

11.2 Quarterly Dam Safety Report

The purpose of this report is to update the Operations, Planning, Safety and Information Technology Committee of the Board of Directors on key dam risk management activities during the period from April 1 to June 30 2026 (F2027 Q1) and to provide reasonable assurance that the safety of dams operated by BC Hydro continues to be managed to the established guidelines and criteria of the Dam Safety Program.

Executive summary

The key highlights from F2027 Q1 documented in this report are:

- To reduce public safety risk, the Hugh Keenleyside Dam navigation lock has been closed to the general public pending repairs to the downstream gate. Interfor continue to use the lock to transit forest products past the dam using a modified procedure agreed to by BC Hydro. (Page 3)
- A significant leak in the concrete of the Seton aqueduct crossing Cayoose Creek was repaired on an emergent basis during a planned joint repair project. (Page 3)
- The aggregated Vulnerability Index increased by about three, driven by the findings of a condition assessment of the Falls River spillway operating gates, and offset by the return to service of the W.A.C. Bennett Dam spillway operating gates backup drives. (Page 4)
- The Dam Safety Program remains in good standing. All obligations under the BC Dam Safety Regulation have been met. The dam safety inspection and surveillance activities were completed in compliance with targeted levels through F2027 Q1. (Pages 6-7)
- A comprehensive review of the condition of the Nááchę Mege reservoir slopes, consisting of inspections, monitoring and assessments was completed in Q1. The program identified no unusual behavior, supporting the decision to open the reservoir to the public on June 26, ahead of schedule. (Page 7)
- The spillway gate testing program completed 226 of the 230 planned gate tests in F2027 Q1, equating to a 98% compliance rate with plan, meeting the target. All gates operated on demand during testing however two issues arose during regular gate operations. Both issues were addressed and did not result in any material impact to the ability to discharge at those facilities. (Page 7).
- The current Dam Safety risks and the ongoing and planned projects at Hugh Keenleyside Dam and La Joie Dam are highlighted. (Pages 8-10)

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Dam Safety Program Dashboard

Program Status at a Glance

Risk Profile 	Regulatory Compliance 	Surveillance 	Flood Discharge Gate Testing 
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Targets and Performance Metrics

Program Element	Metric	Target	Actual		Status
Risk Profile (page 3)		Rolling Year	Q1	Rolling Year	
Vulnerability Index	Reductions	≥ -12	-4.4	-4.2	
	Additions		+7.3	+7.0	
	Net Change	≤ 0	+2.9	+2.8	
Non-Conformances	Issues Resolved		-2	-15	
	Issues Added		+3	+20	
	Net Change	≤ -3	+1	+5	
Regulatory Compliance (page 6)		Year End	Q1	YTD F2027	
Operation, Maintenance & Surveillance Manuals	Manuals Updated	3	0	0	
Independent Dam Safety Reviews	Reports Submitted	2	0	0	
Surveillance (page 6)		Year End	Q1	YTD F2027	
Routine Dam Inspections	Planned Inspections Completed	99.5% of plan	100% (421/421)	100% (421/421)	
Annual and Semi-Annual Inspections	Inspection Reports Issued	73	1	1	
Reservoir Slope Inspections	Inspection Reports Issued	16	3	3	
Flood Discharge Gate Testing (page 6)		Year End	Q1	YTD F2027	
Planned Gate Testing	Planned Gate Tests Completed	98% of plan	98% (226/230)	98% (226/230)	
	Full Opening Tests Completed		20	20	
Gate Performance	Gates Failing to Operate on Demand		0	0	

Legend

 Satisfactory - minor isolated issues only.	 At risk of underperformance - being monitored.	 Unsatisfactory - requires correction.
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New Issues and Updates on Previous Issues

Hugh Keenleyside Navigation Lock Closure to the Public

On recommendations from Dam Safety and Operations, the Hugh Keenleyside navigation lock was closed to the general public in June 2026 and will remain closed pending repairs to the downstream gate. Interfor continues to use

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the lock to pass forest products under a modified procedure agreed to by BC Hydro that prevents the passage of any vessels under the downstream gate.

Increasing vibration levels have progressively been detected during operation of the downstream navigation lock gate. Follow-up inspections and subsequent engineering investigations revealed damage to the hoist system. Despite ongoing efforts, the underlying cause has not been conclusively identified or corrected, and Engineering and Operations are no longer confident that further deterioration could be detected in time to prevent failure. Failure of the hoist could result in the uncontrolled descent of the downstream navigation lock gate, creating an unacceptable operational and safety risk.

