Sinclair Unit No. 18

Waterflood Progress Report 2019

January 1st through December 31st 2019

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:

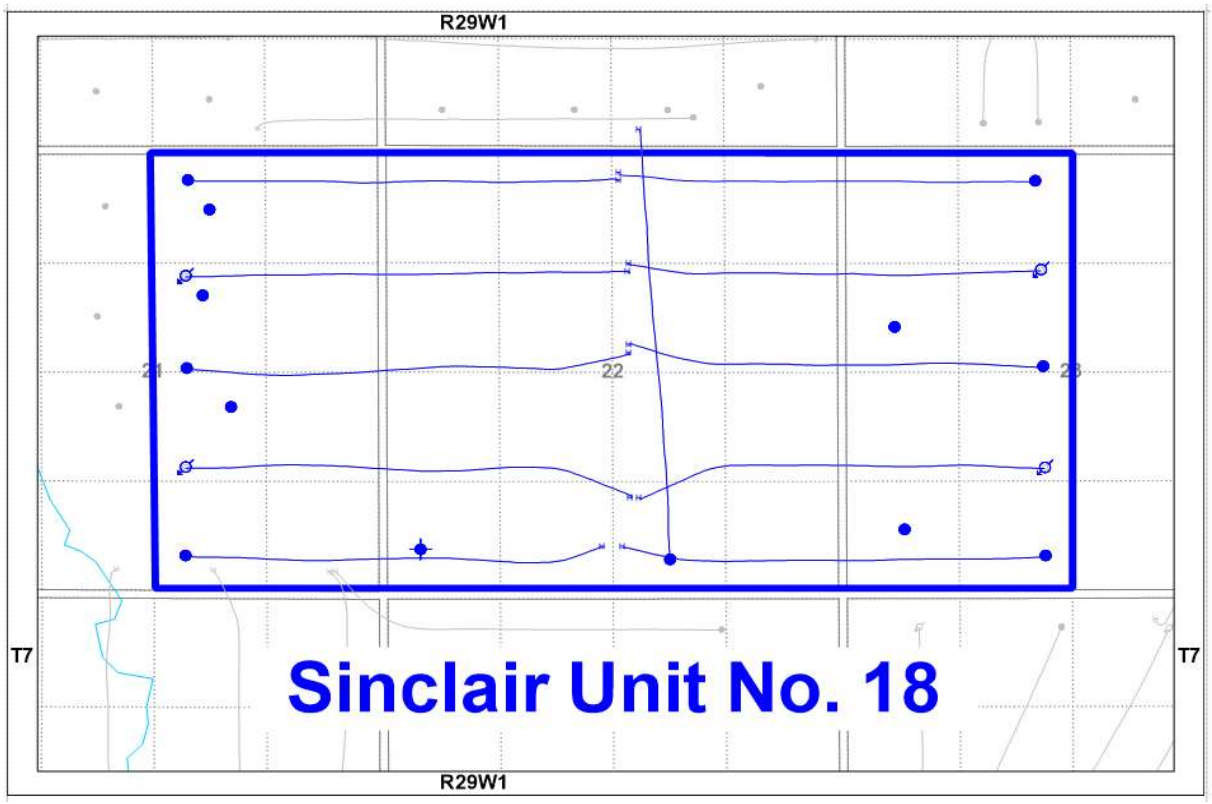
Tundra Oil and Gas

June 10, 2020

INTRODUCTION

Sinclair Unit No. 18 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 59 effective September 1, 2017 with Tundra Oil and Gas (Tundra) as Operator. The EOR project area contains 1 abandoned well, 12 producing wells and 4 horizontal injectors in 2 Sections in Township 7, Range 29 W1 as shown in the figure below.

Figure 1: Sinclair Unit No. 18 Area Outline



Sinclair Unit No. 18

Tundra Oil and Gas (Tundra), as the operator of the Sinclair Unit No.18 Enhanced Oil Recovery (EOR) project hereby submits the 2019 EOR report as per section 73 of the Drilling and Production Regulations.

