



**Esther Choi**  
Project Manager  
587.476.1493 Tel  
esther.choi@esso.ca

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Tyree Mullaney  
Mackenzie Valley Land and Water Board  
PO BOX 2130 4922 48th Street - 7th Floor  
Yellowknife, NT X1A 2P6

Via Email: tyree@mvlwb.com

**Re: Type B Water Licence MV2021L1-0009 Annual Water Licence Report**

Dear Tyree,

Imperial Oil Limited was issued Water Licence MV2021L1-0009 on November 21, 2021 and the amended Licence on October 26, 2022 by the Mackenzie Valley Land and Water Board for the Jean Marie B-48 well re-abandonment project.

This report will address the requirements of Schedule 1: Annual Water Licence Report as part of Part B, Condition 17 of the Water Licence.

Please reach out to the undersigned if you have any questions.

Regards,

Esther Choi  
Project Manager E&PS

cc: Wendy Bidwell, Inspector, GNWT-ENR  
Jaclyn Mersereau, Imperial

a) *A brief summary of Project activities;*

**Well Site Location:**

In November and December of 2022, access was cleared to Jean Marie River using a dozer. Ice Bridge Crossing was built with snow makers and pumps to flood the ice using water from the Jean Marie River.

Access was then cleared from the river to the B-48 location using dozers. Location was cleared to a size of 100m x 90m.

Once the location was cleared it was determined that part of the location would be unusable and additional space (within the original location footprint) was requested. Once verbal approval was issued from the Mackenzie Valley Land and Water Board, the additional space was surveyed and cleared. Low spots on location were filled with regrowth and snow to keep the surface level for drilling rig footprint & re-abandonment drilling operations without the need to disturb soils.

In January and February of 2023, the drilling rig and associated equipment was moved in. Once the well re-abandonment downhole operations were completed, the well was cut and capped, and the rig was demobilized. Well abandonment signage was installed, and the cellar was back filled using a mixture of sand and original ground. Regrowth was removed from the low spots on location and utilized for rollback. Regrowth was placed on the hillside as a method of erosion control. The location was returned to its original state prior to construction & drilling operations.

Access was rolled back from location to the Jean Marie River crossing using regrowth. The ice bridge crossing was removed from the Jean Marie River to prevent any flooding that could occur during the spring. The remainder of the access was then rolled back to the high-grade road and the snow filled approach was removed.

**Camp Location:**

In November and December of 2022, access was cleared to gravel pit using a grader (Rowe's Construction). All snow was plowed in camp site area according to Land use Permit. All low spots on location were filled with snow to keep the surface level for drilling camp foot print without the need to disturb any soils. Moved in Construction & Drilling camp (Acho Horizon) & auxiliary equipment (Stittco Propane, Flowmax Waste Water Treatment Plant, Rowe's fuel tanks and light towers, PR contracting waste bins and Red Rabbit communications equipment) and set up on site.

The camp operated from: Nov 29, 2022 - to: Feb 11, 2023, until the roll back operations were completed on the JMR B-48 Well location & access. During this time the camp housed 42 personnel at peak operating times. The camp used 270 m<sup>3</sup> of potable water (delivered from Hay River and Fort Simpson via PR Contracting). The wastewater treatment plant processed 256 m<sup>3</sup> of sewage waste. At the end of the project 9.5 m<sup>3</sup> of sewage was hauled to Fort Simpson for disposal by Rowe's Construction.

All domestic garbage was hauled to and disposed of in the Fort Simpson landfill by PR contracting (total of 190 m<sup>3</sup>).

All waste hauled to disposal was manifested using government waste manifests.

Upon project completion, all JMR Construction & Drilling camp & auxiliary equipment on site was demobilized. The camp site was graded. Final inspection of site completed by the onsite supervisor to ensure no garbage or debris was left behind. The site was returned to its original state prior to construction & drilling camp operations.

- b) *An updated Project schedule;*

<b>Activity</b>	<b>Start Date</b>	<b>End Date</b>
Construction activities and camp setup	November 25, 2022	January 6, 2023
Holiday Break	December 21, 2022	December 30, 2022
Re-abandonment operations	January 6, 2023	February 8, 2023
Lease and access road rollback	February 9, 2023	February 15, 2023
Post-abandonment monitoring	July 2023	September 2023

- c) *The monthly and annual quantities in cubic meters of fresh Water obtained from all sources, as required in Part B, Condition 16 of this Licence;*

All water was obtained from the Jean Marie River.

