



Mackenzie Valley Land and Water Board
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September 27, 2019

File: MV2019L1-0001

Honourable Robert C. McLeod
Minister of Environment and Natural Resources
Government of the Northwest Territories
P.O. Box 1320
Yellowknife NT X1A 2L9

Email: Robert.C.McLeod@gov.nt.ca

Dear Minister McLeod:

**Re: Board Recommendation for Approval – Type A Water Licence
Jackfish Power Generating Facility – Yellowknife, NT**

The Mackenzie Valley Land and Water Board (MVLWB or the Board) has completed its regulatory process for the Northwest Territories Power Corporation's Water Licence MV2019L1-0001, for the Jackfish Power Generating Facility. A motion was passed by the Board to forward the attached Water Licence (for a term of twenty-five years) and Reasons for Decision to you for your approval.

As this is a Type A Water Licence, it requires your signature as stated in section 72.13 of the *Mackenzie Valley Resource Management Act* (MVRMA) as delegated under Schedule A of the Delegation Instrument under the MVRMA. The MVLWB recommends your approval and signature.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Mavis Cli-Michaud".

Mavis Cli-Michaud
MVLWB, Chair

Copied to: Distribution List

Attached: Water Licence MV2019L1-0001
Reasons for Decision



Mackenzie Valley Land and Water Board
Water Licence

Pursuant to the *Mackenzie Valley Resource Management Act*, *Waters Act*, and *Waters Regulations*, the Mackenzie Valley Land and Water Board, hereinafter referred to as the Board, hereby grants to:

Northwest Territories Power Corporation
(Licensee)

of 4 Capital Drive, Hay River NT X0E 1G2
(Mailing Address)

hereinafter called the Licensee, the right to alter, divert, or otherwise use water subject to the restrictions and conditions contained in the *Waters Act* and *Regulations* made thereunder and subject to and in accordance with the conditions specified in this Licence.

Licence Number:	MV2019L1-0001
Licence Type:	A
Water Management Area:	Northwest Territories 03
Location:	114° 23' 00" W - 62° 28' 10" N
Purpose:	To use water and dispose of waste and associated uses
Description:	Industrial
Quantity of Water <u>not to be exceeded:</u>	50,000 cubic metres (m ³)/day
Effective date of Licence:	
Expiry date of Licence:	

This Licence issued and recorded at Yellowknife includes and is subject to the annexed conditions.

A handwritten signature in blue ink, appearing to read "Mavis Cli-Michaud".

Mackenzie Valley Land and Water Board

Mavis Cli-Michaud, Chair

A handwritten signature in black ink, appearing to read "Amanda Gauthier".

Amanda Gauthier, Witness

Approved by

Minister of Environment and Natural Resources

MV2019L1-0001
Northwest Territories Power Corporation - Jackfish Hydro Facility
Type A Water Licence

Part A: Scope and Definitions

Scope

1. This Licence entitles the Licensee to use Water, and deposit Waste for industrial activities at the Jackfish Power Generation Facility. **SCOPE**

The scope of this Licence includes the following:
 - a) Withdrawal of Water for the cooling of the power generators;
 - b) Depositing of Waste; and
 - c) Progressive Reclamation and associated Closure and Reclamation activities.

2. This Licence is issued subject to the conditions contained herein with respect to the use of Water and the deposit of Waste in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Commissioner in Executive Council under the *Waters Act*, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations. **REGULATIONS
SUBJECT TO
CHANGE**

3. Compliance with the defined terms and conditions of this Licence does not relieve the Licensee from responsibility for compliance with the requirements of any applicable federal, territorial or municipal legislation. **LEGISLATIVE
COMPLIANCE**

Definitions¹:

Defined Terms

Action Level – a predetermined qualitative or quantitative trigger which, if exceeded, requires the Licensee to take appropriate actions.

Analyst – an Analyst designated by the Minister under subsection 65(1) of the *Waters Act*.

Aquatic Effects Monitoring Program (AEMP) – a monitoring program developed for the Project in accordance with this Licence and the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs*

Board – the Mackenzie Valley Land and Water Board established under subsection 99(1) of the *Mackenzie Valley Resource Management Act*.

¹ Defined terms are capitalized throughout the License, including when used in other definitions.

Defined Terms

Closure Criteria – has the same meaning as that in the MVLWB/AANDC *Guidelines for the Closure and Reclamation of Advance Mineral Exploration and Mine Sites in the Northwest Territories*.

Closure Objectives – has the same meaning as that in the MVLWB/AANDC *Guidelines for the Closure and Reclamation of Advance Mineral Exploration and Mine Sites in the Northwest Territories*.

Closure and Reclamation – the process and activities that facilitate the return of areas affected by the Project to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and human activities.

Closure and Reclamation Plan (CRP) – a document, developed in accordance with this Licence and the MVLWB/AANDC *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*, that clearly describes the Closure and Reclamation for the Project.

Discharge – a direct or indirect deposit or release of any Waters or Waste to the Receiving Environment.

Discharge Water – wastewater specifically used for the cooling of the pumps associated with the power generators.

Engagement Plan – a document, developed in accordance with the MVLWB *Engagement and Consultation Policy* and the *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits*, that clearly describes how, when and which engagement activities will occur with an affected party during the life of the Project.

Inspector – an Inspector designated by the Minister under subsection 65(1) of the *Waters Act*.

Licensee – the holder of this Licence.

Minister – the Minister of the Government of the Northwest Territories (GNWT) – Environment and Natural Resources.

Modification - in respect of a structure, means a change, other than an expansion, that does not alter the purpose or function of a structure.

Professional Engineer – a person registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists to practice as a Professional Engineer in the Northwest Territories as per the territorial *Engineering and Geoscience Professions Act*, and whose professional field of specialization is appropriate to address the components of the Project at hand.

Project – the undertaking described in Part A, condition 1.

Receiving Environment – the natural environment that, directly or indirectly, receives any deposit of Waste from the Project.

Remediation – the removal, reduction or neutralization of substances, Wastes or hazardous materials from a site so as in order to prevent or minimize any adverse effects on the environment and public safety, now or in the future.

Response Framework – a systematic approach to responding to the results of a monitoring program through adaptive management actions.

Defined Terms

Response Plan – a document describing the actions that will be taken by a Licensee in response to an Action Level exceedance.

Runoff – the overland flow of Water or Wastewater that occurs when precipitation, meltwater, or other Water is not absorbed by the land, and instead drains downslope towards a Watercourse.

Seepage – any Water or Waste that drains, passes through, or escapes from any structure designed to contain, withhold, divert, or retain Water or Waste.

Spill Contingency Plan (SCP) – a document, developed in accordance with INAC's *Guidelines for Spill Contingency Planning*.

Temporary Closure – a state of care and maintenance, with the intent of resuming activities in the near future.

Waste – any substance defined as Waste by section 1 of the *Waters Act*.

Waste Management Plan (WMP) – a document, developed in accordance with the MVLWB *Guidelines for Developing a Waste Management Plan*, that describes the methods of Waste management from Waste generation to final disposal.

Wastewater – any Water that is generated by Project activities or originates on-site, and which contains Waste, and may include, but is not limited to, Runoff, Seepage, and Discharge Water, ~~and Sewage~~.

Water – any Water as per section 1 of the *Waters Act*.

Watercourse – a natural watercourse, body of Water or Water supply, whether usually containing Water or not, and includes Groundwater, springs, swamps, and gulches.

Water Management Area – a geographical area of the Northwest Territories established by section 2 and Schedule A of the Waters Regulations.

Waters Regulations – the regulations proclaimed pursuant to section 63 of the *Waters Act*.

Water Use – a use of Water as per section 1 of the *Waters Act*.

