



Jody Crawford
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June 23, 2022

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

**Re: Monthly Water Use Report for May 2022
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 May.

If you require further information please contact myself at 587-476-2878 or benjamin.fraser@esso.ca.

Sincerely,

A handwritten signature in black ink, appearing to read "Benjamin Fraser".

Benjamin Fraser
Environment and Regulatory Advisor
Imperial

cc: T.Morton CIRNAC, Yellowknife

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF DAILY VOLUMES
May 2022

Date	VOLUMES (m ³)					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	5140	3901	1239	5610	6849	2.7	14.2	0.00
2	5154	4066	1088	5783	6871	2.5	13.6	0.00
3	5248	4183	1065	5801	6866	2.5	13.6	0.00
4	5101	4058	1042	5764	6806	2.5	12.7	0.00
5	5100	4058	1042	5800	6842	2.6	12.4	0.00
6	5111	4012	1099	5727	6826	2.5	12.6	0.00
7	5252	4084	1169	5659	6827	2.5	12.7	0.00
8	5294	4172	1122	5602	6724	2.6	12.3	0.00
9	5217	4138	1079	5636	6715	2.7	12.1	0.00
10	5505	4448	1056	5725	6781	2.8	13.0	0.00
11	5613	4232	1382	5558	6940	2.6	15.7	0.00
12	5652	4200	1452	5523	6975	2.5	14.9	0.00
13	5725	4473	1252	5624	6875	2.6	15.6	0.00
14	5843	4388	1455	5303	6758	2.6	13.0	0.00
15	5709	4124	1585	4131	5716	2.6	13.0	0.00
16	5800	3874	1927	4559	6486	2.6	13.0	0.00
17	5800	3950	1851	5003	6854	2.9	13.7	0.00
18	5800	4116	1684	5074	6758	2.7	12.2	0.00
19	5801	4245	1556	5340	6896	3.0	14.5	0.00
20	5876	4147	1729	5230	6959	2.9	15.5	0.00
21	5868	4119	1749	5196	6945	3.4	15.0	0.00
22	5953	4213	1740	5232	6973	5.0	16.6	0.00
23	5953	4213	1740	5232	6973	5.0	16.6	0.00
24	6000	4335	1665	5289	6954	5.4	15.7	0.00
25	5842	4,288	1,554	5,116	6,670	5.8	15.6	0.03
26	5,800	4,770	1,030	5,323	6,353	5.8	15.8	0.03
27	5,801	4,926	874	5,347	6,222	5.9	14.3	0.03
28	5,800	4,740	1,061	5,244	6,305	6.9	15.3	0.02
29	5,800	4,754	1,047	5,233	6,280	7.7	16.4	0.01
30	5,838	4,881	958	5,327	6,285	8.5	17.6	0.00
31	5,950	4,945	1,006	5,206	6,211	8.7	17.2	0.00
TOTAL	174,348	133,050	41,298	166,197	207,495	-	-	-
AVG	5,624	4,292	1,332	5,361	6,693	3.9	14.4	0.00
HIGH	6,000	4,945	1,927	5,801	6,975	8.7	17.6	0.03

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF MONTHLY VOLUMES SUMMARY
May 2022

Water Injection Volumes (m³)

Total fresh water injected	41,298	
Total produced water injected	166,197	
Total Monthly	207,495	Total Injected

CPF Water Volumes (m³)

Total CPF intake water S13L1-007-01	174,348	
Total CPF effluent water S13L1-007-02	133,050	
Highest daily water intake S13L1-007-01	6,000	Max. Allow. 16,000 m3/day.
YTD water intake S13L1-007	793,800	Max. Allow. 3,500,000 m3/yr.

Alternate Water Usage Volumes (m³)

Alternate surface water usage	0
YTD Alternate surface water usage	0

Surface Runoff Water Release Volumes (m³)

Refinery Impound Basin	14,259
LT 11 Impound Basin	455
Refinery Water flood Basin	0
CPF Impound Basin	11,712
Misc. Mainland Impound Areas	1,733
Misc. Bear Island Impound Areas	0
Misc. Goose Island Impound Areas	0
Total - YTD Surface Runoff	28,159

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007-1
QUARTERLY CPF WATER INLET DATA
May 2022

