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May 23, 2023

File: W2014L4-0001

Matthew Miller
Northwest Territories Power Corporation
4 Capital Drive,
Hay River, NT, X0E 1G2

Sent by email

Dear Matthew Miller,

Re: Operations, Maintenance, and Surveillance Manual, Version 2.0 – Approved with Revisions Required – Snare Cascades Power Generation Facilities – Power – Snare River Watershed, NT

The Wek'èezhì Land and Water Board (Board) met on May 18, 2023 and considered Dogrib Power Corporation's (DPC's) Operations, Maintenance, and Surveillance Manual, Version 2.0 (the OMS Manual).¹ The OMS Manual is required by Water Licence W2014L4-0001, Part C, Condition 4 and was submitted by the Northwest Territories Power Corporation (NTPC), on behalf of DPC.

The Board has decided to approve the OMS Manual and requires revisions to the next version of the OMS Manual. The next version of the OMS Manual (i.e., Version 2.1) is to include the revisions outlined in the attached Reasons for Decision and NTPC/DPC is to work with Board staff to determine a submission date. Alternatively, if NTPC/DPC is planning on submitting a new version of the OMS Manual with its forthcoming Water Licence Renewal Application, the revisions can be incorporated into the new version (i.e., Version 3). In either case, the revised OMS Manual should be prepared in accordance with the Land and Water Board's *Document Submission Standards*.

The details of the Board's decision are set out in the attached Reasons for Decision.

Please direct questions or concerns regarding this letter to Ryan Fequet in writing.

¹ See WLWB (www.wlwb.ca) Online Registry for [DPC - OMS Manual - Version 2.0 - Dec 22 22](#)

Yours sincerely,

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

Mason Mantla
Chair, Wek'èezhìi Land and Water Board

BCC'd to: Wek'èezhìi Distribution List
 Meg McCluskie, GNWT-ECC
 Meaghan McIntyre-Newell, GNWT-ECC

Attached: Reasons for Decision



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Reasons for Decision

Reference/File Number:	W2014L4-0001 (Type "A" Water Licence)
Licensee:	Dogrib Power Corporation (DPC)
Subject:	Operations, Maintenance, and Surveillance Manual, Version 2.0

Decision from the Wek'èezhì Land and Water Board Meeting of May 18, 2023

1.0 Decision

On May 18, 2023, the Wek'èezhì Land and Water Board (WLWB or the Board) considered the Dogrib Power Corporation's (DPC's) Operations, Maintenance, and Surveillance Manual, Version 2.0 (the OMS Manual).¹ The OMS Manual is required by Water Licence W2014L4-0001, Part C, Condition 4 and was submitted by the Northwest Territories Power Corporation (NTPC), on behalf of DPC.

In consideration of the submission, reviewer comments, and proponent responses, the Board has decided the following:

1. To approve Version 2.0 of the OMS Manual; and
2. To require DPC to submit Version 2.1 of the OMS Manual to include Revisions #1 to 5. DPC is to work with Board staff to determine a submission date. Alternatively, if DPC is planning on submitting a new version of the OMS Manual with its Water Licence Renewal Application, the revisions can be incorporated into the new version of the OMS Manual (i.e., Version 3).

2.0 Background

The Dogrib Power Corporation (DPC) owns the Snare Cascades Power Generation Facilities on the Snare River. While DPC is the owner, Northwest Territories Power Corporation (NTPC) is the operator.

¹ See WLWB (www.wlwb.ca) Online Registry for [DPC - OMS Manual - Version 2.0 - Dec 22 22](#)

The OMS Manual is required by Water Licence W2014L4-0001, Part C, Condition 4. The OMS Manual details how the site is operated, the maintenance programs, and the inspection and testing (i.e., the surveillance) required at the Site. As per Part C, Condition 4 of the Licence, the OMS Manual must be in accordance with the Canadian Dam Association (CDA) Guidelines. The CDA Guidelines provide recommendations for what should be included in an OMS Manual.

NTPC submitted Version 2.0 on behalf of DPC on December 22, 2022. Version 2.0 was submitted with updates from the previous version, which included updated dam consequence classifications, dam inspection procedures and checklists, contact information, and seismic hazard information.

The OMS Manual was distributed for review on March 3, 2023. Comments were received on March 24, 2023, from the Government of Northwest Territories – Environment and Natural Resources – Environmental Assessment and Monitoring (GNWT-ENR).² Board staff also submitted clarification questions. Proponent responses were submitted by NTPC on behalf of DPC by the deadline of March 31, 2023. Reviewer comments and recommendations, as well as the proponent’s responses, are available on the WLWB Online Review System (ORS).³

3.0 Reasons for Decision

The OMS Manual was reviewed for conformity to the Licence and all reviewer comments and proponent responses submitted during the public review period were reviewed. Based on the review, the Board has decided to approve the OMS Manual.