Part B: General Conditions

	Condition	Title
1.	The Licensee shall ensure a copy of this Licence is maintained on site at all times.	COPY OF LICENCE
2.	The Licensee shall take every reasonable precaution to protect the environment.	PRECAUTION TO PROTECT ENVIRONMENT
3.	All references to policies, guidelines, codes of practice, statutes, regulations, or other authorities shall be read as a reference to the most recent versions, unless otherwise denoted.	USE UP-TO-DATE REFERENCES
4.	<p>The Licensee shall ensure all submissions to the Board:</p> <ul style="list-style-type: none"> a) Are in accordance with the MVLWB <i>Document Submission Standards</i>; b) Include a conformity table which identifies where the requirements of this Licence, or other directives from the Board, are addressed; and c) Include any additional information requested by the Board. 	SUBMISSION FORMAT AND CONFORMITY
5.	The Licensee shall ensure management plans are submitted to the Board in a format consistent with the MVLWB <i>Standard Outline for Management Plans</i> , unless otherwise specified.	MANAGEMENT PLAN FORMAT
6.	The Licensee shall comply with all plans, programs, manuals approved pursuant to the conditions of this Licence, including such revisions made as per the conditions of this Licence, and as approved by the Board.	COMPLY WITH SUBMISSIONS AND REVISIONS
7.	The Licensee shall conduct an annual review of all plans, programs, manuals, studies and make any revisions necessary to reflect changes in operations, contact information, or other details. No later than March 31 each year, the Licensee shall send a notification letter to the Board, listing the documents that have been reviewed and do not require revisions as well as the ones which do require revisions.	ANNUAL REVIEW
8.	The Licensee may propose changes at any time by submitting revised plans, programs, manuals, or studies to the Board, for approval, a minimum of 90 days prior to the proposed implementation date for the changes. The Licensee shall not implement the changes until approved by the Board.	REVISIONS
9.	The Licensee shall revise any submission and submit it as per the Board's directive.	REVISE AND SUBMIT
10.	If any date for any submission falls on a weekend or holiday, the Licensee may submit the item on the following business day.	SUBMISSION DATE
11.	The Licensee shall comply with the Schedules, which are annexed to and form part of this Licence, and any updates to the Schedules as may be made by the Board.	COMPLY WITH SCHEDULE(S)
12.	The Licensee shall comply with the Surveillance Network Program (SNP), which is annexed to and forms part of this Licence, and any updates to the SNP as may be made by the Board.	COMPLY WITH SNP

Condition	Title
13. The Schedules and any compliance dates specified in this Licence may be updated at the discretion of the Board.	UPDATES TO COMPLIANCE DATE(S)
14. The Licensee shall install, operate, and maintain meters/measuring, devices, loggers or other such methods used for measuring/monitoring the volumes of Water used and Waste Discharged to the satisfaction of an Inspector and in accordance with the approved Standard Operating Procedures and Quality Assurance and Quality Control Plan .	MEASURE WATER USE AND WASTE DISCHARGED
15. Beginning March 31, 2020 and no later than every March 31 thereafter, the Licensee shall submit an Annual Water Licence Report to the Board and an Inspector. The Report shall be in accordance with the requirements of Schedule 1, condition 1.	ANNUAL WATER LICENCE REPORT
16. Within 90 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a Standard Operating Procedures and Quality Assurance and Quality Control Plan .	STANDARD OPERATING PROCEDURES AND QUALITY ASSURANCE AND QUALITY CONTROL PLAN
17. The Licensee shall comply with the Engagement Plan , once approved.	ENGAGEMENT PLAN
18. The Licensee shall immediately provide written notification to the Board and an Inspector of any non-compliance with the conditions of this Licence or any direction from the Board pursuant to the conditions of this Licence.	NOTIFICATION – NON-COMPLIANCE

Part C: Conditions Applying to Water Use

Condition	Title
1. The Licensee shall only obtain fresh Water for the Project from Jackfish Lake. The Licensee may withdraw up to 50,000 m ³ /day of Water from this source.	WATER SOURCE AND MAXIMUM VOLUME
2. The Licensee shall construct and maintain the Water intake(s) with a screen designed to prevent impingement or entrapment of fish.	WATER INTAKE SCREEN

Part D: Conditions Applying to Modifications

Condition	Title
1. The Licensee may, without written approval from the Board, carry out a Modification to the existing or planned undertaking provided the following requirements are met: a) The Licensee has notified the Board and an Inspector, in writing, of such proposed Modification at least 90 days prior to the beginning of the Modification; b) The Modification does not place the Licensee in contravention of either this Licence or the Act; c) The Board has not, during the 60 days following notification of the proposed Modification, informed the Licensee that further information is required or that a review of the proposal will require more than 60 days; d) An Inspector has authorized the proposed Modification and provided a letter of notification to the Board; and e) The Board has not rejected the proposed Modification.	MODIFICATION REQUIREMENTS
2. Modifications for which all of the conditions referred to in Part D, condition 1 have not been met, may only be carried out with written approval from the Board.	MODIFICATION – WRITTEN APPROVAL REQUIRED
3. Within 90 days of the completion of the Modification referred to in Part D, condition 1, the Licensee shall submit to the Board an As-built Report , stamped and signed by a Professional Engineer, which shall include final as-built drawings and specifications of the modified structure.	AS-BUILT REPORT – MODIFICATION

Part E: Conditions Applying to Waste and Water Management

	Condition	Title
1.	The Licensee shall manage Waste and Water with the objective of minimizing the impacts of the Project on the quantity and quality of Water in the Receiving Environment through the use of appropriate mitigation measures, monitoring, and follow-up actions.	OBJECTIVE – WASTE AND WATER MANAGEMENT
2.	The Licensee shall comply with the Waste Management Plan once approved.	WASTE MANAGEMENT PLAN
3.	The Licensee shall direct all Discharge Water from the Jackfish Lake Power Generating Facility to Jackfish Lake as described in the approved Waste Management Plan.	DISCHARGE WATER – JACKFISH LAKE POWER GENERATING FACILITY
4.	A minimum of 90 days following the effective date of this Licence, a Thermal Plume Delineation Study Design Plan . The Plan shall be in accordance with the requirements of Schedule 2, Condition 1 and shall be submitted to the Board for approval.	THERMAL PLUME DELINEATION STUDY DESIGN
5.	The Licensee shall submit to the Board for approval, a Thermal Plume Delineation Study Report by August 1, 2021. The Plan shall be in accordance with the requirements of Schedule 2, condition 2.	THERMAL PLUME DELINEATION STUDY REPORT

Part F: Conditions Applying to Aquatic Effects Monitoring Program

Condition	Title
<p>1. The Licensee shall design and implement an Aquatic Effects Monitoring Program (AEMP) in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> to meet the following objectives:</p> <ul style="list-style-type: none"> a) To determine the short- and long-term effects of the Project on the Receiving Environment; b) To assess the efficacy of mitigation that is used to minimize the effects of the Project on the Receiving Environment; c) To identify the need for additional mitigation measures to reduce or eliminate Project-related effects; and d) To provide an early warning system where the results of the AEMP are used to avoid adverse effects through the Response Framework and/or regular evaluation of the AEMP. 	<p>OBJECTIVE – AEMP</p>
<p>2. The Licensee shall submit to the Board, for approval, an AEMP Design Plan by November 1, 2021. The Plan shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> and will incorporate the results from the Thermal Plume Delineation Study Report.</p>	<p>AEMP DESIGN PLAN</p>
<p>3. Three years following implementation of the AEMP Design Plan, and every five years thereafter, or as directed by the Board, the Licensee shall submit to the Board, for approval, an AEMP Re-Evaluation Report. The Report shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> and shall evaluate the overall effectiveness of the AEMP to date.</p>	<p>AEMP RE-EVALUATION REPORT</p>
<p>4. Three years following implementation of the AEMP Design Plan and every five years thereafter, or as directed by the Board, the Licensee shall submit to the Board, for approval, a revised AEMP Design Plan, which incorporates the results from the AEMP Re-evaluation Report. The revised Plan shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i>.</p>	<p>AEMP DESIGN PLAN – REVISED</p>
<p>5. Beginning March 31, 2023, and no later than March 31 of each year thereafter, the Licensee shall submit to the Board, for approval, an AEMP Annual Report. The Report shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> and the requirements of Schedule 3, condition 1.</p>	<p>AEMP ANNUAL REPORT</p>
<p>6. If any low Action Level established in the approved AEMP Design Plan is exceeded, the Licensee shall, at a minimum, implement the response actions described in the approved AEMP Design Plan, and report the exceedance in the AEMP Annual Report.</p>	<p>LOW ACTION LEVEL EXCEEDANCE</p>
<p>7. If any moderate or high Action Level established in the approved AEMP Design Plan is exceeded, the Licensee shall:</p> <ul style="list-style-type: none"> a) Within the timeframe identified in the approved AEMP Design Plan notify the Board and an Inspector; and b) Within the timeframe identified in the approved AEMP Design Plan or as otherwise directed by the Board, submit an AEMP Response Plan to the Board for approval. The Response Plan shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i>. 	<p>MODERATE OR HIGH ACTION LEVEL EXCEEDANCE</p>

PART G: Conditions Applying to Spill Contingency Planning

Condition	Title
1. The Licensee shall ensure that Unauthorized Discharges associated with the Project do not enter any Waters.	OBJECTIVE – PREVENT WASTE INTO WATER
2. The Licensee shall comply with the Spill Contingency Plan , once approved.	SPILL CONTINGENCY PLAN
3. During the period of this Licence, if a spill or an Unauthorized Discharge occurs or is foreseeable, the Licensee shall: <ul style="list-style-type: none"> a) Implement the approved Spill Contingency Plan referred to in Part G, Condition 2; b) Report it immediately using the NU-NT Spill Report Form by one of the following methods: <ul style="list-style-type: none"> • Telephone: (867) 920-8130 • Fax: (867) 873-6924 • E-mail: spills@gov.nt.ca • Online: Spill Reporting and Tracking Database c) Within 24 hours, notify the Board and an Inspector; and d) Within 30 days of initially reporting the incident, submit a detailed report to the Board and an Inspector, including descriptions of causes, response actions, and any changes to procedures to prevent similar occurrences in the future. Written notification shall be provided to the Board and an Inspector if any changes occur. 	REPORT SPILLS
4. The Licensee shall ensure that spill prevention infrastructure and spill response equipment is in place prior to commencement of the Project.	SPILL PREVENTION AND RESPONSE EQUIPMENT
5. The Licensee shall restore all areas affected by spills and Unauthorized Discharges to the satisfaction of an Inspector.	CLEAN UP SPILLS

