

SINCLAIR UNIT NO. 11

Waterflood Progress Report 2020

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:



TUNDRA OIL & GAS

Date: 2021-08-26

## Introduction

Sinclair Unit No. 11 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 47, effective August 1, 2015 with Tundra Oil and Gas (Tundra) as Operator. The Unit area contains wells in 60 LSDs in Township 7 Range 29 W1. The Unit contains 57 wells. 46 producers, 7 injectors, and 4 abandoned/suspended/other.

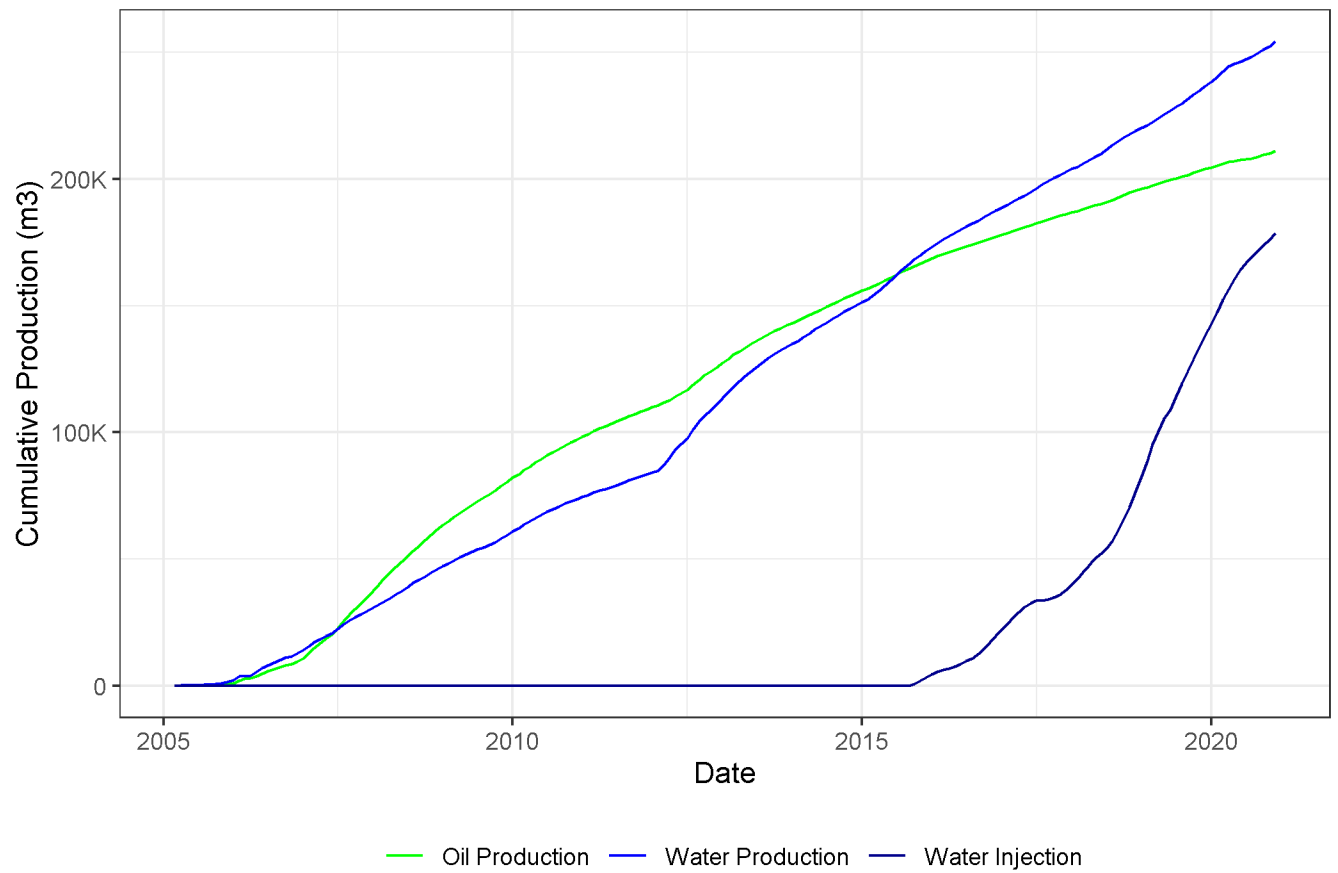
## Monthly oil and water production rates, injection rate, GOR and WOR

