Sinclair Unit No. 19

Waterflood Progress Report 2018

January 1st through December 31st 2018

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:

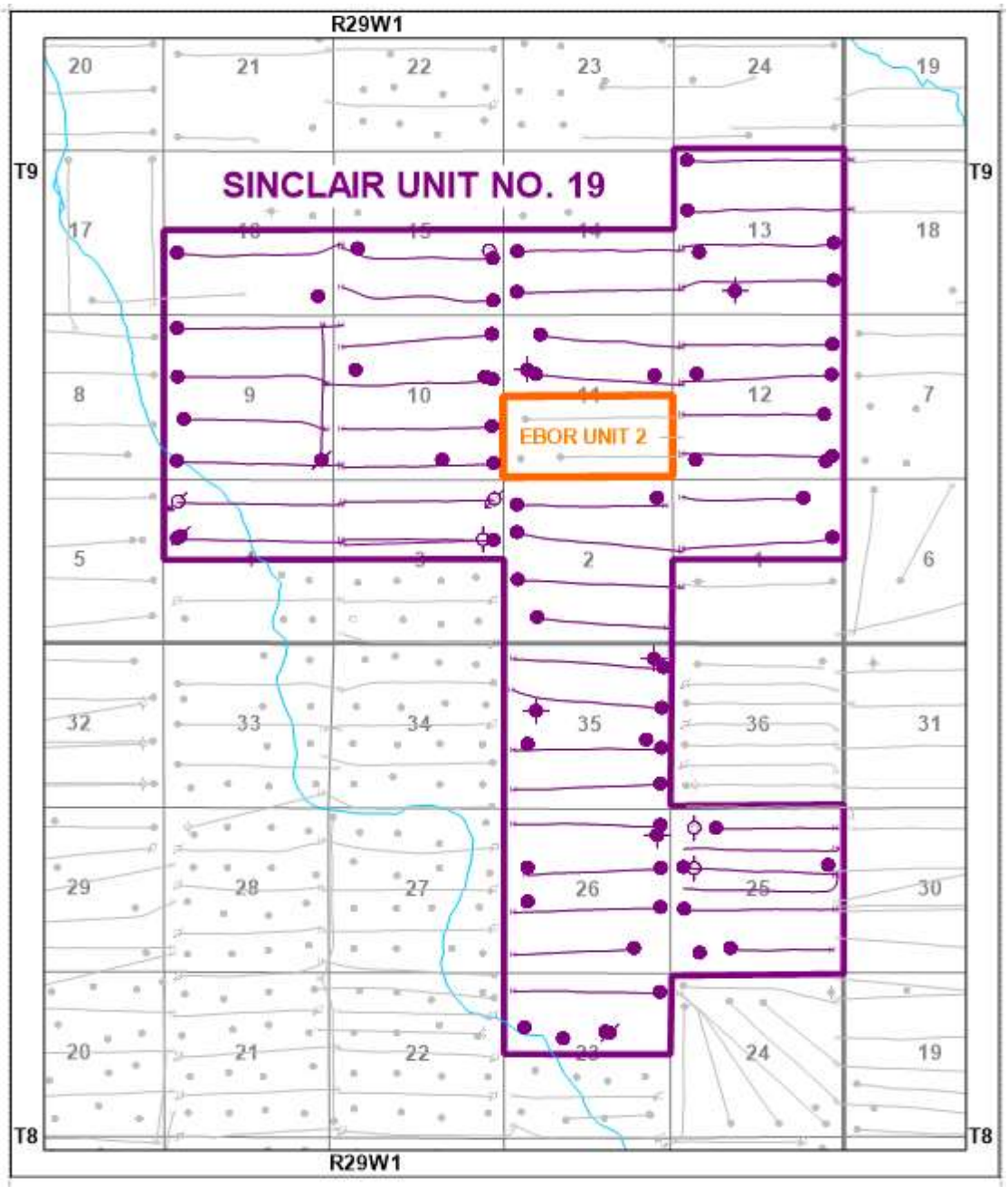
Tundra Oil and Gas

May 29, 2019

INTRODUCTION

Sinclair Unit No. 19 Enhanced Oil Recovery (EOR) Waterflood Project was approved on October 1, 2017 with Tundra Oil and Gas (Tundra) as Operator. The EOR Unit area, outlined in purple, contains 78 wells (8 abandoned/suspended wells, 21 producing vertical wells, 44 producing horizontal wells, 