

WASKADA UNIT NO. 17 - PM 66

Waterflood Progress Report 2020

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:



TUNDRA OIL & GAS

Date: 2021-08-26

Introduction

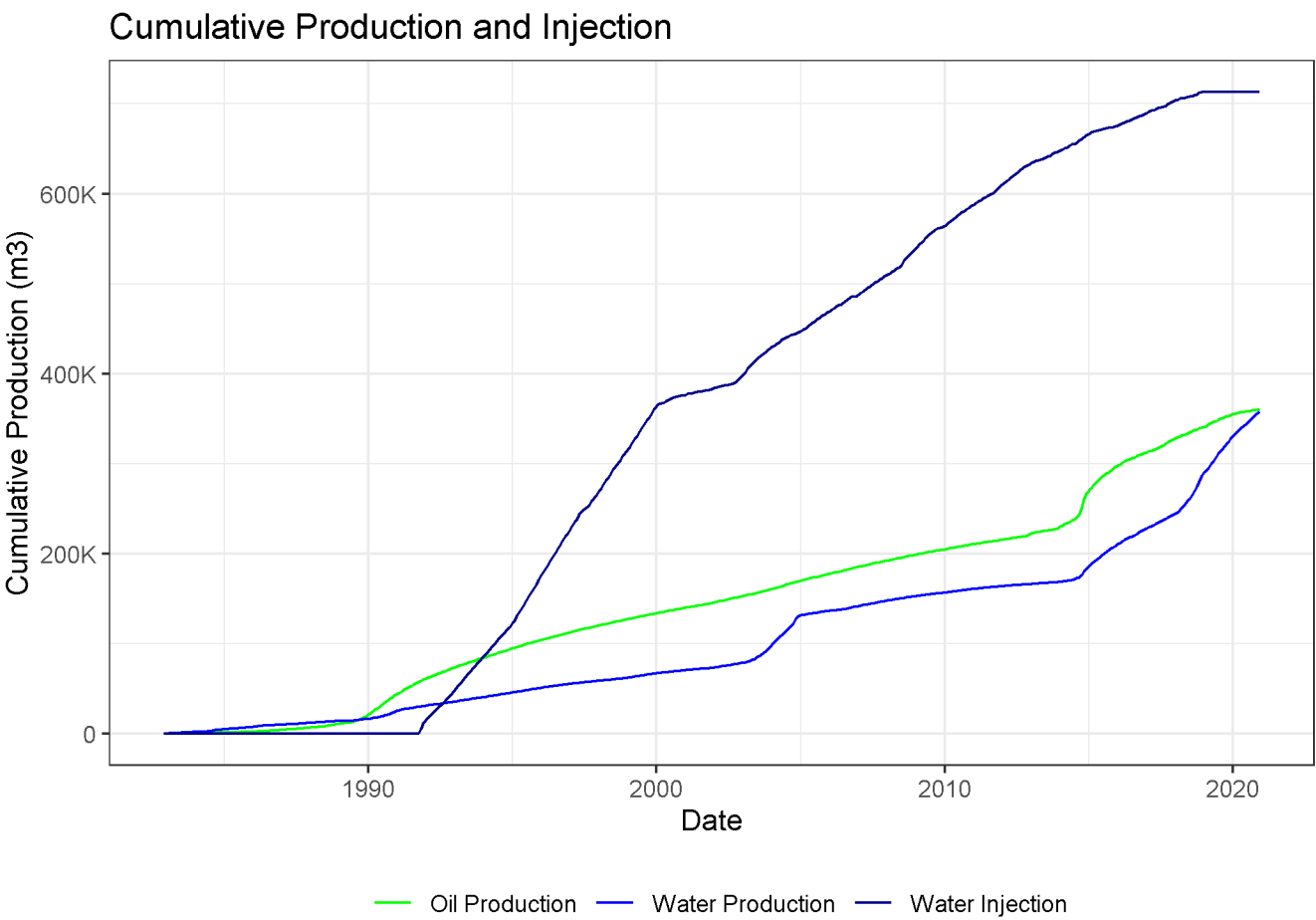
The Waskada Unit No.17 pressure maintenance project commenced water injection into the Lower Amaranth A pool in accordance with Manitoba Energy and Mines Order No. PM 66, dated October 1, 1991. Waskada Unit No. 17 was acquired from EOG Resources Canada Inc. effective October 1, 2014 (closing date December 1, 2014) with Tundra Oil and Gas (Tundra) as the new operator. The EOR project area contains wells over 23 LSDs in Township 2, Range 25W1. The Unit contains 50 wells. 20 producers, 6 injectors, and 24 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	26.59	86.42	0	3.25	0
FEB 2020	25.28	108.10	0	4.28	0
MAR 2020	24.48	97.61	0	3.99	0
APR 2020	20.74	92.54	0	4.46	0
MAY 2020	7.54	53.66	0	7.12	0
JUN 2020	17.47	80.01	0	4.58	0
JUL 2020	13.65	71.29	0	5.22	0
AUG 2020	14.85	85.15	0	5.73	0
SEP 2020	16.17	83.52	0	5.17	0
OCT 2020	18.10	91.33	0	5.05	0
NOV 2020	20.56	82.14	0	4.00	0
DEC 2020	20.34	81.22	0	3.99	0
Average	18.81	84.42	0		

