

SOURIS HARTNEY UNIT NO. 1

Waterflood Progress Report 2020

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:



TUNDRA OIL & GAS

Date: 2021-08-26

Introduction

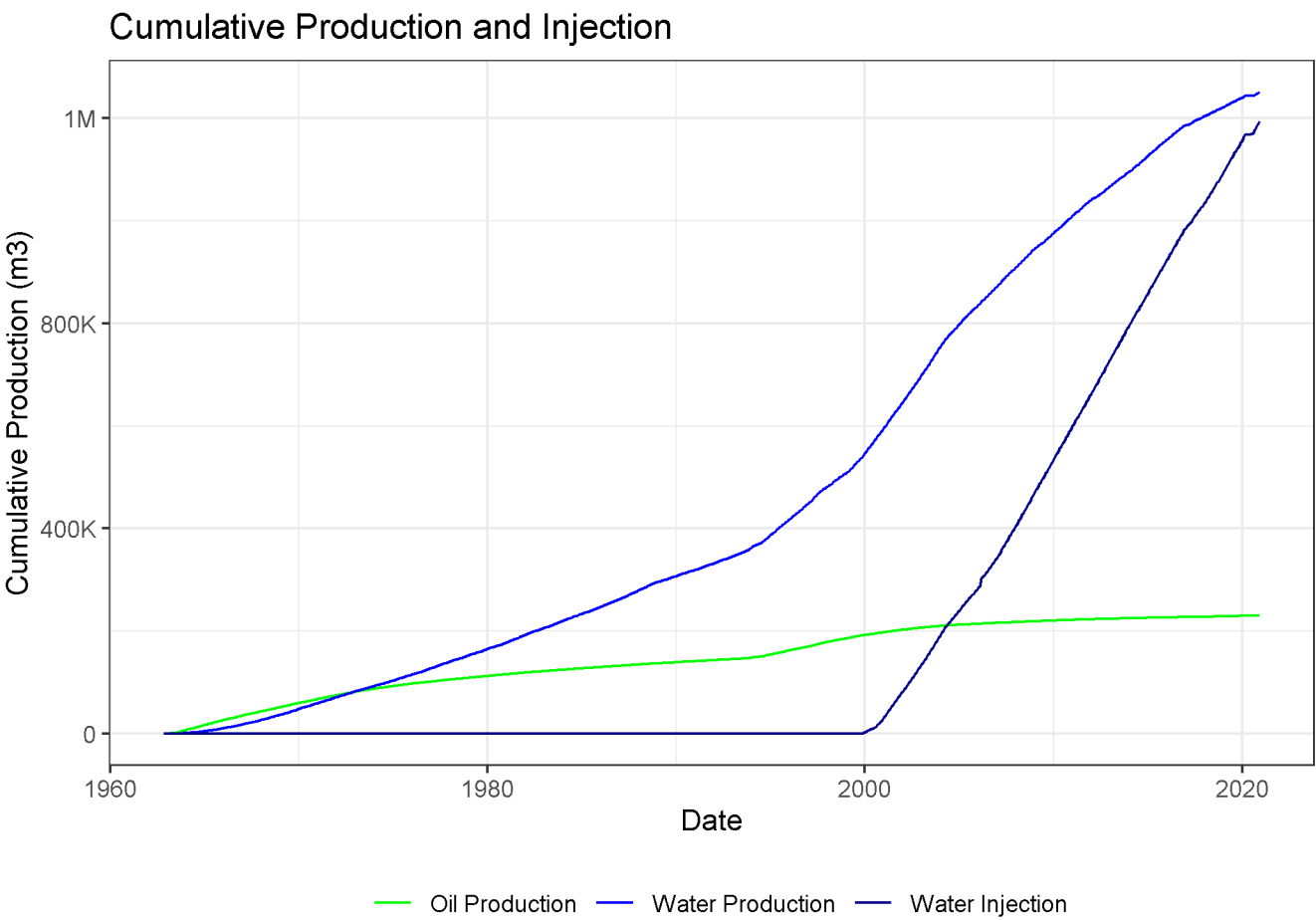
Souris Hartney Unit No. 1 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 9 effective November 1, 1999 with Tundra Oil and Gas (Tundra) as Operator. The EOR project area contains wells in 20 LSDs in Township 6, Range 22 W1. The Unit contains 15 wells. 2 producers, 4 injectors, and 9 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	2.64	49.82	181.32	18.87	0
FEB 2020	2.48	48.40	188.38	19.52	0
MAR 2020	2.97	49.09	186.19	16.53	0
APR 2020	0.10	1.68	6.07	16.80	0
MAY 2020	0.12	0.26	0.00	2.17	0
AUG 2020	0.75	21.95	76.77	29.27	0
SEP 2020	1.73	47.68	193.27	27.56	0
OCT 2020	1.64	54.16	193.52	33.02	0
NOV 2020	1.68	55.88	192.03	33.26	0
DEC 2020	2.12	56.65	191.06	26.72	0
Average	1.62	38.56	140.86		

