


WASKADA UNIT NO. 22
Waterflood Progress Report 2020

Prepared for:
Manitoba Industry, Economic Development and Mines
Petroleum Branch

Prepared by:
 **TUNDRA OIL & GAS**

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Introduction

Waskada Unit No. 22 Enhanced Oil Recovery (EOR) Waterflood Project was approved October 1, 2017. Waskada Unit No. 22 area contains wells in 83 Legal Sub Divisions (LSD) in Township 1, Range 25 W1. The Unit contains 163 wells. 81 producers, 4 injectors, and 78 abandoned/suspended/other.

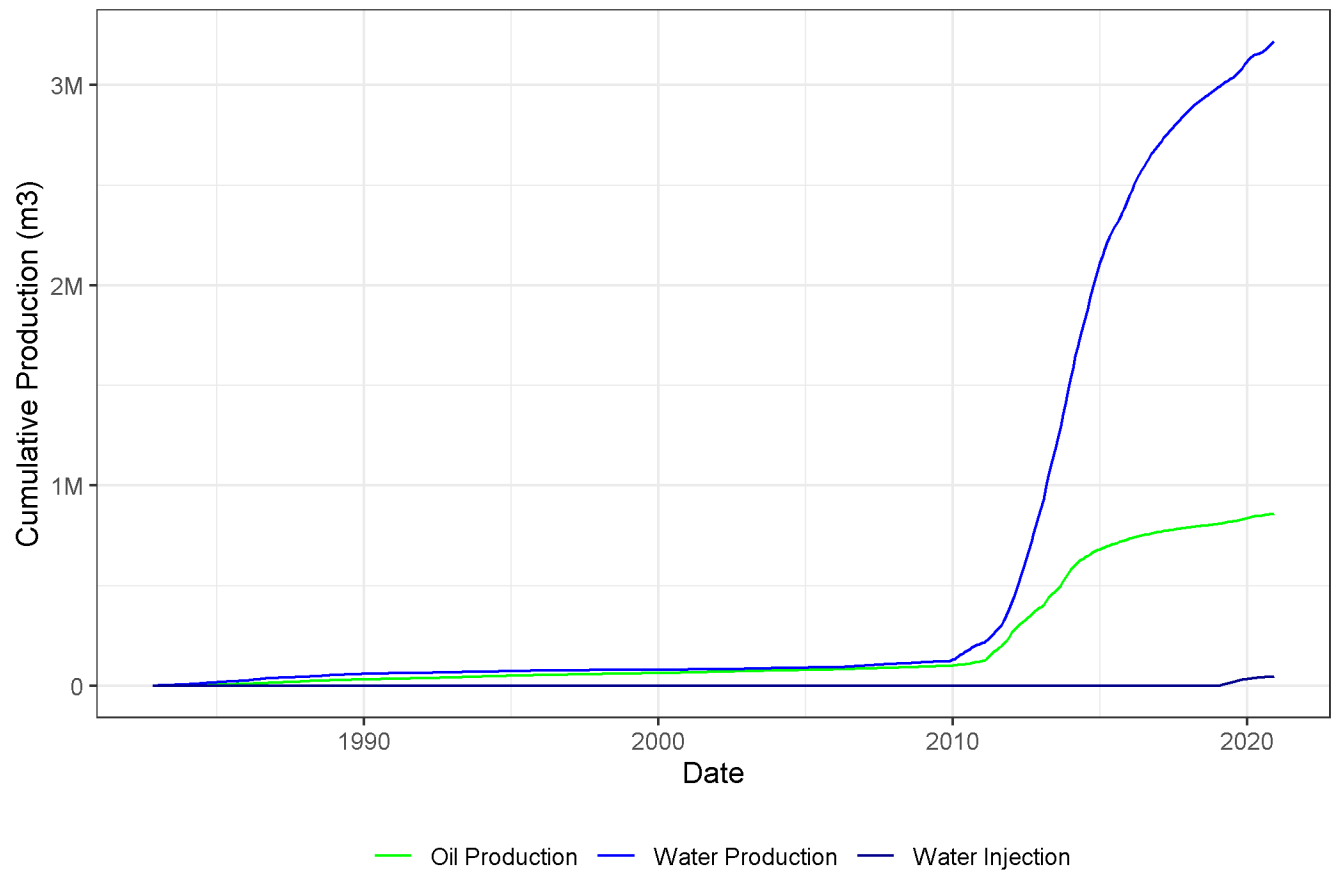
Monthly oil and water production rates, injection rate, GOR and WOR

