

GOODLANDS UNIT NO. 3

Waterflood Progress Report 2020

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:



TUNDRA OIL & GAS

Date: 2021-08-26

Introduction

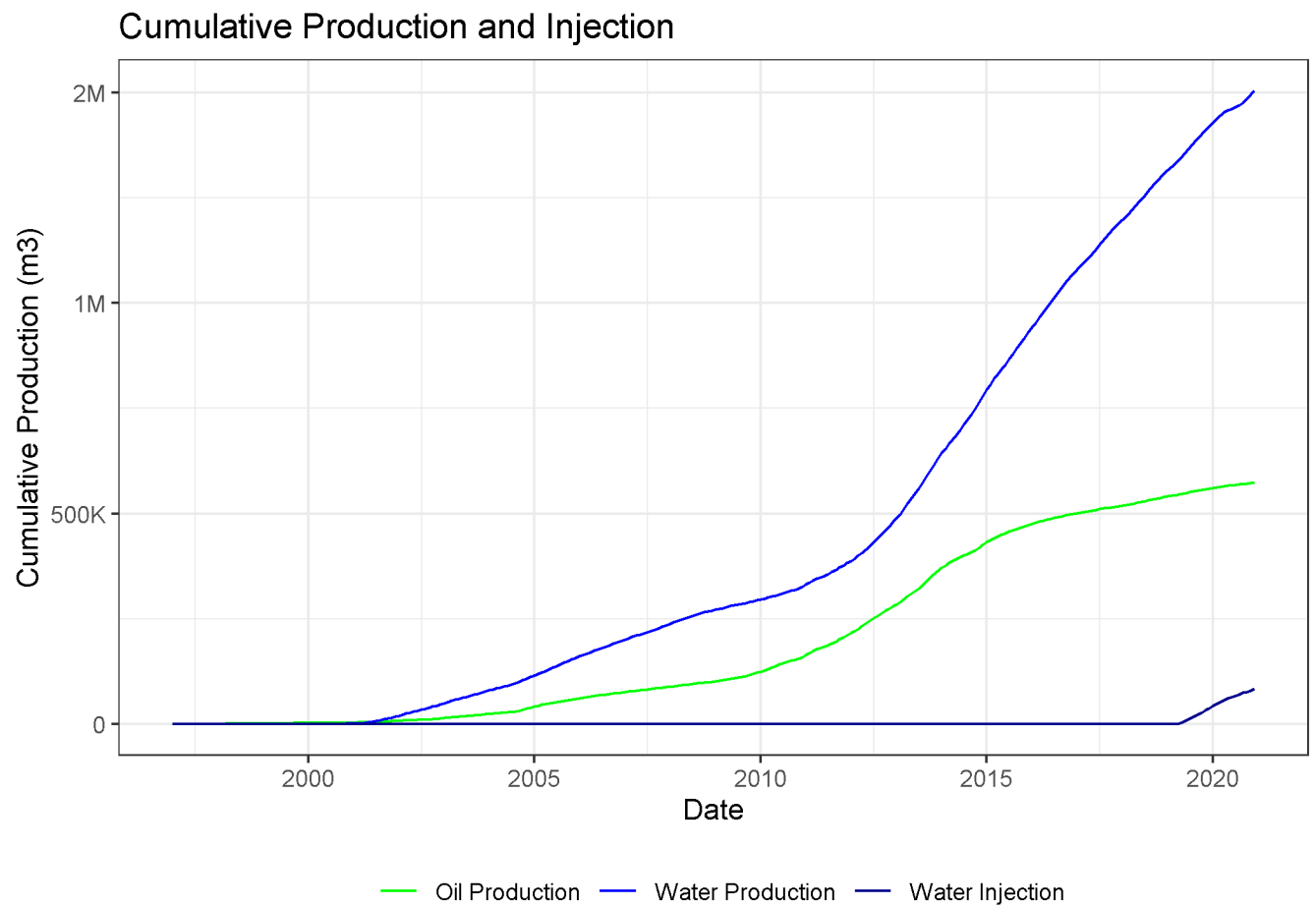
Goodlands Unit No. 3 Enhanced Oil Recovery (EOR) Waterflood Project was approved August 1, 2017. Goodlands Unit No. 3 area contains wells in 50 Legal Sub Divisions (LSD) in Township 1, Range 24 W1. The Unit contains 116 wells. 66 producers, 6 injectors, and 44 abandoned/suspended/other.