PART H: Conditions Applying to Closure and Reclamation

Condition	Title
1. Within 24 months following the effective date of this Licence, the Licensee shall submit to the Board, for approval, an Interim Closure and Reclamation Plan . The Plan shall be in accordance with the requirements of Schedule 4, condition 1.	CLOSURE AND RECLAMATION PLAN
2. Two years prior to the expiration of this Licence, the Licensee shall submit to the Board, for approval, an updated Interim Closure and Reclamation Plan .	CLOSURE AND RECLAMATION PLAN – UPDATE

Signed on behalf of the Mackenzie Valley Land and Water Board



Mavis Cli-Michaud, Chair



Amanda Gauthier, Witness

Schedule 1: Annual Water Licence Report

Condition

1. The **Annual Water Licence Report** referred to in Part B, condition 15 of this Licence shall include, but not be limited to, the following information about activities conducted during the previous calendar year:
 - a) A brief summary of Project activities;
 - b) The monthly and annual quantities in cubic metres of fresh Water obtained from all sources and thermal data from intake and Discharge data loggers, as required in Part B, condition 14 and Part C, condition 1 of this Licence;
 - c) A summary of the calibration and status of the meters and devices referred to in Part B, condition 14 of this Licence;
 - d) A summary of engagement activities conducted in accordance with the approved **Engagement Plan**, referred to in Part B, condition 17 of this Licence;
 - e) A summary of Modification activities conducted in accordance with Part D of this Licence;
 - f) A summary of major maintenance activities conducted in accordance with this Licence;
 - g) A summary of activities conducted in accordance with the approved **Waste Management Plan**, referred to in Part E, condition 2 of this Licence, including:
 - i. A summary of approved updates or changes to the process or facilities required for the management of Waste;
 - ii. A summary of approved updates or changes to the process or facilities required for the management of Waste
 - h) A summary of monitoring results and any Action Level exceedances as per the approved AEMP, required in Part F, condition 7 of this Licence;
 - i) A summary of activities conducted in accordance with the approved Spill Contingency Plan, required in Part G, 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 G, condition 4 of this Licence; and
 - ii. An outline of any spill training carried out.
 - j) A summary of any Closure and Reclamation work completed.
 - k) Tabular summaries of all data and information generated under the monthly SNP annexed to this Licence, in Excel format.
 - l) 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;
 - m) A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector;
 - n) Any other details requested by the Board by November 1 of the year being reported.

Schedule 2: Thermal Plume Delineation

Condition

1. The **Thermal Plume Delineation Study Design Plan** referred to in Part E, condition 6 of this Licence shall include, but not be limited to, the following:
 - a) Seasonal delineation (spring freshet, late summer, late fall, and late under ice) of the thermal plume, include a calculation of maximum extent of plume as a percentage of lake area;
 - b) Temperature, dissolved oxygen profiles and any other parameters deemed relevant to the understanding of the thermal plume and the lake stratification;
 - c) An assessment of aquatic habitat within the thermal plume zone(s); and
 - d) Seasonal chemical characterization² at a minimum of one station located outside of the potential plume but situated such that potential influence of inflow(s) can be characterized and one station located at or near the outflow of Jackfish Lake. Station locations and rational to be included.
2. The **Thermal Plume Delineation Study Report** referred to in Part E, condition 7 of this Licence shall include, but not be limited to, the following:
 - a) Maps illustrating the extent of the thermal plume and any seasonal changes documented;
 - b) Graphical representation of the thermal profile and applicable water quality data;
 - c) Identification of the worse case thermal plume scenario of the four seasonal conditions identified in Schedule 1, item 1a;
 - d) Discussion of results and potential impacts to the aquatic ecosystem in Jackfish Lake and recommendations to inform the Aquatic Effects Design Report; and
 - e) Tabular summaries of all data and information generated under the Thermal Plume Delineation Study, in Excel format.

² Chemical characterization shall include, but not be limited to the following parameters:

- Field parameters (pH, Electrical Conductivity [EC], Temperature, Dissolved Oxygen [DO])
- Major Ions
- Total Suspended Solids (TSS)
- pH
- Oil and Grease (Hexane Extractable)
- Total Petroleum Hydrocarbons (F1, F2, F3, F4 CCME Fractions)
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
- Total and Dissolved Metals (Metals shall include but not be limited to analysis of the following parameters: Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Thallium, Uranium, and Zinc)

Schedule 3: Aquatic Effects Monitoring Program

Condition

1. The **AEMP Annual Report** referred to in Part F, condition 5 of this Licence shall include, but not be limited to, the following:
 - a) A plain language summary and interpretation of the major results obtained in the preceding calendar year;
 - b) A summary of activities conducted under the AEMP;
 - c) A summary of any spills, activities, or other considerations within the report time frame that could influence the results of the AEMP;
 - d) Tabular summaries of all data and information generated under the AEMP, in Excel format;
 - e) A comparison of monitoring results from the annual AEMP and results from the Thermal Plume Delineation Study Report including an interpretation of the results, including an evaluation of any identified environmental effects and their potential ecological significance that occurred as a result of the Project;
 - f) A comparison of monitoring results to Action Levels as defined in the approved **AEMP Design Plan**;
 - g) For any low Action Level exceedances, a summary of the nature and extent of the exceedance, as well as a description of actions in response to the exceedance;
 - h) An evaluation of any adaptive management response actions implemented;
 - i) Recommendations, with rationale, for changes to any aspect of the **AEMP Design Plan**; and
 - j) Any other information specified in the approved **AEMP Design Plan**.

Schedule 4: Closure and Reclamation

Condition

1. The **Interim Closure and Reclamation Plan** referred to in Part H, condition 1 of this Licence shall include, but not be limited to the following information:
 - a) A plain language summary of the Plan;
 - b) A description of the overall goals for Closure and Reclamation of the Project, including expected future land use;
 - c) A description of the Closure and Reclamation planning team;
 - d) A description of engagement related to Closure and Reclamation planning, including a summary of completed and planned engagement, and links to the **Engagement Plan** referred to in Part B, Condition 17 for the Project;
 - e) A list of any other regulatory instruments required for Closure and Reclamation of the Project;
 - f) A description of the pre-existing and current Project environment, including, but not limited to:
 - i. climatic conditions;
 - ii. physical conditions;
 - iii. chemical conditions;
 - iv. biological conditions; and
 - v. any physical or chemical assessments of soil, water, and permafrost.
 - g) A description of the Project, including, but not limited to:
 - i. site history;
 - ii. Project development;
 - iii. current status of the Project;
 - iv. maps delineating all disturbed areas, borrow material locations, site facilities, hydrological features, and elevation contours; and
 - v. photographs.
 - h) A description of each Project component, including, but not limited to:
 - i. areas affected by spills or Unauthorized Discharges; and
 - ii. other areas affected by Project activities.
 - i) For the Project site, a description of Closure and Reclamation plans, including, but not limited to:
 - i. Closure Objectives and Criteria;
 - ii. preferred Closure and Reclamation option and method for each Project component identified in condition (h) above;
 - iii. design drawings, signed and stamped by a Professional Engineer, for any Engineered structures if applicable;
 - iv. Water management and restoration of natural drainage;
 - v. predicted environmental effects during and after Closure and Reclamation activities;
 - vi. post-closure monitoring, maintenance, and reporting;
 - vii. uncertainties and contingencies;
 - viii. climate change considerations; and
 - ix. Closure and Reclamation Research plans.

Condition

- j) A description of any planned Progressive Reclamation;
- k) A plan for Temporary Closure, including, but not limited to the following information:
 - i. Temporary Closure goals and objectives;
 - ii. a description of activities and methods;
 - iii. a description of monitoring, maintenance, and reporting;
 - iv. contingencies; and
 - v. an implementation schedule.
- l) An implementation schedule that includes Progressive Reclamation and final Closure and Reclamation activities.

