Ewart Unit No. 9

Waterflood Progress Report 2019

January 1st through December 31st 2019

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:

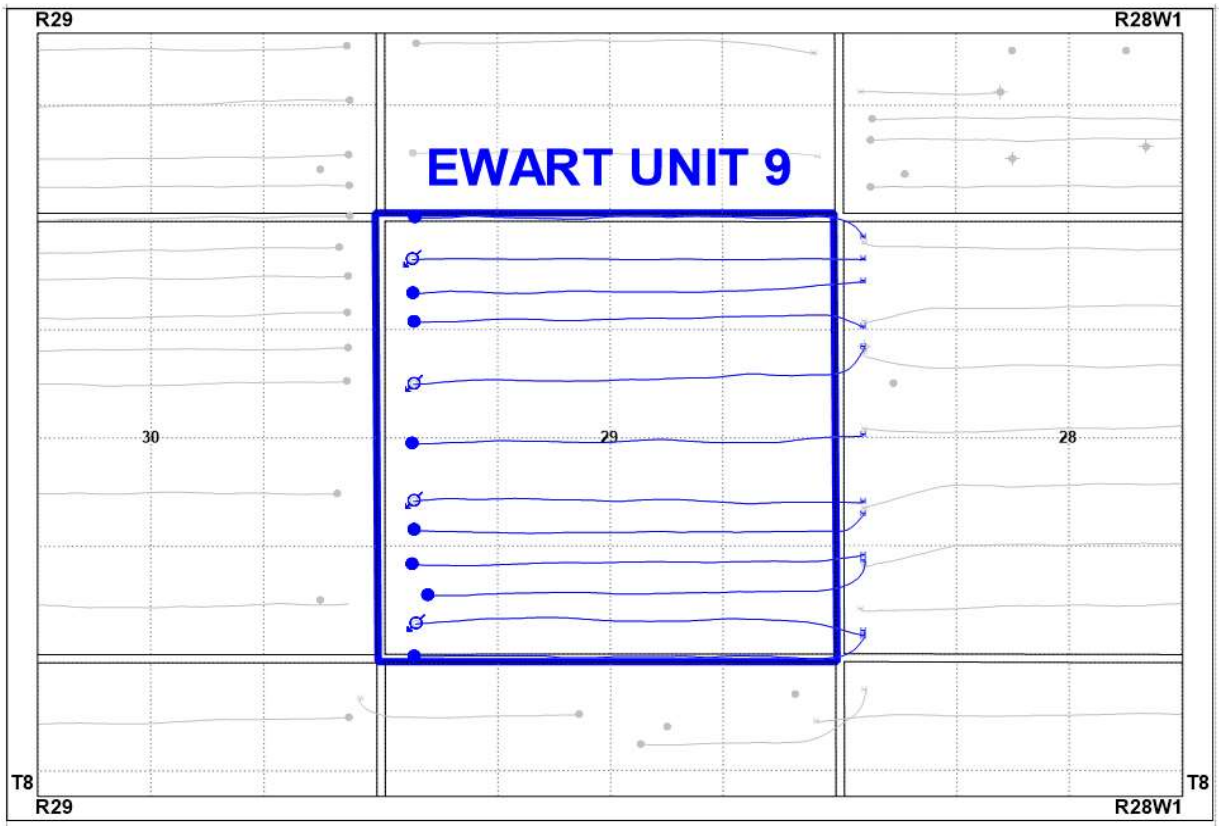
Tundra Oil and Gas

May 27, 2020

INTRODUCTION

Ewart Unit No. 9 Enhanced Oil Recovery (EOR) Waterflood Project was approved effective September 1st, 2015 with Tundra Oil and Gas as Operator. The EOR project area, outlined in blue in Figure 1, contains 8 horizontal producing wells and 4 horizontal injectors in 16 LSDs in Township 8, Range 28W1.

Figure 1: Ewart Unit No. 9 Area Outline



Ewart Unit No. 9

Tundra Oil and Gas (Tundra), as the operator of the Ewart Unit No. 9 Enhanced Oil Recovery (EOR) project hereby submits the 2019 EOR report as per section 73 of the Drilling and Production Regulations.