2 injection wells and 3 horizontal wells waiting to be completed) in 192 LSDs in Townships 8 & 9 Range 29 W1 as shown in the figure below.

Figure 1: Sinclair Unit No. 19 Area Outline



Sinclair Unit No. 19

Tundra Oil and Gas (Tundra), as the operator of the Sinclair Unit No. 19 Enhanced Oil Recovery (EOR) project hereby submits the 2018 EOR report as per section 73 of the Drilling and Production Regulations.

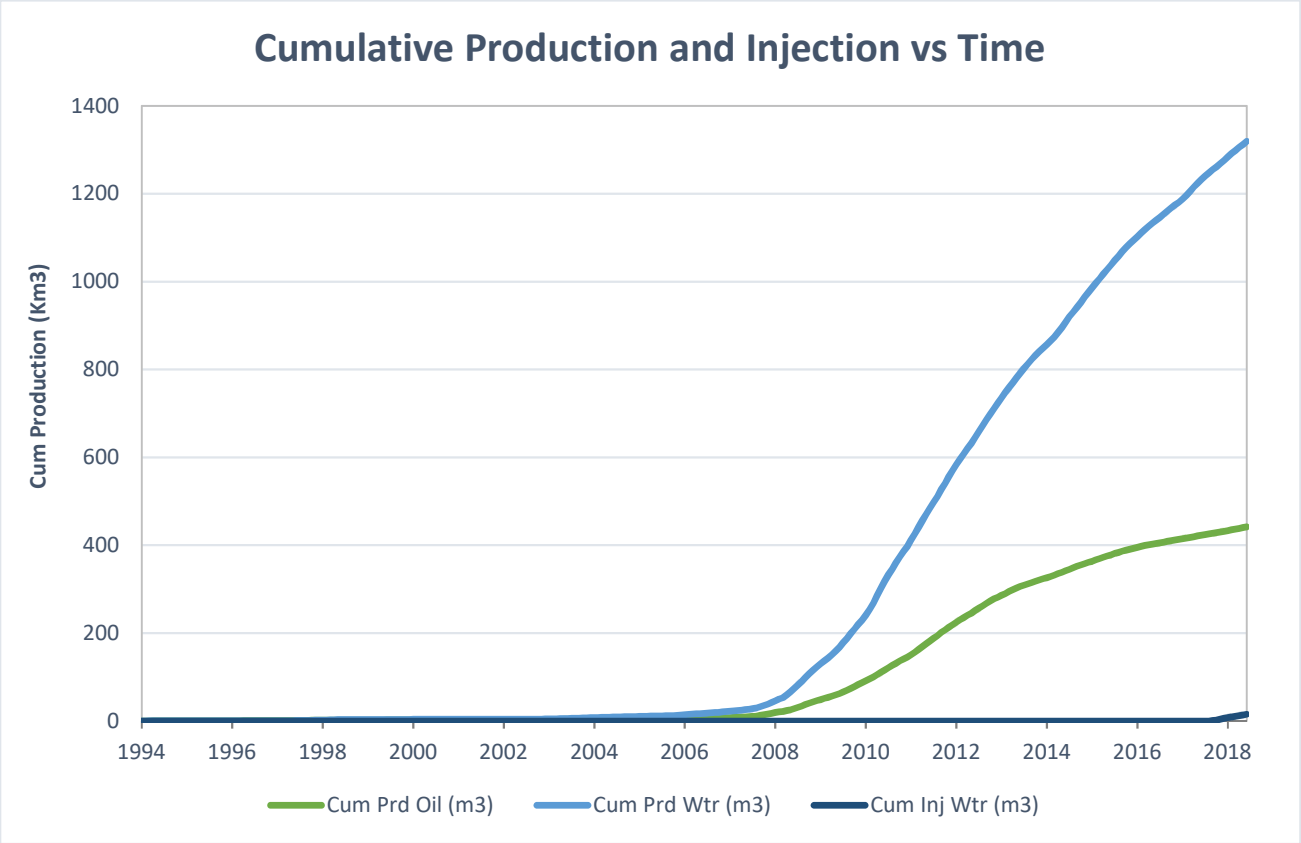
a) Monthly oil and water production rates, injection rate, GOR and WOR

