Dec-2019	51.1	33	57.4	12	291.0	-95	3194.3	2638
Total	51.1		57.4		302.7		34528.2	
Avg Inj P		3		1		-13		3458

MONTH	**Jan-2019**	**Feb-2019**	**Mar-2019**	**Apr-2019**	**May-2019**	**Jun-2019**	**Jul-2019**	**Aug-2019**	**Sep-2019**	**Oct-2019**	**Nov-2019**	**Dec-2019**
Total m3	4249.7	3612.1	2607.1	3006.2	3021.1	1952.3	2910.9	2641.4	2367.2	2505.9	2460.1	3194.3
Daily (m^3/d)	137.09	129.00	84.10	100.21	97.45	65.08	93.90	85.20	78.91	80.84	82.00	103.04

c) Monthly wellhead injection pressure for each injection well

2019 AVG. ANNUAL DAILY INJECTION =	94.73 m3/d
CUMULATIVE INJECTION TO Dec 31, 2018 =	38,560 m3
TOTAL 2019 ANNUAL INJECTION =	34,528 m3
CUMULATIVE INJECTION TO Dec 31, 2019 =	73,088 m3

d) Reservoir Pressure Surveys

Where practicial, Tundra is committed to collecting pressure data from newly drilled wells. For Ebor Unit No. 3, pressures are available for the wells listed below, corrected to a common datum of -450 m SS, for comparison with other Bakken units in the area.

UWI	Date	Depth (mTVD)	Pressure (kPaa)	Temp (°C)
100/02-06-009-29W1/0 VT	Aug 5 - Oct 3, 2012	968.8	2896	29.9
100/08-06-009-29W1/0 VT	July 13 - Nov 16, 2014	961.0	2104	29.6
103/08-32-008-29W1/0 HZ	July 25 - Sept 11, 2018	976.5	3091	29.7
103/09-32-008-29W1/0 HZ	July 21 - Sept 18, 2018	971.8	2908	29.7

e) Date and type of any well servicing.

Well	Service Description	Date
100.05-29-008-29W1.00	Pump Change / Tbg inspection	8/19/2019
100.12-30-008-29W1.00	Rigless Acid	8/7/2019
100.14-31-008-29W1.00	Scale Squeeze with H2O flush	6/19/2019
102.05-18-009-29W1.00	Polish Rod Repair/Pump Change	9/26/2019
103.16-08-009-29W1.00	Pump Change	10/21/2019
104.01-08-009-29W1.00	Pump Change	3/6/2019

f) Calculations of voidage replacement ratio on a monthly and cumulative basis

VOIDAGE CALCULATIONS

OIL FORMATION VOLUME FACTOR (Rm3/Sm3) = 1.071

MONTH	Mth Oil Prod (m3)	Cum Oil Prod (Km3)	Mth Water Prod (m3)	Cum Water Prod (Km3)	Mth Water Inj (m3)	Cum Water Inj (Km3)	VRR	Cum VRR
Jan-2019	1185.1	259.46	4945.9	757.63	4249.7	42.81	0.684	0.041
Feb-2019	1110.6	260.57	4670.1	762.30	3612.1	46.42	0.616	0.045
Mar-2019	1158.7	261.73	5135.2	767.43	2607.1	49.03	0.409	0.047
Apr-2019	975.2	262.70	5097.5	772.53	3006.2	52.03	0.489	0.049
May-2019	1013.8	263.72	5098.6	777.63	3021.1	55.06	0.489	0.052
Jun-2019	939.7	264.66	4473.1	782.10	1952.3	57.01	0.356	0.054
Jul-2019	960.5	265.62	4022.6	786.12	2910.9	59.92	0.576	0.056
Aug-2019	906.7	266.52	3766.6	789.89	2641.4	62.56	0.558	0.058
Sep-2019	954.8	267.48	3805.7	793.70	2367.2	64.93	0.490	0.060
Oct-2019	976.1	268.46	4050.1	797.75	2505.9	67.43	0.492	0.062
Nov-2019	804.9	269.26	2850.9	800.60	2460.1	69.89	0.663	0.064
Dec-2019	802.0	270.06	2834.9	803.43	3194.3	73.09	0.865	0.067

g) An outline of the method used for quality control and treatment of the injected fluid

The injection water for Ebor Unit No. 3 comes from the Sinclair 3-4-8-29W1 Battery source and injection water system. All existing injection water is obtained from the Lodgepole formation in the 102/16-32-7-29W1 licensed water source well. Lodgepole water from the 102/16-32 source well is pumped to the main Sinclair Units Water Plant at 3-4-8-29W1, filtered, and pumped up to injection system pressure.