➤ ***Decision # 1: The Board has approved Version 2.0 of the OMS Manual.***

The reasons for this decision are:

- The Board is of the opinion that none of the comments raised during the public review indicate that the OMS Manual should not be approved;
- As discussed throughout these Reasons for Decision, the Board is of the opinion that issues raised during the public review have been addressed by NTPC’s responses or can be addressed in the next version of the OMS Manual; and
- The Water Licence will be undergoing a renewal this year and some of the issues can be further discussed during the renewal proceedings.

As discussed in sections below, there are some revisions that the Board is requiring be addressed in the next version of the OMS Manual. These revisions appear straightforward in nature and are more clarification/organizational edits that would not affect the operations at Site. Because a proceeding to

² The GNWT Departments of Lands, and Department of Environment and Natural Resources were amalgamated into the Department of Environment and Climate Change on April 1, 2023. For cohesion with the wording on the Online Review System (ORS), Government of the Northwest Territories – Environment and Natural Resources – Environmental Assessment and Monitoring (GNWT-ENR) is used throughout this Reasons for Decision.

³ See WLWB Online Review System for [DPC - Operations, Maintenance, and Surveillance Manual v 2.0 - Mar 31 23](#)

renew the Licence is imminent, the Board recognizes that there may be changes to the OMS Manual that DPC/NTPC would like considered as part of the proceeding. Given the required edits from this review appear straightforward, the Board is giving DPC two options with how to proceed with submitting the next version of the OMS Manual: either submit the OMS Manual for conformity (i.e., Version 2.1) following communication of the Board's decision or submit the new version of the OMS Manual (i.e., Version 3) with the required revisions and any other updates NTPC would like considered as part of the Water Licence Renewal Application.

- ***Decision #2: DPC is to submit Version 2.1 of the OMS Manual to include Revisions #1 to 5. DPC is to work with Board staff to determine a submission date. Alternatively, if DPC is planning on submitting a new version of the OMS Manual with their Water Licence Renewal Application, the respective revisions can be incorporated into the new version of the OMS Manual (i.e., Version 3).***

The following sections address comments/issues raised during the public review and the resulting revisions that are being required for the next version of the OMS Manual.

3.1 Dam Safety Guidelines

As per Part C, Condition 4, the OMS Manual “must be in accordance with the Canadian Dam Association Guidelines”. The Canadian Dam Association (CDA) Dam Safety Guideline (CDA Guideline) describes the typical contents of an OMS Manual and provides details for what would be expected in each section of the OMS Manual (see Section 3 of the CDA Dam Safety Guideline).⁴

DPC was asked to provide additional information to address the CDA's recommendations for what should be included in an OMS manual. This included addressing the following items: providing additional information on normal operating procedures (WLWB staff comment 6); providing additional information on the flood operating procedures (WLWB staff comment 7); describing mitigative measures to emergency responses (WLWB staff comment 8); referencing any specific maintenance activities for concrete (WLWB staff comment 9); and providing additional information on the instrumentation program (WLWB staff comment 11). In response to these comments, NTPC provided additional information (response to WLWB staff comments 9 and 11), stated it would update the OMS Manual with the required information (response to WLWB staff comment 6), or stated that the information could be found in the Emergency Preparedness Plan (EPP) (response to WLWB staff comments 7 and 8).

The Board is satisfied with NTPC's responses for these reasons:

1. The list of items brought up during the public review are either addressed through the EPP (response to WLWB staff comments 7 and 8), not applicable (response to WLWB staff comment 9),⁵ or are operational considerations (response to WLWB staff comments 6 and 11). The Board is

⁴ See the Canadian Dam Association (CDA) website (www.cda.ca) for Dam Safety Guidelines 2007 (2013 Edition).

⁵ In response to a question about whether maintenance procedures were in place to address alkali aggregate reaction (AAR) in concrete, NTPC indicated that no evidence of AAR has been found to date at the facilities.

of the opinion that the potential gaps in the operational considerations (i.e., normal operating procedures and instrumentation) can be addressed in the next version of the OMS Manual because any potential impacts related to these operational considerations can be mitigated through procedures currently in the OMS Manual or in the EPP (e.g., flood operating procedures, and backup monthly meter readings for the instrumentation).

2. In the Board's opinion, the OMS Manual generally appears to address the typical contents of an OMS Manual as per the CDA Guideline;
3. As part of the Dam Safety Review (DSR), which happens every seven years for the Power Generation Facility, the third-party engineer (or Review engineer) is required to review the operations, maintenance, and surveillance documentation as per the Dam Safety Guidelines. In the most recent DSR (i.e., 2018),⁶ the Review engineer reviewed the OMS Manual and reported that it was "generally consistent with the expectations outlined in the CDA Guidelines". While it is not clear if the current OMS Manual is the exact one reviewed during the DSR, this gives the Board assurance that a qualified engineer has reviewed the OMS Manual and will continue to do so as part of the DSR; and
4. Given the Licence will be undergoing a renewal, further discussions on the OMS Manual can take place at that time.