MONTH	Cal Day Oil m3/d	Cal Day Water m3/d	Cal Day Injection m3/d	WOR	GOR
JAN 2020	100.18	498.54	59.52	4.98	0
FEB 2020	97.96	467.86	49.56	4.78	0
MAR 2020	94.38	298.53	47.27	3.16	0
APR 2020	85.01	363.05	42.44	4.27	0
MAY 2020	36.38	96.45	39.11	2.65	0
JUN 2020	49.24	153.46	36.53	3.12	0
JUL 2020	50.83	203.72	34.51	4.01	0
AUG 2020	59.47	317.16	32.78	5.33	0
SEP 2020	49.10	276.65	31.46	5.63	0
OCT 2020	71.39	400.28	29.00	5.61	0
NOV 2020	70.27	350.07	33.98	4.98	0
DEC 2020	59.56	343.40	33.01	5.77	0
Average	68.65	314.10	39.10		

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

Categories	m3
Oil Production	25,087
Water Production	114,765
Gas Production	0
Water Injection	14,300
Cumulative Oil	860,558
Cumulative Water	3,216,829
Cumulative Injection	47,457

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
102.01-21-001-25W1.00	4,969	4,968	4,973	4,961	4,979	4,985	4,981	4,981	4,978	4,889	4,972	4,973	4,967
102.08-21-001-25W1.00	3,931	3,978	3,978	3,982	3,983	3,970	3,986	3,986	3,989	3,837	4,571	4,971	4,097
102.09-21-001-25W1.00	4,972	4,972	4,973	4,951	4,980	4,976	4,981	4,982	15,425	4,900	4,977	4,975	5,839
102.16-21-001-25W1.00	3,979	3,978	3,979	3,986	3,984	3,988	3,989	3,987	3,984	3,890	4,515	4,978	4,103

Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
102.01-21-001-25W1.00	332	215	276	227	214	192	187	177	164	157	156	150	2,447
102.08-21-001-25W1.00	532	413	395	337	312	274	262	244	222	217	282	269	3,759
102.09-21-001-25W1.00	331	284	286	264	265	252	256	253	243	219	220	239	3,112
102.16-21-001-25W1.00	651	525	510	446	422	379	365	342	314	306	362	366	4,988
Grand Total	1,846	1,437	1,467	1,274	1,213	1,097	1,070	1,016	943	899	1,020	1,024	14,306

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	3,106	15,454	1,845	838,568	3,117,519	35,004	0.097	0.009
FEB 2020	2,840	13,567	1,437	841,408	3,131,086	36,441	0.085	0.009
MAR 2020	2,926	9,255	1,466	844,334	3,140,341	37,907	0.116	0.009
APR 2020	2,551	10,890	1,273	846,885	3,151,231	39,180	0.092	0.009
MAY 2020	1,127	2,990	1,212	848,012	3,154,221	40,392	0.281	0.010
JUN 2020	1,477	4,603	1,096	849,489	3,158,824	41,488	0.173	0.010
JUL 2020	1,575	6,316	1,070	851,064	3,165,140	42,558	0.131	0.010
AUG 2020	1,843	9,833	1,016	852,907	3,174,973	43,574	0.085	0.010
SEP 2020	1,473	8,299	944	854,380	3,183,272	44,518	0.094	0.011
OCT 2020	2,212	12,409	899	856,592	3,195,681	45,417	0.060	0.011
NOV 2020	2,108	10,502	1,019	858,700	3,206,183	46,436	0.079	0.011
DEC 2020	1,847	10,647	1,023	860,547	3,216,830	47,459	0.080	0.011

Workovers

UWI	Date	Description
103.08-21-001-25W1.00	2020-11-20	Cleanout & Selective Acid
105.04-16-001-25W1.00	2020-10-22	Rigless Acid Stimulation

