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29 August 2017

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

**Re: Monthly Water Use Report for July 2017
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. All water licence requirements were met for the month of July.

As per the March 2017 report, the Norman Wells facility remains temporarily shutdown.

If you require further information, please contact Sloan Leavitt at 587-476-4449 or sloan.n.leavitt@esso.ca.

Sincerely,

A handwritten signature in black ink that reads "Sloan Leavitt". The signature is written in a cursive style with a large, sweeping initial "S".

Sloan Leavitt
Environment and Regulatory Advisor

cc: T. Morton, INAC, Yellowknife

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF DAILY VOLUMES
July 2017

| 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* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 0 | 0 | 0 | 0 | | | |
| AVG | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| HIGH | 0 | 0 | 0 | 0 | 0 | | | |

* Norman Wells facility temporarily shutdown as a result of the Enbridge Line 21 outage

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF MONTHLY VOLUMES SUMMARY
July 2017

Water Injection Volumes (m³)

| | | |
|-------------------------------|----------|----------------|
| Total fresh water injected | 0 | |
| Total produced water injected | 0 | |
| Total Monthly | 0 | Total Injected |

CPF Water Volumes (m³)

| | | |
|---|----------------|------------------------------|
| Total CPF intake water S13L1-007-01 | 0 | |
| Total CPF effluent water S13L1-007-02 | 0 | |
| Highest daily water intake S13L1-007-01 | 0 | Max. Allow. 16,000 m3/day. |
| YTD water intake S13L1-007 | 215,030 | 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 | 1,476 |
| LT 11 Impound Basin | 0 |
| Refinery Water flood Basin | 294 |
| CPF Impound Basin | 0 |
| Misc. Mainland Impound Areas | 351 |
| Misc. Bear Island Impound Areas | 0 |
| Misc. Goose Island Impound Areas | 141 |
| Total - YTD Surface Runoff | 11,193 |

IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF MONTHLY WATER DATA
July 2017

| SNP S13L1-007-1 (Intake Water) | | | |
|---------------------------------------|-------------------------------|-----|-------------------------------|
| Dates | Total Suspended Solids (mg/L) | pH | Specific Conductivity (uS/cm) |
| Max. Grab Limit | | | |
| Jun 29 - Jul 3* | N/A | N/A | N/A |
| Jul 3 - 6* | | | |
| Jul 6 - 10* | | | |
| Jul 10 - 13* | | | |
| Jul 13 - 17* | | | |
| Jul 17 - 20* | | | |
| Jul 20 - 24* | | | |
| Jul 24 - 27* | | | |
| Jul 27 - 31* | | | |

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| SNP S13L1-007-2 (Effluent Water) | | | |
|---|-------------------------------|------------------|-------------------------------|
| Dates | Total Suspended Solids (mg/L) | pH | Specific Conductivity (uS/cm) |
| Max. Grab Limit | | 6.0 - 9.0 | |
| Jun 29 - Jul 3* | N/A | N/A | N/A |
| Jul 3 - 6* | | | |
| Jul 6 - 10* | | | |
| Jul 10 - 13* | | | |
| Jul 13 - 17* | | | |
| Jul 17 - 20* | | | |
| Jul 20 - 24* | | | |
| Jul 24 - 27* | | | |
| Jul 27 - 31* | | | |

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| SNP S13L1-007-1 (Intake Water) | | |
|---------------------------------------|-------------------------------------|----------------|
| Dates | Total Petroleum Hydrocarbons (mg/L) | Phenols (mg/L) |
| Max. Grab Limit | | |
| Jun 26 - Jul 3* | N/A | N/A |
| Jul 3 - 10* | | |
| Jul 10 - 17* | | |
| Jul 17 - 24* | | |
| Jul 24 - 31* | | |

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| SNP S13L1-007-2 (Effluent Water) | | | | |
|---|-------------------------------------|----------------|-----------------------|----------|
| Dates | Total Petroleum Hydrocarbons (mg/L) | Phenols (mg/L) | Daily Chlorine (mg/L) | Temp (C) |
| Max. Grab Limit | 5 | 0.14 | | |
| Jun 26 - Jul 3* | N/A | N/A | N/A | N/A |
| Jul 3 - 10* | | | | |
| Jul 10 - 17* | | | | |
| Jul 17 - 24* | | | | |
| Jul 24 - 31* | | | | |