ANNEX A: SURVEILLANCE NETWORK PROGRAM - annexed to Water Licence MV2019L1-0001

LICENSEE: Northwest Territories Power Corporation

LICENCE NUMBER: MV2019L1-0001

EFFECTIVE DATE OF LICENCE:

EFFECTIVE DATE OF SURVEILLANCE NETWORK PROGRAM (SNP):

Part A – Surveillance Network Program Description and Monitoring Requirements

1) The location of sampling sites and specific monitoring requirements are as follows:

a) **Surveillance Network Program (SNP) 00-1:**

Description:	SNP 00-1a,b,c,d – Intakes to the K (2 intakes), EMD (1 intake), and CAT (1 intake) plants
Location:	SNP 00-1a - K plant intake 1 SNP 00-1b - K plant intake 2 SNP 00-1c - EMD plant intake SNP 00-1d - CAT plant intake
Sampling Frequency:	Continuous in-situ measurements during periods of discharge to Jackfish Lake
Sampling Parameters:	Water Temperature Flow

b) **Surveillance Network Program (SNP) 00-2:**

Description:	SNP 00-2a,b,c - Discharges from the K, EMD and CAT plants, respectively
Location:	SNP 00-2a - K plant SNP 00-2b - EMD SNP 00-2c - CAT plant
Sampling Frequency:	Continuous in-situ measurements during periods of Discharge to Jackfish Lake
Sampling Parameters:	Water Temperature

c) **Surveillance Network Program (SNP) JF01-06**

Description:	JF01-06 – Groundwater Monitoring Well
Location:	Located at the Lease Boundary near the lake shore near the warehouse near K Plant
Sampling Frequency:	Twice a year during June and September
Sampling Parameters	<ul style="list-style-type: none"> • Field parameters (pH, Electrical Conductivity [EC], Temperature, Dissolved Oxygen [DO]) • Major Ions • Total Suspended Solids (TSS) • Oil and Grease (Hexane Extractable) • pH • Total Petroleum Hydrocarbons (F1, F2, F3, F4 CCME Fractions) • Benzene, Toluene, Ethylbenzene, Xylene (BTEX) • Dissolved Metals (Metals shall include but not be limited to analysis of the following parameters: Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Thallium, Uranium, and Zinc)

d) **Surveillance Network Program (SNP) MW2**

Description:	MW2 – Groundwater Monitoring Well
Location:	Located at the Lease Boundary near the lake shore between the EMD Plant and the Cat Plant
Sampling Frequency:	Twice a year during June and September
Sampling Parameters	<ul style="list-style-type: none"> • Field parameters (pH, Electrical Conductivity [EC], Temperature, Dissolved Oxygen [DO]) • Major Ions • Total Suspended Solids (TSS) • Oil and Grease (Hexane Extractable) • pH • Total Petroleum Hydrocarbons (F1, F2, F3, F4 CCME Fractions) • Benzene, Toluene, Ethylbenzene, Xylene (BTEX) • Dissolved Metals (Metals shall include but not be limited to analysis of the following parameters: Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Thallium, Uranium, and Zinc)

2. The location of sampling sites is subject to approval of the Inspector.

3. More frequent sample collection may be required at the request of an Inspector.

4. All sampling, sample preservation, and analyses shall be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater" at the time of analysis, or by such other methods approved by an Analyst.
5. All analyses shall be performed in a laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA) or equivalent for the specific analyses to be performed or as approved by an Analyst.
6. The Licensee shall annually review the approved QA/QC Plan and modify the Plan as necessary. Proposed modifications shall be submitted to an Analyst for approval.
7. The QA/QC Plan referred to in SNP Section A, Item 6 shall be implemented as approved by an Analyst.

Part B – Volume and Temperature Measurement Requirements

- 1) All volume and temperature measurements shall be measured and recorded continuously (i.e., using electronic data storage chips or equivalent) during periods of Discharges and reported on a monthly basis:
 - a) The daily, monthly, and annual quantities of cooling water circulated from Surveillance Network Program Station Numbers 00-1a, 00-1b, 00-1c, and 00-1d shall be measured and recorded in cubic metres; and
 - b) The water temperature at Surveillance Network Program Station Numbers 00-1a, 00-1b, 00-1c, 00-1d, 00-2a, 00-2b, and 00-2c shall be measured and recorded in degrees Celsius.

ANNEX B: Concordance Table of items Requiring Submission – annexed to Water Licence MV2019L1-0001

This table summarizes the information the Licensee is required to submit as per the Water Licence conditions.

Part of Licence	Item	Date
Annex A	Monthly SNP Report	Within 30 days of the end of the reporting month
Part B, condition 15	Annual Water Licence Report	March 31, 2020 and every March 31 thereafter.
Part B, condition 16	Standard Operating Procedures and Quality Assurance and Quality Control Plan	Within 90 days following issuance of this Licence
Part E, condition 4	Thermal Plume Delineation Study Design	A minimum of 90 days following the effective date of this Licence.
Part E, condition 5	Thermal Plume Delineation Study Report	August 1, 2021
Part F, condition 2	AEMP Design Plan	November 1, 2021
Part F, condition 3	Aquatic Effects Re-evaluation Report	Three years following implementation of the AEMP Design Plan and every five years thereafter, or as directed by the Board.
Part F, condition 4	AEMP Design Plan – Revised	Three years following implementation of the AEMP Design Plan and every five years thereafter, or as directed by the Board.
Part F, condition 5	AEMP Annual Report	March 31, 2023 and every year thereafter.
Part H, condition 1	Closure and Reclamation Plan	Within 24 months following the effective date of this Licence
Part H, condition 2	Closure and Reclamation Plan - Update	Three years prior to the expiration of this Licence

ANNEX C: Table of Revision History – annexed to Water Licence MV2019L1-0001

Date	Location of change	Description of change
		-
		-



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Reasons for Decision

Issued pursuant to Sections 72.25 and 121 of the *Mackenzie Valley Resource Management Act* (MVRMA)
 and
 Sections 36 and 54 of the *Waters Act*

Water Licence Application	
Preliminary Screener	MVLWB
File Number	MV2019L1-0001
Company	Northwest Territories Power Corporation
Project	Industrial, Jackfish Power Generating Station, Yellowknife NT
Date of Decision	September 26, 2019

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These Reasons for Decision set out the Mackenzie Valley Land and Water Board’s (the MVLWB/Board) regulatory process and decisions made on **September 26, 2019** for the Application made by Northwest Territories Power Corporation (NTPC) for Water Licence (Licence) MV2019L1-0001 for the Jackfish Power Generating Project.

A summary of the Application is provided in Section 2 below, followed by the regulatory process in Section 3. Section 4 describes the legislative requirements applicable to this regulatory process, leading to the Board’s decisions with supporting rationale in Section 5.

1.0 **List of Abbreviations**

Anniversary Date	Effective date of Licence as seen on the Licence cover page
Applicant	Northwest Territories Power Corporation
Application	Northwest Territories Power Corporation’s submissions in support of Water Licence MV2019L1-0001
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
DFO	Fisheries and Oceans Canada
DIAND	Department of Indigenous Affairs and Northern Development
ECCC	Environment and Climate Change Canada
GNWT	Government of the Northwest Territories
GNWT-ENR	Government of the Northwest Territories – Environment and Natural Resources
IR	Information Request
Inspector	Government of the Northwest Territories – Environment and Natural Resources – Water Resource Officer (Inspector)
Intervener	A reviewing Party that submits an intervention
Licence	Water Licence MV2019L1-0001
MVLWB or Board	Mackenzie Valley Land and Water Board
MVRMA	<i>Mackenzie Valley Resource Management Act</i>
Minister	Minister of Environment and Natural Resources for the Government of the Northwest Territories
Party	As per the Board’s <i>Rules of Procedures</i>
Project	Jackfish Power Generating Project
Reviewer	As per the Board’s <i>Rules of Procedures</i>

2.0 **Summary of Application(s)**

On February 26, 2019, NTPC submitted an Application for a new Licence MV2019L1-00001.¹ This Application is for the use of water for the cooling of the diesel power generating plants. The Jackfish Power Generating station is located within the City of Yellowknife, NT. These activities are located within a Non-Federal area.

The Application is to replace the current Licence N1L1-1632, which is set to expire on December 31, 2019. The current licence was issued for water use for cooling systems.

¹ See Water Licence MV2019L1-0001 Application ([hyperlink](#)), submitted to the MVLWB on February 26, 2019.

2.1 Distribution List

This document uses the term “distribution list” for the list of parties with whom materials from this regulatory process were circulated. As this Project is in the Akaitcho Territory, the appropriate core organizational reviewers, governments, First Nations, and Aboriginal organizations were included in the list. The list was periodically updated, and (when requested) individuals with specific interests in the Project were also added to the distribution list (see Table1: Organizations on the Distribution List).

3.0 Regulatory Process

3.1 Details of the Regulatory Process

On February 26, 2019, NTPC submitted an Application for a new Licence MV2019L1-0001. On March 4, 2019, the Application was deemed complete and the review commenced.² Distribution of the Application on the Online Review System advised the parties that the Application was in the form and contained the information required by section 72.1 of the MVRMA, and section 34 of the *Waters Act*, that the regulatory process would proceed, that the legislated timelines defined in subsection 47(1) of the *Waters Act* had commenced, and that the online review period was underway.