<b>Annual</b>	2022	1954 m <sup>3</sup>
<b>Monthly</b>	November	0
<b>Monthly</b>	December	1954 m <sup>3</sup>

<b>Annual</b>	2023	735 m <sup>3</sup>
<b>Monthly</b>	January	725 m <sup>3</sup>
<b>Monthly</b>	February	10 m <sup>3</sup>

- d) *A summary of the calibration and status of the meters and devices referred to in Part B, Condition 16 of this Licence;*

The water was measured using a known tank volume on a water truck (10 cubic meters). For calculating the snowmaking equipment water usage, the water truck was filled up (10 m<sup>3</sup>) then snow was made from the water truck until the truck was empty. Time to empty the truck was 50 minutes. At this rate, the snowmaking equipment used 200 L per minute of water (12 m<sup>3</sup>/hour). 2 sets of snowmaking equipment on most days so this was calculated at 24 m<sup>3</sup>/hour. When hauling water to build the ice road and water usage for drilling the volumes were tracked by truckloads (10 m<sup>3</sup> per load).

- e) *A summary of engagement activities conducted in accordance with the approved Engagement Plan, referred to in Part B, Condition 18 of this Licence;*

Imperial met virtually with JMRFN on July 6, 2022 to provide updates on the Jean Marie B-48 abandonment. Discussion topics included the need for a potential ice bridge parallel to the Ek'alia Creek Bridge due to rig loads, confirming access route to Mackenzie River, potential of using the JMRFN landfill, and list of job opportunities for community members.

Imperial met virtually with JMRFN on November 17, 2022 to provide an update prior to the start-up of execution. Discussion topics included understanding the number of workers on site and how interaction with the community would be managed.

Imperial had email correspondence with JMRFN throughout execution of the JMR B-48 well abandonment:

- Crews identified traps and were instructed to drop them off at the JMRFN office
- The Imperial project manager and socioeconomic advisor were completing a in-person site visit in January and offered to meet with JMRFN, however, the Chief was unavailable. Aligned with JMRFN to complete a virtual meeting in the following weeks. No response received from JMRFN during two follow up requests to meet virtually.

Imperial received a request from JMRFN foreman on January 30, 2023 to grade the JMR access road as their grader was down. Imperial graded the road for them in the afternoon and again on February 2<sup>nd</sup>, 6<sup>th</sup>, and 9<sup>th</sup>.

- f) *A summary of how Traditional Knowledge was incorporated into decision making;*

Imperial engaged with JMRFN in 2021 to determine suitable camp locations, per their

recommendation, the gravel pit at the corner of the Mackenzie Highway and Jean Marie River access road was used.

In addition, JMRFN advised against desktop scouted borrow pit locations for freshwater withdrawal and recommended we use the Jean Marie River and/or the Mackenzie River and provided the recommended access route to withdraw water from the Mackenzie River in order to limit crew contact with community members.

The project did not require water withdrawal from the Mackenzie River as the Jean Marie River source was sufficient.

- g) *A summary of Construction activities conducted in accordance with Part E of this Licence*  
N/A, no structures were constructed to contain, withhold, divert, or retain Water or Waste.
- h) *A summary of major maintenance activities conducted in accordance with this Licence*  
Road maintenance was completed using a grader with ice blades to scratch the ice surface of the road. The grader was used when the road was starting to get too slippery for traffic. On January 9, 2023, the water truck used 2 loads of water (10 m<sup>3</sup>) to freeze down the road access as a maintenance activity. The high-grade road from the highway to Jean Marie River was also maintained by the grader during heavy snowfall periods when the Jean Marie River community grader was unavailable.
- i) *A summary of activities conducted in accordance with the approved Waste Management Plan, referred to in Part F, Condition 3 of this Licence, including:*
- i. *A summary of approved updates or changes to the process or facilities required for the management Waste;*  
No updates or changes to the process or facilities required for the management of Waste. Imperial received approval from the Village of Fort Simpson on November 1<sup>st</sup> for the acceptance of non-hazardous waste associated with the project.

Any domestic garbage generated by the project was deposited in the waste bins at the camp. All garbage was hauled to the Fort Simpson landfill by PR Contracting. All waste hauled was manifested using government supplied Movement Documents. A wastewater treatment plant was utilized at the drilling camp. Wastewater was treated and pumped off. At the end of the project the wastewater treatment plant was cleaned out and the waste was hauled to Fort Simpson for disposal by Rowe's Construction and manifested using the government supplied Movement Documents.

- ii. *Monthly and annual quantities/volumes by location of Waste managed under the plan;*

<b>Domestic Waste/Garbage taken to Fort Simpson Landfill</b>		
<b>2022</b>		0m <sup>3</sup>
<b>2023</b>		190m <sup>3</sup>
<b>Monthly</b>	January 2023	122m <sup>3</sup>
<b>Monthly</b>	February 2023	68m <sup>3</sup>

- j) *A summary of activities conducted in accordance with the approved Waste Management Plan, referred to in Part F, Condition 3 of this Licence, including:*
- i. *A summary of approved updates or changes to the process or facilities required for the management of Waste; and*  
No updates or changes to the process or facilities required for the management of Sewage waste. Imperial received approval from the Village of Fort Simpson on November 1<sup>st</sup> for the acceptance of non-hazardous waste associated with the project.