MONTH	Cal Day Oil m3/d	Cal Day Water m3/d	Cal Day Injection m3/d	WOR	GOR
JAN 2020	20.94	55.23	148.58	2.64	0.96
FEB 2020	19.98	57.27	156.07	2.87	0.50
MAR 2020	23.82	76.69	158.06	3.22	0.00
APR 2020	25.65	68.98	141.20	2.69	0.00
MAY 2020	15.66	32.11	127.61	2.05	0.00
JUN 2020	10.48	26.63	114.70	2.54	0.00
JUL 2020	9.91	28.06	92.48	2.83	0.00
AUG 2020	10.10	34.78	83.77	3.44	0.00
SEP 2020	19.91	47.90	76.93	2.41	0.00
OCT 2020	24.17	45.01	69.29	1.86	0.00
NOV 2020	23.84	42.50	67.77	1.78	0.00
DEC 2020	28.57	58.39	89.42	2.04	0.00
Average	19.42	47.80	110.49		

## Year summary of produced oil, gas, water and fluid injected

Categories	m3
Oil Production	7,105
Water Production	17,478
Gas Production	1
Water Injection	40,390
Cumulative Oil	211,058
Cumulative Water	254,209
Cumulative Injection	178,699

Cumulative Production and Injection



## Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
102.01-27-007-29W1.00	5,603	6,219	6,601	6,598	6,597	6,594	6,598	6,607	6,602	6,348	6,494	6,639	6,458
102.04-35-007-29W1.00	2,826	2,712	2,741	2,747	2,784	2,976	2,920	2,924	2,989	2,986	2,992	2,969	2,880
102.07-27-007-29W1.00	2,984	2,976	2,979	3,572	2,974	2,979	2,993	3,103	5,476	2,977	2,978	3,015	3,250
102.09-27-007-29W1.00	3,254	3,303	3,392	3,437	3,420	3,333	3,333	3,333	3,333	3,333	3,333	2,860	3,305
102.13-35-007-29W1.00	2,652	2,939	3,131	3,181	3,000	1,942	2,493	3,437	3,425	3,150	3,080	3,118	2,962
102.16-34-007-29W1.00	2,681	2,986	3,003	2,962	2,961	2,955	2,958	2,970	2,982	2,980	2,974	2,960	2,948
102.16-36-007-29W1.00	-93	217	1,101	1,327	1,524	2,546	2,736	2,974	2,979	2,969	2,947	3,030	2,021

## Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
102.01-27-007-29W1.00	597	858	938	747	615	511	449	376	301	214	196	455	6,257
102.04-35-007-29W1.00	503	446	497	479	484	468	461	463	439	441	415	474	5,570
102.07-27-007-29W1.00	749	661	667	547	531	508	503	475	443	437	406	505	6,432
102.09-27-007-29W1.00	885	821	864	611	579	327						190	4,277
102.13-35-007-29W1.00	227	244	309	290	212	249	212	203	183	156	149	151	2,585
102.16-34-007-29W1.00	607	460	399	379	391	313	291	277	256	254	237	270	4,134
102.16-36-007-29W1.00	1,038	1,036	1,226	1,183	1,144	1,065	951	803	686	646	630	727	11,135
Grand Total	4,606	4,526	4,900	4,236	3,956	3,441	2,867	2,597	2,308	2,148	2,033	2,772	40,390