On March 4, 2019, Board staff distributed a draft work plan that included the scheduling of a public hearing as per paragraph 42(2)(a) of the *Waters Act*. At that time parties were requested to provide their comments and recommendations on the draft work plan.³ Comments on the draft work plan were received by March 18, 2019 from the Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR)⁴.

By April 2, 2019, comments and recommendations regarding the Applications were received by the Board from the following parties: GNWT-ENR, Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO), and MVLWB staff. ⁵ On April 15, 2019, NTPC responded to the parties’ comments and recommendations.⁶

NTPC’s Technical Session presentation was submitted on May 2, 2019.⁷ A single Technical Session was held on May 2, 2019, in Yellowknife, NT, to discuss and seek clarity on issues raised by parties and Board staff, and to provide an opportunity to discuss the Application in advance of parties submitting comments and recommendations to the Board. The Technical Session was facilitated by Board staff and was transcribed.⁸ Attendees included NTPC, Golder Associates Ltd (Golder; Technical Advisor to NTPC), GNWT-ENR, and ECCC.⁹ There were two (2) Technical Session Information Requests (TS-IR#1 and TS-IR#2) resulting from this Technical Session, which were directed at NTPC. These two TS-IRs

² See MVLWB – Application Complete ([hyperlink](#)), dated March 4.

³ See MVLWB – Draft Work Plan ([hyperlink](#)), dated March 4, 2019.

⁴ See Comments on Draft Work Plan: GNWT-ENR ([hyperlink](#)) submitted to the MVLWB on March 18, 2019.

⁵ See Review Comment Summary Table – Application ([hyperlink](#)), dated April 16, 2019.

⁶ See Review Comment Summary Table – Application ([hyperlink](#)), dated April 16, 2019.

⁷ See NTPC– Technical session presentation ([hyperlink](#)), submitted to the MVLWB on May 2, 2019

⁸ See Technical session – Transcripts ([hyperlink](#)), dated May 2, 2019.

⁹ See Technical session – Sign-in Sheet ([hyperlink](#)), dated May 2, 2019.

were circulated to the distribution list on May 2, 2019¹⁰, and NTPC submitted responses to both TS-IRs on May 16, 2019.¹¹

A public notice of the Application and the Public Hearing was published in *News North* during the week of May 20, 2019 to fulfill paragraphs 41(1)(a) and 43(2)(a) of the *Waters Act*.¹²

The pre-hearing conference was held on May 28, 2019 in Yellowknife, NT to discuss the potential content of the public hearing, written interventions and presentations, notices of intent to appear at the hearing, and to briefly outline the Board's (2004) *Rules of Procedure, Including Public Hearings*.¹³ The pre-hearing conference was attended in-person by representatives from the MVLWB, GNWT – ENR, and Golder (Technical Advisor to NTPC); representatives from ECCC, NTPC, and NTPC Legal Support participated by teleconference. Summary notes were recorded and distributed on May 29, 2019.¹⁴

On June 11, 2019, written interventions were received from GNWT-ENR and ECCC.¹⁵ Both interventions submitted indicated that the concerns that were brought forward during the initial review have been addressed by NTPC through responses as well as the Technical Session. NTPC did not have to respond to the written interventions.

The Board did not receive notification that any person intended to appear regarding the Application ten days prior to the scheduled hearing date. On July 22, 2019, the Public Hearing was cancelled as per paragraph 41(3)(a) of the *Waters Act*, and an updated work plan (Version 2) was distributed.¹⁶

On July 23, 2019, Board staff circulated draft Licence Conditions to parties for review and comment. The following parties responded by August 13, 2019; GNWT-ENR, ECCC and NTPC.¹⁷ NTPC responded to all the parties' comments and provided comments of their own on August 30, 2019¹⁸.

For a Type A Licence, as was the case in this Application, within nine months the Board shall make a decision. On September 26, 2019, the Board met to make decisions regarding the Application.

4.0 Legislative Requirements

In conducting the review process for the Application as described in Sections 2 and 3 above, the Board has ensured that all applicable legislative and procedural requirements have been satisfied, as required by section 62 of the MVRMA and as outlined below.

¹⁰ See Technical session – Information Requests ([hyperlink](#)), dated May 2, 2019.

¹¹ See NTPC – Response to Information Request #1 ([hyperlink](#)), submitted to the MVLWB on May 16, 2019.

¹² See Notice of Application and public hearing ([hyperlink](#)), dated May 20, 2019.

¹³ See Pre-hearing conference – Agenda ([hyperlink](#)), dated May 16, 2019.

¹⁴ See Pre-hearing conference – Summary Notes ([hyperlink](#)), dated May 28, 2019.

¹⁵ See Written Interventions: GNWT-ENR ([hyperlink](#)) and ECCC ([hyperlink](#)) submitted to the MVLWB on June 11, 2019

¹⁶ See MVLWB Letter – Cancellation of Public Hearing ([hyperlink](#)) and Updated Work Plan ([Version 2](#)) ([hyperlink](#)), dated July 22, 2019.

¹⁷ See Review Comment Summary Table – Draft Licence ([hyperlink](#)), dated September 4, 2019.

¹⁸ See Review Comment Summary Table – Draft Licence ([hyperlink](#)), dated September 4, 2019

4.1 General

The use of water and the deposit of waste proposed is of a nature contemplated by the MVRMA and the *Waters Act*.

As this Project is located on a Non-Federal Area, the MVRMA and the *Waters Act* apply.

4.2 MVRMA Part 3: Duty to Consult (Aboriginal Matters)

In exercising its authority under the MVRMA, generally, the Board must ensure that the concerns of Aboriginal peoples have been taken into account as per paragraph 114(c) of the MVRMA. It must also consider the importance of conservation to the well-being and way of life of Aboriginal peoples of Canada, as per paragraph 60.1(a) of the MVRMA, specifically those to whom section 35 of the *Constitution Act, 1982* applies and who use an area of the Mackenzie Valley. Accordingly, the Board works with applicants, affected parties (including Aboriginal organizations and governments), and other parties (such as other boards and regulators) to ensure that potential impacts of proposed projects are understood and carefully considered before decisions are made with respect to the issuance of Licences.

In order to address the question of Aboriginal consultation it is first helpful to understand the general process through which the Board considers an application.^{19,20} Following the initiation of engagement and the submission of an application, a proposed project goes through several stages in the Board's approval process. The application is reviewed to ensure that all necessary information is included and to confirm that the right types of Permit and Licence have been applied for. This check for completeness is completed within ten days of receipt of the application.

The application and supporting documents are uploaded to the Board's online registry and then the application package is distributed to stakeholders, including appropriate federal and territorial government departments and agencies, landowners, affected communities and Aboriginal organizations, Renewable Resource Boards, heritage regulators, and other interested parties. The distribution list that the Board used for the NTPC Application is provided in Table 1.

¹⁹ See www.mvlwb.com → Resources → Policies and Guidelines: [MVLWB Guide to the Land Use Permitting Process](#) (2013).

²⁰ See www.mvlwb.com → Resources → Policies and Guidelines: [Guide to Completing Water Licence Applications to the Mackenzie Valley Land and Water Board](#) (2003).

Table 1: Organizations on the Distribution List for Licence MV2019L1-0001

Akaitcho Interim Measures Agreement Implementation Office	Hamlet of Fort Resolution
Athabasca Denesuline Council C/O Prince Albert Council	Hay River Métis Council
Bathurst Inlet Development Ltd.	Crown-Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Directorate
Bathurst Inlet Lodge	Crown-Indigenous Relations and Northern Affairs Canada – NWT Inspectors
BNT Gold Resources Ltd.	K'atl'odeeche First Nation
Canadian Northern Economic Development Agency	Łutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment
CanNor NWT Region	Mackenzie Valley Environmental Impact Review Board
Chamber of Mines NWT & Nunavut	Manitoba Denesuline
City of Yellowknife	Miramar Northern Mining Ltd.
Dene Nation	National Energy Board
Deninu K'ue First Nation	North Slave Métis Alliance
Environment and Climate Change Canada	Northwest Territory Métis Nation
Fisheries and Oceans Canada	Salt River First Nations
Fort Resolution Métis Council	Smith's Landing First Nation
Fort Smith Métis Council	Snap Lake Environmental Monitoring Agency (SLEMA)
General Public	Tłı̨chǫ Government
Government of the Northwest Territories – Education, Culture and Employment	Tłı̨chǫ Government - Lands Protection Department
Government of the Northwest Territories – Environment and Natural Resources	Town of Fort Smith
Government of the Northwest Territories – Infrastructure	Wek'èezhìi Renewable Resources Board
Government of the Northwest Territories – Industry, Tourism and Investment	Wek'èezhìi Land and Water Board
Government of the Northwest Territories – Lands	West Point First Nation
Government of the Northwest Territories – Municipal and Community Affairs	Workers' Safety and Compensation Commission
Government of the Northwest Territories – Office of the Regulator of Oil and Gas	Yellowknives Dene First Nation
Golder Associates	
Government of Canada	

The Board requested that reviewers provide comments with respect to the Application and associated management plans. When the review was completed, comments were forwarded to the applicant for a response.

