


WASKADA UNIT NO. 21
Waterflood Progress Report 2020

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

Prepared by:
 **TUNDRA OIL & GAS**

Date: 2021-08-26

Introduction

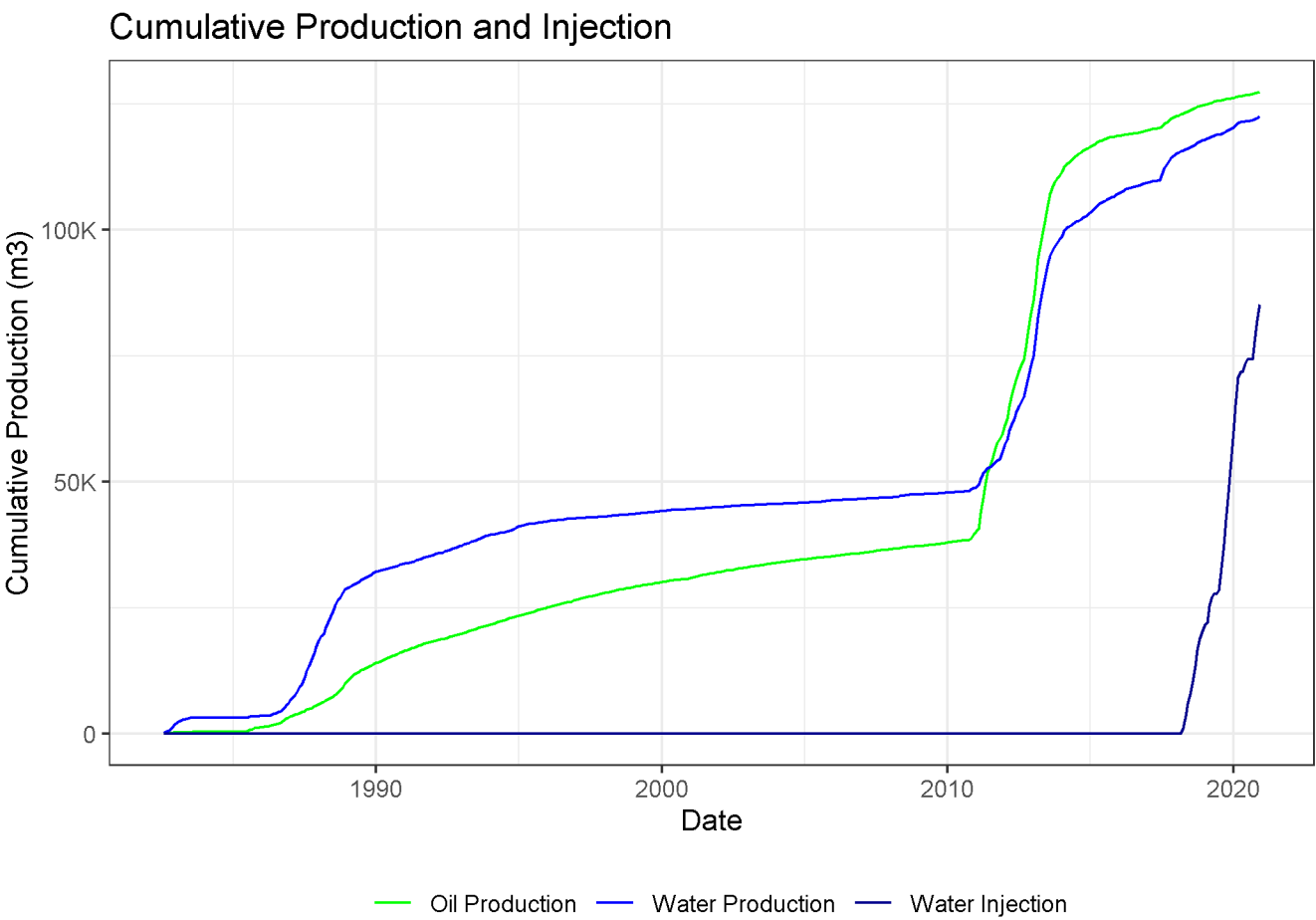
Waskada Unit No. 21 Enhanced Oil Recovery (EOR) Waterflood Project was approved March 1, 2017 with Tundra Oil and Gas (Tundra) as operator. Waskada Unit No. 21 area contains wells in 11 Legal Sub Divisions (LSD) in Township 1, Range 26 W1. The Unit contains 27 wells. 5 producers, 6 injectors, and 16 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	2.77	8.59	193.16	3.10	0
FEB 2020	5.94	14.16	179.54	2.38	0
MAR 2020	5.07	12.79	178.56	2.52	0
APR 2020	2.04	9.28	35.87	4.55	0
MAY 2020	2.02	1.80	0.00	0.89	0
JUN 2020	4.11	2.75	52.67	0.67	0
JUL 2020	1.81	1.48	30.52	0.82	0
AUG 2020	2.78	2.97	0.00	1.07	0
SEP 2020	3.96	2.41	0.00	0.61	0
OCT 2020	4.72	6.35	113.29	1.35	0
NOV 2020	3.08	9.81	140.00	3.19	0
DEC 2020	2.92	10.27	101.94	3.52	0
Average	3.44	6.89	85.46		

