

Downstream Infrastructure Adaptive Management Plan Annual Report 2024-2025

*Site C Clean Energy Project
October 17, 2025*

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1.0 Introduction

The Downstream Infrastructure Adaptive Management Plan (AMP) was developed collaboratively by BC Hydro and the Alberta Ministry of Environment and Protected Areas, in accordance with Condition 1 of the Site C Project's Environmental Assessment Certificate (EAC) and Condition 5 of the Federal Decision Statement (FDS), issued to BC Hydro on October 14, 2014, and November 25, 2014, respectively. The current version, Revision 4, is available at:

<https://www.sitecproject.com/sites/default/files/Adaptive-Management-Plan-for-Downstream-Infrastructure.pdf>

The purpose of the AMP is to manage potential risks to infrastructure located between the Site C dam and the Town of Peace River, Alberta, due to low water flows during reservoir filling and operations. The plan focuses on the Town of Fairview intake, Shaftesbury Ferry, and the Town of Peace River intake. The AMP outlines water management strategies during reservoir filling and operations, identifies potential risks to downstream infrastructure, and describes mitigation and monitoring measures related to potential impacts. The plan also includes a communications and reporting framework with the Government of Alberta Ministry of Environment and Protected Areas (AEPA).

Construction of the Site C Project is now complete and all six generating units are operational. In accordance with EAC Condition 1 and FDS Condition 5.5, this report provides an annual update on the implementation of the AMP, covering the period from the start of reservoir filling in August 2024 to August 2025, when the sixth and final generating unit commenced operations.

2.0 Construction Update

2.1 Reservoir Filling

Reservoir filling for the Site C Project began on August 25, 2024, and was completed on November 7, 2024. The timing was strategically chosen to minimize tributary inflow risks, accommodate environmental and construction constraints, and support downstream ice control requirements.

Reservoir filling was carried out in three controlled stages over approximately 11 weeks, following hydraulic modifications to Diversion Tunnel 2. These modifications included the installation of orifice rings to regulate flow. Throughout the filling process, outflows were maintained above 390 m³/s, in accordance with the Project's Conditional Water Licences, Environmental Assessment Certificate, Decision Statement, Fisheries Act Authorization and Canadian Navigable Waters Act Approval¹.

The filled reservoir spans approximately 83 kilometres in length and is, on average, two to three times wider than the historical river channel. At the dam site, the water level was raised by approximately 43 metres – from the historical Peace River elevation of 400 metres to a new operating level of 443 metres above sea level. The normal operating level of the reservoir is between 460 m and 461.8 m elevation.

2.2 Operations

The Project transitioned to operations with the commissioning of the first of six generating units on October 28, 2024, following the completion of all required testing and commissioning procedures. The

¹ <https://www.sitecproject.com/document-library/permits-and-authorizations>

remaining units were brought online one-by-one, with the sixth and final unit successfully commissioned on August 9, 2025.

3.0 Stakeholder Engagement

3.1 Town of Fairview Intake

The Town of Fairview intake uses a booster pump located ~14 km downstream of the Dunvegan bridge crossing to supply water from the Peace River to storage ponds used for town operations. The booster pump experiences increased wear when suspended solid levels, as measured by a turbidity meter, are higher than 20 Nephelometric Turbidity Units (NTU). The operator prefers to pump when turbidity is 17 NTU or less to optimize the mechanical maintenance task frequency. The approach used by the Fairview intake operator is to pump water in the October – March period each year to fill the storage ponds. This annual pumping window targets the period when the Peace River typically has low turbidity levels.

In June 2024, the Town of Fairview and BC Hydro entered into a Memorandum of Understanding (MOU) to collect and share NTU and Total Suspended Solids (TSS) data with each other on request, for a 3-year period. Under the MOU, BC Hydro also provided financial assistance to the Town of Fairview in support of a 3-year TSS monitoring program. Monitoring by both parties remains ongoing.

During the reservoir filling and the initial months following the filling period, short-duration (i.e., days) increases in turbidity were expected in the water column before settling out in the reservoir. This increase was expected due to reservoir shoreline erosion after the initial inundation, leading to temporary increased levels of suspended solids. Almost all solids leaving the Site C reservoir are expected to settle out prior to reaching the Fairview intake (located approximately 200 km downstream of Site C).

BC Hydro's monitoring data indicate that turbidity levels have remained low during and after reservoir fill when compared to 2022 and 2023 data, both in the reservoir and immediately downstream of the dam.

3.2 Shaftesbury Ferry

The Shaftesbury Ferry operates seasonally, generally from mid-spring to mid-November when the Peace River is free of ice. The ferry can operate at partial capacity when river levels are at or above $900 \text{ m}^3/\text{s} \pm 100 \text{ m}^3/\text{s}$. Partial capacity is possible when flows exceed $600 \text{ m}^3/\text{s}$.

