


EWART UNIT NO. 4
Waterflood Progress Report 2020

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

Prepared by:
 TUNDRA OIL & GAS

Date: 2021-08-26

Introduction

Ewart Unit No. 4 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Waterflood Order No. 43, effective February 1, 2015 with Tundra Oil and Gas (Tundra) as Operator. The Unit area contains 1 abandoned vertical well and 5 horizontal producing wells and 3 horizontal injectors in 16 LSDs in Township 8 Range 29 W1 as shown in the figure below. The Unit contains 7 wells. 5 producers, 1 injectors, and 1 abandoned/suspended/other.

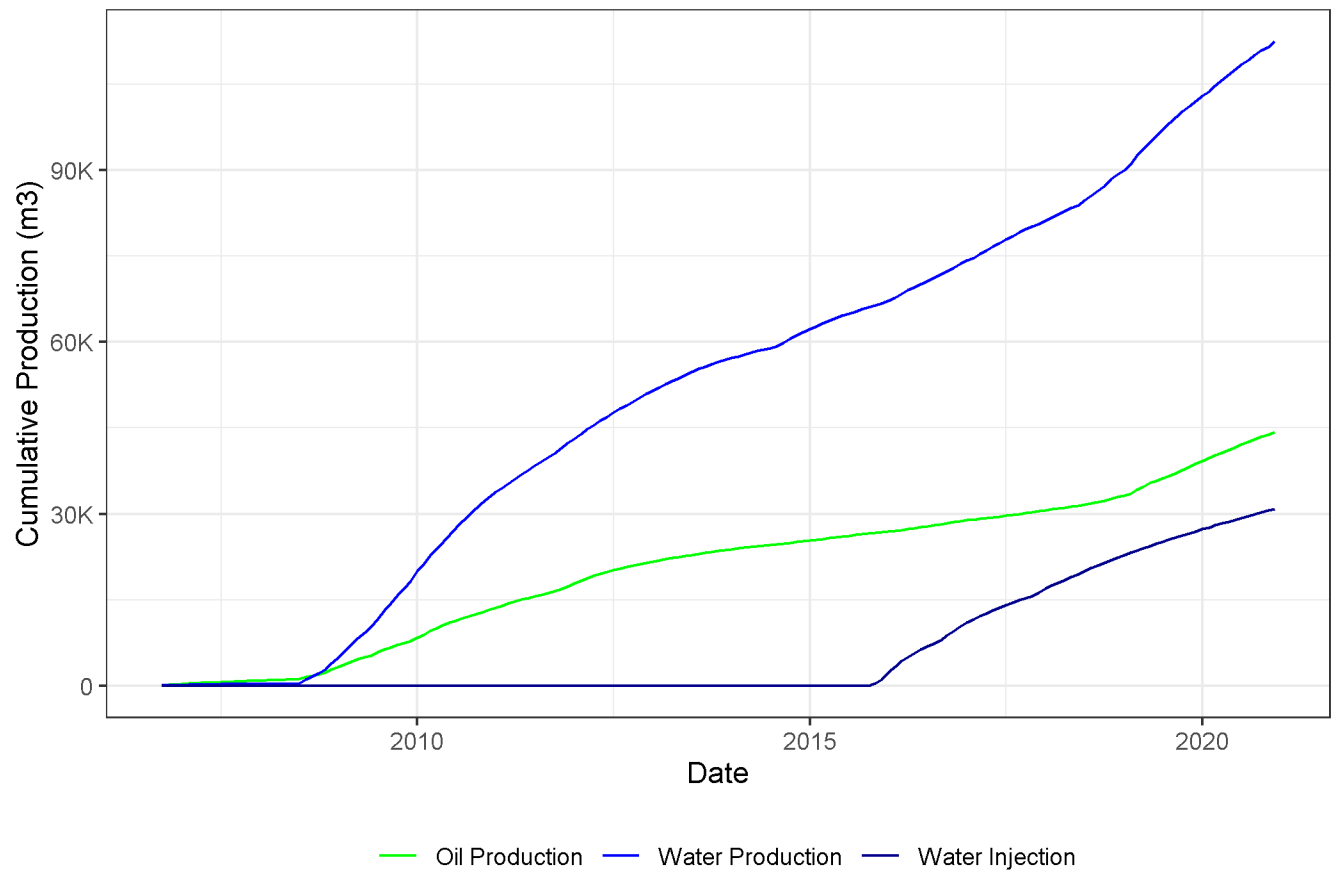
Monthly oil and water production rates, injection rate, GOR and WOR