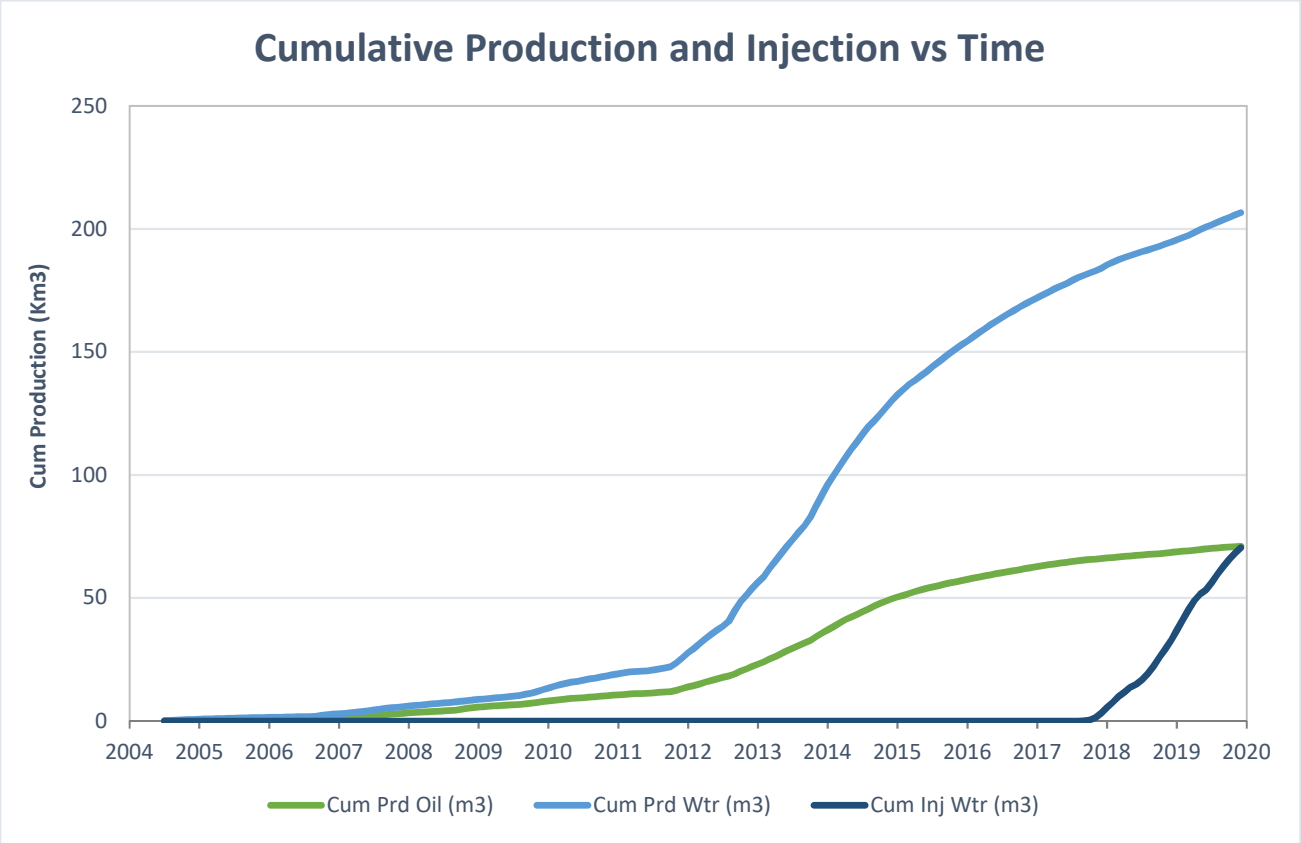
a) Monthly oil and water production rates, injection rate, GOR and WOR

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	7.58	30.37	134.71	4.01	0
Feb-2019	7.68	29.54	145.36	3.85	0
Mar-2019	7.49	30.71	142.52	4.10	0
Apr-2019	6.65	37.37	122.07	5.62	0
May-2019	7.93	38.95	81.97	4.91	0
Jun-2019	7.88	34.74	54.50	4.41	0
Jul-2019	8.27	30.76	99.84	3.72	0
Aug-2019	6.96	31.91	108.55	4.59	0
Sep-2019	6.41	32.71	107.27	5.10	0
Oct-2019	6.46	32.90	92.61	5.09	0
Nov-2019	4.75	31.91	82.43	6.72	0
Dec-2019	4.70	30.28	72.32	6.45	0

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

2019 PRODUCTION	
Produced Oil (m^3)	2,517
Produced Gas (m^3)	0
Produced Water (m^3)	11,932
Fluid Injected (m^3)	37,766
CUMULATIVE PRODUCTION	
Produced Oil (m^3)	71,029
Produced Water (m^3)	206,607

