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August 31st, 2015

SLWB File: S13L1-007

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

Re: Water Licence S13L1-007 Monthly Water Use Report for July 2015

Dear Ms. Bergsma,

Imperial Oil Resources (Imperial) N.W.T. Limited is submitting the July 2015 monthly results for the Surveillance Network Program under Water Licence S13L1-007.

Imperial met all water licence requirements for the month of July.

Following approval from the SLWB on June 30th, Imperial withdrew an additional 20 m³ of freshwater from the Mackenzie River from an unnamed location on Goose Island; freshwater withdrawal ceased on July 12th. Purpose of the water was for hydrovac activities on Goose Island as part of a pipeline replacement project.

Any questions or concerns please contact me at (867) 587-3215.

Sincerely,

Lindsay Hollands, B.ASc
Regulatory and Environmental Advisor

cc: T. Morton, AANDC, Yellowknife

circulate: J. Watson Operations Superintendent, Norman Wells
A. Phelps Environment and Regulatory Supervisor, Cold Lake
R. Beck Plant Foreman, Norman Wells
J. Brown Field Foreman, Norman Wells
A. Campbell Maintenance Foreman, Norman Wells

IMPERIAL OIL RESOURCES - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF DAILY VOLUMES
JULY 2015

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	8979	6926	2053	7890	9,943	19	28	0.02
2	8712	6634	2079	7902	9,981	19	27	**
3	8643	6573	2070	7910	9,980	19	27	0.06
4	8395	6021	2375	7639	10,014	19	27	0.00
5	8198	5600	2598	7586	10,184	17	25	0.01
6	8161	5594	2567	7621	10,188	18	26	0.02
7	8602	6018	2585	7605	10,190	19	28	0.02
8	8527	5962	2564	7628	10,193	16	24	0.02
9	7591	5502	2090	5709	7,799	17	23	0.00
10	4294	3568	726	2411	3,138	20	20	0.00
11*	0	0	0	0	0	21	20	0.00
12*	0	0	0	0	0	21	22	0.00
13*	0	0	0	0	0	23	21	0.00
14*	0	0	0	0	0	23	21	0.00
15*	0	0	0	0	0	22	22	0.00
16*	0	0	0	0	0	24	22	0.00
17*	0	0	0	0	0	22	21	0.00
18*	0	0	0	0	0	22	20	0.00
19*	0	0	0	0	0	25	21	0.00
20*	0	0	0	0	0	25	21	0.00
21*	0	0	0	0	0	25	21	0.00
22*	0	0	0	0	0	19	20	0.00
23*	0	0	0	0	0	21	20	0.00
24*	0	0	0	0	0	21	20	0.00
25*	0	0	0	0	0	25	19	0.00
26*	0	0	0	0	0	27	18	0.00
27	1610	1584	25	1742	1,767	19	20	0.00
28	8201	7675	526	6147	6,674	18	23	0.00
29	7791	6249	1542	8078	9,620	17	22	0.00
30	8037	5911	2126	7948	10,074	17	24	0.00
31	7778	5590	2188	7356	9,544	17	24	0.00
TOTAL	113,521	85,407	28,114	101,173	129,288			
AVG	3,525	2,661	864	3,127	3,991	21	22	0.01
HIGH	8,979	7,675	2,598	8,078	10,193			

* Plant was shut down due to turnaround, no water was withdrawn occurred during this time

** Batch chlorine to the field, therefore, no chlorine injection into the freshwater cooling loop on this day

IMPERIAL OIL RESOURCES - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF MONTHLY VOLUMES SUMMARY
JULY 2015

Water Injection Volumes (m³)

Total fresh water injected	28,114	
Total produced water injected	101,173	
Total Monthly	129,288	Total Injected

CPF Water Volumes (m³)

Total CPF intake water S13L1-007	113,521	
Total CPF effluent water S13L1-007	85,407	
Highest daily water intake S13L1-007	8,979	Max. Allow. 16,000 m3/day.
YTD water intake S13L1-007	1,331,214	Max. Allow. 3,500,000 m3/yr.