The Application is then assessed to determine if the activities are exempt from Part 5 of the MVRMA; if not, the Application moves to preliminary screening.

4.2.1 *The Board's Role in Consultation*

The Board's requirements for engagement are set out in its *Engagement and Consultation Policy*.²¹ This Policy was developed to ensure that the Board's obligations for achieving meaningful consultation (as set out by the land claims and applicable legislation) with all affected parties, including Aboriginal groups in the Mackenzie Valley, are met and consultation results clearly articulated.

The core of the *Engagement and Consultation Policy* is as follows:

- 1) To require proponents to initiate dialogue and engagement planning with affected parties, particularly affected Aboriginal organizations/governments, in advance of an application with the goals of:
 - explaining the project;
 - identifying concerns and potential environmental impacts (including any potential for impacts to Aboriginal and treaty rights);
 - addressing concerns raised; and
 - ensuring appropriate levels and types of engagement are carried out over the life of an authorization or project.
- 2) To apply consultative approaches throughout a proceeding, which assist affected parties to meaningfully contribute to the assessment of impacts on the environment and the establishment of appropriate mitigations in order for the Boards to meet statutory responsibilities pursuant to the MVRMA and the *Waters Act* and their regulations.
- 3) To assist in ensuring, and if necessary, rule on, the adequacy of Crown consultation before making a final decision or recommendation, taking into account information gathered during proponent engagement and through its consultative processes.

4.2.2 *Notifications and Initial Engagement*

The following is a high-level summary of notifications and early engagement undertaken by NTPC for the Jackfish Power Generating Project. For more details on the timing of engagement activities, see material filed by NTPC in support of their Application.²²

In accordance with the *Engagement and Consultation Policy* and associated guidelines, the Board requires proponents to engage with potentially affected parties prior to and during the operation of a project.²³ Engagement ensures that affected parties are able to develop an understanding of

²¹ See www.mvlwb.com → Resources → Policies and Guidelines: [MVLWB Engagement and Consultation Policy](#) (June 1, 2013).

²² See NTPC Engagement Record ([hyperlink](#)) February 26, 2019

²³ See www.mvlwb.com → Resources → Policies and Guidelines: [MVLWB Engagement and Consultation Policy](#) (June 1, 2013).

a proposed project or component of a project, provide feedback during the engagement process on issuance of concern with regards to a project, and work towards building relationships with stakeholders that are operating in the area.²⁴

NTPC included a record of engagement as part of the Application, which highlighted the engagement activities that took place prior to submitting the Application and a summary of the discussion topics. Where contact was made, the engagement record indicated that no concerns were raised.²⁵

4.2.3 *The Board's Process and Participation of Aboriginal Groups*

Aboriginal communities and organizations were engaged throughout the review phase of the Board's process as well as on all public products of the Board's process.

4.2.4 *Views of the Board*

As noted above, in Section 4.2.2 (The Board's Role in Consultation), the Board's *Engagement and Consultation Policy* has three broad objectives: proactive engagement, facilitating the effective contributions of all reviewers, and Crown consultation.

Regarding the objective of proactive engagement, the Board has determined that the level of engagement by NTPC was adequate. In accordance with the *Engagement and Consultation Policy*, the MVLWB *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits* (Engagement Guidelines), NTPC initiated dialogue with Aboriginal organizations and governments starting in November 2018 and continuing through to February 8, 2019, prior to filing the Application with the Board on February 26, 2019.²⁶

Regarding the objective of facilitating the effective contribution of all reviewers in the regulatory process, the Board has determined its process was sufficient and robust. The Board's process provided opportunities for the review of the Application, participation in a Technical Session, an opportunity to file written interventions, an opportunity for commenting on draft Licence conditions, and for Interveners to submit Closing Arguments.

Regarding the objective of Crown consultation, the Board has determined that the duty to consult in relation to matters within its jurisdiction has been satisfied. Administrative tribunals such as the Land and Water Boards under the MVRMA can rule on questions of law. The Board, therefore, has the authority, if necessary, to assess the adequacy of Crown consultation before making a final decision or making a recommendation to the responsible Minister and may use remedies available to it in addressing Aboriginal consultation issues.

In summation, the Board finds that parties were engaged throughout the Board's process. The Board's role in regard to the Crown's duty to consult was discharged in several ways, as identified

²⁴ See www.mvlwb.com → Resources → Policies and Guidelines: MVLWB, [Information for Proponents on the MVLWB's Engagement Requirements](#) (2014).

²⁵ See NTPC – Engagement Log submitted with the Application ([hyperlink](#)) – dated February 26, 2019

²⁶ See www.mvlwb.com → Resources → Policies and Guidelines: [MVLWB Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits](#) (September 2014).

above and as directed by its own Engagement Policy. The Board finds that Crown consultation has been adequate on the Application related to the Jackfish Power Generating project.

4.3 MVRMA Part 3 and 4 and *Waters Act*: Land and Water Regulation and MVLWB

The Board has jurisdiction to issue this Licence as per subsection 60(1.1) of the MVRMA.

4.3.1 General

The Board has considered the people and users of the Mackenzie Valley, and any traditional knowledge and scientific information that was made available to it during this regulatory proceeding, as per section 60.1 of the MVRMA.

4.3.2 Public Notice

Notice and copies of the Application were given to fulfill sections 63 and 64 of the MVRMA. The Board is satisfied that a reasonable amount of time was given to communities, First Nations, and the public to participate in this regulatory process to make submissions to the Board.

4.3.3 Water Use Fees

NTPC is exempt from paying fees for the right to use water and deposit waste due to the exemption in section 3 of the Waters Regulations because NTPC is a Crown corporation.

4.3.4 Existing Licences

With respect to 26(5)(a) of the *Waters Act*, no other Licensees contacted the Board during the statutory period, and there are no applicants with precedence in the watershed as per subsection 72.26(1) of the MVRMA/59(1) of the *Waters Act*. The Board is satisfied that the granting of this Licence will not adversely affect, in a significant way, any existing Licensee if compliance with the Licence occurs.

4.3.5 Compensation to Existing Water Uses

Paragraph 26(5)(b) of the *Waters Act* prohibits the issuance of the Licence unless the Board is satisfied that appropriate compensation has been or will be paid by the applicant to persons who would be adversely affected by the use of waters, or deposit of waste proposed by the applicant, at the time when the applicant filed its application with the Board.

The Board received no claims for compensation either during the prescribed period or afterwards. Provided compliance with the Licence conditions takes place, the Board finds that there are no water users or persons listed in paragraph 26(5)(b) of the *Waters Act* who will be adversely affected by the use of waters or the deposit of waste proposed.

4.3.6 Water Quality Standards

With regards to 26(5)(c)(i) of the *Waters Act*, the Board is satisfied that compliance with the Licence conditions will ensure that waste will be collected and disposed of in a manner that will maintain water quality consistent with applicable standards

4.3.7 Effluent Quality Standards

There are no effluent quality standards prescribed in the Waters Regulations. The Board is satisfied that compliance with the Licence conditions will protect the receiving waters and environment.

4.3.8 Financial Responsibility

The Board must satisfy itself of the financial responsibility of NTPC per paragraph 26(5)(c) of the *Waters Act* before it can issue the Licence.

NTPC is a Crown Corporation under the Government of the Northwest Territories; therefore, the Board is confident that NTPC is capable of meeting any financial obligations set out in the *Waters Act* and Licence concerning the use of water and deposit of waste for industrial purposes for the Jackfish Power Generating project.

On April 11, 2012, NTPC submitted a letter to the Board indicating that NTPC became a Crown Corporation on May 4, 1988 when the Northern Canada Power Commission was acquired from Her Majesty the Queen in Rights of Canada by the Government of the Northwest Territories²⁷.

As a result, and for the reasons set out above, the Board is satisfied that the financial capacity of the Applicant, in this case, is adequate and meets the requirements of 26(5)(c) of the *Waters Act*.

4.3.9 Minimization of Adverse Effects

With regards to subsection 27(2) of the *Waters Act*, it is the opinion of the Board that compliance with the Licence will ensure that any potential adverse effects on other water users, which might arise because of the issuance of the Licence, will be minimized.

4.3.10 Time Limit

The Board is satisfied it has adhered to subsection 47(1) of the *Waters Act*, which requires it to make a decision within a period of nine months after the day on which an application is made or a notice advertised as per subsections 43(1) and 43(2) of the *Waters Act*.

