

BIRDTAIL UNIT NO. 1

Waterflood Progress Report 2020

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:



TUNDRA OIL & GAS

Date: 2021-08-26

## Introduction

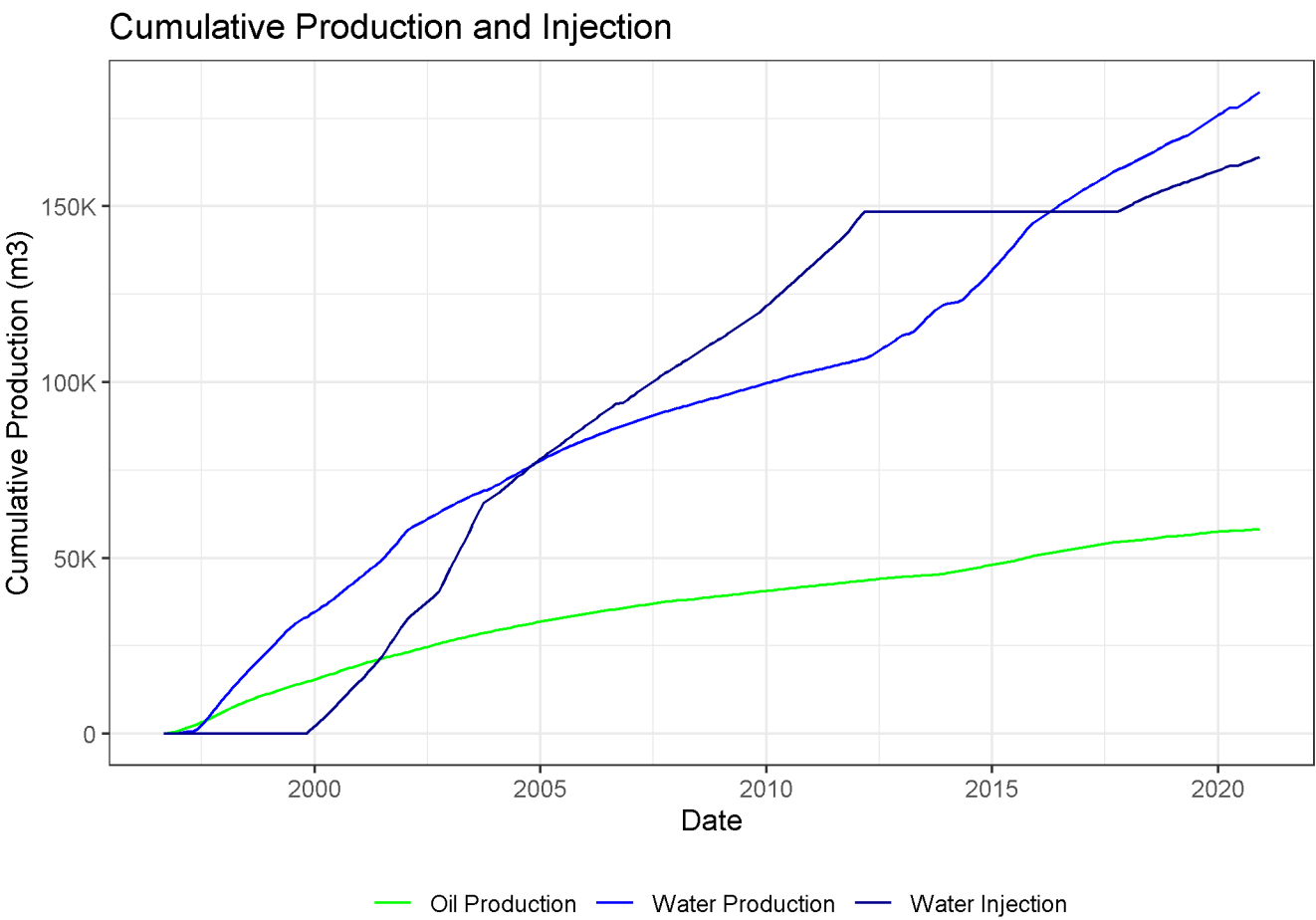
Birdtail Unit No. 1 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 7 effective August 1, 1999 with Progress Energy Production Partnership as Operator. Tundra acquired the unit from Progress Energy Production Partnership and became operator in October 2003. The EOR project area contains wells in 16 LSDs in Township 16, Range 27 W1. The Unit contains 13 wells. 6 producers, 1 injectors, and 6 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	1.80	21.77	13.10	12.09	0
FEB 2020	1.66	21.52	13.00	12.96	0
MAR 2020	2.04	21.87	12.94	10.72	0
APR 2020	2.10	20.49	12.87	9.76	0
MAY 2020	0.01	0.44	0.10	44.00	0
JUN 2020	0.17	2.48	0.00	14.59	0
JUL 2020	3.01	24.64	12.32	8.19	0
AUG 2020	2.44	24.65	16.35	10.10	0
SEP 2020	2.60	23.67	14.67	9.10	0
OCT 2020	4.11	27.59	13.87	6.71	0
NOV 2020	3.96	23.54	13.57	5.94	0
DEC 2020	3.36	21.05	13.48	6.26	0
Average	2.27	19.48	11.36		

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

Categories	m3
Oil Production	833
Water Production	7,132
Gas Production	0
Water Injection	4,157
Cumulative Oil	58,249
Cumulative Water	182,471
Cumulative Injection	164,029



## Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
102.12-05-016-27W1.00	3,983	3,977	3,979	3,972	2,353	2,345	3,115	3,932	3,982	3,956	3,889	3,981	3,622

## Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	MAY	JUL	AUG	SEP	OCT	NOV	DEC	Total
102.12-05-016-27W1.00	406	377	401	386	3	382	507	440	430	407	418	4,157
Grand Total	406	377	401	386	3	382	507	440	430	407	418	4,157

## 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	56	675	406	57,467	176,020	160,273	0.552	0.675
FEB 2020	48	624	377	57,515	176,644	160,650	0.558	0.674
MAR 2020	63	678	401	57,578	177,322	161,051	0.538	0.674
APR 2020	63	615	386	57,641	177,937	161,437	0.566	0.674
MAY 2020	0	14	3	57,641	177,951	161,440	0.214	0.674
JUN 2020	5	74	0	57,646	178,025	161,440	0.000	0.673
JUL 2020	93	764	382	57,739	178,789	161,822	0.442	0.673
AUG 2020	76	764	507	57,815	179,553	162,329	0.600	0.672
SEP 2020	78	710	440	57,893	180,263	162,769	0.554	0.672
OCT 2020	127	855	430	58,020	181,118	163,199	0.434	0.671
NOV 2020	119	706	407	58,139	181,824	163,606	0.488	0.670
DEC 2020	104	652	418	58,243	182,476	164,024	0.548	0.670

## Workovers

UWI	Date	Description
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## Well List

UWI	Type	Status
100.05-04-016-27W1.00	Vertical	Producing
100.12-04-016-27W1.00	Vertical	Pumping
100.13-04-016-27W1.00	Vertical	Abandoned
100.14-04-016-27W1.00	Vertical	Abandoned
100.07-05-016-27W1.00	Vertical	Abandoned
100.08-05-016-27W1.00	Vertical	Producing
100.09-05-016-27W1.00	Vertical	Pumping
100.12-05-016-27W1.00	Horizontal	Producing
102.12-05-016-27W1.00	Horizontal	Injection
100.13-05-016-27W1.00	Horizontal	Producing
100.15-05-016-27W1.00	Vertical	Producing
100.16-05-016-27W1.00	Vertical	Pumping
100.04-09-016-27W1.00	Vertical	Abandoned