The Board requires an updated version that addresses the potential gaps in information and the responses provided during the public review. To help readers understand where the CDA Guidelines are being met in the OMS Manual, it would be helpful if DPC provided a conformance table with the next Version of the OMS Manual (based on Table 3-1 from the CDA Guideline: "Typical Contents of OMS Manual"). If DPC has not addressed a particular CDA requirement, then DPC should indicate in what document this information can be found (e.g., EPP), or if it has not been included at all, the rationale for why not.

- ***Revision #1: DPC is to update the next version of the OMS Manual with responses to Board staff comments 6-9, and 11 from the public review.***
- ***Revision #2: DPC is to include a concordance table indicating where each CDA recommendation for the contents of an OMS Manual is addressed in the Manual (see Table 3-1 in the Dam Safety Guideline: "Typical Contents of OMS Manual").***

3.2 Dam Safety Review

As per the Licence, DPC is required to conduct a Dam Safety Review every five years "or unless otherwise approved by the Board" (Part C, Condition 6). In Section 4.3 of the OMS Manual, DPC makes reference to a five-to-seven-year timeline for conducting Dam Safety Reviews (DSRs), and was asked during the public review why the range was provided (WLWB staff comment 10). NTPC confirmed that the DSR was previously conducted every five years, but the Board approved a reduction to the frequency to every

⁶ See WLWB Online Registry for [DPC - 2018 Dam Safety Review Part 1 - Jun 14 19.pdf](#)

seven years based on the CDA Guidelines.⁷ Given this reduction was approved by the Board, the OMS Manual should be updated with this context.

- ***Revision #3: DPC is to update the OMS Manual with the details of when and why the DSRs were reduced to once every seven years, with a reference to the Board's approval of this reduction.***

3.3 Reporting

Section 2.6 of the OMS Manual provides tables with the average, low, and high inflows into Big Spruce Lake, based on weekly recordings from 1998, 1999 and 2000. DPC was asked if there was more up-to-date information (WLWB staff comment 5). NTPC indicated that it had replaced weekly reporting with monthly reporting and said the old reports can serve as a representative case for operational methodology. NTPC did not provide a reason for why representative monthly reporting inflows could not be used over weekly.

As per the CDA Guidelines, the operator should consider including “Statistics for normal typical values of inflows, such as plots of minimum, maximum, and average inflows versus time, throughout a typical year, so that seasonal impacts can be identified, and operators will know if inflows are within normal statistical ranges”. The Board is of the opinion this information would likely be more useful to users of the Manual instead of the tables with values provided in section 2.6. The Board is of the opinion that given there are operational limits within the Licence (i.e., Forebay water levels), these tables in section 2.6 are more for informational purposes and therefore, the updated information can wait until the next version of the OMS Manual. Thus, the Board is requiring DPC to include similar plots as recommended by the CDA Guideline in the next version of the OMS Manual.

- ***Revision #4: DPC is to update section 2.6 with statistics for typical values of inflows, such as plots of minimum, maximum, and average inflows versus time, throughout a typical year.***

3.4 Commitments

In response to comments during the public review, NTPC acknowledged there were items within the Manual that should be revised. These commitments are detailed below:

- Correct section 1 to reference the appropriate Water Licence (i.e., W204L4-0001) and not N1L4-1624 (WLWB staff comment 1);
- Update section 1, under “Classification”, with appropriate Dam Classification information, including information from the last Dam Safety Review completed in 2018⁸ (WLWB staff comment 2);

⁷ See WLWB Online Registry for [DPC - Request to Revise DSR Frequency - Board Directive and Reasons for Decision - Apr 1 16.pdf](#)

⁸ See WLWB Online Registry for [N1L4-0150 - NTPC - 2018 Dam Safety Review Part 1- Jun 14 19.pdf](#)

- Update section 1, under “Maximum Design Earthquake” and Figure 10 “National Building Code Seismic Hazard Calculation”, with updated seismic hazard values (WLWB staff comment 3);
 - Under section 2, “Snare Falls Spillway, Spillway Gate Particulars”, include the drawing number and the associated reference (WLWB staff comment 4); and
 - In section 5, update the “GNWT Emergency Measure Organization” to “GNWT Emergency Management Organization” and include the emergency spill line phone number (see GNWT-ENR comment 1).
- **Revision #5: DPC is to incorporate the revisions in section 3.4 of these Reasons for Decision in the next versions of the OMS Manual.**

Signed the 23rd day of May 2023, on behalf of the Wek’èezhìi Land and Water Board



Witness



Mason Mantla
Chair, Wek’èezhìi Land and Water Board