- ii. *Monthly and annual quantities/volumes by location of Sewage and associated Waste and other materials managed under the Plan.*

<b>Wastewater processed through Sewage Treatment Plant</b>		
<b>2022</b>		34m <sup>3</sup>
<b>Monthly</b>	December 2022	34 m <sup>3</sup>
<b>2023</b>		222 m <sup>3</sup>
<b>Monthly</b>	January	163 m <sup>3</sup>
<b>Monthly</b>	February	59m <sup>3</sup>
<b>Raw Sewage taken to Fort Simpson Waste Treatment Plant</b>		
<b>2023</b>		9.5m <sup>3</sup>
<b>Monthly</b>	February	9.5m <sup>3</sup>

- k) *A description of any erosion susceptible areas encountered and a summary of activities to prevent or mitigate erosion;*  
 The hillside at the B-48 wellsite was the only erosion prone area noted for this project. The mitigation effort was to place rollback along the hillside during reclamation efforts to prevent erosion.
- i. *A report of the performance of erosion mitigation applied in previous years;*  
 N/A no work in previous years
- l) *A summary of activities conducted in accordance with the approved Spill Contingency Plan, referred to in Part H, Condition 2 of this Licence, including:*
- i. *A list and description for all Unauthorized Discharges, including the date, NWT spill number, volume, location, summary of the circumstances and follow-up actions taken, and status (i.e. open or closed), in accordance with the reporting requirements in Part H, Condition 2 of this Licence; and*

<b>Date</b>	January 3, 2023	January 15, 2023
<b>NWT Spill Number</b>	N/A	N/A
<b>Volume</b>	40L	80L
<b>Location</b>	JMR B-48 Access Ice Road	Wellsite
<b>Summary</b>	Approximately 40L of engine oil was spilled from a blown engine of a water truck onto the Jean Marie JMR-B48 Access ice road. The spill area was on the ice road to the JMR location and was away from the JMR ice bridge. The oil spilled over an area of approximately 25 meters by 1 meter in width.	While drilling out cement as per the program, a mud pump was in operation when the low-pressure suction line separated inside the pumphouse resulting in approximately 80L of water-based drilling fluid being released onto matting and the frozen wellsite in proximity to the pumphouse (inside the bermed area).
<b>Follow-up actions</b>	The spill was responded to and cleaned up immediately as per the spill response procedures. Spill trays and spill kits were used to contain and soak up as much oil as possible and the remainder of the impacted snow and ice was cleaned up.	Pumps were shut down and the line was closed/isolated. The fluid was recovered with a vac truck and spill materials on site. The line was put back in place with a secondary securement to prevent re-occurrence and follow up actions were reviewed with the on site personnel.
<b>Status</b>	Closed	Closed

These two events were not reported to the NT-NU Spill Line as it did not meet the volume requirements, email notifications were sent to the Board and Inspectors.

- ii. *An outline of any spill training carried out.*  
All onsite personnel were trained in site specific spill response training as part of the Emergency Response Plan. Spill kits were required on all pieces of heavy equipment and at the Jean Marie River water source.
- m) *A summary of activities conducted in accordance with the Closure and Reclamation Plan, referred to in Part I, Condition 1 of this Licence, including:*
  - i. *Details of any Progressive Reclamation undertaken;*  
Access was rolled back from location to the Jean Marie River crossing using regrowth. The ice bridge crossing was removed from the Jean Marie River to prevent any flooding that could occur during the spring. The remainder of the access was then rolled back to the high-grade road and the snow filled approach was removed.
  - ii. *A discussion on whether planning and implementation remains on schedule, and a summary of any new scheduling setbacks;*  
Reclamation of lease and access road were completed on February 15, 2023.
  - iii. *A summary of Reclamation Research completed;*  
No additional Reclamation Research completed.
  - iv. *A summary of engagement conducted regarding Closure and Reclamation;*  
In virtual meetings conducted prior to the start of execution, Imperial informed JMRFN that natural revegetation by spreading the cleared woody debris would be the method of reclamation for the lease and access road. It was also communicated that the ice bridge built would be removed using a v-notch technique to prevent damming.
  - v. *A list of any factors that would increase or decrease the Closure Cost Estimate the next time the Estimate is updated; and*  
The Closure Cost Estimate is expected to decrease as the downhole well re- abandonment has been completed.
  - vi. *Any other related information.*  
N/A
- n) *A list of any non-compliance(s) with the conditions of this Licence or any directive from the Board pursuant to the conditions of this Licence;*  
No non-compliances issued.
- o) *A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector;*  
No concerns, non-conformances, nor deficiencies in the inspection reports.
- p) *A table detailing all commitments related to Water use and the deposit of Waste made during the Environmental Screening, with descriptions of how each commitment is being or has been met; and;*  
N/A, Project was not referred to Environmental Assessment. All permit conditions associated with water use were met and the waste management plan was followed.
- q) *Any other details requested by the Board by November 30 of the year being reported.*  
N/A