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IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
CPF MONTHLY WATER DATA
July 2017

| SNP S13L1-007-2 (Effluent Water) - FOUR WEEK AVERAGE CONCENTRATION | | | | | | | |
|---|-------------------------------------|---------------|-------------------------------|------------------|-------------------------------|-----------------------|----------|
| Parameter | Total Petroleum Hydrocarbons (mg/L) | Phenol (mg/L) | Total Suspended Solids (mg/L) | pH | Specific Conductivity (uS/cm) | Daily Chlorine (mg/L) | Temp (C) |
| Max. Average Limit | 5.00 | 0.14 | | 6.0 - 9.0 | | | |
| Jun 5 - Jul 3* | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Jun 12 - Jul 10* | | | | | | | |
| Jun 19 - Jul 17* | | | | | | | |
| Jun 26 - Jul 24* | | | | | | | |
| Jul 3 - 31* | | | | | | | |

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IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007-1
QUARTERLY CPF WATER INLET DATA
July 2017

| SNP S13L1-007-1 (Intake Water) | | | | | |
|---------------------------------------|--------------------------------|-------------------------------|------------------------------|--------------------------------|------------------------|
| Parameter | January 2017 (mg/L) | April 2017* (mg/L) | July 2017* (mg/L) | October 2017 (mg/L) | YTD Avg. (mg/L) |
| pH | 7.90 | | | | 7.90 |
| Phenols | <0.0020 | | | | <0.0020 |
| Dissolved Sodium | 8.8 | | | | 8.8 |
| Total Sodium | 8.4 | | | | 8.4 |
| Dissolved Potassium | 0.92 | | | | 0.92 |
| Total Potassium | 0.92 | | | | 0.92 |
| Dissolved Sulphate | 30.0 | | | | 30.0 |
| Dissolved Chloride | 10.0 | | | | 10.0 |
| Dissolved Calcium | 28.0 | | | | 28.0 |
| Total Calcium | 26.0 | N/A | N/A | | 26.0 |
| Dissolved Magnesium | 10.0 | | | | 10.0 |
| Total Magnesium | 9.1 | | | | 9.1 |
| Total Alkalinity | 75.0 | | | | 75.0 |
| Specific Conductivity | 240.0 | | | | 240.0 |
| Total Suspended Solids | 23.0 | | | | 23.0 |
| Total Dissolved Solids | 140.0 | | | | 140.0 |
| Total Petroleum | <2.0 | | | | <2.0 |
| Total Phosphorus | <0.10 | | | | <0.10 |
| Total Hardness | 110.0 | | | | 110.0 |

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IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007-2
QUARTERLY CPF WATER EFFLUENT DATA
July 2017

| SNP S13L1-007-2 (Effluent Water) | | | | | |
|---|--------------------------------|-------------------------------|------------------------------|--------------------------------|------------------------|
| Parameter | January 2017 (mg/L) | April 2017* (mg/L) | July 2017* (mg/L) | October 2017 (mg/L) | YTD Avg. (mg/L) |
| pH | 7.88 | | | | 7.88 |
| Phenols | <0.0020 | | | | <0.0020 |
| Dissolved Sodium | 8.9 | | | | 8.9 |
| Total Sodium | 8.4 | | | | 8.4 |
| Dissolved Potassium | 0.90 | | | | 0.90 |
| Total Potassium | 0.86 | | | | 0.86 |
| Dissolved Sulphate | 30.0 | | | | 30.0 |
| Dissolved Chloride | 10.0 | | | | 10.0 |
| Dissolved Calcium | 28.0 | | | | 28.0 |
| Total Calcium | 26.0 | N/A | N/A | | 26.0 |
| Dissolved Magnesium | 10.0 | | | | 10.0 |
| Total Magnesium | 9.1 | | | | 9.1 |
| Total Alkalinity | 78.0 | | | | 78.0 |
| Specific Conductivity | 240.0 | | | | 240.0 |
| Total Suspended Solids | 1.3 | | | | 1.3 |
| Total Dissolved Solids | 140.0 | | | | 140.0 |
| Total Petroleum | <2.0 | | | | <2.0 |
| Total Phosphorus | <0.10 | | | | <0.10 |
| Total Hardness | 110.0 | | | | 110.0 |

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IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007-2
QUARTERLY ACUTE LETHALITY
July 2017

| SNP S13L1-007-2 (Effluent Water) | | |
|---|---------------------------------------|---------------------------------------|
| Date | Rainbow Trout (% Survival) | Daphnia Magna (% Survival) |
| Licence Criteria | > 50% Survival | > 50% Survival |
| Q1 - January | 100% | 100% |
| Q2 - April* | N/A | N/A |
| Q3 - July* | N/A | N/A |
| Q4 | | |

* Norman Wells facility temporarily shutdown as a result of the Enbridge Line 21 outage

**IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
SURFACE WATER RUNOFF RELEASE REPORT
July 2017**

| 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 | | | | | | | | | | |
| Refinery Impound | 13-Jul | Start | 1,476 | <2.0 | 0.0087 | 34 | 8.07 | 51 | 530 | 840 |
| | 20-Jul | Mid 1 | | <2.0 | 0.011 | 38 | 8.46 | 4 | 520 | 820 |
| | 27-Jul | End | | <2.0 | 0.012 | 36 | 8.18 | 4.7 | 510 | 780 |
| Misc. Mainland Impound Areas | | | | | | | | | | |
| Refinery Water Flood | 29-Jun | Start | 294 | <2.0 | 0.0051 | 28 | 8.85 | <1.0 | 510 | 850 |
| | 6-Jul | Mid 1 | | <2.0 | 0.0055 | 28 | 8.85 | 2 | 500 | 850 |
| | 13-Jul | Mid 2 | | <2.0 | 0.0037 | 30 | 8.74 | 51 | 530 | 850 |
| | 20-Jul | Mid 3 | | <2.0 | 0.0043 | 30 | 8.91 | 150 | 520 | 860 |
| | 27-Jul | Mid 4 | | <2.0 | 0.006 | 30 | 8.61 | 2.7 | 500 | 890 |
| RTK-119 | 29-Jun | Start | 32 | <2.0 | 0.024 | 9.5 | 8.18 | 7.3 | 250 | 380 |
| | 6-Jul | Mid 1 | | <2.0 | 0.016 | 20 | 8.51 | 11 | 600 | 650 |
| | 7-Jul | End | | <2.0 | 0.013 | 6.8 | 7.75 | 56 | 440 | 620 |
| RTK 116-118 | 29-Jun | Start | 170 | <2.0 | 0.019 | 14 | 7.96 | 3 | 370 | 580 |
| | 6-Jul | Mid 1 | | <2.0 | 0.018 | 12 | 8.13 | 2 | 360 | 570 |
| | 7-Jul | End | | <2.0 | 0.015 | 12 | 8.01 | 95 | 360 | 560 |
| RTK 109-111 | 29-Jun | Start | 149 | <2.0 | 0.016 | 18 | 8.34 | 18 | 460 | 670 |
| | 6-Jul | Mid 1 | | <2.0 | 0.016 | 20 | 8.45 | 170 | 580 | 660 |
| | 7-Jul | End | | <2.0 | 0.017 | 19 | 7.68 | 300 | 720 | 750 |

**IMPERIAL - NORMAN WELLS OPERATIONS
WATER LICENCE S13L1-007
SURFACE WATER RUNOFF RELEASE REPORT
July 2017**

| 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 | | | | | |
| | | 0 | | | |
| Bear Island | | | | | |
| | | 0 | | | |
| Goose Island | | | | | |
| N-19X | 1-Jul | 7 | 0 | 6 | N |
| L-15X | 1-Jul | 7 | 0 | 6 | N |
| M-13X | 1-Jul | 6 | 0 | 6 | N |
| T-16X | 2-Jul | 6 | 0 | 6 | N |
| O-12X | 2-Jul | 3 | 0 | 6 | N |
| T-21X | 2-Jul | 7 | 0 | 6 | N |
| T-15X | 2-Jul | 6 | 0 | 6 | N |
| T-19X | 2-Jul | 6 | 0 | 6 | N |
| R-13X | 2-Jul | 5 | 0 | 6 | N |
| T-13X | 2-Jul | 6 | 0 | 6 | N |
| T-11X | 2-Jul | 7 | 0 | 6 | N |
| N-22X | 4-Jul | 6 | 0 | 6 | N |
| P-22X | 4-Jul | 5 | 0 | 6 | N |
| T-07X | 13-Jul | 1 | 0 | 7 | N |
| S-06X | 13-Jul | 4 | 0 | 7 | N |
| N-13X | 26-Jul | 3 | 0 | 6 | N |
| O-16X | 26-Jul | 4 | 0 | 7 | N |
| O-17X | 26-Jul | 1 | 0 | 7 | N |
| P-13X | 26-Jul | 7 | 0 | 7 | N |
| P-11X | 26-Jul | 2 | 0 | 7 | N |
| N-15X | 27-Jul | 1 | 0 | 6 | N |
| N-11X | 27-Jul | 3 | 0 | 6 | N |
| M-48X | 27-Jul | 2 | 0 | 6 | N |
| S-26X | 29-Jul | 8 | 0 | 6 | N |
| O-10X | 29-Jul | 5 | 0 | 6 | N |
| N-14X | 29-Jul | 7 | 0 | 6 | N |
| T-25X | 29-Jul | 8 | 0 | 6 | N |
| R-27X | 29-Jul | 8 | 0 | 6 | N |