

November 21, 2014

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

Dear Ms. Bergsma,

**Re: Imperial Oil Resources Ltd. – Norman Wells Operation
Water Licence Renewal Application S13L1-007
Closing Argument and Comments on Draft Water Licence**

As requested by the Sahtu Land and Water Board (the Board), the Government of the Northwest Territories – Department of Environment and Natural Resources (ENR) is pleased to provide its closing comments in relation to the Water Licence renewal process for Imperial Oil Resources Ltd. (IORL) Norman Wells Operations. ENR has participated in the process to date including; attending technical sessions, attending the public hearing, submission of a technical intervention, and submission of an updated security estimate. ENR provides the following comments for the Board's consideration in its decision making process.

Aquatic Effects Monitoring Program

ENR notes that the draft Water Licence provided by the Board includes a condition related to the submission of an Aquatic Effects Monitoring Program (AEMP) in accordance with Aboriginal Affairs and Northern Development Canada's (AANDC) *Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the NWT*. ENR supports the inclusion of this condition and concurs with the importance of the establishment of such a program for IORL's Norman Wells Operations.

As the Board is aware, ENR attended the first meeting of the AEMP working group held in Norman Wells on November 20th, 2014. ENR will continue to participate with this working group and provide input on the development and ultimate implementation of the AEMP.

Closure and Reclamation Plan

While not specifically included in the Water Licence, ENR notes that there are various aspects of the *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB/AANDC 2013)* that can and should be applied to the Norman Wells Operation. Based on initial discussions, ENR understands that IORL will develop its Closure and Reclamation Plan (CRP) based on these guidelines.

Additionally, ENR would like to highlight the importance of the working group in the development of closure goals, objectives, options and criteria for the Norman Wells Production Facility. ENR attended the initial meeting of this group in Norman Wells on November 19th, 2014 and will continue to participate with this working group through the development and refinement of the CRP.

Security

As per the Board's request, on October 24th, 2014, ENR provided comments on IORL's security estimate, as well as provided the Board with its own security estimate in the amount of \$227,063,351. ENR maintains that this estimate and its associated contingency percentage is justified given the limited data available at this time pertaining to specific closure components at the Norman Wells Production Facility. Further, the contingency percentage is consistent with that used at other major development projects in the NWT, particularly those that have similar level of closure detail and design.

Draft Water Licence

In addition to general comments above, ENR has provided specific comments (Attachment 1) on the draft Water Licence that was circulated by the Sahtu Land and Water Board on November 13th, 2014.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division, Environment Division and the Sahtu Region and were coordinated and collated by the Environmental Impact Assessment Section, Conservation, Assessment and Monitoring Division (CAM).

In closing, ENR would again like to thank the Sahtu Land and Water Board for providing the opportunity to provide its closing comments for the IORL Water Licence renewal process.

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at 920-6118 or patrick_clancy@gov.nt.ca.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Clancy', written in a cursive style.

Patrick Clancy
Environmental Regulatory Analyst
Environmental Impact Assessment Section
Conservation, Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories

Attachment 1

Topic 1: Exclusion of Maximum Grabs

Comment(s):

While ENR notes that while there have been amendments to discharge criteria, it is also noted that a requirement for maximum grab samples has been removed. ENR notes that the requirement for a maximum grab sample is imperative to ensure that no short-term impacts to the receiving environment occur. Maximum average samples are indicative of longer duration sampling to ensure that organisms in the aquatic environment are not exposed to those concentrations over the long-term which may result in chronic toxicity. However, impacts can also be associated with short-term durations of a higher concentration which could be masked within maximum average concentrations. For example, CCME typically has a short-term and long-term guideline for water quality objectives for different duration periods. The rationale for the inclusion of a short-term duration (sampled during maximum grab) is to monitor shorter duration spikes that may be acutely lethal to aquatic organisms.

Recommendation(s):

- 1) Regarding discharge criteria at S13L1-007 – 2 (CPF discharge into the Mackenzie River), ENR recommends that in addition to maximum average concentrations, the Water Licence also include maximum grab sample limits. This is consistent with other licences in the NWT.