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

Categories	m3
Oil Production	1,252
Water Production	2,510
Gas Production	0
Water Injection	31,204
Cumulative Oil	127,339
Cumulative Water	122,585
Cumulative Injection	85,191



Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
102.09-35-001-26W1.00	1,751	1,990	1,993	764	457	630	995	1,100	1,100	1,313	1,992	1,987	1,339
103.07-35-001-26W1.00	2,968	3,019	2,848	1,074	653	908	932			1,009	2,640	2,981	1,903
103.10-35-001-26W1.00	2,997	2,982	2,925	2,978	2,978	2,654	535	200	200	1,736	2,891	2,988	2,172
104.10-26-001-26W1.00	796	1,614	1,479	293	-100	-93	164	225	225	-19	373	1,469	536
104.15-26-001-26W1.00	-92	-93	-93	-91	-91	-88	-90			-93	-93	-93	-92
105.07-35-001-26W1.00	2,097	2,244	1,568	558	200	302	695	900	900	833	1,987	1,987	1,189

Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	JUN	JUL	OCT	NOV	DEC	Total
102.09-35-001-26W1.00	1,228	1,003	847	151	299	137	674	551	460	5,350
103.07-35-001-26W1.00	676	371	633	108	208	186	470	591	531	3,774
103.10-35-001-26W1.00	370	222	384	48	167	168	426	376	337	2,498
104.10-26-001-26W1.00	1,537	1,724	1,677	326	378	184	747	1,177	1,402	9,152
104.15-26-001-26W1.00	1,641	1,708	1,521	336	374	180	727	1,035	40	7,562
105.07-35-001-26W1.00	536	178	474	107	154	91	468	470	390	2,868
Grand Total	5,988	5,206	5,536	1,076	1,580	946	3,512	4,200	3,160	31,204

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	86	266	5,988	126,178	120,334	59,975	16.333	0.224
FEB 2020	172	411	5,207	126,350	120,745	65,182	8.505	0.243
MAR 2020	157	397	5,535	126,507	121,142	70,717	9.532	0.263
APR 2020	61	278	1,076	126,568	121,420	71,793	3.080	0.266
MAY 2020	63	56	0	126,631	121,476	71,793	0.000	0.266
JUN 2020	123	82	1,580	126,754	121,558	73,373	6.994	0.272
JUL 2020	56	46	946	126,810	121,604	74,319	8.483	0.275
AUG 2020	86	92	0	126,896	121,696	74,319	0.000	0.275
SEP 2020	119	72	0	127,015	121,768	74,319	0.000	0.275
OCT 2020	146	197	3,512	127,161	121,965	77,831	9.548	0.287
NOV 2020	92	294	4,200	127,253	122,259	82,031	10.457	0.303
DEC 2020	91	318	3,160	127,344	122,577	85,191	7.445	0.314

Workovers

UWI	Date	Description
-----	------	-------------

Well List

UWI	Type	Status
102.10-26-001-26W1.00	Horizontal	Producing
103.10-26-001-26W1.00	Horizontal	Producing
104.10-26-001-26W1.00	Horizontal	Injection
105.10-26-001-26W1.00	Horizontal	Suspended
102.15-26-001-26W1.00	Horizontal	Producing
103.15-26-001-26W1.00	Horizontal	Producing
104.15-26-001-26W1.00	Horizontal	Injection
102.07-35-001-26W1.00	Horizontal	Producing
103.07-35-001-26W1.00	Horizontal	Injection
104.07-35-001-26W1.00	Horizontal	Producing
105.07-35-001-26W1.00	Horizontal	Injection
102.09-35-001-26W1.00	Horizontal	Injection
103.09-35-001-26W1.00	Horizontal	Producing
103.10-35-001-26W1.00	Horizontal	Injection
102.11-35-001-26W1.03	Horizontal	Producing
103.11-35-001-26W1.00	Horizontal	Suspended
100.09-26-001-26W1.02	Vertical	Abandoned Zone
102.09-26-001-26W1.02	Vertical	Abandoned
100.10-26-001-26W1.02	Vertical	Abandoned Zone
100.16-26-001-26W1.00	Vertical	Abandoned
100.01-35-001-26W1.00	Vertical	Abandoned Zone
100.07-35-001-26W1.02	Vertical	Abandoned Zone
100.08-35-001-26W1.00	Vertical	Abandoned Zone
100.09-35-001-26W1.02	Vertical	Abandoned Zone
100.10-35-001-26W1.02	Vertical	Abandoned Zone
100.11-35-001-26W1.02	Vertical	Abandoned Zone
100.12-36-001-26W1.02	Vertical	Abandoned Zone