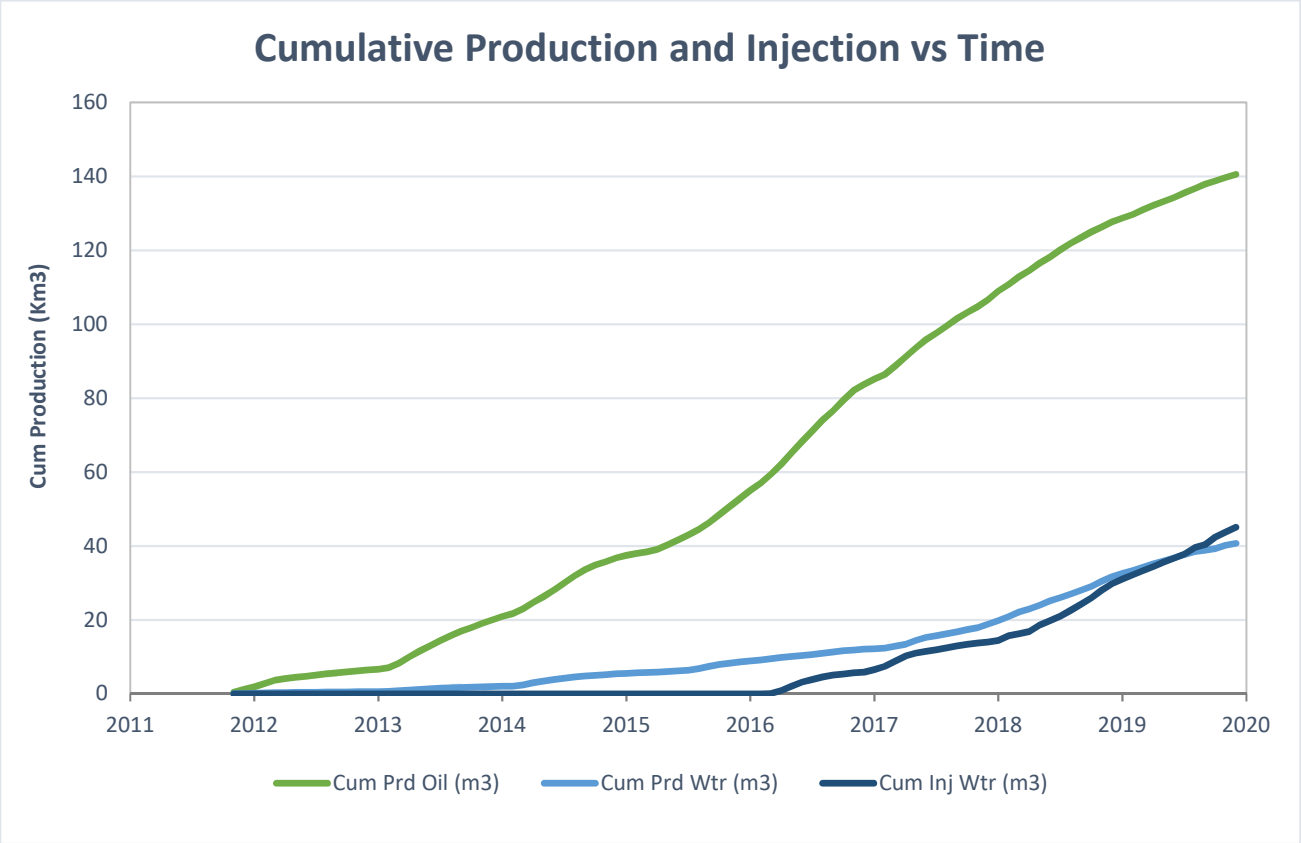
a) Monthly oil and water production rates, injection rate, GOR and WOR

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	34.32	25.83	40.78	0.75	0
Feb-2019	35.08	28.00	40.24	0.80	0
Mar-2019	41.11	32.10	37.59	0.78	0
Apr-2019	38.80	29.29	38.24	0.75	0
May-2019	35.45	24.31	36.90	0.69	0
Jun-2019	34.29	28.48	34.78	0.83	0
Jul-2019	40.12	27.87	38.26	0.69	0
Aug-2019	36.35	24.63	54.52	0.68	0
Sep-2019	41.23	14.80	25.25	0.36	0
Oct-2019	29.30	13.86	67.86	0.47	0
Nov-2019	29.99	30.60	45.80	1.02	0
Dec-2019	26.89	16.69	41.12	0.62	0

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

2019 PRODUCTION	
Produced Oil (m^3)	12,861
Produced Gas (m^3)	0
Produced Water (m^3)	9,003
Fluid Injected (m^3)	15,277
CUMULATIVE PRODUCTION	
Produced Oil (m^3)	140,545
Produced Water (m^3)	40,717

