


KOLA UNIT NO. 1
Waterflood Progress Report 2020

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

Prepared by:
 TUNDRA OIL & GAS

Date: 2021-11-30

Introduction

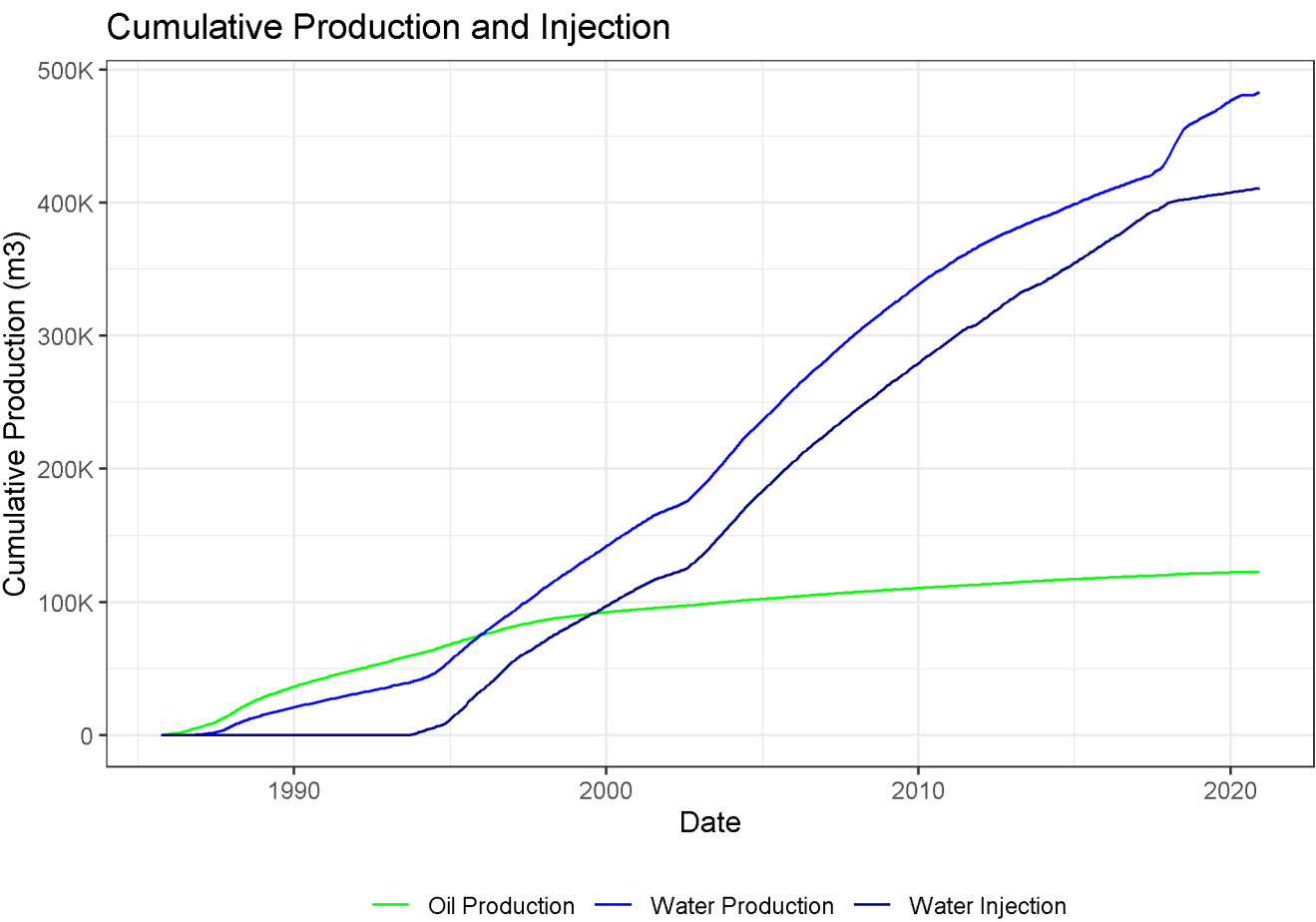
Kola Unit No. 1 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Board Order No. PM 71 effective October 1, 1993 with Tundra Oil and Gas as Operator. In May 1995, Board Order No. PM 71 was replaced by Waterflood Order No. 2. The EOR project area contains wells in 16 LSDs in Township 10, Range 29 W1. The Unit contains 18 wells. 8 producers, 3 injectors, and 7 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	1.83	40.01	9.87	21.86	0
FEB 2020	1.97	38.64	10.07	19.61	0
MAR 2020	1.67	34.37	9.97	20.58	0
APR 2020	1.57	28.15	9.83	17.93	0
MAY 2020	1.49	25.08	9.84	16.83	0
JUN 2020	0.60	8.86	9.70	14.77	0
JUL 2020	0.00	0.00	10.13		
AUG 2020	0.00	0.00	9.81		
SEP 2020	0.00	0.00	9.67		
OCT 2020	0.76	13.75	9.87	18.09	0
NOV 2020	1.54	24.58	9.87	15.96	0
DEC 2020	1.80	26.61	9.55	14.78	0
Average	1.10	20.00	9.85		

