Site C Project Construction

Cofferdam safety, monitoring and downstream emergency response planning

April 2021

One of the first stages in constructing the Site C dam was to build cofferdams across the Peace River and divert the river around the dam site through two diversion tunnels. The two cofferdams hold back water from the Peace River and allow crews to build the permanent dam in the dry area between the cofferdams.

The cofferdams are made of granular material (or what is referred to as earthfill), interlocking steel pipe piles (which are used to seal off the bottom portion of the cofferdam), and a specialized geomembrane fabric material (to seal the upper portion of the cofferdam). The cofferdams span the full width of the Peace River valley.

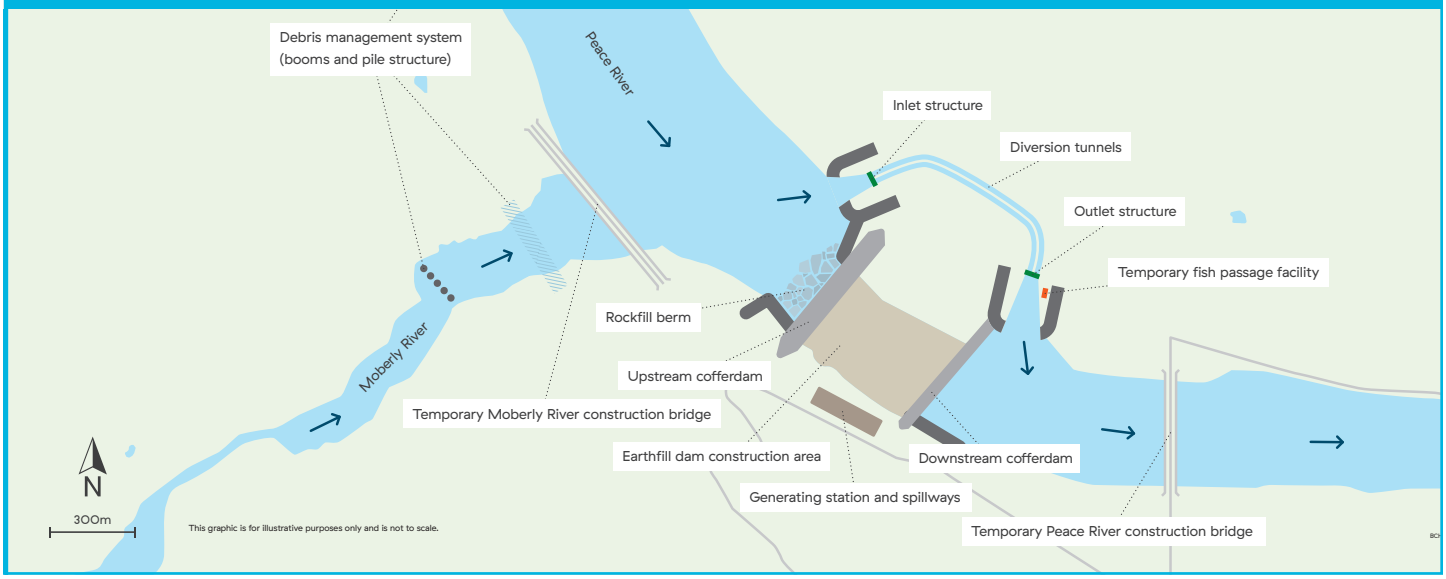
Cofferdam construction began in spring 2020, and by March 2021, both cofferdams were complete to their final elevation. The cofferdams are integrated into the design of the permanent Site C dam.

Cofferdam safety and monitoring

The cofferdams are built to Canadian Dam Association safety guidelines and meet all seismic and environmental requirements. The design was reviewed and approved by the provincial Dam Safety Engineer as well as BC Hydro's internal dam safety team.

The provincial Dam Safety Officer has independently review and approved BC Hydro's Operation, Maintenance and Surveillance Manual and Emergency Plan for the cofferdams. In addition, the Site C project team has implemented a rigorous monitoring program to ensure the cofferdams are performing as expected.