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-2018	51.98	259.26	0.00	4.99	0
Feb-2018	47.04	241.94	0.00	5.14	0
Mar-2018	48.97	229.75	27.24	4.69	0
Apr-2018	47.21	230.36	44.53	4.88	0
May-2018	46.70	234.85	70.10	5.03	0
Jun-2018	51.46	233.45	58.89	4.54	0
Jul-2018	53.83	260.76	56.42	4.84	0
Aug-2018	58.45	256.97	41.61	4.40	0
Sep-2018	59.23	234.71	56.24	3.96	0
Oct-2018	57.31	228.12	50.64	3.98	0
Nov-2018	56.14	219.76	48.58	3.91	0
Dec-2018	54.94	229.41	42.32	4.18	0

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

2018 PRODUCTION	
Produced Oil (m^3)	19,276
Produced Gas (m^3)	0
Produced Water (m^3)	86,995
Fluid Injected (m^3)	15,185
CUMULATIVE PRODUCTION	
Produced Oil (m^3)	441,845
Produced Water (m^3)	1,319,454

Sinclair Unit No. 19



c) Monthly wellhead injection pressure for each injection well

MONTH	00/16-03 Inj		00/13-04 Inj		SU19	
	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-2018	0.0	0	0.0	0	0.0	0
Feb-2018	0.0	0	0.0	0	0.0	0
Mar-2018	427.3	-64	417.0	-65	844.3	-65
Apr-2018	855.4	-71	480.4	-92	1335.8	-81
May-2018	1143.6	1935	1029.4	533	2173.0	1234
Jun-2018	795.6	2759	971.2	2073	1766.8	2416
Jul-2018	742.0	2968	1006.9	2939	1748.9	2954
Aug-2018	595.5	2998	694.4	3000	1289.9	2999
Sep-2018	960.4	4382	726.7	3666	1687.1	4024
Oct-2018	465.6	3695	1104.2	4652	1569.8	4174
Nov-2018	528.6	3207	928.7	4975	1457.3	4091
Dec-2018	395.0	3296	916.9	5332	1311.9	4314
Total	6909.0		8275.8		15184.8	
Avg Inj P		2092		2251		2172

MONTH	Jan-2018	Feb-2018	Mar-2018	Apr-2018	May-2018	Jun-2018	Jul-2018	Aug-2018	Sep-2018	Oct-2018	Nov-2018	Dec-2018
Total m3	0.0	0.0	844.3	1335.8	2173.0	1766.8	1748.9	1289.9	1687.1	1569.8	1457.3	1311.9
Daily (m^3/d)	0.00	0.00	27.24	44.53	70.10	58.89	56.42	41.61	56.24	50.64	48.58	42.32

2018 AVG. ANNUAL DAILY INJECTION =	41.38 m3/d
CUMULATIVE INJECTION TO Dec 31, 2017 =	0 m3
TOTAL 2018 ANNUAL INJECTION =	15,185 m3
CUMULATIVE INJECTION TO Dec 31, 2018 =	15,185 m3

d) Summary of the result of any survey of reservoir pressure conducted in 2018. N/A

e) Date and type of any well servicing.

