

April 2022

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### **Taltson Hydro Overhaul- Submission for Modification under Type A Water Licence MV2011L4-0002**

Hello Shannon,

The Northwest Territories Power Corporation (NTPC) owns and operates the Taltson Hydroelectric Facility (Taltson Hydro), located 56 km northeast of Fort Smith, Northwest Territories within the Taltson River watershed. Taltson Hydro was built in 1965 and is the main source of power to the South Slave communities of Enterprise, Fort Resolution, Fort Smith, Hay River and K'at'lodeeche First Nation. Taltson Hydro operates under the Mackenzie Valley Land and Water Board (MVLWB) Type A Water Licence (WL) MV2011L4-0002

A refurbishment of key infrastructure at the facility began in 2020 to ensure the continued reliability of power generation for the South Slave Region. The refurbishment for supporting infrastructure on the site included the replacement of the facilities for staff lodging, replacement of maintenance buildings, construction of additional storage areas, operation of existing quarries and the construction and operation of a winter road to transport equipment and materials. In 2019 NTPC obtained Type B WL MV2019L8-0008 and Type A Land Use Permit (LUP) MV2019F0015 to regulate the construction and operation of the Taltson Winter Road. The refurbishment for supporting infrastructure at the facility is regulated by Type A LUP MV2020X0004 issued in 2020.

In 2023 NTPC plans to complete the refurbishment of the turbine and generator within the generating plant at Taltson Hydro which is regulated by Type A WL MV2011L4-0002. As required by MV2011L4-0002 *Part G: Conditions Applying to Modifications* NTPC has prepared the following submission regarding the refurbishment of the turbine.

### **Background**

The turbine and generator are two key pieces of infrastructure within the generating plant that convert energy from water flowing through the facility into electricity. Recent assessments of the turbine and generator have determined that a major overhaul is

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required to extend the life of the facility and to ensure the continued reliability of power generation for the South Slave Region. The operational details for the overhaul are provided in Attachments 1 and 2. To complete the refurbishment of the turbine Taltson Hydro will be shut down from April 2023 until October 2023.

### **Concordance with WL Conditions**

NTPC has completed a detailed analysis and determined that the refurbishment of the turbine is consistent with all the terms and conditions of MV2011L4-0002. All Conditions applying to operations, (Part C of the WL) will continue to be met throughout the turbine overhaul in 2023 and under future operations. As the scope of work is replacing existing infrastructure and does not contravene any of the conditions or requirements of MV2011L4-0002 no additional preliminary screening is required.

The Taltson Hydro- Spill Contingency Plan and Taltson Hydro- Waste Management Plan have been updated to include additional measures for dealing with spill response and or waste for the overhaul and submitted, reviewed and approved under Type A LUP MV2020X0004.

### **Modification Submission**

This submission for Modification Under Part G of WL MV2011L4-0002 includes:

- Cover letter with overview of modifications and legal justification.
- Attachment 1- Hydraulic Design and CFD analysis of Rehabilitated Turbine Report and Design Drawings
  - Provided as per condition C.5 “The Licensee shall submit to the Board updated stage-discharge curves for the Spillway at Twin Gorges (No.1) Reservoir and for the control structure at Nonacho Lake Reservoir each time the stage-discharge curves are revised.”
  - Additional updated stage-discharge curves will be provided after commissioning of the new turbine in 2023 if required.
- Attachment 2- Taltson Overhaul Scope Summary for Regulatory Submission
  - As per condition G.3 “The Licensee shall submit to the Board, prior to carrying out any modifications, relevant design drawings stamped by a professional engineer, construction schedules and any other data requested by the Board for any modifications requiring Board approval as per G.2”
- Attachment 3- Taltson Overhaul- Operations under New Turbine

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- As per condition C.11 the Taltson Hydro- Operation, Maintenance, and Surveillance Manual will be updated to reflect proposed changes and submitted to the MVLWB after the refurbishment is complete.
- Attachment 4- Updated Taltson Hydro Engagement Plan
  - Plan format has been updated to be more congruent with the *MVLWB Engagement and Consultation Policy*.
  - Appendix with engagement specific to the Taltson Overhaul Shutdown has been included.
- Attachment 5- Taltson Hydro Overhaul- Modification under Type A Water Licence MV2011L4-0002- Environmental Impacts Summary
  - NTPC has proactively completed an analysis on the potential impacts from the extended shutdown on aquatic habitat, fisheries and furbearing semi-aquatic mammals in the area.
- Attachment 6- Inspector Approval

We would be happy to meet to discuss the Submission for Modification under Type A Water Licence MV2011L4-0002 if required.

As discussed previously NTPC will also be completing a submission for the Taltson Hydro-LUP MV2020X0004 Amendment and Modification Under Type A WL MV2011L4-0002 for the new water intake for the facilities for staff lodging. This will be a separate submission. Taltson Hydro is also regulated by Fisheries Act Authorization 18-HCAA-01487. NTPC is working with Fisheries and Oceans Canada (DFO) to ensure all requirements are met and required undertakings are completed throughout the overhaul shutdown.

If you have any questions regarding this application or if there is any further information we can provide please contact me at [mmiller@ntpc.com](mailto:mmiller@ntpc.com).

Sincerely,



Matthew Miller, M.Sc., P.Eng.  
Senior Environmental Licensing Specialist  
Northwest Territories Power Corporation