



**Jody Crawford**  
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August 31, 2020

Bonnie Bergsma  
Sahtu Land and Water Board  
P.O. Box 1  
Fort Good Hope, NT  
X0E 0H0

**Re: Monthly Water Use Report for July 2020  
Water Licence S13L1-007, Annex A, Part D, Condition 1  
Imperial Oil Resources N.W.T. Limited (Imperial)**

Dear Ms. Bergsma,

Imperial is submitting this report as per Water Licence S13L1-007, Annex A, Part D, Condition 1. Water licence requirements were met for the month of July.

If you require further information please contact Christine Wickens at 587-476-5007 or [christine.a.wickens@exxonmobil.com](mailto:christine.a.wickens@exxonmobil.com).

Sincerely,

A handwritten signature in blue ink that reads "C Wickens".

Christine Wickens  
Environment and Regulatory Advisor  
Imperial

cc: T. Morton, INAC, Yellowknife

**IMPERIAL - NORMAN WELLS OPERATIONS**  
**WATER LICENCE S13L1-007**  
**CPF DAILY VOLUMES**  
**July 2020**

Date	VOLUMES (m <sup>3</sup> )					TEMP (C)		CHLORINE (mg/L)
	S13L1-007-1 CPF Intake Water	S13L1-007-2 CPF Effluent Water	Fresh Water Injection	Produced Water Injection	Total Water Injection	S13L1-007-1 CPF Intake Water	S13L1-007-2 CPF Effluent Water	S13L1-007-2 CPF Effluent Water
1	6,947	6,946	0	5,233	5,233	13.7	24.3	0
2	6,268	6,268	0	5,315	5,316	13.5	23.6	0
3	6,785	6,784	0	5,371	5,372	13.7	25.1	0
4	6,972	6,972	0	5,271	5,272	13.7	24.8	0
5	6,955	6,397	558	5,140	5,698	13.4	22.5	0
6	6,609	5,730	879	5,366	6,245	13.6	22.3	0
7	6,436	5,407	1,029	5,238	6,267	14.9	24.7	0
8	6,697	5,762	935	5,280	6,215	14.8	24.4	0
9	6,901	5,885	1,016	5,132	6,147	14.7	24.1	0
10	6,970	6,033	937	5,103	6,040	14.2	21.9	0
11	6,801	5,988	812	5,244	6,056	14.8	23.1	0
12	6,842	6,095	747	5,217	5,964	14.8	23.9	0
13	6,917	6,109	808	5,308	6,116	15.4	25.0	0.10
14	6,949	6,060	888	5,294	6,182	15.9	25.5	0
15	7,145	5,984	1,160	5,211	6,371	16.1	25.7	0
16	7,501	6,346	1,155	5,258	6,412	16.5	24.9	0
17	7,501	6,303	1,198	5,321	6,519	16.6	25.6	0
18	7,632	6,666	966	5,556	6,521	16.5	25.3	0
19	7,347	6,343	1,004	5,482	6,486	16.6	25.1	0
20	7,213	6,033	1,180	5,216	6,396	16.4	24.4	0
21	7,029	6,040	989	5,237	6,226	16.4	23.4	0
22	6,774	5,437	1,337	4,764	6,101	16.1	22.8	0
23	6,473	5,196	1,277	4,727	6,004	16.9	23.5	0
24	6,420	5,295	1,125	4,748	5,873	16.6	23.7	0.02
25	6,990	6,045	945	5,049	5,994	17.1	24.9	0
26	6,604	5,745	859	5,152	6,011	16.6	24.2	0.02
27	6,420	5,440	980	5,065	6,045	16.8	24.2	0.01
28	6,586	5,780	807	5,333	6,140	17.1	24.2	0
29	7,445	6,262	1,183	5,447	6,630	17.4	24.4	0
30	7,445	6,262	1,183	5,447	6,630	17.4	24.4	0
31	0	0	0	0	0	26.2	21.3	0
<b>TOTAL</b>	207,574	181,613	25,961	156,524	182,485			
<b>AVG</b>	6,696	5,858	837	5,049	5,887	16	24	0
<b>HIGH</b>	7,632	6,972	1,337	5,556	6,630			

**IMPERIAL - NORMAN WELLS OPERATIONS**  
**WATER LICENCE S13L1-007**  
**CPF MONTHLY VOLUMES SUMMARY**  
**July 2020**

**Water Injection Volumes (m<sup>3</sup>)**

Total fresh water injected	25,961	
Total produced water injected	156,524	
<b>Total Monthly</b>	<b>182,485</b>	<b>Total Injected</b>

**CPF Water Volumes (m<sup>3</sup>)**

Total CPF intake water S13L1-007-01	207,574	
Total CPF effluent water S13L1-007-02	181,613	
Highest daily water intake S13L1-007-01	7,632	Max. Allow. 16,000 m3/day.
<b>YTD water intake S13L1-007</b>	<b>1,146,935</b>	Max. Allow. 3,500,000 m3/yr.