Well	Service Description	Date
100.12-25-008-29W1.00	Pump Change	12/9/2018
100.13-25-008-29W1.00	Packers Plus Drill out	7/9/2018
102.08-35-008-29W1.00	Cemented Liner Clean Out	6/29/2018
100.01-15-009-29W1.00	Pump Change	1/25/2018
100.05-13-009-29W1.00	C-Suspension Tool Install	7/27/2018
100.05-14-009-29W1.00	Cleanout	11/15/2018
100.08-15-009-29W1.00	Pump Change/Polish Rod Repair	10/11/2018
100.09-03-009-29W1.00	Pump Change	2/23/2018
100.12-15-009-29W1.00	Ratigan Install	10/2/2018
100.13-04-009-29W1.00	clean horizontal and convert to WIW	1/26/2018
100.13-13-009-29W1.00	Cemented Liner Clean Out	12/5/2018
100.16-03-009-29W1.00	Packer Repair	10/18/2018
100.16-03-009-29W1.00	WIW Conversion	1/27/2018
102.01-13-009-29W1.00	Cemented Liner Clean Out	7/12/2018
102.09-03-009-29W1.00	Pump Change	11/24/2018
102.13-09-009-29W1.00	Cleanout	6/17/2018

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-2018	1611.5	424.18	8037	1240.50	0.0	0.00	0.000	0.000
Feb-2018	1317.2	425.50	6774.2	1247.27	0.0	0.00	0.000	0.000
Mar-2018	1518.1	427.02	7122.4	1254.39	844.3	0.84	0.097	0.000
Apr-2018	1416.4	428.43	6910.8	1261.30	1335.8	2.18	0.158	0.001
May-2018	1447.7	429.88	7280.2	1268.58	2173.0	4.35	0.246	0.003
Jun-2018	1543.7	431.42	7003.4	1275.59	1766.8	6.12	0.204	0.004
Jul-2018	1668.8	433.09	8083.6	1283.67	1748.9	7.87	0.177	0.005
Aug-2018	1811.8	434.90	7966	1291.64	1289.9	9.16	0.130	0.005
Sep-2018	1776.8	436.68	7041.4	1298.68	1687.1	10.85	0.189	0.006
Oct-2018	1776.6	438.46	7071.6	1305.75	1569.8	12.42	0.175	0.007
Nov-2018	1684.3	440.14	6592.9	1312.34	1457.3	13.87	0.174	0.008
Dec-2018	1703.1	441.84	7111.6	1319.45	1311.9	15.18	0.147	0.008

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

The injection water for Sinclair Unit No. 19 is 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