As an interim risk-reduction measure, Dam Safety and Operations recommended and implemented temporary changes to navigation lock usage pending development and implementation of a long-term solution. Dam Safety has released an emergency project to replace the damaged hoist. Initial estimates indicate replacement could take one to two years due to procurement lead times for replacement parts and equipment. Actions to accelerate the project are underway.

More information on the Hugh Keenleyside Facility can be found in the Facility Spotlight section on page 9.

Seton Aqueduct Leak and Repair

Dam Safety initiated a maintenance project to repair persistent leakage from a concrete joint in the Seton aqueduct that crosses Cayoose Creek. The repair began during a unit outage in May. During site preparation, a significant new leak appeared through the concrete panel when the diver moved a piece of loose concrete inside the aqueduct. If left untreated, there was concern that freezing temperatures over the winter would cause further concrete degradation and the leak to worsen, resulting in erosion along the creek bank and aqueduct footings. The civil maintenance team quickly developed and implemented a repair solution during the extended unit outage, addressing both the newly identified leak and the original leak from the joint.

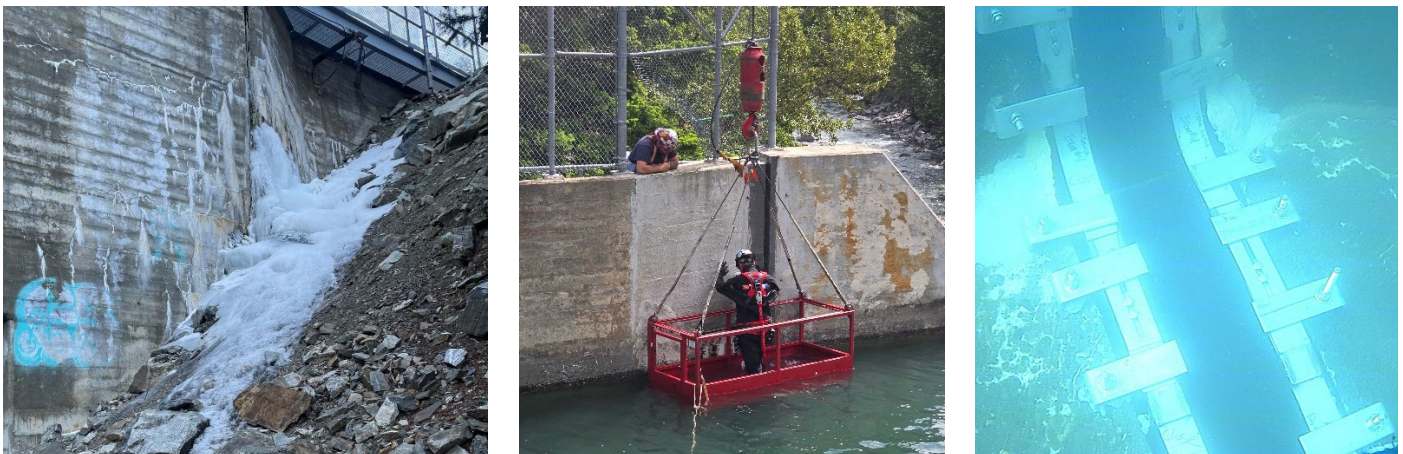


Figure 1: Aqueduct leak in winter (left), diver on maintenance project (middle), completed joint repair (right).

Risk Profile

The Vulnerability Index measures known physical issues at BC Hydro dams and how much they could affect dam performance. Individual issues use a Vulnerability Index scale from 0 to 10, where higher scores indicate a greater

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risk. The Vulnerability Indices for individual issues can be summed to show an aggregated risk profile at each site or across the fleet of BC Hydro's dams.

In Q1 F2027, one issue was resolved at W.A.C. Bennett Dam and two new issues were identified with the spillway gate at Falls River, for a net increase of 2.87 in the aggregate Vulnerability Index.

In the past four quarters, both new issues and resolved issues were higher than in previous years. The overall Vulnerability Index has increased by 2.8 over the past four quarters but remains on track, supported by planned projects to address remaining issues.