Site C river diversion—Upstream and downstream cofferdam construction



Once constructed, the cofferdams will be monitored closely including:

- Continuous monitoring by more than 70 instruments in the upstream cofferdam for the entire diversion process
- Twice weekly visual inspections
- Weekly engineer inspections
- Twice yearly dam safety engineer inspections

Monitoring upstream Peace River flows and weather forecasting

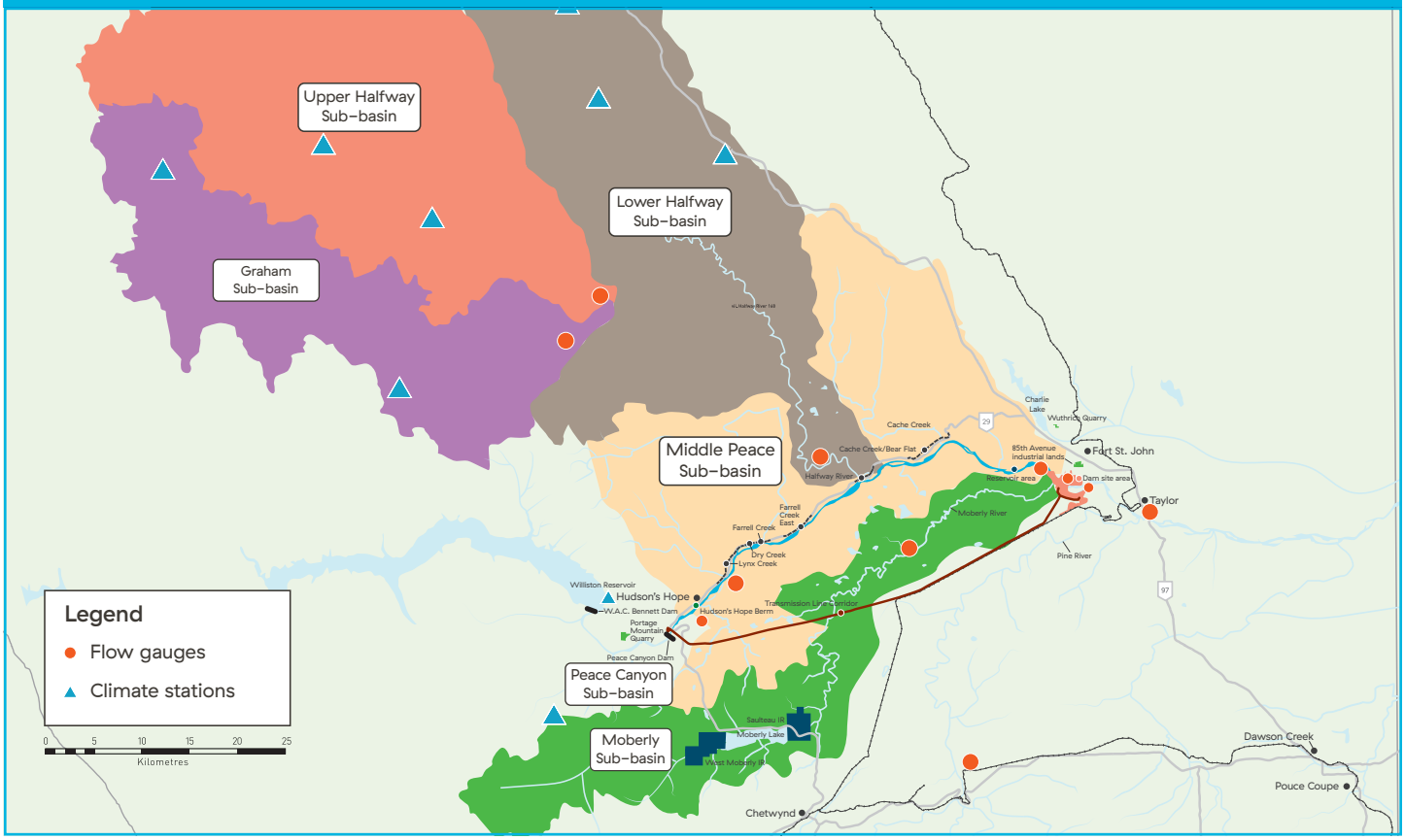
BC Hydro has comprehensive dam safety and water management programs, which are being used on the Site C project throughout construction.

BC Hydro's upstream dams (W.A.C. Bennett and Peace Canyon) are always carefully managed. During the period of Site C construction, additional vacant storage is being reserved in Williston Reservoir, located behind the Bennett dam. This greatly increases the likelihood that, during periods of high Peace River flows (especially during an extreme spring/summer rainfall event), discharges from the upstream dams can be reduced to protect the Site C construction works (including the cofferdams) and downstream communities on the Peace River.

We use rigorous monitoring programs to ensure safe and effective operation of the cofferdams and the two diversion tunnels.