Well List

UWI	Type	Status
100.01-09-001-25W1.00	Horizontal	Producing
102.01-09-001-25W1.00	Horizontal	Producing
103.01-09-001-25W1.00	Horizontal	Producing
100.05-09-001-25W1.00	Horizontal	Producing
102.05-09-001-25W1.00	Horizontal	Producing
103.05-09-001-25W1.00	Horizontal	Producing
100.08-09-001-25W1.00	Horizontal	Producing
102.08-09-001-25W1.00	Horizontal	Suspended
103.08-09-001-25W1.00	Horizontal	Producing
100.10-09-001-25W1.00	Horizontal	Suspended
102.10-09-001-25W1.00	Horizontal	Producing
103.10-09-001-25W1.00	Horizontal	Producing
100.11-09-001-25W1.00	Horizontal	Producing
102.11-09-001-25W1.00	Horizontal	Producing
103.11-09-001-25W1.00	Horizontal	Producing
104.11-09-001-25W1.00	Horizontal	Producing
100.14-09-001-25W1.00	Horizontal	Suspended
102.14-09-001-25W1.00	Horizontal	Producing
103.14-09-001-25W1.00	Horizontal	Producing
100.15-09-001-25W1.00	Horizontal	Producing
102.15-09-001-25W1.00	Horizontal	Producing
103.15-09-001-25W1.00	Horizontal	Producing
100.16-09-001-25W1.00	Horizontal	Producing
100.01-15-001-25W1.00	Horizontal	Producing
102.01-15-001-25W1.00	Horizontal	Suspended
103.01-15-001-25W1.00	Horizontal	Producing
102.05-15-001-25W1.00	Horizontal	Producing
103.05-15-001-25W1.00	Horizontal	Producing
104.05-15-001-25W1.00	Horizontal	Producing
100.07-15-001-25W1.00	Horizontal	Suspended
102.07-15-001-25W1.02	Horizontal	Producing
102.08-15-001-25W1.00	Horizontal	Producing
100.09-15-001-25W1.00	Horizontal	Producing
102.09-15-001-25W1.00	Horizontal	Suspended
103.09-15-001-25W1.00	Horizontal	Producing
100.12-15-001-25W1.00	Horizontal	Producing
102.12-15-001-25W1.00	Horizontal	Producing
102.13-15-001-25W1.00	Horizontal	Producing
103.13-15-001-25W1.00	Horizontal	Producing
102.16-15-001-25W1.00	Horizontal	Suspended
103.16-15-001-25W1.00	Horizontal	Suspended
104.16-15-001-25W1.00	Horizontal	Suspended
105.16-15-001-25W1.00	Horizontal	Producing

UWI	Type	Status
100.01-16-001-25W1.00	Vertical	Abandoned Zone
103.01-16-001-25W1.00	Horizontal	Producing
104.01-16-001-25W1.00	Horizontal	Producing
105.01-16-001-25W1.00	Horizontal	Producing
106.01-16-001-25W1.00	Horizontal	Producing
100.02-16-001-25W1.00	Vertical	Producing
100.03-16-001-25W1.00	Vertical	Producing
100.04-16-001-25W1.00	Vertical	Producing
102.04-16-001-25W1.00	Horizontal	Producing
103.04-16-001-25W1.00	Horizontal	Producing
104.04-16-001-25W1.00	Horizontal	Producing
105.04-16-001-25W1.00	Horizontal	Producing
106.04-16-001-25W1.00	Horizontal	Producing
100.05-16-001-25W1.00	Vertical	Producing
102.05-16-001-25W1.00	Horizontal	Suspended
103.05-16-001-25W1.00	Horizontal	Suspended
100.06-16-001-25W1.00	Vertical	Abandoned Zone
100.08-16-001-25W1.00	Vertical	Producing
102.08-16-001-25W1.00	Horizontal	Producing
103.08-16-001-25W1.00	Horizontal	Producing
104.08-16-001-25W1.00	Horizontal	Producing
100.02-17-001-25W1.00	Horizontal	Producing
102.02-17-001-25W1.00	Horizontal	Suspended
103.02-17-001-25W1.00	Horizontal	Suspended
104.02-17-001-25W1.00	Horizontal	Suspended
100.03-17-001-25W1.00	Horizontal	Suspended
102.03-17-001-25W1.00	Horizontal	Producing
103.03-17-001-25W1.00	Horizontal	Suspended
100.04-17-001-25W1.00	Horizontal	Producing
102.04-17-001-25W1.00	Horizontal	Abandoned Zone
100.07-17-001-25W1.00	Horizontal	Producing
102.07-17-001-25W1.00	Horizontal	Suspended
103.07-17-001-25W1.00	Horizontal	Suspended
102.10-17-001-25W1.00	Horizontal	Suspended
103.10-17-001-25W1.00	Horizontal	Producing
102.15-17-001-25W1.00	Horizontal	Producing
103.15-17-001-25W1.00	Horizontal	Suspended
104.15-17-001-25W1.00	Horizontal	Producing
102.01-20-001-25W1.00	Horizontal	Producing
103.01-20-001-25W1.00	Horizontal	Producing
102.07-20-001-25W1.00	Horizontal	Suspended
103.07-20-001-25W1.00	Horizontal	Suspended
104.07-20-001-25W1.00	Horizontal	Suspended
100.08-20-001-25W1.00	Vertical	Producing
102.08-20-001-25W1.00	Horizontal	Producing
103.08-20-001-25W1.00	Horizontal	Producing
104.08-20-001-25W1.00	Horizontal	Producing