## Voidage

All Volumes are in m3 Oil Formation Volume Factor (Rm3/Sm3) = 1.071								
MONTH	Oil	Water	Injection	Cumulative Oil	Cumulative Water	Cumulative Injection	VRR	Cumulative VRR
JAN 2020	649	1,711	4,606	204,595	238,442	142,915	1.914	0.312
FEB 2020	579	1,661	4,526	205,174	240,103	147,441	1.984	0.321
MAR 2020	737	2,377	4,900	205,911	242,480	152,341	1.548	0.329
APR 2020	770	2,070	4,236	206,681	244,550	156,577	1.463	0.336
MAY 2020	485	996	3,956	207,166	245,546	160,533	2.610	0.343
JUN 2020	315	798	3,441	207,481	246,344	163,974	3.031	0.350
JUL 2020	308	870	2,867	207,789	247,214	166,841	2.389	0.355
AUG 2020	313	1,078	2,597	208,102	248,292	169,438	1.838	0.360
SEP 2020	598	1,438	2,308	208,700	249,730	171,746	1.110	0.363
OCT 2020	749	1,396	2,148	209,449	251,126	173,894	0.977	0.366
NOV 2020	715	1,275	2,033	210,164	252,401	175,927	0.996	0.368
DEC 2020	887	1,809	2,772	211,051	254,210	178,699	1.005	0.372

## Workovers

UWI	Date	Description
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## Well List

UWI	Type	Status
100.11-26-007-29W1.00	Vertical	Abandoned Zone
100.12-26-007-29W1.00	Vertical	Producing
100.13-26-007-29W1.00	Vertical	Producing
100.14-26-007-29W1.00	Vertical	Suspended
100.01-27-007-29W1.00	Vertical	Producing
102.01-27-007-29W1.00	Horizontal	Injection
100.02-27-007-29W1.00	Vertical	Producing
102.02-27-007-29W1.00	Horizontal	Producing
100.03-27-007-29W1.00	Vertical	Producing
100.04-27-007-29W1.00	Vertical	Producing
100.05-27-007-29W1.00	Vertical	Producing
100.06-27-007-29W1.00	Vertical	Producing
100.07-27-007-29W1.00	Vertical	Producing
102.07-27-007-29W1.00	Horizontal	Injection
100.08-27-007-29W1.00	Vertical	Producing
100.09-27-007-29W1.00	Horizontal	Producing
102.09-27-007-29W1.00	Horizontal	Injection
100.13-27-007-29W1.00	Vertical	Producing
100.14-27-007-29W1.00	Vertical	Producing
100.15-27-007-29W1.00	Vertical	Producing
100.16-27-007-29W1.00	Vertical	Producing
100.01-34-007-29W1.00	Vertical	Producing
100.02-34-007-29W1.00	Vertical	Producing
100.04-34-007-29W1.00	Vertical	Producing
100.05-34-007-29W1.00	Vertical	Producing
100.06-34-007-29W1.00	Vertical	Producing
100.09-34-007-29W1.00	Vertical	Producing
100.11-34-007-29W1.00	Vertical	Producing
100.12-34-007-29W1.00	Vertical	Producing
100.13-34-007-29W1.00	Vertical	Producing
100.14-34-007-29W1.00	Vertical	Producing
100.16-34-007-29W1.00	Vertical	Producing
102.16-34-007-29W1.00	Horizontal	Injection
103.16-34-007-29W1.00	Horizontal	Producing
100.03-35-007-29W1.00	Vertical	Producing
102.03-35-007-29W1.00	Horizontal	Producing
100.04-35-007-29W1.00	Vertical	Producing
102.04-35-007-29W1.00	Horizontal	Injection
100.06-35-007-29W1.00	Horizontal	Producing
100.09-35-007-29W1.00	Vertical	Producing
100.10-35-007-29W1.00	Vertical	Producing
100.11-35-007-29W1.00	Vertical	Producing
100.12-35-007-29W1.00	Vertical	Producing

UWI	Type	Status
100.13-35-007-29W1.00	Vertical	Producing
102.13-35-007-29W1.00	Horizontal	Injection
100.14-35-007-29W1.00	Vertical	Producing
100.15-35-007-29W1.00	Vertical	Producing
100.16-35-007-29W1.00	Vertical	Producing
100.09-36-007-29W1.00	Vertical	Producing
100.10-36-007-29W1.00	Vertical	Producing
100.11-36-007-29W1.00	Vertical	Producing
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100.13-36-007-29W1.00	Vertical	Producing
100.14-36-007-29W1.00	Vertical	Producing
100.15-36-007-29W1.00	Vertical	Producing
100.16-36-007-29W1.00	Vertical	Producing
102.16-36-007-29W1.00	Horizontal	Injection