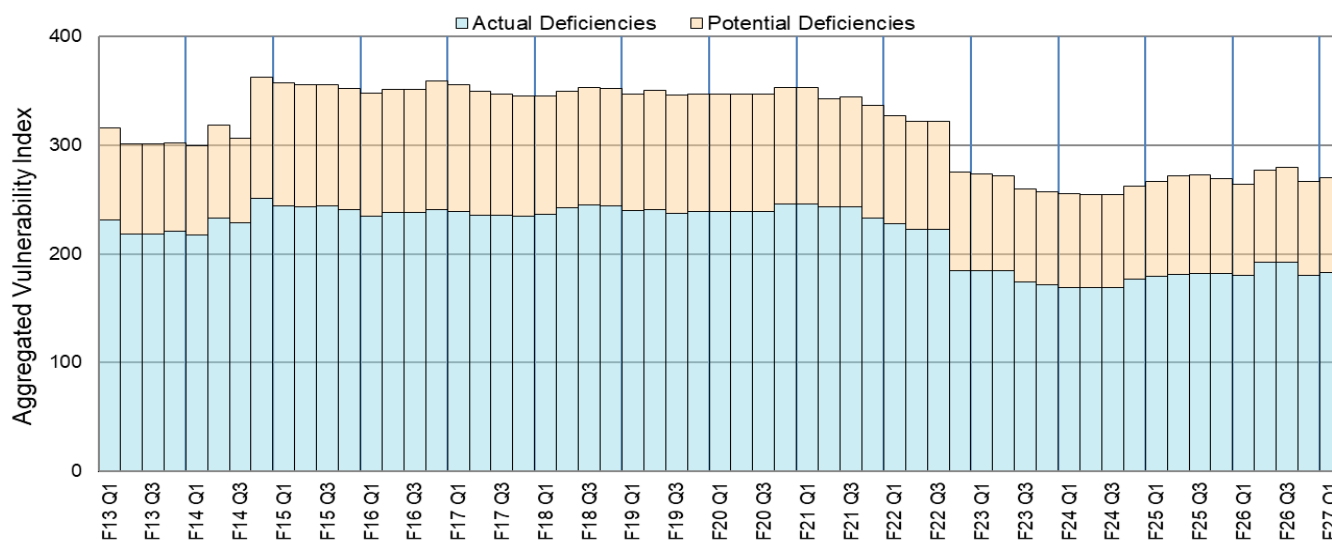


Figure 2 Changes and trends in the Aggregate Vulnerability Index.

The changes this quarter are summarized below and identified by the numbered callouts in Figure 3.

1 WAC Bennett Dam: reduction of 3.5 Gate Serviceability Deficiency.

Backup drives were out of service on all three spillway operating gates (SPOGs). The issue has been addressed, commissioning tests were completed and the backup drives returned to service.

2 Falls River Dam: increase of 1.54 Actual Normal Deficiency.

Automatic and remote operation of the spillway operating gates and remote gate position indication is unreliable. The ability to remotely operate the gates has been lost at least four times in the last two years.

3 Falls River Dam: increase of 5.43 Actual Normal Deficiency.

The two spillway operating gates at Falls River have experienced significant degradation, primarily due to corrosion. A recent assessment indicates that the gates do not meet current standards for normal loading conditions.