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	69.09	288.25	185.97	4.17	0
FEB 2020	61.27	291.22	166.45	4.75	0
MAR 2020	51.44	284.39	142.26	5.53	0
APR 2020	51.01	282.68	151.03	5.54	0
MAY 2020	26.34	110.92	129.23	4.21	0
JUN 2020	26.90	122.56	75.53	4.56	0
JUL 2020	23.76	128.01	112.94	5.39	0
AUG 2020	28.13	145.84	124.06	5.18	0
SEP 2020	32.12	180.38	107.30	5.62	0
OCT 2020	45.95	330.60	88.58	7.19	0
NOV 2020	47.20	311.38	88.07	6.60	0
DEC 2020	45.66	284.82	115.97	6.24	0
Average	42.41	230.09	123.95		

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

Categories	m3
Oil Production	15,494
Water Production	84,113
Gas Production	0
Water Injection	45,354
Cumulative Oil	574,247
Cumulative Water	1,503,262
Cumulative Injection	83,269



Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
102.01-10-001-24W1.00	-85	-86	-88	-16	659	1,010	1,572	1,952	1,989	1,991	1,991	2,406	1,108
102.03-11-001-24W1.00	2,916	2,985	3,492	2,983	2,962	2,987	2,955	2,985	2,984	2,984	2,986	3,349	3,047
102.12-10-001-24W1.00	947	1,919	1,159	1,990	1,947	1,914	1,918	1,989	1,990	1,940	1,182	2,403	1,775
103.04-10-001-24W1.00	3,503	3,979	3,980	3,980	3,949	3,885	3,963	3,980	3,914	3,980	3,979	4,237	3,944
103.05-10-001-24W1.00	2,485	2,952	2,985	2,986	2,933	2,845	2,947	2,982	2,995	2,817	1,516	2,809	2,771
103.12-10-001-24W1.00			10	-74	-95	-79	-41	-41	-41	-41	30	101	-27

Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
102.01-10-001-24W1.00	1,078	1,010	1,077	1,044	1,025	493	884	923	713	648	572	646	10,113
102.03-11-001-24W1.00	1,328	843	702	576	529	320	454	488	404	390	362	472	6,868
102.12-10-001-24W1.00	1,536	1,392	1,006	1,111	1,001	570	837	913	768	582	667	910	11,293
103.04-10-001-24W1.00	844	694	669	600	576	380	520	566	466	460	430	511	6,716
103.05-10-001-24W1.00	979	888	909	859	875	503	806	956	868	666	611	1,056	9,976
103.12-10-001-24W1.00			47	341									388
Grand Total	5,765	4,827	4,410	4,531	4,006	2,266	3,501	3,846	3,219	2,746	2,642	3,595	45,354

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	2,140	8,936	5,765	560,900	1,428,093	43,680	0.504	0.021
FEB 2020	1,777	8,446	4,827	562,677	1,436,539	48,507	0.459	0.023
MAR 2020	1,596	8,816	4,410	564,273	1,445,355	52,917	0.413	0.025
APR 2020	1,530	8,480	4,531	565,803	1,453,835	57,448	0.441	0.027
MAY 2020	817	3,438	4,006	566,620	1,457,273	61,454	0.912	0.029
JUN 2020	807	3,677	2,266	567,427	1,460,950	63,720	0.490	0.030
JUL 2020	737	3,968	3,501	568,164	1,464,918	67,221	0.725	0.032
AUG 2020	871	4,521	3,846	569,035	1,469,439	71,067	0.694	0.033
SEP 2020	965	5,411	3,219	570,000	1,474,850	74,286	0.492	0.035
OCT 2020	1,423	10,249	2,746	571,423	1,485,099	77,032	0.230	0.036
NOV 2020	1,416	9,342	2,642	572,839	1,494,441	79,674	0.240	0.037
DEC 2020	1,416	8,828	3,595	574,255	1,503,269	83,269	0.343	0.038