Sinclair Unit No. 18



c) Monthly wellhead injection pressure for each injection well

MONTH	00/11-23 Inj		00/06-23 Inj		02/07-21 Inj		02/10-21 Inj		SU18	
	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	693.0	3541	1097.0	6492	1228.0	291	1158.0	-95	4176.0	2557
Feb-2019	1082.0	5073	855.0	6562	1109.0	1493	1024.0	-95	4070.0	3258
Mar-2019	1224.0	5654	818.0	6559	1180.0	2536	1196.0	-91	4418.0	3664
Apr-2019	994.0	5802	652.0	6371	966.0	2756	1050.0	-94	3662.0	3709
May-2019	0.0	7648	552.0	6099	981.0	3000	1008.0	-85	2541.0	4165
Jun-2019	0.0	7648	363.0	5551	637.0	2477	635.0	-56	1635.0	3905
Jul-2019	420.0	3976	677.0	6286	876.0	3625	1122.0	863	3095.0	3688
Aug-2019	703.0	4732	624.0	6557	891.0	3903	1147.0	1861	3365.0	4263
Sep-2019	791.0	5891	544.0	6535	774.0	3883	1109.0	2697	3218.0	4752
Oct-2019	694.0	6146	514.0	6496	716.0	3937	947.0	2871	2871.0	4863
Nov-2019	601.0	6442	486.0	6554	638.0	3949	748.0	2941	2473.0	4971
Dec-2019	491.0	6467	481.0	6562	616.0	3970	654.0	2975	2242.0	4994
Total	7693.0		7663.0		10612.0		11798.0		37766.0	
Avg Inj P		5752		6385		2985		1141		4066

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	4176.0	4070.0	4418.0	3662.0	2541.0	1635.0	3095.0	3365.0	3218.0	2871.0	2473.0	2242.0
Daily (m^3/d)	134.71	145.36	142.52	122.07	81.97	54.50	99.84	108.55	107.27	92.61	82.43	72.32

2019 AVG. ANNUAL DAILY INJECTION =	103.68 m3/d
CUMULATIVE INJECTION TO Dec 31, 2018 =	32,708 m3
TOTAL 2019 ANNUAL INJECTION =	37,766 m3
CUMULATIVE INJECTION TO Dec 31, 2019 =	70,474 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
100.02-22-007-29W1.00	Packers Plus Drill out	3/21/2019

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	234.9	68.75	941.6	195.62	4176.0	36.88	3.500	0.137
Feb-2019	214.9	68.96	827.2	196.44	4070.0	40.95	3.849	0.152
Mar-2019	232.3	69.20	952	197.40	4418.0	45.37	3.679	0.167
Apr-2019	199.4	69.39	1121.1	198.52	3662.0	49.03	2.744	0.180
May-2019	245.8	69.64	1207.3	199.72	2541.0	51.58	1.728	0.188
Jun-2019	236.4	69.88	1042.2	200.77	1635.0	53.21	1.262	0.193
Jul-2019	256.5	70.13	953.5	201.72	3095.0	56.31	2.520	0.203
Aug-2019	215.7	70.35	989.2	202.71	3365.0	59.67	2.758	0.215
Sep-2019	192.4	70.54	981.2	203.69	3218.0	62.89	2.710	0.225
Oct-2019	200.2	70.74	1020	204.71	2871.0	65.76	2.326	0.234
Nov-2019	142.4	70.88	957.4	205.67	2473.0	68.23	2.228	0.242
Dec-2019	145.6	71.03	938.8	206.61	2242.0	70.47	2.048	0.249

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

The injection water for Sinclair Unit No. 18 is sourced from the 16-32-007-29W1 well (Lodgepole formation). The water is treated at the 03-04-008-29W1 battery where it is filtered to 0.5 microns and has scale inhibitor 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

Sinclair Unit No. 18 Well List

UWI	*Type*	*Status*	*Future Plans*
100/02-21-007-29W1/0	Horizontal	Producing	-
100/07-21-007-29W1/0	Vertical	Producing	-
102/07-21-007-29W1/0	Horizontal	Injection	-
100/10-21-007-29W1/0	Vertical	Producing	-
102/10-21-007-29W1/0	Horizontal	Injection	-
103/10-21-007-29W1/0	Horizontal	Producing	-
100/15-21-007-29W1/0	Vertical	Producing	-
102/15-21-007-29W1/0	Horizontal	Producing	-
100/02-22-007-29W1/0	Horizontal	Producing	-
100/04-22-007-29W1/0	Vertical	Abandoned Zone	-
100/03-23-007-29W1/0	Horizontal	Producing	-
100/04-23-007-29W1/0	Vertical	Producing	-
100/06-23-007-29W1/0	Horizontal	Injection	-
100/11-23-007-29W1/0	Horizontal	Injection	-
102/11-23-007-29W1/0	Horizontal	Producing	-
100/12-23-007-29W1/0	Vertical	Producing	-
100/14-23-007-29W1/0	Horizontal	Producing	-