

BIRDTAIL UNIT NO. 2

Waterflood Progress Report 2020

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:



TUNDRA OIL & GAS

Date: 2021-08-26

Introduction

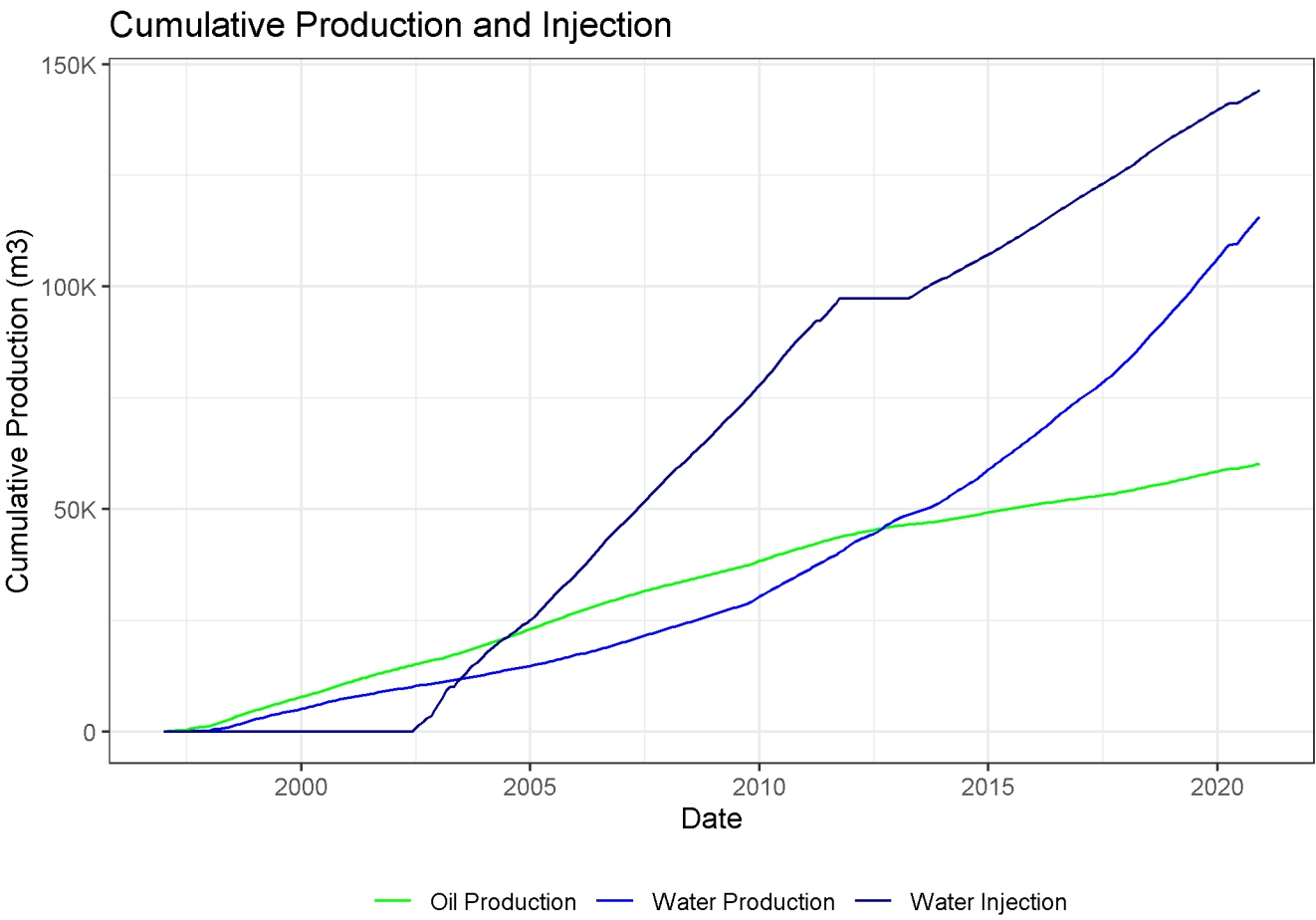
Birdtail Unit No. 2 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 8 effective December 1, 2000 with Progress Energy Production Partnership as Operator. Tundra acquired the unit from Progress Energy Production Partnership and became operator in October 2003. The EOR project area contains wells in 9 LSDs in Township 16, Range 27 W1. The Unit contains 15 wells. 8 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	6.61	36.42	16.26	5.51	0
FEB 2020	6.51	36.39	16.28	5.59	0
MAR 2020	5.99	34.05	16.19	5.68	0
APR 2020	5.61	31.25	16.10	5.57	0
MAY 2020	0.03	0.61	0.16	20.33	0
JUN 2020	0.39	3.86	0.00	9.90	0
JUL 2020	7.11	37.19	11.48	5.23	0
AUG 2020	6.15	36.71	19.29	5.97	0
SEP 2020	4.78	31.39	17.17	6.57	0
OCT 2020	6.03	34.44	16.35	5.71	0
NOV 2020	5.49	32.27	15.77	5.88	0
DEC 2020	5.03	28.88	15.52	5.74	0
Average	4.98	28.62	13.38		