UWI	Type	Status
105.08-20-001-25W1.00	Horizontal	Producing
100.01-21-001-25W1.00	Vertical	Producing
102.01-21-001-25W1.00	Horizontal	Injection
103.01-21-001-25W1.00	Horizontal	Producing
104.01-21-001-25W1.00	Horizontal	Producing
100.07-21-001-25W1.00	Vertical	Producing
100.08-21-001-25W1.00	Vertical	Producing
102.08-21-001-25W1.00	Horizontal	Injection
103.08-21-001-25W1.00	Horizontal	Producing
100.09-21-001-25W1.00	Vertical	Producing
102.09-21-001-25W1.00	Horizontal	Injection
103.09-21-001-25W1.00	Horizontal	Producing
102.16-21-001-25W1.00	Horizontal	Injection
103.16-21-001-25W1.00	Horizontal	Producing
102.02-22-001-25W1.00	Horizontal	Producing
103.02-22-001-25W1.00	Horizontal	Producing
104.02-22-001-25W1.00	Horizontal	Suspended
102.04-22-001-25W1.00	Horizontal	Producing
103.04-22-001-25W1.00	Horizontal	Producing
102.05-22-001-25W1.00	Horizontal	Producing
103.05-22-001-25W1.00	Horizontal	Producing
104.05-22-001-25W1.00	Horizontal	Producing
100.07-22-001-25W1.00	Horizontal	Producing
102.07-22-001-25W1.00	Horizontal	Producing
103.07-22-001-25W1.00	Horizontal	Suspended
104.07-22-001-25W1.00	Horizontal	Producing
100.10-22-001-25W1.00	Horizontal	Producing
102.10-22-001-25W1.00	Horizontal	Producing
103.10-22-001-25W1.00	Horizontal	Producing
100.11-22-001-25W1.00	Horizontal	Producing
100.14-22-001-25W1.00	Horizontal	Producing
102.14-22-001-25W1.00	Horizontal	Producing
103.14-22-001-25W1.00	Horizontal	Producing
104.14-22-001-25W1.00	Horizontal	Producing
100.15-22-001-25W1.00	Horizontal	Producing
102.15-22-001-25W1.00	Horizontal	Producing
103.15-22-001-25W1.00	Horizontal	Producing
102.12-23-001-25W1.00	Vertical	Abandoned
103.12-23-001-25W1.00	Horizontal	Producing
104.12-23-001-25W1.00	Horizontal	Producing
105.12-23-001-25W1.00	Horizontal	Producing
100.13-23-001-25W1.00	Horizontal	Producing
102.13-23-001-25W1.00	Horizontal	Producing
103.13-23-001-25W1.00	Horizontal	Producing
100.03-26-001-25W1.00	Horizontal	Producing
102.03-26-001-25W1.00	Horizontal	Producing
103.03-26-001-25W1.00	Horizontal	Suspended

UWI	Type	Status
100.04-15-001-25W1.00	Vertical	Abandoned Zone
100.05-15-001-25W1.00	Vertical	Abandoned
100.08-15-001-25W1.00	Horizontal	Abandoned Zone
100.13-15-001-25W1.00	Vertical	Abandoned
102.01-16-001-25W1.00	Horizontal	Abandoned Zone
107.01-16-001-25W1.03	Horizontal	Abandoned Zone
103.04-17-001-25W1.00	Horizontal	Abandoned Zone
100.06-17-001-25W1.00	Vertical	Abandoned
100.08-17-001-25W1.00	Vertical	Abandoned
100.10-17-001-25W1.00	Vertical	Abandoned
100.15-17-001-25W1.00	Vertical	Abandoned
100.16-17-001-25W1.00	Vertical	Abandoned
100.01-20-001-25W1.00	Vertical	Abandoned
100.02-20-001-25W1.02	Vertical	Abandoned
100.07-20-001-25W1.00	Vertical	Abandoned
100.09-20-001-25W1.00	Vertical	Abandoned Zone
100.10-20-001-25W1.00	Vertical	Abandoned Zone
100.16-21-001-25W1.00	Vertical	Injection
100.03-22-001-25W1.00	Vertical	Abandoned
100.04-22-001-25W1.00	Vertical	Abandoned
100.05-22-001-25W1.00	Vertical	Abandoned Zone
100.06-22-001-25W1.02	Vertical	Abandoned
102.11-22-001-25W1.00	Horizontal	Producing
100.11-23-001-25W1.00	Vertical	Abandoned Zone
102.14-23-001-25W1.02	Vertical	Abandoned Zone
102.03-20-001-25W1.00	Horizontal	Suspended