**Alternate Water Usage Volumes (m<sup>3</sup>)**

Alternate surface water usage	0
<b>YTD Alternate surface water usage</b>	<b>0</b>

**Surface Runoff Water Release Volumes (m<sup>3</sup>)**

Refinery Impound Basin	26,225
LT 11 Impound Basin	2542
D-42 Impound Basin	792
Refinery Water flood Basin	0
CPF Impound Basin	16,353
Misc. Mainland Impound Areas	1640
Misc. Bear Island Impound Areas	25
Misc. Goose Island Impound Areas	347
<b>Total - YTD Surface Runoff</b>	<b>47,924</b>



**IMPERIAL - NORMAN WELLS OPERATIONS**  
**WATER LICENCE S13L1-007-1**  
**QUARTERLY CPF WATER INLET DATA**  
 July 2020

<b>SNP S13L1-007-1 (Intake Water)</b>					
<b>Parameter</b>	<b>Q1 2020 (mg/L)</b>	<b>Q2 2020 (mg/L)</b>	<b>Q3 2020 (mg/L)</b>	<b>Q4 2020 (mg/L)</b>	<b>YTD Avg. (mg/L)</b>
pH	6.86	6.90			
Phenols	<0.0015	<0.0015			
Dissolved Sodium	8.8	6			
Total Sodium	8.4	6			
Dissolved Potassium	0.88	0.8			
Total Potassium	0.89	1.9			
Dissolved Sulphate	31	31			
Dissolved Chloride	10	7			
Dissolved Calcium	26	30			
Total Calcium	26	32			
Dissolved Magnesium	9	8			
Total Magnesium	9	8.4			
Total Alkalinity	100	96			
Specific Conductivity	250	230			
Total Suspended Solids	15.0	6.7			
Total Dissolved Solids	140	140			
Total Petroleum	<2.0	<2.0			
Total Phosphorus	<0.10	<0.10			
Total Hardness	100	110			

**IMPERIAL - NORMAN WELLS OPERATIONS**  
**WATER LICENCE S13L1-007-2**  
**QUARTERLY CPF WATER EFFLUENT DATA**  
 July 2020

<b>SNP S13L1-007-2 (Effluent Water)</b>					
<b>Parameter</b>	<b>Q1 2020 (mg/L)</b>	<b>Q2 2020 (mg/L)</b>	<b>Q3 2020 (mg/L)</b>	<b>Q4 2020 (mg/L)</b>	<b>YTD Avg. (mg/L)</b>
pH	6.87	6.89			
Phenols	<0.0015	<0.0015			
Dissolved Sodium	8.3	7			
Total Sodium	8.4	7			
Dissolved Potassium	0.84	0.9			
Total Potassium	0.88	1.0			
Dissolved Sulphate	30	36			
Dissolved Chloride	10	11			
Dissolved Calcium	25	35			
Total Calcium	26	38			
Dissolved Magnesium	9	8			
Total Magnesium	9	8.9			
Total Alkalinity	85	95			
Specific Conductivity	250	260			
Total Suspended Solids	<1.0	7.0			
Total Dissolved Solids	140	180			
Total Petroleum	<2.0	<2.0			
Total Phosphorus	<0.10	<0.10			
Total Hardness	100	120			

**IMPERIAL - NORMAN WELLS OPERATIONS**  
**WATER LICENCE S13L1-007-2**  
**QUARTERLY ACUTE LETHALITY**  
 July 2020

<b>SNP S13L1-007-2 (Effluent Water)</b>		
<b>Date</b>	<b>Rainbow Trout (% Survival)</b>	<b>Daphnia Magna (% Survival)</b>
<b>Licence Criteria</b>	<b>&gt; 50% Survival</b>	<b>&gt; 50% Survival</b>
Q1	100%	100%
Q2	100%	100%
Q3	100%	100%
Q4		

**IMPERIAL - NORMAN WELLS OPERATIONS**  
**WATER LICENCE S13L1-007**  
**SURFACE WATER RUNOFF RELEASE REPORT**  
**July 2020**