Workovers

UWI	Date	Description
102.12-14-001-24W1.00	2020-11-19	Rigless Acid Stimulation
102.13-09-001-24W1.00	2020-11-19	Rigless Acid Stimulation
103.10-15-001-24W1.00	2020-12-15	Rigless Acid Stimulation

Well List

UWI	Type	Status
102.01-09-001-24W1.00	Horizontal	Producing
103.01-09-001-24W1.00	Horizontal	Producing
104.01-09-001-24W1.00	Horizontal	Producing
102.02-09-001-24W1.00	Horizontal	Producing
103.02-09-001-24W1.00	Horizontal	Producing
100.03-09-001-24W1.00	Vertical	Producing
100.04-09-001-24W1.00	Vertical	Producing
102.04-09-001-24W1.00	Horizontal	Producing
103.04-09-001-24W1.00	Horizontal	Producing
100.05-09-001-24W1.00	Vertical	Abandoned Zone
102.05-09-001-24W1.00	Horizontal	Producing
103.05-09-001-24W1.00	Horizontal	Suspended
100.06-09-001-24W1.00	Vertical	Abandoned Zone
102.06-09-001-24W1.00	Horizontal	Producing
103.06-09-001-24W1.02	Horizontal	Producing
100.07-09-001-24W1.00	Vertical	Abandoned Zone
102.08-09-001-24W1.00	Horizontal	Producing
103.08-09-001-24W1.00	Horizontal	Producing
104.08-09-001-24W1.00	Horizontal	Producing
100.09-09-001-24W1.00	Vertical	Producing
102.09-09-001-24W1.00	Horizontal	Producing
102.10-09-001-24W1.00	Horizontal	Producing
100.11-09-001-24W1.00	Vertical	Abandoned Zone
102.11-09-001-24W1.00	Horizontal	Producing
100.12-09-001-24W1.00	Vertical	Abandoned Zone
102.12-09-001-24W1.00	Horizontal	Producing
102.13-09-001-24W1.00	Horizontal	Producing
102.14-09-001-24W1.00	Horizontal	Producing
103.14-09-001-24W1.00	Horizontal	Producing
102.01-10-001-24W1.00	Horizontal	Injection
102.03-10-001-24W1.00	Horizontal	Producing
102.04-10-001-24W1.00	Horizontal	Producing
103.04-10-001-24W1.00	Horizontal	Injection
100.05-10-001-24W1.00	Dir/Dev	Producing
102.05-10-001-24W1.00	Horizontal	Producing
103.05-10-001-24W1.00	Horizontal	Injection
105.05-10-001-24W1.00	Horizontal	Producing
100.06-10-001-24W1.00	Vertical	Producing
100.11-10-001-24W1.00	Dir/Dev	Producing
102.11-10-001-24W1.00	Horizontal	Producing
100.12-10-001-24W1.00	Dir/Dev	Producing
102.12-10-001-24W1.00	Horizontal	Injection
103.12-10-001-24W1.00	Horizontal	Injection