SNP S13L1-007-1 (Intake Water)					
Parameter	Q1 2022 (mg/L)	Q2 2022 (mg/L)	Q3 2022 (mg/L)	Q4 2022 (mg/L)	YTD Avg. (mg/L)
pH	6.32	-	-	-	6.32
Phenols	<0.0015	-	-	-	<0.0015
Dissolved Sodium	8.6	-	-	-	8.6
Total Sodium	8.2	-	-	-	8.2
Dissolved Potassium	1.1	-	-	-	1.1
Total Potassium	0.85	-	-	-	0.85
Dissolved Sulphate	28	-	-	-	28
Dissolved Chloride	10	-	-	-	10
Dissolved Calcium	27	-	-	-	27
Total Calcium	24	-	-	-	24
Dissolved Magnesium	9.8	-	-	-	9.8
Total Magnesium	8.5	-	-	-	8.5
Total Alkalinity	44	-	-	-	44
Specific Conductivity	240	-	-	-	240
Total Suspended Solids	<1.0	-	-	-	<1.0
Total Dissolved Solids	160	-	-	-	160
Total Petroleum Hydrocarbons	<2.0	-	-	-	<2.0
Total Phosphorus	<0.1	-	-	-	<0.1
Total Hardness	110	-	-	-	110

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007-2
QUARTERLY CPF WATER EFFLUENT DATA
May 2022

SNP S13L1-007-2 (Effluent Water)					
Parameter	Q1 2022 (mg/L)	Q2 2022 (mg/L)	Q3 2022 (mg/L)	Q4 2022 (mg/L)	YTD Avg. (mg/L)
pH	7.61	-	-	-	7.61
Phenols	<0.0015	-	-	-	<0.0015
Dissolved Sodium	8.6	-	-	-	8.6
Total Sodium	8.5	-	-	-	8.5
Dissolved Potassium	0.95	-	-	-	0.95
Total Potassium	0.90	-	-	-	0.90
Dissolved Sulphate	28	-	-	-	28
Dissolved Chloride	9.9	-	-	-	9.9
Dissolved Calcium	27	-	-	-	27
Total Calcium	25	-	-	-	25
Dissolved Magnesium	10	-	-	-	10
Total Magnesium	8.8	-	-	-	8.8
Total Alkalinity	75	-	-	-	75
Specific Conductivity	240	-	-	-	240
Total Suspended Solids	<1.0	-	-	-	<1.0
Total Dissolved Solids	140	-	-	-	140
Total Petroleum Hydrocarbons	<2.0	-	-	-	<2.0
Total Phosphorus	<0.1	-	-	-	<0.1
Total Hardness	110	-	-	-	110

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007-2
QUARTERLY ACUTE LETHALITY
May 2022

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

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
SURFACE WATER RUNOFF RELEASE REPORT
May 2022

Discharge Where Contamination Suspected										
	Date	Start/ Middle/ End	Total Discharge Volume (m ³)	Total Petroleum Hydrocarbons (mg/L)	Phenols (mg/L)	Chlorides (mg/L)	pH	Total Suspended Solids (mg/L)	Total Dissolved Solids (mg/L)	Specific Conductivity (uS/cm)
Max Grab Sample Limit				5	0.14	<500	6.0-9.0			
Mainland Areas										
CPF Impound Basin	3-May	Start	11712	<2.0	<0.0015	1.5	7.53	4.3	160	260
	9-May	Mid 1		<2.0	<0.0015	1.7	7.10	<1.0	180	260
	17-May	Mid 2		<2.0	0.0022	17.0	7.97	33	200	340
	24-May	Mid 3		<2.0	<0.0015	10.0	7.56	3.5	500	750
	30-May	Mid 4		<2.0	<0.0015	8.2	8.10	1.4	730	1000
Refinery Impound Basin	2-May	Start	14259	<2.0	<0.0015	3.3	7.77	2.0	190	310
	9-May	Mid 1		<2.0	<0.0015	3.2	7.55	1.3	190	310
	17-May	Mid 2		<2.0	0.0031	6.9	8.09	2.5	290	470
	24-May	Mid 3		<2.0	<0.0015	9.8	7.99	1.1	360	580
	30-May	Mid 4		<2.0	<0.0015	12.0	8.29	<1.0	390	650
LT-11 Impound Basin	3-May	Start	455	<2.0	<0.0015	<1.0	7.38	2.2	88	120
	9-May	Mid 1		<2.0	0.0026	2.5	7.02	1.4	110	170

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
SURFACE WATER RUNOFF RELEASE REPORT
May 2022

Discharge Where No Contamination Suspected					
	Date	Total Discharge Volume (m ³)	Chlorides (mg/L)	pH	Sheen Y/N
Sample Limits			< 500	6.0-9.0	N
Mainland					
F-31 Culvert	1-May	9	<250	7	N
E-30 Culvert	1-May	8	<250	7	N
F-31 Culvert	2-May	5	<250	7	N
E-30 Culvert	2-May	9.5	<250	7	N
D-42 Area	2-May	234	<250	7	N
E-33 Area	3-May	174	<250	7	N
F-31 Culvert	3-May	8	<250	7	N
F-31 Culvert	4-May	8.5	<250	7	N
D-42 Area	5-May	735	<250	7	N
D-28 Area	6-May	248	<250	7	N
D-42 Area	7-May	294	<250	7	N
Bear Island					
		0			
Goose Island					
		0			