Alternate Water Usage Volumes (m³)

Alternate surface water usage	*
YTD Alternate surface water usage	20

* See cover letter

Surface Runoff Water Release Volumes (m³)

Refinery Impound Basin	6,098
LT 11 Impound Basin	0
Refinery Water flood Basin	0
CPF Impound Basin	0
Misc. Mainland Impound Areas	17
Misc. Bear Island Impound Areas	0
Misc. Goose Island Impound Areas	68
Total - YTD Surface Runoff	57,991

* See Surface Water Runoff Release section for details

IMPERIAL OIL RESOURCES - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF MONTHLY WATER DATA
JULY 2015

SNP S13L1-007-1 (Intake Water)			
	Suspended Solids (mg/l)	pH	Specific Conductivity uS/cm
Max. Grab Limit			
June 29 - July 2	190	8.07	310
July 2 - 6	72	8.02	270
July 6 - 9	250	8.09	280
July 9 - 13 *	23	8.06	280
July 13 - 16	**	**	**
July 16 - 20	**	**	**
July 20 - 23	**	**	**
July 23 - 27	**	**	**
July 27 - 30	37	8.08	290

* Samples were collected on July 10th due to shut down of the plant for turnaround activities

** No water was being release to the river therefore no samples were taken during this time

SNP S13L1-007-2 (Effluent Water)			
	Suspended Solids (mg/l)	pH	Specific Conductivity uS/cm
Max. Grab Limit		6.0 - 9.0	
June 29 - July 2	74	8.02	270
July 2 - 6	84	7.99	270
July 6 - 9	45	8.11	280
July 9 - 13 *	3	8.19	290
July 13 - 16	**	**	**
July 16 - 20	**	**	**
July 20 - 23	**	**	**
July 23 - 27	**	**	**
July 27 - 30	75	8.08	320

* Samples were collected on July 10th due to shut down of the plant for turnaround activities

** No water was being release to the river therefore no samples were taken during this time

SNP S13L1-007-1 (Intake Water)		
	Total Petroleum Hydrocarbons (mg/l)	Phenol (mg/l)
Max. Grab Limit		
June 29 - July 6	<2.0	0.0052
July 6 - 13 *	<2.0	0.0031
July 13 - 20	**	**
July 20 - 27	**	**

* Samples were collected on July 10th due to shut down of the plant for turnaround activities

** No water was being release to the river therefore no samples were taken during this time

SNP S13L1-007-2 (Effluent Water)				
	Total Petroleum Hydrocarbons (mg/l)	Phenol (mg/l)	Daily Chlorine (mg/l)	Temp (C)
Max. Grab Limit	5	0.14		
June 29 - July 6	<2.0	0.0032	0.02	27
July 6 - 13 *	<2.0	0.0023	0.01	23
July 13 - 20	**	**	0.00	21
July 20 - 27	**	**	0.00	20

* Samples were collected on July 10th due to shut down of the plant for turnaround activities

** No water was being release to the river therefore no samples were taken during this time

IMPERIAL OIL RESOURCES - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF MONTHLY WATER DATA
JULY 2015

SNP S13L1-007-2 (Effluent Water) - FOUR WEEK AVERAGE CONCENTRATION							
Parameter	Total Petroleum Hydrocarbons (mg/l)	Phenol (mg/l)	Suspend Solids (mg/l)	pH	Specific Conduct. (uS/cm)	Daily Chlorine (mg/l)	Temp (C)
Max. Average Limit	3.00	0.0700		6.0 - 9.0			
June 8 - July 6	<2.0	0.0044	81	8.04	260	0.02	26
June 15 - July 13	<2.0	0.0034	51	8.08	268	0.02	26
June 22 - July 20 *	<2.0	0.0030	58	8.08	270	0.01	25
June 29 - July 27 *	<2.0	0.0028	51	8.08	278	0.01	23

* Due to turnaround only 3 week average not 4.

* Due to turnaround only 2 week average not 4.

