

February 28, 2023

MV2019L1-0001

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Jackfish Water Licence MV2019L1-0001 - Thermal Plume Delineation Study Report Submission

Hello Tyree,

The Jackfish Lake Generating Facility is regulated by the Mackenzie Valley Land and Water Board (MVLWB) Water Licence MV2019L1-0001. As required by Part E, Condition 5 of Licence MV2019L1-0001 the Northwest Territories Power Corporation (NTPC) was required to submit a Thermal Plume Delineation Study Report by December 31, 2020.

Due to various unforeseen circumstances, including flow monitoring equipment deficiencies, piping system challenges that delayed data collection, piping rework that was required to accurately record flow measurements, and longer than expected duration of the model calibrations, the MVLWB had approved extension requests, deferring the submission date for the Thermal Plume Study to February 28, 2023.

In accordance with Part E, Condition 5 and Schedule 2, Condition 2 of Licence MV2019L1-0001, NTPC is submitting the following documents as part of the Thermal Plume Delineation Study Report:

- 1) Jackfish Thermal Plume Delineation Study
- 2) Appendix C Water Level and Flow (Excel)
- 3) Appendix D.1 Water Temperature – Temperature Logger Data (Excel)
- 4) Appendix D.2 Water Temperature – Thermistor Data (Excel)
- 5) Appendix E.1 Water Quality – Field Data (Excel)
- 6) Appendix E.2 Water Quality – Data (Excel)

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- 7) Appendix E.3 Water Quality – Inflow Influence (Excel)
- 8) Appendix E.7 Water Quality – Certificates of Analysis (Excel)
- 9) Appendix F Fish and Fish Habitat (Excel)

The concordance table below lists the requirements, as per Schedule 2, Condition 2 of Licence MV2019L1-0001, and the locations of where each condition is addressed in the Thermal Plume Delineation Study Report.

Table 1: Concordance Table for the Thermal Plume Study Report

| Item | Location |
|---|--|
| a) Maps illustrating the extent of the thermal plume and any seasonal changes documented; | Section 3.2.1 and Appendix A, Attachment C |
| b) Graphical representation of the thermal profile and applicable water quality data; | Section 2.5.3; Appendix E |
| c) Identification of the worse-case thermal plume scenario of the four seasonal conditions identified in Schedule 1, item 1a; | Section 3.2.1 and Appendix A |
| d) Discussion of results and potential impacts to the aquatic ecosystem in Jackfish Lake and recommendations to inform the Aquatic Effects Design Report; and | Sections 3.2 and 4.0 |
| e) Tabular summaries of all data and information generated under the Thermal Plume Delineation Study, in Excel format. | Appendix C, D, E, and F |

The full Thermal Plume Delineation Study Report package has been uploaded as an FTP submission on the Online Review System for the MVLWB. If you have any questions regarding this submission or if there is any further information we can provide, please contact Matthew Miller at mmiller@ntpc.com.

Sincerely,



Jaclyn Donald (Signing on Behalf of Matthew Miller)
Environmental Engineer
Northwest Territories Power Corporation