Sinclair Unit No. 19 Well List

UWI	*Type*	*Status*	*Future Plans*
100/09-23-008-29W1/0	Vertical	Producing	-
100/10-23-008-29W1/0	Vertical	Suspended	-
100/11-23-008-29W1/0	Vertical	Producing	-
100/12-23-008-29W1/0	Vertical	Producing	-
100/16-23-008-29W1/0	Horizontal	Producing	-
100/03-25-008-29W1/0	Horizontal	Producing	-
100/04-25-008-29W1/0	Vertical	Producing	-
100/05-25-008-29W1/0	Horizontal	Producing	-
100/09-25-008-29W1/0	Vertical	Producing	-
100/12-25-008-29W1/0	Horizontal	Producing	-
102/12-25-008-29W1/0	Horizontal	Drilled & Cased	-
100/13-25-008-29W1/0	Horizontal	Producing	-
103/13-25-008-29W1/0	Horizontal	Drilled & Cased	-
100/01-26-008-29W1/0	Horizontal	Producing	-
100/05-26-008-29W1/0	Vertical	Producing	-
100/08-26-008-29W1/0	Horizontal	Producing	-
100/09-26-008-29W1/0	Horizontal	Producing	-
100/12-26-008-29W1/0	Vertical	Producing	-
100/16-26-008-29W1/0	Vertical	Abandoned Zone	-
102/16-26-008-29W1/0	Horizontal	Producing	-
100/01-35-008-29W1/0	Horizontal	Producing	-
100/05-35-008-29W1/0	Vertical	Producing	-
100/08-35-008-29W1/0	Vertical	Producing	-
102/08-35-008-29W1/0	Horizontal	Producing	-
100/09-35-008-29W1/0	Horizontal	Producing	-
100/12-35-008-29W1/0	Vertical	Abandoned Zone	-
100/16-35-008-29W1/3	Vertical	Abandoned Zone	-
102/16-35-008-29W1/0	Horizontal	Producing	-
100/09-01-009-29W1/0	Horizontal	Producing	-
100/16-01-009-29W1/0	Horizontal	Producing	-
100/04-02-009-29W1/0	Horizontal	Producing	-
100/05-02-009-29W1/0	Horizontal	Producing	-
100/12-02-009-29W1/0	Horizontal	Producing	-
100/13-02-009-29W1/0	Horizontal	Producing	-
100/16-02-009-29W1/0	Vertical	Producing	-
100/09-03-009-29W1/0	Horizontal	Producing	-
102/09-03-009-29W1/0	Horizontal	Drilled & Cased	-
100/16-03-009-29W1/0	Horizontal	Injection	-
100/12-04-009-29W1/0	Vertical	Suspended	-
102/12-04-009-29W1/0	Horizontal	Producing	-
100/13-04-009-29W1/0	Horizontal	Injection	-
100/01-09-009-29W1/0	Horizontal	Suspended	-
100/04-09-009-29W1/0	Horizontal	Producing	-
100/05-09-009-29W1/0	Horizontal	Producing	-
100/12-09-009-29W1/0	Horizontal	Producing	-

j) Well List

Sinclair Unit No. 19 Well List

UWI	*Type*	*Status*	*Future Plans*
102/13-09-009-29W1/0	Horizontal	Producing	-
100/01-10-009-29W1/0	Horizontal	Producing	-
100/02-10-009-29W1/0	Vertical	Producing	-
100/08-10-009-29W1/0	Horizontal	Producing	-
100/09-10-009-29W1/0	Vertical	Producing	-
102/09-10-009-29W1/0	Horizontal	Producing	-
100/12-10-009-29W1/0	Vertical	Producing	-
100/16-10-009-29W1/0	Horizontal	Producing	-
100/09-11-009-29W1/0	Vertical	Producing	-
100/12-11-009-29W1/0	Vertical	Abandoned Zone	-
102/12-11-009-29W1/0	Horizontal	Producing	-
100/13-11-009-29W1/0	Horizontal	Producing	-
100/01-12-009-29W1/0	Vertical	Producing	-
102/01-12-009-29W1/0	Horizontal	Producing	-
100/04-12-009-29W1/0	Vertical	Producing	-
100/08-12-009-29W1/0	Horizontal	Producing	-
100/09-12-009-29W1/0	Horizontal	Producing	-
100/12-12-009-29W1/0	Vertical	Producing	-
100/16-12-009-29W1/0	Horizontal	Producing	-
102/01-13-009-29W1/0	Horizontal	Producing	-
100/03-13-009-29W1/2	Vertical	Abandoned Zone	-
100/05-13-009-29W1/0	Vertical	Producing	-
100/08-13-009-29W1/0	Horizontal	Producing	-
100/12-13-009-29W1/0	Horizontal	Producing	-
100/13-13-009-29W1/0	Horizontal	Producing	-
100/04-14-009-29W1/0	Horizontal	Producing	WIW Conversion
100/05-14-009-29W1/0	Horizontal	Producing	-
100/01-15-009-29W1/0	Horizontal	Producing	-
100/05-15-009-29W1/2	Vertical	Pumping	-
100/08-15-009-29W1/2	Vertical	Potential	-
102/08-15-009-29W1/0	Horizontal	Producing	-
100/01-16-009-29W1/2	Vertical	Commingled	-
100/05-16-009-29W1/0	Horizontal	Producing	-