h) A report of any unusual performance problems and remedial measures taken or being considered. N/A

i) Any other information necessary to evaluate the project

j) Well List

Ebor Unit No. 3 Well List

UWI	*Type*	*Status*	*Future Plans*
100/01-29-008-29W1/0	Vertical	Producing	-
100/04-29-008-29W1/0	Vertical	Producing	-
102/04-29-008-29W1/0	Horizontal	Producing	-
100/05-29-008-29W1/0	Horizontal	Producing	-
102/05-29-008-29W1/0	Horizontal	Injection	-
100/08-29-008-29W1/0	Vertical	Producing	-
100/09-29-008-29W1/0	Horizontal	Injection	-
100/11-29-008-29W1/0	Vertical	Producing	-
100/12-29-008-29W1/0	Vertical	Producing	-
100/13-29-008-29W1/0	Vertical	Abandoned Zone	-
100/14-29-008-29W1/0	Vertical	Abandoned Zone	-
100/16-29-008-29W1/0	Horizontal	Producing	-
100/04-30-008-29W1/0	Horizontal	Producing	-
100/05-30-008-29W1/0	Horizontal	Producing	-
100/12-30-008-29W1/0	Horizontal	Producing	-
100/13-30-008-29W1/0	Horizontal	Producing	-
100/04-31-008-29W1/0	Horizontal	Producing	-
100/05-31-008-29W1/0	Horizontal	Producing	-
100/06-31-008-29W1/0	Vertical	Abandoned	-
100/07-31-008-29W1/0	Vertical	Producing	-
100/10-31-008-29W1/0	Vertical	Producing	-
100/12-31-008-29W1/0	Horizontal	Producing	-
100/14-31-008-29W1/0	Vertical	Producing	-
100/15-31-008-29W1/0	Vertical	Producing	-
100/16-31-008-29W1/0	Vertical	Producing	-
100/01-32-008-29W1/0	Horizontal	Producing	-
102/01-32-008-29W1/0	Horizontal	Injection	-
100/08-32-008-29W1/0	Horizontal	Producing	-
103/08-32-008-29W1/0	Horizontal	Injection	-
100/09-32-008-29W1/0	Horizontal	Producing	-
103/09-32-008-29W1/0	Horizontal	Producing	-
100/16-32-008-29W1/0	Horizontal	Producing	-
100/01-05-009-29W1/0	Horizontal	Producing	-
100/04-05-009-29W1/0	Vertical	Producing	-
100/08-05-009-29W1/0	Horizontal	Producing	-
100/09-05-009-29W1/0	Vertical	Producing	-
102/09-05-009-29W1/0	Horizontal	Producing	-
100/12-05-009-29W1/2	Vertical	Abandoned	-
100/16-05-009-29W1/0	Horizontal	Producing	-
100/01-06-009-29W1/0	Vertical	Producing	-
100/02-06-009-29W1/0	Vertical	Abandoned Zone	-
100/04-06-009-29W1/2	Vertical	Abandoned Zone	-
102/04-06-009-29W1/0	Horizontal	Producing	-
100/05-06-009-29W1/2	Vertical	Abandoned Zone	-
100/07-06-009-29W1/2	Vertical	Abandoned Zone	-

j) Well List

Ebor Unit No. 3 Well List

UWI	*Type*	*Status*	*Future Plans*
100/08-06-009-29W1/0	Vertical	Abandoned Zone	-
100/12-06-009-29W1/0	Horizontal	Producing	-
100/13-06-009-29W1/0	Horizontal	Producing	-
100/04-07-009-29W1/0	Vertical	Abandoned Zone	-
102/04-07-009-29W1/0	Horizontal	Injection	-
100/05-07-009-29W1/0	Horizontal	Injection	-
100/12-07-009-29W1/0	Vertical	Suspended	-
102/12-07-009-29W1/0	Horizontal	Injection	-
100/13-07-009-29W1/0	Horizontal	Injection	-
102/01-08-009-29W1/0	Horizontal	Producing	-
100/08-08-009-29W1/0	Horizontal	Producing	-
100/09-08-009-29W1/0	Horizontal	Producing	-
100/16-08-009-29W1/0	Horizontal	Producing	-
100/04-18-009-29W1/0	Horizontal	Injection	-
100/05-18-009-29W1/2	Horizontal	Producing	-
100/12-18-009-29W1/0	Horizontal	Producing	-
100/13-18-009-29W1/0	Horizontal	Producing	-