Discharge Where Contamination Suspected										
	Date	Start/ Middle/ End	Total Discharge Volume (m <sup>3</sup> )	Total Petroleum Hydrocarbons (mg/L)	Phenols (mg/L)	Chlorides (mg/L)	pH	Total Suspended Solids (mg/L)	Total Dissolved Solids (mg/L)	Specific Conduct. (uS/cm)
<b>Max Grab Sample Limit</b>				<b>5</b>	<b>0.14</b>	<b>&lt;500</b>	<b>6.0-9.0</b>			
<b>Mainland Areas</b>										
CPF Impound Basin	8-Jul	Start	0	<2.0	0.0042	8.8	7.91	6.5	1200	1500
	14-Jul	Mid 1		<2.0	0.0027	9.0	7.40	130	1300	1600
	21-Jul	Mid 2		<2.0	0.0027	8.0	7.60	38	1200	1500
	28-Jul	Mid 3		<2.0	0.0055	9.6	7.90	10	1300	1600
LT-11	8-Jul	Start	0	<2.0	0.0068	7.3	8.32	1.3	460	720
	14-Jul	Mid 1		<2.0	0.0021	7.9	7.75	1.6	490	760
	21-Jul	Mid 2		<2.0	0.0082	7.2	7.97	3.9	460	740
	28-Jul	Mid 3		<2.0	<0.0015	8.9	7.94	8.1	560	830
Refinery Impound Basin	8-Jul	Start	0	<2.0	0.0018	44	8.12	5	500	720
	14-Jul	Mid 1	1896	<2.0	0.0048	23	7.91	4.7	470	750
	21-Jul	Mid 2	0	<2.0	0.0047	26	8.17	3.5	500	860
	28-Jul	Mid 3		<2.0	0.0027	27	8.29	1.5	480	760
Refinery Waterflood Basin	8-Jul	Start	0	<2.0	0.0019	26	8.48	1.3	490	830
	14-Jul	Mid 1		<2.0	<0.0015	29	8.39	1.5	480	870
	21-Jul	Mid 2		<2.0	0.0035	28	8.40	2.5	450	870
	28-Jul	Mid 3		<2.0	<0.0015	30	8.62	1.3	500	880
<b>Misc. Mainland Impound Areas</b>										

**IMPERIAL - NORMAN WELLS OPERATIONS**  
**WATER LICENCE S13L1-007**  
**SURFACE WATER RUNOFF RELEASE REPORT**  
**July 2020**

Discharge Where No Contamination Suspected					
	Date	Total Discharge Volume (m <sup>3</sup> )	Chlorides (mg/L)	pH	Sheen Y/N
<b>Sample Limits</b>			<b>&lt; 500</b>	<b>6.0-9.0</b>	<b>N</b>
<b>Mainland</b>					
LT 11 category A Area	13-Jul	10	0	6	N
<b>Bear Island</b>					
<b>Goose Island</b>					
O16	1-Jul	10	0	6	N
O19	1-Jul	10	0	6	N
Q17	1-Jul	2	0	6	N
T11	2-Jul	10	0	6	N
T13	2-Jul	10	0	6	N
N22	3-Jul	10	0	6	N
S14	5-Jul	10	0	6	N
N13	7-Jul	1	0	6	N
N21	7-Jul	8	0	6	N
P13	7-Jul	4	0	6	N
M19	10-Jul	3	0	6	N
O07	10-Jul	10	0	6	N
P09	10-Jul	2	0	6	N
S05	10-Jul	5	0	6	N
T07	10-Jul	4	0	6	N
N18	11-Jul	9	0	6	N
S08	11-Jul	2	0	6	N
P22	12-Jul	9	0	6	N
Q15	12-Jul	3	0	6	N
Q10	13-Jul	4	0	6	N
O07	14-Jul	3	0	6	N
R27	14-Jul	9	0	6	N
S06	14-Jul	3	0	6	N
S26	14-Jul	9	0	6	N
T10	14-Jul	3	0	6	N
T23	14-Jul	9	0	6	N
T25	14-Jul	9	0	6	N
T9	14-Jul	3	0	6	N
P17	15-Jul	6	0	6	N
P21	15-Jul	5	0	6	N
R13	15-Jul	4	0	6	N
R15	15-Jul	9	0	6	N
T12	15-Jul	5	0	6	N
T14	15-Jul	5	0	6	N
T15	15-Jul	5	0	6	N
T19	15-Jul	5	0	6	N
L15	17-Jul	4	0	6	N
N15	17-Jul	4	0	6	N
N25	17-Jul	7	0	6	N
N27	17-Jul	3	0	6	N
N23	18-Jul	9	0	6	N
M13	19-Jul	9	0	6	N
M15	19-Jul	9	0	6	N
N14	20-Jul	9	0	6	N
Q12	20-Jul	8	0	6	N