During the reservoir filling period, BC Hydro coordinated with the AEPA to provide advance notice to ferry users regarding reduced ferry capacity. Flow forecasts were issued three times per week during the filling phase, and operational updates were posted to the Alberta 511 website to keep users informed. Now into the operational phase, BC Hydro continues to work closely with the AEPA to ensure that low flow issues resulting from Site C operations do not adversely affect ferry service. Continued communications on when higher flow releases can be accommodated will be shared with the AEPA.

The ferry remained in service throughout the reservoir filling period (August 25 to November 7, 2024), and has continued operation during the first year of Site C operations. A summary of ferry operations is provided below.

Shaftesbury Ferry Operation Period	Operational Load Capacity
August 20 – October 28, 2024	Light load
October 29 – November 2024	Full load
May 2 – August 4, 2025	Full load
August 5 – September 3, 2025	Light load

3.3 Town of Peace River

The Town of Peace River (TPR) operates a raw water intake on the left bank of the Peace River, approximately 6 km upstream of the highway bridge crossing. This intake pumps water year-round and has not experienced outages due to low water in the past 6 years. The Town of Peace River intake was not expected to experience disruption based on its ability to operate in recent years under river levels lower than predicted during reservoir filling.

Communication regarding the TPR's municipal water intake started in October 2023 in anticipation of a fall 2023 start to Site C reservoir filling. Communications were paused when BC Hydro announced in November 2023 that reservoir filling would rather take place in 2024. In spring 2024 BC Hydro and the TPR resumed discussion to confirm the water intake elevation and how the intake was performing during the ongoing drought-related low flows on the Peace River. BC Hydro also indicated reservoir filling would start later in the year, likely late summer or early fall.

On August 15, 2024, BC Hydro provided a tour of Site C to senior officials from the TPR, including the Chief Administrative Office and the Director of Infrastructure and Development. During the tour, discussions took place on river flows at the Town's municipal water intake. During reservoir filling, communications took place between TPR and BC Hydro's operations planning engineer regarding flow conditions. The TPR's Director of Infrastructure emailed BC Hydro on September 11, 2024, to advise that the municipal water intake and treatment plant continued to operate near normal despite low river levels.

4.0 Communications and Reporting

Over the three years up to and including reservoir filling, BC Hydro engaged with the governments of Alberta, Northwest Territories and local governments in northwest Alberta about Site C discharge and Peace River downstream flows.

Anticipating the possibility of a 2023 fill, communications with Alberta and others commenced in 2022. Communication continued through the next year and into 2024 with formal email updates in the weeks before filling, at the start of filling, mid-filling and ending with the completion of filling in November 2024. Most communications were to groups of local governments, but some were to individuals, including local governments, property owners and businesses. Among the key messages in BC Hydro communications for downstream jurisdictions were:

- 1) Flows on the Peace River are low due to the ongoing regional drought and would be low for part of the reservoir filling period, but no lower than our minimum discharge of 390 m³/s and;
- 2) BC Hydro is available to respond to concerns and questions.

A summary of communications to Alberta from late 2022 to late 2024 is outlined below (Note: the list is not exhaustive).

Type of Communication	Number	Recipients
Emails	11+ ¹	Northwest Alberta local governments, northwest Alberta MLAs, private industry, and individual farm operator
Meetings (in-person and virtual)	4	AEPA, northwest Alberta local governments
Tours	2	Representatives from 14 northwest Alberta local governments; Town of Peace River administration
Letters	2	Minister AEPA; northwest Alberta local governments and northwest Alberta MLAs
Presentations	1	Northern Transportation Advocacy Bureau (coalition of 14 northwest Alberta local governments)

¹ Frequent communications occur between BC Hydro and AEPA River Forecast Centre through most of the year.

Outside of Site C, BC Hydro's Generation System Operations (GSO) team maintains regular communications with the AEPA River Forecast Centre as it has done for well over a decade. GSO provided regular forecasts three times per week during the reservoir filling period. The forecasts ended in November 2024 once reservoir filling was completed. AEPA and BC Hydro share river ice monitoring duties that involves sharing of freeze-up and breakup locations along the Peace River, ice induced water levels and interpretation of data.

Additionally, the Site C Project website had a component dedicated to reservoir filling and a frequently updated News, Reports, and Advisories section. Annual water quality reports are made publicly available and are also posted to the website.

As Site C is now in full operation, BC Hydro will continue working closely with the AEPA, local governments, and other stakeholders to monitor and communicate about any potential impacts of flow on downstream infrastructure. Annual reporting on the implementation of the Plan will continue through to the end of Year 5 of operations.