Topic 2: Total Suspended Solids

Comment(s):

Part E, Item: 9 of the draft Water Licence includes a new effluent criteria which states that discharge for TSS from SNP S13L1-007 – 2 (outlet) must not exceed 10% of the sample taken at SNP S13L1-007-1 (inlet) for the same period. It is noted in the licence that this is attributed to CCME. ENR notes that the CCME guidelines state the following for freshwater environment:

clear flow:

Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from

background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).

high flow:

Maximum increase of 25 mg/L from background levels at any time when background levels are between 25 and 250 mg/L. Should not increase more than 10% of background levels when background is ≥ 250 mg/L.

As noted in IORL's response to interventions dated March 26th, 2014, TSS in the inlet have yet to be in excess of 250 mg/L therefore a 25 mg/L increase could apply for background levels between 25-250 mg/L. This is less restrictive than the 10% noted in the Water Licence. Of note, the 2004-2013 summary data included in IORL's response indicates that this would be reflective of conditions between May and October.

Additionally, November to April sampling data indicate levels less than 25 mg/L in background conditions. This would correspond to clear flow conditions and, as per CCME, discharge into these waters should have a maximum increase of 25 mg/L for periods of less than 24-hr and maximum average concentration of 5 mg/L for longer term exposures.

Recommendation(s):

- 1) ENR recommends that the effluent criteria for TSS be revised to better reflect the CCME Guidelines for the Protection of Aquatic Life as noted below:

clear flow:

Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).

high flow:

Maximum increase of 25 mg/L from background levels at any time when background levels are between 25 and 250 mg/L. Should not increase more than 10% of background levels when background is ≥ 250 mg/L.

http://st-ts.ccme.ca/en/index.html?lang=en&factsheet=218#aql_fresh_concentration

Topic 3: Sampling Frequency

Comment(s):

ENR notes that the SNP requires that Representative Grab Samples are required to be taken only every 6 months, whereas samples for acute lethality are required to be taken quarterly. It would be useful to take Representative Grab Samples concurrently with samples for acute lethality to both confirm the accuracy of weekly composite samples and to assist in the determination of causality should there be a failure in the toxicity testing.

Recommendation(s):

- 1) ENR recommends that Representative Grab Samples be taken quarterly, concurrent with acute lethality testing.

Topic 4: Groundwater Criteria

Comment(s):

Part E.10. of the WL notes “criteria” for groundwater monitoring wells, however, the values appear to be detection limits. Additionally, it is unclear why the parameter list is limited to chloride and BTEX.

Recommendation(s):

ENR recommends that the parameter list for groundwater monitoring wells be expanded to include dissolved metals. In order to effectively monitor and minimize potential impacts ENR recommends that the Board use the criteria under the Alberta Tier 1 groundwater remediation guidelines in absence of territorial criteria. The adoption of the Alberta Tier 1 guidelines is best practice and common where there is no CCME guideline. The addition of dissolved metals is also recommended, to ensure that groundwater quality is being maintained. Emphasis is placed on preventing groundwater resources from becoming contaminated, rather than relying on remediation after contamination has occurred. To gain a thorough understanding of background conditions at site it is necessary to consider data from several monitoring wells that are located up- or cross- gradient from any potentially contaminant sources.

Topic 5: Visual Sheen

Comment(s):

As discussed throughout the WL process, ENR notes that visual observation is not a preferred option for determination of contamination. This method involves a great deal of subjectivity, as well, there may be instances where the contamination of water cannot be assessed visually. Further, there is no way to confirm compliance with visual observations (frequency or location). Actual sample results are the only and the preferred method to determine the existence and concentration of contamination.

Recommendation(s):

- 1) ENR recommends that all water that may potentially be contaminated be sampled in a lab prior to release and that visual assessment is not a criteria which is employed. Again, additional rationale is provided in written submissions previously provided to the Board.

Topic 6: Surface Water Run-off Facilities

Comment(s):

Part D of the SNP notes different sampling requirements for volumes greater than 10 m³ and volumes less than 10 m³. It is unclear how this determination will be made and reported. ENR notes that all water or waste used or discharged is to be metered and reported in the annual report each year. However, for open pond and containment ditches with unspecified capacities and that are managed by the opening and closing of valves and overflow lines, this cut-off criterion will be difficult to determine for the operator or assess by the inspector.

Recommendation(s):

- 1) ENR recommends that the WL include details on the determination and reporting of the 10 m³ threshold (10,000 L) as it relates to sampling requirements at Surface Water Run-off Facilities. Perhaps the cutoff volume should be changed/reduced in order to assist in determining sampling requirements.