Ewart Unit No. 9



c) Monthly wellhead injection pressure for each injection well

MONTH	03/04-29 Inj		02/13-29 Inj		04/12-29 Inj		03/05-29 Inj		EU9	
	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	648.2	-94	615.9	-95	0.0	3915	0.0	-83	1264.0	911
Feb-2019	574.9	-94	551.8	-95	0.0	2590	0.0	-27	1126.7	593
Mar-2019	579.9	-94	585.4	-93	0.0	1698	0.0	-7	1165.3	376
Apr-2019	576.7	-94	570.6	-94	0.0	973	0.0	1	1147.3	196
May-2019	572.4	126	571.4	-93	0.0	386	0.0	47	1143.7	116
Jun-2019	522.4	-94	521.1	-94	0.0	-44	0.0	119	1043.5	-28
Jul-2019	592.2	-94	593.9	-93	0.0	-95	0.0	219	1186.2	-16
Aug-2019	291.8	-49	680.2	-93	0.0	-95	718.2	427	1690.1	48
Sep-2019	0.0	77	757.4	-93	0.0	-96	0.0	-57	757.4	-42
Oct-2019	946.6	375	1045.1	-93	112.0	260	0.0	-16	2103.7	131
Nov-2019	0.0	33	1018.5	-94	355.6	6227	0.0	-12	1374.1	1539
Dec-2019	0.0	144	1016.4	-91	258.2	6583	0.0	2	1274.6	1660
Total	5305.0		8527.6		725.8		718.2		15276.6	
Avg Inj P		12		-93		1858		51		457

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	1264.0	1126.7	1165.3	1147.3	1143.7	1043.5	1186.2	1690.1	757.4	2103.7	1374.1	1274.6
Daily (m^3/d)	40.77	40.24	37.59	38.24	36.89	34.78	38.26	54.52	25.25	67.86	45.80	41.12

2019 AVG. ANNUAL DAILY INJECTION =	41.78 m3/d
CUMULATIVE INJECTION TO Dec 31, 2018 =	29,790 m3
TOTAL 2019 ANNUAL INJECTION =	15,277 m3
CUMULATIVE INJECTION TO Dec 31, 2019 =	45,067 m3

d) Summary of the result of any survey of reservoir pressure conducted in 2019. N/A

e) Date and type of any well servicing.

Well	Service Description	Date

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

VOIDAGE CALCULATIONS

OIL FORMATION VOLUME FACTOR (Rm3/Sm3) = 1.05

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	1063.9	128.75	800.6	32.51	1264.1	31.05	0.659	0.185
Feb-2019	982.3	129.73	783.9	33.30	1126.7	32.18	0.621	0.190
Mar-2019	1274.4	131.00	995	34.29	1165.3	33.35	0.499	0.194
Apr-2019	1163.9	132.17	878.7	35.17	1147.3	34.49	0.546	0.198
May-2019	1098.9	133.27	753.6	35.93	1143.8	35.64	0.600	0.203
Jun-2019	1028.7	134.30	854.3	36.78	1043.5	36.68	0.539	0.206
Jul-2019	1243.7	135.54	863.9	37.64	1186.1	37.87	0.547	0.210
Aug-2019	1126.8	136.67	763.6	38.41	1690.2	39.56	0.868	0.217
Sep-2019	1236.8	137.90	443.9	38.85	757.4	40.31	0.435	0.220
Oct-2019	908.3	138.81	429.8	39.28	2103.7	42.42	1.521	0.229
Nov-2019	899.8	139.71	918	40.20	1374.1	43.79	0.738	0.234
Dec-2019	833.6	140.54	517.5	40.72	1274.6	45.07	0.915	0.239

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

The injection water for Ewart Unit No. 9 will be sourced from the 02/14-30-007-28W1 well (Mannville formation). The water is treated at the 04-01-008-29W1 filtration plant where it is filtered to 0.1 microns and has scale inhibitor and biocide added. The injection water is then distributed to the injectors through the dedicated infrastructure system.

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

Ewart Unit No. 9 Well List

UWI	*Type*	*Status*	*Future Plans*
103/04-29-008-28W1/0	Horizontal	Injection	-
104/04-29-008-28W1/0	Horizontal	Producing	-
105/04-29-008-28W1/0	Horizontal	Producing	-
106/04-29-008-28W1/0	Horizontal	Producing	-
103/05-29-008-28W1/0	Horizontal	Injection	-
104/05-29-008-28W1/0	Horizontal	Producing	-
105/05-29-008-28W1/0	Horizontal	Producing	-
104/12-29-008-28W1/2	Horizontal	Injection	-
102/13-29-008-28W1/0	Horizontal	Injection	-
103/13-29-008-28W1/0	Horizontal	Producing	-
104/13-29-008-28W1/0	Horizontal	Producing	-
105/13-29-008-28W1/0	Horizontal	Producing	-