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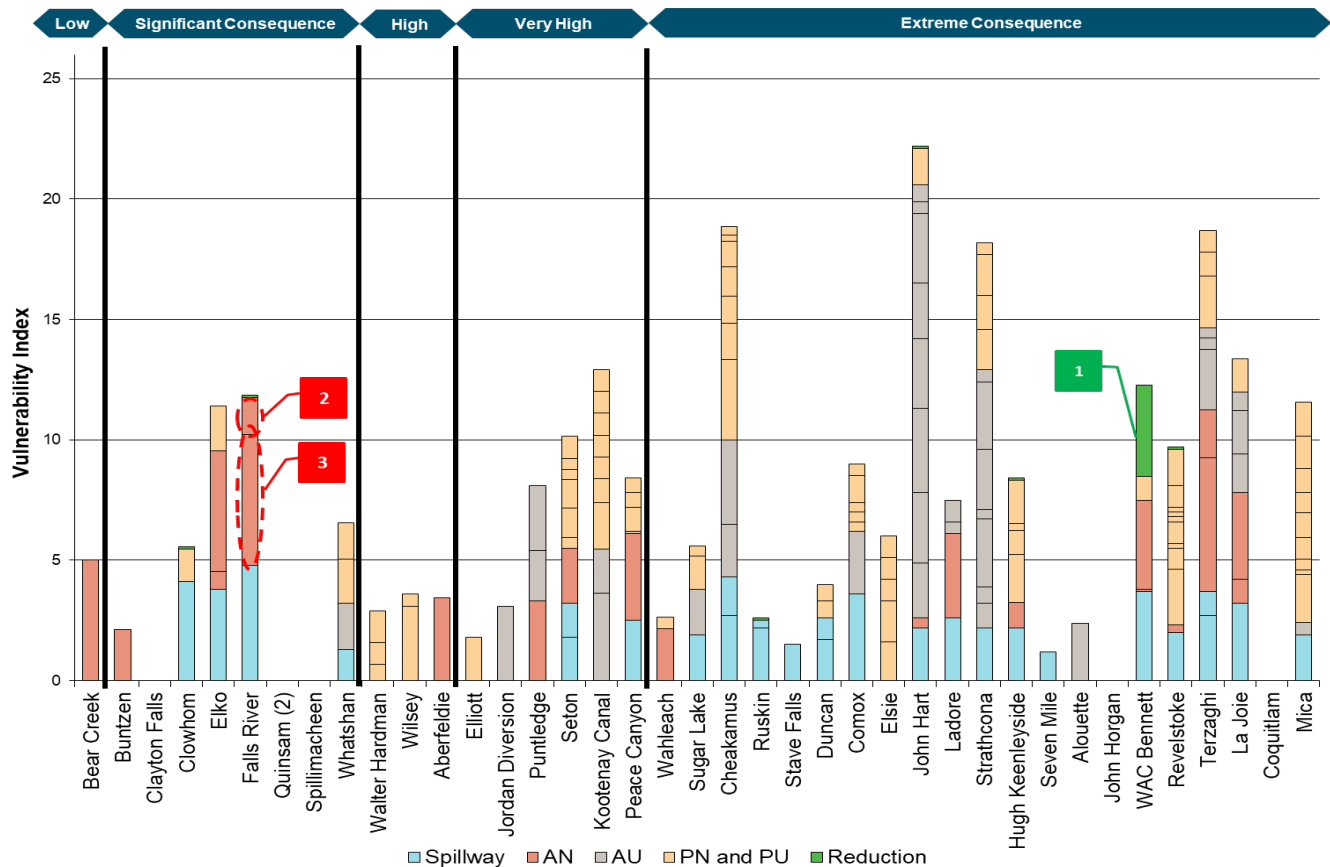


Figure 3 Dam Safety overall risk profile at the end of F2027 Q1, as represented by the Vulnerability Index. Dams are ordered from left to right in order of increasing downstream consequences.

- AN** **Actual** deficiency (demonstrated to exist) under **normal** load conditions.
AU **Actual** deficiency (demonstrated to exist) under **unusual** load conditions.
PN and PU **Potential** deficiency (requiring further investigation to demonstrate existence) under either normal or unusual conditions.
Spillway Deficiency related to operational reliability or serviceability of the dam's spillway and/or other flood discharge systems.

Non-Conformances in the Dam Safety Program

Non-Conformances are gaps where the requirements of BC Hydro's Dam Safety Program Management System or generally accepted good practices are not being met or where information on the design, construction, or operation of the dam is unavailable.

The Dam Safety Program is in good standing, and non-conformances are routinely identified and resolved to promote continuous improvement. In F2027 Q1, two non-conformance issues were resolved, and three new issues were identified, for a net change of one additional issue.

In the past four quarters, the net change in the number of non-conformance issues was 5 additional issues bringing the total to 195 outstanding. Of these, 73 issues are program non-conformances, while 122 issues are information non-conformances.