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

Categories	m3
Oil Production	6,875
Water Production	30,847
Gas Production	0
Water Injection	0
Cumulative Oil	360,938
Cumulative Water	358,282
Cumulative Injection	712,764



Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
100.04-14-002-25W1.00	4,976	4,976	4,976	4,976	4,976	4,976	4,976	4,976	4,976	4,976	4,976	4,976	4,976
100.06-15-002-25W1.00	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
100.08-10-002-25W1.00	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
100.08-15-002-25W1.00	268	268	268	268	268	268	268	268	268	268	268	268	268
1C0.08-10-002-25W1.00	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
1C0.16-10-002-25W1.00	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000

Monthly Injected Volumes

NO INJECTION

Voidage

All Volumes are in m3 Oil Formation Volume Factor (Rm3/Sm3) = 1.17								
MONTH	Oil	Water	Injection	Cumulative Oil	Cumulative Water	Cumulative Injection	VRR	Cumulative VRR
JAN 2020	824	2,679	0	354,889	330,111	712,756	0	0.956
FEB 2020	733	3,135	0	355,622	333,246	712,756	0	0.951
MAR 2020	758	3,025	0	356,380	336,271	712,756	0	0.946
APR 2020	622	2,776	0	357,002	339,047	712,756	0	0.942
MAY 2020	234	1,664	0	357,236	340,711	712,756	0	0.939
JUN 2020	524	2,400	0	357,760	343,111	712,756	0	0.936
JUL 2020	423	2,210	0	358,183	345,321	712,756	0	0.932
AUG 2020	460	2,640	0	358,643	347,961	712,756	0	0.929
SEP 2020	485	2,505	0	359,128	350,466	712,756	0	0.925
OCT 2020	561	2,831	0	359,689	353,297	712,756	0	0.921
NOV 2020	617	2,464	0	360,306	355,761	712,756	0	0.917
DEC 2020	631	2,518	0	360,937	358,279	712,756	0	0.913

Workovers

UWI	Date	Description
102.15-03-002-25W1.00	2020-11-30	Rigless Acid Stimulation
103.14-03-002-25W1.00	2020-10-23	Rigless Acid Stimulation

Well List

UWI	Type	Status
100.12-03-002-25W1.00	Vertical	Producing
100.13-03-002-25W1.00	Vertical	Producing
100.14-03-002-25W1.00	Vertical	Abandoned
102.14-03-002-25W1.00	Vertical	Injection
103.14-03-002-25W1.00	Horizontal	Producing
100.15-03-002-25W1.00	Vertical	Abandoned Zone
102.15-03-002-25W1.00	Horizontal	Producing
100.02-10-002-25W1.00	Vertical	Abandoned Zone
1C0.02-10-002-25W1.00	Vertical	Abandoned
100.03-10-002-25W1.00	Vertical	Producing
102.03-10-002-25W1.00	Horizontal	Producing
100.06-10-002-25W1.00	Vertical	Producing
1C0.06-10-002-25W1.00	Vertical	Injection
100.07-10-002-25W1.00	Vertical	Producing
100.08-10-002-25W1.00	Vertical	Injection
103.08-10-002-25W1.00	Horizontal	Producing
1C0.08-10-002-25W1.00	Vertical	Injection
100.09-10-002-25W1.00	Vertical	Producing
102.09-10-002-25W1.00	Horizontal	Producing
1C0.09-10-002-25W1.00	Vertical	Injection
100.10-10-002-25W1.00	Vertical	Producing
100.11-10-002-25W1.00	Vertical	Injection
103.11-10-002-25W1.00	Horizontal	Producing
104.11-10-002-25W1.00	Horizontal	Producing
1C0.11-10-002-25W1.00	Vertical	Injection
100.15-10-002-25W1.00	Vertical	Abandoned
102.15-10-002-25W1.00	Vertical	Producing
100.16-10-002-25W1.00	Vertical	Producing
103.16-10-002-25W1.00	Horizontal	Producing
1C0.16-10-002-25W1.00	Vertical	Injection
100.04-14-002-25W1.00	Vertical	Injection
102.04-14-002-25W1.00	Horizontal	Producing
103.04-14-002-25W1.00	Horizontal	Producing
100.01-15-002-25W1.00	Vertical	Abandoned
100.02-15-002-25W1.00	Vertical	Abandoned
102.02-15-002-25W1.00	Vertical	Abandoned Zone
100.03-15-002-25W1.00	Vertical	Abandoned Zone
103.03-15-002-25W1.00	Horizontal	Producing
1A0.03-15-002-25W1.00	Vertical	Abandoned
102.04-15-002-25W1.00	Vertical	Injection
103.04-15-002-25W1.00	Horizontal	Producing
100.05-15-002-25W1.00	Vertical	Producing
102.05-15-002-25W1.00	Horizontal	Producing

UWI	Type	Status
103.05-15-002-25W1.00	Horizontal	Producing
100.06-15-002-25W1.00	Vertical	Injection
100.07-15-002-25W1.00	Vertical	Producing
103.07-15-002-25W1.00	Horizontal	Producing
104.07-15-002-25W1.00	Horizontal	Producing
1A0.07-15-002-25W1.00	Vertical	Injection
100.08-15-002-25W1.00	Vertical	Injection