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

Categories	m3
Oil Production	1,822
Water Production	10,475
Gas Production	0
Water Injection	4,896
Cumulative Oil	60,175
Cumulative Water	115,737
Cumulative Injection	144,152



Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
103.02-19-016-27W1.00	4,178	4,178	4,179	4,179	1,296	1,288	2,336	3,983	4,180	4,179	4,178	4,178	3,528

Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	MAY	JUL	AUG	SEP	OCT	NOV	DEC	Total
103.02-19-016-27W1.00	504	472	502	483	5	356	598	515	507	473	481	4,896
Grand Total	504	472	502	483	5	356	598	515	507	473	481	4,896

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	205	1,129	504	58,562	106,393	139,758	0.374	0.826
FEB 2020	189	1,055	472	58,751	107,448	140,230	0.375	0.823
MAR 2020	186	1,056	502	58,937	108,504	140,732	0.400	0.820
APR 2020	168	937	483	59,105	109,441	141,215	0.432	0.817
MAY 2020	1	19	5	59,106	109,460	141,220	0.249	0.817
JUN 2020	11	116	0	59,117	109,576	141,220	0.000	0.817
JUL 2020	221	1,153	356	59,338	110,729	141,576	0.256	0.812
AUG 2020	190	1,138	598	59,528	111,867	142,174	0.446	0.810
SEP 2020	144	941	515	59,672	112,808	142,689	0.470	0.807
OCT 2020	187	1,068	507	59,859	113,876	143,196	0.400	0.805
NOV 2020	165	968	473	60,024	114,844	143,669	0.413	0.802
DEC 2020	156	895	481	60,180	115,739	144,150	0.453	0.800

Workovers

UWI	Date	Description
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Well List

UWI	Type	Status
100.15-18-016-27W1.00	Vertical	Abandoned
102.15-18-016-27W1.00	Horizontal	Producing
103.15-18-016-27W1.00	Horizontal	Producing
100.16-18-016-27W1.00	Vertical	Producing
100.01-19-016-27W1.00	Vertical	Abandoned Zone
100.02-19-016-27W1.00	Vertical	Abandoned Zone
102.02-19-016-27W1.00	Vertical	Abandoned
103.02-19-016-27W1.00	Horizontal	Injection
100.07-19-016-27W1.00	Vertical	Producing
102.07-19-016-27W1.00	Horizontal	Producing
100.08-19-016-27W1.00	Vertical	Producing
100.03-20-016-27W1.00	Vertical	Abandoned Zone
102.03-20-016-27W1.00	Horizontal	Producing
100.04-20-016-27W1.00	Vertical	Abandoned
100.05-20-016-27W1.00	Vertical	Pumping