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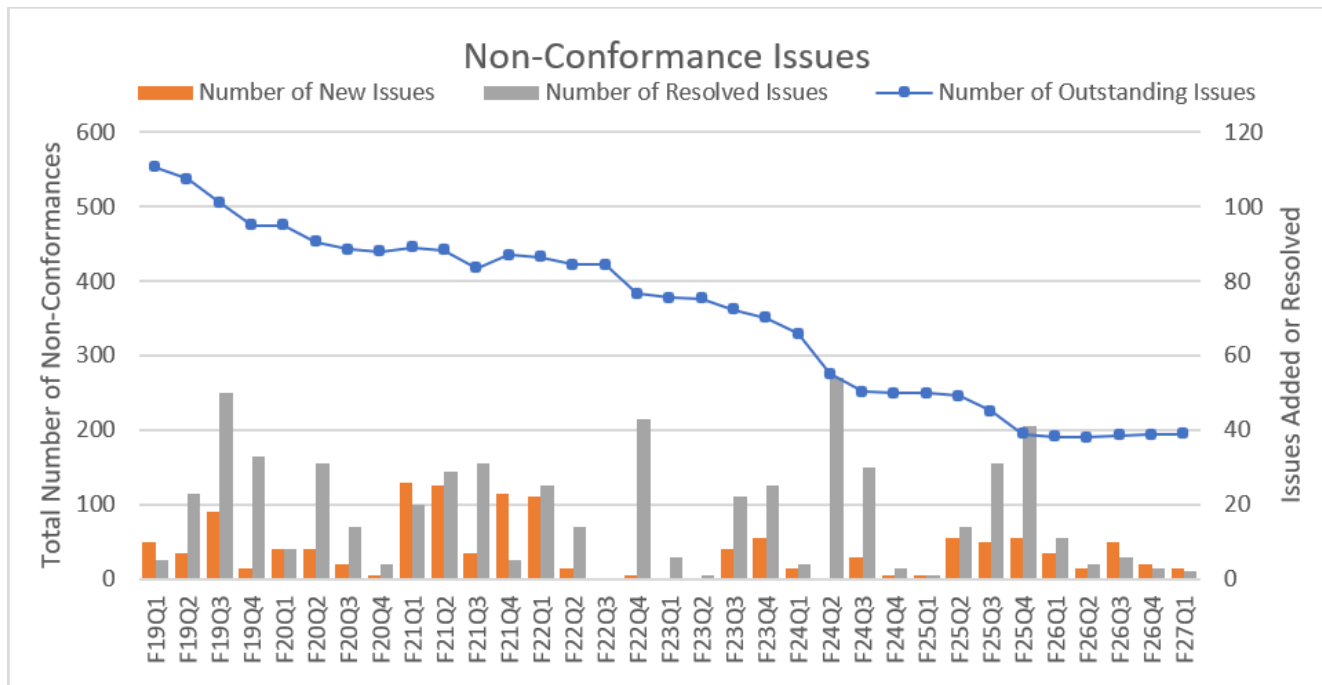


Figure 4 Changes and trends in the total number of Non-Conformance issues.

Regulatory Compliance

BC Hydro's dams are regulated under the BC Dam Safety Regulation, which is administered by the Dam Safety Section of the Water Management Branch, under the Ministry of Water, Land & Resource Stewardship. The Regulation defines the required frequency of Operation, Maintenance and Surveillance Manual updates and independent Dam Safety Reviews. It also requires that BC Hydro seek approval from the Regulator prior to conducting alterations or invasive investigations of its dams.

Compliance and Communication under the BC Dam Safety Regulation

Operating, Maintenance and Surveillance Manual updates for Duncan, Jordan, and Seven Mile Dam are due under the regulation in 2026. Work on all three Manuals is currently in progress.

The Hugh Keenleyside Dam Safety Review is due under the regulation in 2026. A draft report was received from the external engineering consultant in Q1 and a presentation on the findings was provided to Dam Safety. The Dam Safety Review did not identify any new deficiencies or non-conformances, nor were any new hazards or failure modes for the dam found. Updates to several existing deficiencies were recommended. These recommendations will be reviewed and actioned when the final report is received, expected in Q2. The Ladore Dam Safety Review is due in 2027 and a consultant has been engaged to carry out that work.

Emergency Preparedness and Public Safety

The reservoir slope and shoreline monitoring program continues at Nááché Mege reservoir. A comprehensive review of the condition of the reservoir slopes, consisting of inspections, monitoring and assessments was completed in Q1. The program identified no unusual behaviour, supporting the decision to open the reservoir to the public on June 26, ahead of schedule. An ongoing assessment, communication, and response plan for changes in reservoir conditions is in place.

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Surveillance

The regulatory Annual and Semi-Annual Inspections are progressing according to plan in F2027. The field work was completed for 27 dams in Q1 and one inspection report has been issued.