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

Categories	m3
Oil Production	495
Water Production	11,751
Gas Production	0
Water Injection	42,899
Cumulative Oil	230,103
Cumulative Water	1,250,365
Cumulative Injection	1,193,939



Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
100.02-17-006-22W1.00	6,000	6,000	5,968	4,840	4,800	4,800	4,800	5,143	6,000	6,000	6,003	6,000	5,530
100.03-17-006-22W1.00	5,147	5,275	5,156	5,005	5,000	5,000	5,000	5,446	4,729	4,843	4,880	4,907	5,032
100.06-16-006-22W1.00	2,174	2,599	2,537	98	10	10	10	1,023	2,875	2,763	2,747	2,800	1,637
100.06-17-006-22W1.00	5,410	5,403	5,252	3,550	3,500	3,500	3,500	3,648	4,772	5,084	5,157	5,135	4,493

Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	AUG	SEP	OCT	NOV	DEC	Total
100.02-17-006-22W1.00	759	707	711	26	310	565	560	555	581	4,774
100.03-17-006-22W1.00	1,219	1,141	1,218	40	514	1,194	1,222	1,173	1,223	8,944
100.06-16-006-22W1.00	2,505	2,554	2,777	77	1,221	2,829	3,084	2,986	3,025	21,058
100.06-17-006-22W1.00	1,138	1,061	1,066	39	335	1,210	1,133	1,047	1,094	8,123
Grand Total	5,621	5,463	5,772	182	2,380	5,798	5,999	5,761	5,923	42,899

Voidage

All Volumes are in m3 Oil Formation Volume Factor (Rm3/Sm3) = 1.057								
MONTH	Oil	Water	Injection	Cumulative Oil	Cumulative Water	Cumulative Injection	VRR	Cumulative VRR
JAN 2020	82	1,544	5,621	229,681	1,240,151	1,156,660	3.447	0.780
FEB 2020	72	1,403	5,463	229,753	1,241,554	1,162,123	3.693	0.783
MAR 2020	92	1,522	5,772	229,845	1,243,076	1,167,895	3.565	0.786
APR 2020	3	51	182	229,848	1,243,127	1,168,077	3.360	0.786
MAY 2020	4	8	0	229,852	1,243,135	1,168,077	0.000	0.786
AUG 2020	23	680	2,380	229,875	1,243,815	1,170,457	3.379	0.787
SEP 2020	52	1,430	5,798	229,927	1,245,245	1,176,255	3.904	0.790
OCT 2020	51	1,679	5,999	229,978	1,246,924	1,182,254	3.462	0.793
NOV 2020	50	1,676	5,761	230,028	1,248,600	1,188,015	3.332	0.796
DEC 2020	66	1,756	5,923	230,094	1,250,356	1,193,938	3.244	0.799

Workovers

UWI	Date	Description
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Well List

UWI	Type	Status
100.04-16-006-22W1.00	Vertical	Abandoned
100.06-16-006-22W1.00	Vertical	Injection
100.12-16-006-22W1.00	Vertical	Abandoned Zone
100.14-16-006-22W1.00	Vertical	Abandoned
102.14-16-006-22W1.00	Horizontal	Pumping
100.01-17-006-22W1.00	Horizontal	Pumping
100.02-17-006-22W1.00	Vertical	Injection
100.03-17-006-22W1.00	Horizontal	Injection
100.06-17-006-22W1.00	Vertical	Injection
100.08-17-006-22W1.00	Vertical	Abandoned
100.10-17-006-22W1.00	Vertical	Abandoned
100.11-17-006-22W1.02	Horizontal	Producing
100.14-17-006-22W1.00	Vertical	Abandoned
100.15-17-006-22W1.00	Horizontal	Producing
100.16-17-006-22W1.00	Vertical	Abandoned