These programs look at any potential performance issues that could cause downstream flooding due to a potential cofferdam breach.

Site C watershed monitoring stations



We also use two independent state-of-the-art weather and runoff forecasting systems to monitor for rainstorms at least seven days in advance. Weather and runoff forecasts are continually updated, and uncertainty reduces as rainstorms approach. Forecasters prepare forecasts of the most likely conditions as well as the highest credible, but very unlikely, conditions.

When a storm arrives, automatic gauging instruments throughout the watershed track actual precipitation and tributary river flows before the water reaches the Peace River and Site C. Runoff from the Halfway and Moberly river basins represents about 85 per cent of the local Site C inflow (runoff into the Peace River between Peace Canyon and Site C), and there are many gauges for weather and water level measurements within these basins. This allows us to adjust discharges from Peace Canyon dam as needed and notify local authorities.

Safety and emergency response planning

Safety is our top priority.

BC Hydro has worked collaboratively with local governments and key agencies to prepare an emergency guide that clarifies the roles of BC Hydro and each downstream authority. It also provides important information for the authorities and agencies to use in their own emergency plans related to the cofferdam emergency management system.

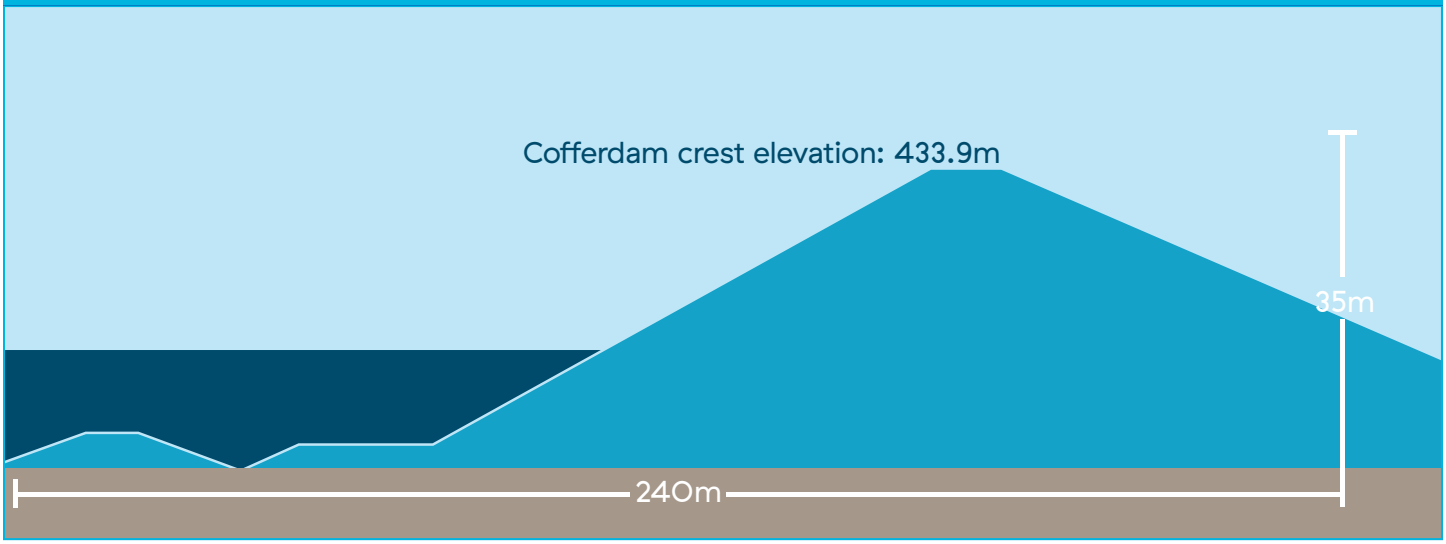
This integrated approach is based on a combination of regulatory compliance, operational need and industry best practices.

During the river diversion phase, we'll update and distribute the guide to local authorities annually. Once the diversion tunnels are decommissioned, Site C dam operations will be included within the guide for the entire Peace Region.

In the extremely unlikely event of a dam failure, our rigorous monitoring programs will provide advanced alerts to agencies, Indigenous groups, local government and stakeholders. This gives everyone time to respond to situations before they escalate and impact local communities and stakeholders.

More information is available on **sitecproject.com**.

Cross section of the Site C upstream cofferdam



Note: This graphic is not to scale, for illustrative purposes only.