Reservoir slopes inspections are progressing as expected, with field work completed at three reservoir slopes.

All 421 scheduled regulatory routine inspections were completed, exceeding the 99.5% target.

Surveillance inspections and instrumentation monitoring of John Horgan Dam continue to show satisfactory performance of the dam and associated water-retaining structures through Q1, a period with higher-than-usual snowpack and resulting melt in the Peace River region.

Flood Discharge Gate Testing

During Q1 of F2027, 226 of 230 scheduled gate tests were completed. This includes the Full Opening tests of 20 gates. Four tests were considered missed:

- At Seton in May and again in June records were not received by the time of monthly reporting.
- At Duncan Dam in May monthly testing of the two outlet works gates was not done.

No gates failed to operate on demand during testing in F2027 Q1.

Flood Discharge Gate Issues

Two issues arose during regular gate operation in F2027 Q1.

At Elko Dam in late May crews were cycling the spillway gates up and down to flush debris during a high inflow event. On May 26 the Spillway Gate 2 brake failed to hold the gate open and it dropped closed. The crew were able to pin the gate open. On May 30 a similar event occurred; the gate was dropped and the electric motor used to actuate both spillway gates was damaged. The brakes were serviced and successfully tested in June, and brake service will be added to the preventative maintenance program. Work is underway to remove and service the motor, and in the interim the gates can be opened using a hand crank.

At Seton Dam in June the spillway gate was opened and then drifted closed due to brake slip. The brake was serviced and successfully tested to hold the gate open.

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Facility Spotlight: Hugh L. Keenleyside Dam

Dam Description

The Hugh Keenleyside Dam was constructed in 1968 as part of the Columbia River Treaty. It impounds Arrow Lakes Reservoir. Hugh Keenleyside is the third dam on the Columbia River, downstream of Mica Dam and Revelstoke Dam. It consists of an earthfill dam and a concrete dam. It contains a navigation lock as well as the discharge facilities for the dam. The discharge facilities include a sluiceway with four vertical lift spillway gates, as well as eight low level ports with low level outlet gates. There are no BC Hydro generating facilities at the Hugh Keenleyside Dam. However, water from Arrow Lakes Reservoir is conveyed by a canal to Columbia Power's Arrow Lakes Generating Station (185MW). The generating station is located on the north side of the river just downstream of the dam.



Figure 4: Hugh Keenleyside Dam Site Layout.

Current Dam Safety Issues

Both the earthfill embankment dam and the concrete dam are expected to survive a large earthquake but could sustain some damage. The earthfill embankment dam may also be vulnerable to internal erosion due to migration of fine particles from the core and the upstream clay blanket. Both of these issues require further investigation to confirm if they present a credible risk to the dam and are being prioritized in Dam Safety's investigation program.

Cavitation has caused severe concrete damage downstream of the spillway and low level outlet gates and on the energy dissipation structures. Modified gate operations are in place to minimize further damage until the structures are repaired.

Other Facility Priorities

Providing passage past the Hugh Keenleyside Dam along the Columbia River is a condition of BC Hydro's provincial water licence and authorization under the federal *Canadian Navigable Waters Act*. The navigation lock and associated assets are aging and in poor condition. Equipment failures, maintenance and upgrades will increasingly require extended outages of the navigation lock, with impacts to the public and local forestry businesses. The lock is critical to the operations of the Interfor lumber mill and Mercer Celgar pulp mill that transport logs from the Arrow Lakes to their mills in Castlegar.

Current and Planned Projects

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Emergency Replacement of Navigation Lock Downstream Gate Hoist: replacement of the downstream gate bull and pinion gears and the hoist drum in response to identified deficiencies described in 'New Issues'.

Facility Crane Upgrades: Replacement of the 90-ton gantry crane on the main deck and the two 15-ton gantry cranes on the tailrace deck. The cranes are in poor condition, don't meet current WorkSafe BC regulations, and don't have overload protection. The cranes are used to move and install upstream and downstream isolation devices for the water passages to enable maintenance, repairs, and upgrades. The projects are underway and the cranes are expected to be in service in 2027 (90-ton crane) and 2029 (15-ton cranes).