MONTH	Cal Day Oil m3/d	Cal Day Water m3/d	Cal Day Injection m3/d	WOR	GOR
JAN 2020	17.83	28.02	11.68	1.57	0
FEB 2020	17.72	28.04	10.89	1.58	0
MAR 2020	14.15	31.40	11.16	2.22	0
APR 2020	13.53	32.21	11.00	2.38	0
MAY 2020	14.40	31.37	10.29	2.18	0
JUN 2020	15.97	29.97	10.43	1.88	0
JUL 2020	17.31	27.55	10.90	1.59	0
AUG 2020	16.08	26.57	10.71	1.65	0
SEP 2020	15.11	27.53	10.50	1.82	0
OCT 2020	15.20	25.33	10.32	1.67	0
NOV 2020	11.20	20.45	10.17	1.83	0
DEC 2020	11.54	29.72	10.10	2.58	0
Average	15.00	28.18	10.68		

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

Categories	m3
Oil Production	5,490
Water Production	10,316
Gas Production	0
Water Injection	3,909
Cumulative Oil	44,232
Cumulative Water	112,395
Cumulative Injection	30,900

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
103.12-36-008-29W1.00	6,558	6,505	6,532	6,480	6,499	6,462	6,560	6,555	6,539	6,566	6,549	6,534	6,528

Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
103.12-36-008-29W1.00	362	316	346	330	319	313	338	332	315	320	305	313	3,909
Grand Total	362	316	346	330	319	313	338	332	315	320	305	313	3,909

Voidage

All Volumes are in m3 Oil Formation Volume Factor (Rm3/Sm3) = 1.071								
MONTH	Oil	Water	Injection	Cumulative Oil	Cumulative Water	Cumulative Injection	VRR	Cumulative VRR
JAN 2020	553	869	362	39,295	102,947	27,353	0.248	0.189
FEB 2020	514	813	316	39,809	103,760	27,669	0.232	0.189
MAR 2020	438	974	346	40,247	104,734	28,015	0.240	0.189
APR 2020	406	966	330	40,653	105,700	28,345	0.236	0.190
MAY 2020	446	972	319	41,099	106,672	28,664	0.220	0.190
JUN 2020	479	899	313	41,578	107,571	28,977	0.222	0.191
JUL 2020	536	854	338	42,114	108,425	29,315	0.237	0.191
AUG 2020	499	824	332	42,613	109,249	29,647	0.244	0.191
SEP 2020	453	826	315	43,066	110,075	29,962	0.240	0.192
OCT 2020	471	785	320	43,537	110,860	30,282	0.248	0.192
NOV 2020	336	614	305	43,873	111,474	30,587	0.313	0.193
DEC 2020	358	921	313	44,231	112,395	30,900	0.240	0.193

Workovers

UWI	Date	Description
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Well List

UWI	Type	Status
100.04-36-008-29W1.00	Horizontal	Producing
103.04-36-008-29W1.00	Horizontal	Producing
100.05-36-008-29W1.00	Horizontal	Producing
100.12-36-008-29W1.00	Horizontal	Producing
103.12-36-008-29W1.00	Horizontal	Injection
102.13-36-008-29W1.00	Horizontal	Producing
100.16-36-008-29W1.00	Vertical	Producing