4.4 MVRMA Part 5: Environmental Review

4.4.1 Preliminary Screening

On May 1, 2019, the Board met and conducted a preliminary screening of the activities associated with the Application, to fulfill subsection 124(1) of the MVRMA. As per paragraph 125(1)(a) of the MVRMA, the Board determined that the activities associated with the Application would not have a significant adverse impact on the environment and would not be a cause of public concern. The Board's Preliminary Screening Report includes its reasons for that decision and is available on the Board's public registry.²⁸ The Board is satisfied the proposed development has been screened pursuant to the MVRMA.

²⁷ See Letter from NTPC relating to Crow Corporation – ([hyperlink](#)) – April 11, 2012

²⁸ See MVLWB Preliminary Screening and Reasons for Decision ([hyperlink](#)), dated May 1, 2019.

5.0 Decision – Water Licence MV2019L1-0001

In making its decision and preparing these Reasons for Decision, the Board has reviewed and considered:

- 1) The comments and recommendations made during the regulatory process;
- 2) The evidence and submissions from NTPC received by the Board;
- 3) The written comments and submissions from parties received by the Board; and
- 4) The Staff Report prepared for the Board.

Having due regard to the facts, circumstances, and the merits of the submissions made to it, and to the purpose, scope, and intent of the MVRMA and the *Waters Act*, the Board has determined that Licence MV2019L1-0001 should be issued, subject to the scope, definitions, conditions, and term contained therein. The Board's reasons for this decision are set out below.

The scope, definitions, conditions, and term set forth in the Licence have been developed to address the Board's statutory responsibilities and the concerns that arose during the regulatory process. The Reasons for Decision set out below focus on the major concerns and issues raised by parties, including those that were the subject of substantive argument submitted by one or more parties.

5.1 Term of Licence

NTPC has applied for a term of 20 years for the Licence as noted in their Application. NTPC stated at the Technical Session that the proposed term being requested is simply based on the longevity and stability of operations of the facility. NTPC also indicated that requesting the term would help keep electricity rates as low as possible for customers by minimizing regulatory costs.²⁹ Also during the Technical Session, a GNWT – ENR Water Resource Officer questioned why an even longer term was not requested as the Board has the ability to issue terms for longer. NTPC indicated that they would not object to a longer term than what they initially requested.³⁰

Subsection 26(2) of the *Waters Act* allows for a Licence term of not more than 25 years or the duration of the undertaking. After reviewing the submissions made during this regulatory process, the Board has determined an appropriate term for this undertaking is 25 years.

5.2 Part A: Scope and Definitions

Part A of the Licence contains the scope and definitions for terms used throughout.

Scope

The scope of the Licence ensures the Licensee is entitled to conduct activities that have been applied for and screened by the Board. In setting out the scope of the Licence, the Board endeavoured to provide enough detail to identify and describe the authorized activities, without being unduly restrictive or prescriptive, and to allow for project flexibility throughout the life of the Licence.

Part A, conditions 1 through 3 are consistent with previous Licences issued by the Board. These conditions ensure that the scope of the authorization includes all water uses and deposits of waste associated with the Project, reflect and comply with all applicable legislation for the life of the

²⁹ See MVLWB Technical Session Transcripts (page 78) – [\(hyperlink\)](#) – May 2, 2019

³⁰ See MVLWB Technical Session Transcripts (page 79) – [\(hyperlink\)](#) – May 2, 2019

authorization, and consider and incorporate scientific and Traditional Knowledge where available in the Licensee's effort to protect the environment.

Definitions

The Board defined items in the Licence to ensure a common understanding of conditions, to avoid future differences in interpretation, and to use wording similar to that found in previously issued Licences.

During the review of the Licence it was noted by the reviewers that definitions have been included that are not applicable to the project such as construction, greywater, sewage, sump, toilet waste, and unauthorized discharge. These definitions have been removed from the Licence.

5.3 Part B: General Conditions and Schedule 1

Part B and Schedule 1 of the Licence contain general administrative conditions regarding compliance and conformity with the *Waters Act* that are reflective of current Board terminology and consistent with standard conditions found in previous Licences issued by the Board.

Part B, condition 4: Measure Water Use and Waste Discharge

The Board has updated this condition based on reviewer comments relating to providing clarity to the measuring and monitoring devices used.

Part B, condition 17: Engagement

The Board assesses engagement adequacy of applications through the Board's *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits*, and the Board's *Engagement and Consultation Policy*. The Board notes that NTPC's pre-engagement for the Application was determined to be in accordance with the Guidelines and Policy. NTPC included an Engagement Plan and Log in the Application.

The Board has approved the Engagement Plan as it meets the Board's Guideline and Policy, and sufficiently reflects the scope of the proposed activities.

Part B, condition 19: Notification – Non-Compliance

The Board has included this condition to assist the Board, Inspectors, and reviewers in tracking compliance.

Schedule 1: Annual Water Licence Report

During the review of the draft licence it was noted that under 1(g) there were a number of items that do not apply to the Project; therefore, the Board has removed 1(g) iii, iv, v, and vi.

5.4 Part C: Conditions Applying to Water Use

Part C of the Licence contains conditions related to water use for Jackfish Power Generating Project. These are consistent with standard conditions found in previous Licences issued by the Board.

The maximum quantity of water that can be withdrawn from Jackfish Lake is 50,000 m³/day.

During the Technical Session NTPC indicated that average water use per day is around 16,400 m³/day and the maximum water use for the facility based on full operating capacity is 50,000 m³/day. NTPC noted that they are requesting keeping the water volume as currently authorized to act as a backup if a power line was to go down or if there was a low water event at the hydro-generation facilities.³¹

5.1 Part D: Conditions Applying to Modifications

Part D of the Licence contains conditions outlining when and how modifications of existing or planned physical works may be authorized. They ensure the Board and the Inspector are kept informed and have the opportunity to request more information or reject the proposed modification. This section relies on the definition of a modification, outlined in Part A, “does not include expansions, nor alternations of the purpose of function of a structure.” These conditions are consistent with standard conditions found in previous Licences issued by the Board. The purpose of Part D is to streamline the process for authorizing modifications and ensure that any proposed changes to structures that might be outside the scope of the Licence are brought to the Board’s attention.

5.2 Part E: Conditions Applying to Waste and Water Management

Part E of the Licence contains conditions applying to waste and water management activities for the Jackfish Power Generating Project and are consistent with standard conditions included in previous Licences issued by the Board. Site-specific conditions were developed where necessary.

Part E, condition 1 sets out the objectives for the management of water and waste for the Jackfish Power Generating Project. This condition is consistent with the principles of objective-based regulation: it essentially defines the objectives of any required management actions, plans or reports. This condition is standard for Licences issued by the Board and reminds the Licensee of the need to manage water and waste with the goal of minimizing impacts on the receiving environment.

Part E, condition 2: Waste Management Plan

The Board’s authority to regulate the management of waste is described in subsection 26(1) of the MVLUR and sections 11 and 27 of the *Waters Act*. As such, the Board developed and approved the *Guidelines for Developing a Waste Management Plan*.³² These guidelines can be applied to a wide range of projects and are intended to ensure that all waste management activities specific to each project are carried out in a way that is consistent with best practices and applicable guidelines to minimize waste released from the Project. Waste Management Plan is a defined term in the Licence, ensuring that this required Plan adheres to the Board’s Guidelines.

Submittal and compliance with a Waste Management Plan is standard for Licences issued by the Board. NTPC included a Waste Management Plan in the Application. The Board has approved the Waste Management Plan because it meets the Board’s *Guidelines for Developing a Waste Management Plan*, and sufficiently reflects the scope of the proposed activities.

³¹ See MVLWB Technical Session Transcripts pg 70 ([hyperlink](#)) – May 2, 2019

³² See www.mvlwb.com → Resources → Policies and Guidelines: [MVLWB Guidelines for Developing a Waste Management Plan](#) (March 31, 2011).

Part E, condition 4: Daily Inspections of Discharge Locations

The Board has removed this condition as it was noted during the review of the draft conditions that the discharge locations are under water and, therefore, the condition is not applicable.

Part E, conditions 6 and 7 and Schedule 2, conditions 1 and 2: Thermal Plume Delineation Study Design Plan and Thermal Plume Delineation Study Report

Part E, conditions 6 and 7 and Schedule 2, conditions 1 and 2, outline the requirements for a Thermal Plume Delineation Study Design Plan (Design Plan) and a Thermal Plume Delineation Study Report (Report) to be filed with the Board. The Design Plan and Report are required by the Licence to assist in the establishment of the Aquatic Effects Monitoring Program (AEMP).