UWI	Type	Status
104.12-10-001-24W1.00	Horizontal	Producing
100.13-10-001-24W1.00	Vertical	Abandoned Zone
102.13-10-001-24W1.00	Horizontal	Suspended
103.13-10-001-24W1.00	Horizontal	Producing
100.14-10-001-24W1.00	Vertical	Producing
100.03-11-001-24W1.00	Horizontal	Producing
102.03-11-001-24W1.00	Horizontal	Injection
100.05-14-001-24W1.00	Vertical	Producing
102.06-14-001-24W1.00	Horizontal	Producing
100.11-14-001-24W1.00	Vertical	Abandoned Zone
102.11-14-001-24W1.00	Horizontal	Producing
100.12-14-001-24W1.00	Vertical	Abandoned Zone
102.12-14-001-24W1.00	Horizontal	Producing
103.12-14-001-24W1.00	Horizontal	Producing
104.12-14-001-24W1.00	Horizontal	Producing
100.13-14-001-24W1.00	Horizontal	Producing
102.13-14-001-24W1.00	Horizontal	Producing
103.13-14-001-24W1.00	Horizontal	Producing
104.13-14-001-24W1.00	Horizontal	Producing
100.14-14-001-24W1.00	Vertical	Producing
102.14-14-001-24W1.00	Horizontal	Producing
100.15-14-001-24W1.00	Vertical	Producing
100.16-14-001-24W1.00	Vertical	Producing
102.16-14-001-24W1.00	Horizontal	Producing
103.16-14-001-24W1.00	Horizontal	Producing
104.16-14-001-24W1.00	Horizontal	Producing
105.16-14-001-24W1.00	Horizontal	Producing
102.04-15-001-24W1.00	Horizontal	Producing
103.04-15-001-24W1.00	Horizontal	Producing
100.05-15-001-24W1.00	Vertical	Producing
102.05-15-001-24W1.00	Horizontal	Producing
103.05-15-001-24W1.00	Horizontal	Producing
104.05-15-001-24W1.00	Horizontal	Producing
105.05-15-001-24W1.00	Horizontal	Producing
100.06-15-001-24W1.00	Vertical	Producing
100.07-15-001-24W1.00	Vertical	Producing
102.07-15-001-24W1.00	Horizontal	Producing
103.07-15-001-24W1.00	Horizontal	Producing
100.09-15-001-24W1.00	Vertical	Producing
100.10-15-001-24W1.00	Vertical	Producing
102.10-15-001-24W1.00	Horizontal	Producing
103.10-15-001-24W1.00	Horizontal	Producing
100.12-15-001-24W1.00	Vertical	Producing
102.12-15-001-24W1.00	Horizontal	Suspended
103.12-15-001-24W1.00	Horizontal	Producing
104.12-15-001-24W1.00	Horizontal	Suspended
105.12-15-001-24W1.00	Horizontal	Producing

UWI	Type	Status
100.13-15-001-24W1.00	Horizontal	Producing
102.13-15-001-24W1.00	Horizontal	Producing
103.13-15-001-24W1.00	Horizontal	Producing
100.14-15-001-24W1.00	Horizontal	Producing
100.15-15-001-24W1.00	Horizontal	Suspended
100.16-15-001-24W1.00	Horizontal	Producing
102.16-15-001-24W1.00	Horizontal	Producing
103.16-15-001-24W1.00	Horizontal	Producing
104.16-15-001-24W1.00	Horizontal	Producing
102.03-16-001-24W1.00	Horizontal	Producing
100.16-16-001-24W1.00	Horizontal	Producing
100.01-09-001-24W1.00	Vertical	Abandoned Zone
100.02-09-001-24W1.00	Vertical	Abandoned Zone
100.08-09-001-24W1.00	Vertical	Abandoned Zone
100.10-09-001-24W1.00	Vertical	Abandoned Zone
100.13-09-001-24W1.00	Vertical	Abandoned Zone
100.14-09-001-24W1.00	Vertical	Abandoned Zone
100.02-10-001-24W1.00	Vertical	Abandoned Zone
100.03-10-001-24W1.00	Vertical	Abandoned Zone
100.04-10-001-24W1.00	Vertical	Abandoned Zone
100.06-14-001-24W1.00	Vertical	Abandoned Zone
100.04-15-001-24W1.00	Horizontal	Abandoned Zone
100.08-15-001-24W1.00	Vertical	Abandoned Zone
100.11-15-001-24W1.00	Vertical	Abandoned Zone
100.03-16-001-24W1.00	Horizontal	Abandoned Zone
102.02-22-001-24W1.00	Horizontal	Producing