Spillway and Low-Level Outlets Concrete Upgrade: Underwater placement of concrete to refurbish damaged areas at the spillway and low-level outlets caused by cavitation. The project is planned to commence construction in Fall of 2026 and will take 5 consecutive years to complete, using a 24/7 work schedule of divers during the annual planned fall outages.

Floating Guidewall Upgrade: Refurbishment of the existing floating guidewall to restore its full design functionality after two of the six sections sank and broke off in 2020 and were subsequently retrieved in 2025 and are being stored upstream of the dam. The floating guidewall separates the upstream area of the navigation lock from the spillway and directs log bundles and vessel traffic into the lock. The project was released in F2025 and is currently planned to be in service by F2031.

Navigation Lock strategy: To address the deteriorating condition of the navigation lock, a strategy has been developed to restore long-term asset functionality and reliability. The strategy includes short-term safety and operational improvements, medium term restoration of equipment to address reliability and functionality shortfalls, and long-term investments to replace and renew existing systems to modern day standards. All short and medium-term work is underway. Additional long-term planned investments include the comprehensive upgrade of the upstream and downstream gates, their mechanical systems, and their controls. The navigation lock downstream gate upgrade is in the 10-year capital plan with a planned release date in F2031. The upstream gate is planned to be added to the next iteration of the 10-year capital plan.

Facility Spotlight: La Joie Dam

Dam Description

La Joie Dam is the most upstream facility in the Bridge River Project. It impounds Downton Lake and is classified as Extreme Consequence in accordance with the Dam Safety Regulation. Water passing La Joie Dam enters Carpenter Lake where it either continues past Terzaghi Dam and down the Bridge River or passes through one of two Bridge River generating stations on Seton Lake. La Joie Dam is a rockfill embankment. The first stage of the dam was completed in 1951 with a raise completed in 1955. The dam initially featured a temporary timber face that was replaced in the early 1970s with the present shotcrete facing. Water from Downton Lake is primarily controlled by discharges from two low level outlet conduits. The south conduit provides water to a 25-Megawatt vertical Francis unit at the powerhouse. The north conduit feeds two Hollow Cone Valves. A U-shaped overflow spillway is located on the left abutment and provides flood flow releases for the dam.

Current Dam Safety Issues

The dam's shotcrete facing suffers from ongoing cracking and bulging/buckling of local shotcrete panels, likely caused by stresses induced by temperature, the shape of the foundation and differential settlement, leading to significant leakage through the dam. This issue is currently managed through Dam Safety's civil maintenance program that completes annual repairs of the shotcrete face to manage the leakage rate. However, cracking is expected to be exacerbated following an

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earthquake, resulting in prolonged elevated leakage that could destabilize the dam. A reservoir restriction is in place on Downton Reservoir to manage the outstanding seismic risk by reducing the normal maximum reservoir level by more than 15 meters.

The south conduit and the intake tower are in poor condition. Further, the intake tower is not expected to survive a large earthquake. Its collapse would lead to the inoperability or blockage of the conduits and loss of control over the reservoir. The continued operability of these structures is critical to maintain minimum environmental flows, maintain the dam safety reservoir restriction, and to enable further reservoir drawdown for the planned facility upgrades.

Other Facility Priorities

The 25 MW powerhouse and equipment therein is original. Extensive upgrades, including to the unit, governor system, pressure relief valve, turbine inlet valve, and station service transformer are required to continue generating at the facility in the medium- to long-term.

The dam safety reservoir restriction in place for Downton Reservoir exacerbates water management and associated environmental challenges in the Bridge River system and results in an average energy loss of 34 GWh/year.

Current and Planned Projects

La Joie Dam Upgrade: The project was originally released to address the condition of the dam's shotcrete face and to perform seismic upgrades to the intake tower. More recently, inspections and analyses identified that the south conduit is in poor condition and is no longer suitable to operate at the water licence normal maximum operating level. Additionally, the costs and complexity of stabilizing the existing intake tower were found to be prohibitive. As a result, the project has further investigated alternatives to reduce the scope of the dam face upgrades and to replace the conduits with new larger capacity ones and a new intake tower. This approach prioritizes the ability to drawdown the reservoir following an earthquake to manage downstream risks and to complete inspections and repairs. This change in approach has also created an additional opportunity to replace the existing generating station with a new higher capacity facility. A capacity increase from 25MW to about 70MW is being explored.



Figure 5: La Joie Dam Site Layout.