During the initial review of the application, ECCC recommended that NTPC provide information relating to the details of facility discharge management (e.g., discharge method(s), rates, volumes, frequency, duration, locations), identification of mitigations currently in place to minimize the effects of thermal discharges on the aquatic receiving environment, as well as identify potential mitigation options to further minimize the effects of thermal discharges on the aquatic receiving environment³³. During the May 2, 2019 Technical Session, ECCC requested additional information relating to the aquatic habitat types in the vicinity of the discharges and potential thermal-related effects on fish. NTPC indicated that the information was not available at the time of the Application, that baseline work has begun, and that they would be open to completing a further study to gather the additional information.³⁴ An assessment of aquatic habitat within the thermal plume zone has been included as a requirement under Schedule 2, condition 1.

During the May 2, 2019 Technical Session, discussion regarding the potential influence of additional development on Jackfish Lake, the current trophic status, and recently documented algal blooms occurred.³⁵ In 2018, NTPC completed a comprehensive environmental monitoring program to characterize the existing conditions within Jackfish Lake (Golder 2019)³⁶. Results of this monitoring program suggest that it was unlikely that the cyanobacterial bloom was a thermal-related effect; however, given the uncertainty, additional chemical characterization to further support the development of the AEMP Design Plan is required. A minimum of one station should be located near the inflow areas, but outside of the thermal plume, to assess the potential influence of other anthropogenic effects unrelated to the Jackfish Power Generating Project and determine if the thermal plume is contributing to the formation of the cyanobacterial bloom. An additional station should be located at the outflow area to better define the potential influence the Jackfish Lake outflow may have on the downstream Yellowknife Bay of Great Slave Lake.

³³ See Comment Summary Table – ECCC ([hyperlink](#)) – April 16, 2019

³⁴ See Technical Session Transcripts pg. 36-48 ([hyperlink](#)) – May 2, 2019

³⁵ See Technical Session Transcripts pg. 27-34 ([hyperlink](#)) – May 2, 2019

³⁶ See Golder Associates Ltd. 2019. 2018 Environmental Monitoring Report Jackfish Lake Generating Facility. Submitted to Northwest Territories Power Corporation. 105 pp + appendices- ([hyperlink](#)) – February 26, 2019

5.3 Part F: Conditions Applying to Aquatic Effects Monitoring Program and Schedule 3

Part F and Schedule 3 of the Licence contain conditions applying to the AEMP for the NTPC Jackfish Power Generating Project. The Board has set out the standard conditions for the submission of an AEMP Design Plan, an AEMP Annual Report, a periodic AEMP Re-evaluation Report, a revised AEMP Design Plan (as required based on the conclusions of the AEMP Re-Evaluation Report) and AEMP Response Plans (as needed). More detailed information requirements for each condition are set out in Schedule 3. The AEMP should be designed in accordance with the applicable guidelines.^{37,38,39}

At the May 2, 2019 Technical Session, GNWT-ENR recommended that an AEMP be developed and consideration be given to including sampling under late ice-covered conditions (e.g., April) to document potential issues related to low dissolved oxygen concentrations.⁴⁰ ECCC had further questions in relation to low dissolved oxygen levels and potential impacts on fish within Jackfish Lake.⁴¹

NTPC included a draft Licence as part of the Application, which included a condition requiring the submission of an AEMP Design Plan for approval within 90 days of Licence issuance. Due to the nature of the deposited waste being restricted to thermal waste only, the Board determined that a Thermal Plume Delineation Study Design and Report would be required to verify the appropriate extent of monitoring thermal in Jackfish Lake. Results from the Thermal Plume Delineation Study Report will be used to inform the AEMP Design Plan. The requirement for the Thermal Plume Delineation Study to be completed results in a delay in the submission of the AEMP Design Plan (i.e., 90 days after the submission of the Thermal Plume Delineation Study Report). Although this delays the AEMP Design Plan approval, and in turn the AEMP implementation, the Board recognizes that an understanding of the thermal plume is required to properly design an appropriate AEMP. Additional information gathered through the chemical characterization at the inflow and outflow of Jackfish Lake, which will be completed as part of the Thermal Plume Delineation Study, will also be used to confirm if additional parameters and stations are required as part of the AEMP.

5.4 Part G: Conditions Applying to Contingency Planning

Part G of the Licence contains conditions related to spill contingency planning and reporting, reclamation of spills and unauthorized discharges, and emergency response for the Jackfish Power Generating Project. The purpose of this part is to ensure that NTPC is fully prepared to respond to spills and unauthorized discharges. The planning and reporting requirements in this part ensure that NTPC has identified the lines of authority and responsibility, has an action plan(s) for responses to spills and unauthorized discharges, and has established reliable reporting and communication procedures. This will ensure that any spills or unauthorized discharges are effectively controlled and cleaned up, with the goal of preventing or limiting damage to the receiving environment. The

³⁷ See Guidelines for Aquatic Effects Monitoring Program (MVLWB & GNWT 2019) – ([hyperlink](#)) - 2019

³⁸ See Draft Guidelines for Adaptive Management – A Response Framework for Aquatic Effect Monitoring ([hyperlink](#)) - 2010

³⁹ See Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Project in the Northwest Territories ([hyperlink](#)) - 2009

⁴⁰ See Technical Session Transcripts pg. 35 and pg. 36 ([hyperlink](#)) – May 2, 2019

⁴¹ See Technical Session Transcripts pg. 39 to pg. 40 ([hyperlink](#)) – May 2, 2019

conditions in Part G are consistent with standard conditions found in previous Licences issued by the Board.

Part G, condition 2: Spill Contingency Plan

Spill Contingency Plan is a defined term in the Licence, referencing the Indian and Northern Affairs Canada's *Guidelines for Spill Contingency Planning*.⁴² NTPC included a Spill Contingency Plan in the Application.

The Board has approved the Spill Contingency Plan because it sufficiently meets the guidelines and reflects the scope of the proposed activities.

5.5 Part H: Conditions Applying to Closure and Reclamation and Schedule 4

Part H and Schedule 4 of the Licence contain conditions applying to closure and reclamation of the Jackfish Power Generating Project.

As outlined in the Application, NTPC noted that the power generating system is a standby plant for the North Slave System and that this system is not anticipated to close or be decommissioned. NTPC submitted a Conceptual Abandonment and Restoration Plan, which outlines a brief closure plan for the facility. Although the facility is not anticipated to close, the requirement for a Closure and Reclamation Plan for the facility is needed to address the potential closing of the facility.

The Board notes that all Closure and Reclamation Plans (including Interim and Final) shall be in accordance with the Mackenzie Valley Land and Water Board and Aboriginal Affairs and Northern Development Canada's *Guidelines for the Closure and Reclamation of Advances Mineral Exploration and Mine Sites in the Northwest Territories (Closure Guidelines)*.⁴³ While the Board acknowledges that the Jackfish Power Generating Project is not this type of project, these guidelines can still be applied to the project in principle.

Part H, condition 1 and Schedule 4, condition 1 requires NTPC to submit an Interim Closure and Reclamation Plan to the Board within 24 months following the effective date of this Licence. This is a standard requirement of a Licence issued by the Board and will ensure the Project is reclaimed in accordance with established guidelines and expectation of reviewers and the Board.

Part H, condition 2, requires NTPC to submit an updated Interim Closure and Reclamation Plan to the Board for approval two years prior to the expiration of the Licence.

5.6 Annex A: Surveillance Network Program

Annex A of the Licence contains conditions applying to the Surveillance Network Program (SNP). The SNP details the sampling and monitoring requirements for compliance with numerous conditions and plans required by the Licence. Requirements for measuring flows, volumes, and meteorological data are based on standard water licence conditions as are the reporting requirements.

⁴² See www.mvlwb.com → Resources → Policies and Guidelines: [INAC Guidelines for Spill Contingency Planning](#) (2007).

⁴³ See www.mvlwb.com → Resources → Policies and Guidelines: [MVLWB/AANDC Guidelines for the Closure and Reclamation of Advances Mineral Exploration and Mine Sites in the Northwest Territories](#) (2013).

5.7 Annex B: Table of Submissions

Annex B of the Licence contains a table that summarizes the information NTPC is required to submit as required by the Licence conditions.

5.8 Annex C: Table of Revision History

Annex C of the Licence contains a table that identifies updates and tracks changes made to the Licence. This table is currently blank because this is a new Licence, but it will be updated throughout the life of the Licence.

6.0 Conclusion

Subject to the scope, definitions, conditions, and terms set out in the Licence, and for the reasons expressed herein, the MVLWB is of the opinion that the water use, and waste disposal associated with the Jackfish Power Generating Project can be completed by NTPC while providing for the conservation, development, and utilization of waters in a manner that will provide the optimum benefit for all Canadians and in particular for the residents of the Mackenzie Valley.

Water Licence MV2019L1-0001 contains provisions that the Board deems necessary to ensure and monitor compliance with the MVRMA, *Waters Act*, and the Regulations made thereunder, and to provide appropriate safeguards in respect of NTPC’s use of the land and water affected by the Licence.

SIGNATURE

Mackenzie Valley Land and Water Board



Mavis Cli-Michaud, Chair

September 26, 2019

Date