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

Categories	m3
Oil Production	403
Water Production	7,302
Gas Production	0
Water Injection	3,604
Cumulative Oil	122,567
Cumulative Water	482,767
Cumulative Injection	410,875



Monthly Wellhead Pressure

All readings are in kPa

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
100.02-28-010-29W1.00	5,736	5,779	5,943	5,978	5,903	6,045	5,811	5,713	5,705	5,838	5,764	5,799	5,834
100.12-28-010-29W1.00	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	259	-8	14
100.13-21-010-29W1.00	5,559	5,589	5,661	5,495	5,517	5,802	6,116	6,279	5,770	6,273	5,350	5,438	5,737

Monthly Injected Volumes

All Volumes are in m3

UWI	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
100.02-28-010-29W1.00	177	171	178	174	177	171	160	160	160	169	165	169	2,031
100.13-21-010-29W1.00	129	121	131	121	128	120	154	144	130	137	131	127	1,573
Grand Total	306	292	309	295	305	291	314	304	290	306	296	296	3,604

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	57	1,240	306	122,220	476,698	407,576	0.235	0.671
FEB 2020	57	1,120	292	122,277	477,818	407,868	0.247	0.670
MAR 2020	52	1,066	309	122,329	478,884	408,177	0.275	0.669
APR 2020	47	845	295	122,376	479,729	408,472	0.329	0.669
MAY 2020	47	777	305	122,423	480,506	408,777	0.369	0.668
JUN 2020	18	266	291	122,441	480,772	409,068	1.020	0.669
JUL 2020	0	0	314	122,441	480,772	409,382	Inf	0.669
AUG 2020	0	0	304	122,441	480,772	409,686	Inf	0.670
SEP 2020	0	0	290	122,441	480,772	409,976	Inf	0.670
OCT 2020	24	426	306	122,465	481,198	410,282	0.677	0.670
NOV 2020	46	737	296	122,511	481,935	410,578	0.376	0.670
DEC 2020	56	825	296	122,567	482,760	410,874	0.334	0.669

Workovers

UWI	Date	Description
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Well List

UWI	Type	Status
100.09-20-010-29W1.00	Vertical	Producing
100.16-20-010-29W1.00	Vertical	Producing
100.10-21-010-29W1.00	Vertical	Producing
100.12-21-010-29W1.00	Vertical	Abandoned
100.13-21-010-29W1.00	Vertical	Injection
100.14-21-010-29W1.00	Vertical	Abandoned
100.14-21-010-29W1.02	Vertical	Abandoned
100.15-21-010-29W1.00	Vertical	Abandoned
100.01-28-010-29W1.00	Vertical	Pumping
102.01-28-010-29W1.00	Horizontal	Producing
100.02-28-010-29W1.00	Vertical	Injection
100.03-28-010-29W1.00	Vertical	Producing
100.04-28-010-29W1.00	Vertical	Producing
100.05-28-010-29W1.00	Vertical	Abandoned
100.06-28-010-29W1.00	Vertical	Producing
100.11-28-010-29W1.00	Vertical	Pumping
100.12-28-010-29W1.00	Vertical	Injection
100.09-29-010-29W1.00	Vertical	Abandoned Zone