IMPERIAL OIL RESOURCES - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
SEMI-ANNUAL CPF WATER INLET DATA
JULY 2015

SNP S13L1-007-1 (Intake Water)					
Date	Q2	Q3	Q4	Q1	YTD Avg. (mg/L)
	April 2015 (mg/L)	(mg/L)	(mg/L)	(mg/L)	
pH	8.2				8.17
Phenols	0.003				0.00
Dissolved Sodium	8.7				8.70
Total Sodium	9.2				9.20
Dissolved Potassium	1.0				1.00
Total Potassium	1.1				1.10
Dissolved Sulphate	67.0				67.00
Dissolved Chloride	11.0				11.00
Dissolved Calcium	42.0				42.00
Total Calcium	43.0				43.00
Dissolved Magnesium	16.0				16.00
Total Magnesium	17.0				17.00
Total Alkalinity	110.0				110.00
Specific Conductivity	320.0				320.00
Total Suspended Solids	<1.0				<1.0
Total Dissolved Solids	250.0				250.00
Total Petroleum	<2.0				<2.0
Total Phosphorus	<0.10				<0.10
Total Hardness	170.0				170.00

SNP S13L1-007-2 (Effluent Water)					
Date	Q2	Q3	Q4	Q1	YTD Avg. (mg/L)
	April 2015 (mg/L)	(mg/L)	(mg/L)	(mg/L)	
pH	8.2				8.2
Phenols	0.003				0.0
Dissolved Sodium	9.0				9.0
Total Sodium	8.9				8.9
Dissolved Potassium	1.0				1.0
Total Potassium	1.1				1.1
Dissolved Sulphate	65.0				65.0
Dissolved Chloride	11.0				11.0
Dissolved Calcium	43.0				43.0
Total Calcium	43.0				43.0
Dissolved Magnesium	17.0				17.0
Total Magnesium	17.0				17.0
Total Alkalinity	110.0				110.0
Specific Conductivity	330.0				330.0
Total Suspended Solids	<1.0				<1.0
Total Dissolved Solids	240.0				240.0
Total Petroleum	<2.0				<2.0
Total Phosphorus	<0.10				<0.10
Total Hardness	180.0				180.0

QUARTERLY CPF EFFLUENT DATA
 QUARTERLY ACUTE LETHALITY
 JULY 2015

SNP S13L1-007-2 (Effluent Water)		
Date	Rainbow Trout (% Survival)	Daphnia Magna (% Survival)
Q2 - April 2015	100%	100%
Q3		
Q4		
Q1		
Licence Criteria	> 50% Survival	> 50% Survival

IMPERIAL OIL RESOURCES - NORMAN WELLS OPERATIONS
 WATER LICENCE S13L1-007
 SURFACE WATER RUNOFF RELEASE REPORT
 JULY 2015

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	Suspend Solids (mg/l)	Total Dissolved Solids (mg/l)	Specific Conduct. (uS/cm)
Max Grab Sample Limit				5	0.14	<500	6.0-9.0			
Mainland Areas										
Refinery Waterflood			0							
Refinery Impound	6-Jul	Mid 1	6,098	<2.0	0.0088	32.0	7.88	1.3	530	820
	13-Jul	Mid 2		<2.0	0.0080	32.0	8.22	1.3	510	780
	21-Jul	Mid 3		<2.0	0.0130	36.0	8.13	3.3	560	960
	27-Jul	Mid 4		<2.0	0.0092	35.0	8.13	33.0	640	980
LT11 Impound			0							
CPF Impound			0							
Misc. Mainland Impound Areas										
			0							
Misc. Bear Impound Areas										
			0							
Misc. Goose Impound Areas										
			0							

IMPERIAL OIL RESOURCES - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
SURFACE WATER RUNOFF RELEASE REPORT
JULY 2015

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					
Ditch Near LT11 *	20-May	8	<30	6	N
Ditch Near LT11 *	3-Jun	9	<30	6	N
Bear					
		0			
Goose Island					
T-23X	7-Jul	8	37	6	N
R-11X	7-Jul	7	37	6	N
T-12X	7-Jul	9	37	6	N
O-07X	8-Jul	9	37	6	N
T-09X	10-Jul	4	43	6	N
T-10X	10-Jul	8	37	6	N
O-14X	11-Jul	8	43	6	N
N-15	17-Jul	4	<30	6	N
Q-15X	17-Jul	3	30	6	N
Q-12X	17-Jul	4	30	6	N
P-21X	17-Jul	4	37	6	N

* Discharge sheets not submitted on time