

# Dam Safety Frequently Asked Questions

Infrastructure & Water Services (IWS)



Capital Regional District | May 2025

## How many dams does Infrastructure & Water Services maintain and operate?

Infrastructure & Water Services (IWS) is responsible for maintaining and operating 23 dams for the purpose of drinking water supply. 15 dams are located within Greater Victoria and 8 dams are located throughout CRD's electoral areas, including the Southern Gulf Islands. For exact locations of our dams, please refer to our [map of IWS managed dams](#).

## Are IWS dams safe?

Yes, IWS dams are considered by experts to be reasonably safe and well managed. We have operated our dams safely for decades and dam safety continues to be a top priority for us. Dams are inherently higher risk infrastructure to operate therefore it is impossible to eliminate all risks completely. IWS commissioned an independent external audit in 2017, and a dam safety expert found that IWS managed dams met regulatory requirements and were consistent with key provincial best practices. While the Dam Safety Program meets key regulatory requirements, the CRD is proactively addressing areas for improvement to increase our safety standards.

## How does IWS monitor dam safety?

Our highest responsibility at CRD is public safety and that's why the IWS Dam Safety Program uses a multipronged approach to safely monitor its dams and incorporate routine dam safety activities and tools including:

- **Dam Safety Instrumentation:** Several field instruments are installed at higher consequence dams to collect data on the performance of our dams. Additionally, trained CRD staff visit the dams to collect the data and then performance data is reviewed by expert consultants annually.
- **Dam Inspections:** All higher consequence dams are visually inspected at least once weekly and receive a more thorough and extensive inspection by qualified dam safety engineers at least once a year.
- **Reporting to the BC Dam Safety Office:** The Dam Safety team submits dam status check sheets to the BC Dam Safety Office annually to provide an update on the current performance and dam safety issues at each of the dams. A Provincial Dam Safety Officer also visits the dams periodically to conduct audits.

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- **Dam Safety Reviews by Expert Consultants:** The Dam Safety team hires expert consultants every 7 to 10 years to conduct formal dam safety reviews, which include thorough reviews of each dam's technical information, a field review and a technical report capturing all dam safety issues that require action.
- **Independent Dam Safety Expert Advice:** IWS' dam management system is evolving and has gone through an external review by a dam safety expert in 2017 and the CRD is acting on recommendations from this review to further improve safety.
- **Staff Training & Exercises:** The CRD conducts dam safety training and exercises to address a variety of emergency response scenarios.

## What regulations does the IWS Dam Safety Program follow?

The IWS Dam Safety Program is based on maintaining compliance with the [BC Water Sustainability Act](#) and provincial dam safety regulation with guidance from:

- Canadian Dam Association - Dam Safety Guidelines
- Dam safety guidelines published by US government organizations
- International best practices such as International Commission on Large Dams

## Is the CRD ready to deal with a major dam safety incident?

Yes, IWS prepares, trains and exercises its Dam Emergency Plan so staff can effectively respond to a major incident. In 2022 CRD staff conducted a full-scale dam emergency training and exercise with participation by Local emergency authorities, Emergency Management BC (currently known as Emergency Management and Climate Readiness) and external consultants. Additionally, the IWS Dam Safety Program is supported by the CRD's corporate emergency program.

## What support will be provided by the CRD during a major incident?

In the unlikely event of a major dam safety incident, the CRD's Emergency Operations Centre (EOC) will open to support response to any emergency incident or event that is beyond regular first responder or operational capacity. The EOC's role is to provide policy direction, communications and logistical resources to help support site response.

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## What is the CRD doing to improve dam seismic stability?

The CRD has an extensive program to ensure regular monitoring and thorough inspections of IWS dams to continually understand the condition of our facilities.

The CRD completed a seismic hazard assessment for Sooke Lake Dam in 2017 to further understand the impacts of ground movements that could be expected at our facilities in the event of a major earthquake.

The assessment indicated that the seismic hazard at Sooke Watershed and the Goldstream Watershed is greater than initially thought. As a result of the assessment, IWS is now working on a multi-year plan to further improve seismic resilience of its dams. The initial phase of the plan is focused on continual improvement of our Dam Emergency Plan, as well as adding instrumentation improvements to increase warning time related to potential dam safety issues.

Additionally, we are now working with emergency management agencies and key stakeholders on preparedness and response to all dam hazards. Our preparedness includes a strong emergency management program with response plans, training and future exercises.

## What work has been done to mitigate risks for IWS Dam facilities?

The CRD has made considerable progress to improve the condition of its dam facilities over the past 10 years with major capital project upgrades including the replacement of Lubbe Dam No.4 in 2018 and major remediation of Butchart Dam No.5 in 2021. In addition, the CRD has been improving its understanding of dam safety risks by completing numerous engineering studies by dam safety expert consultants including:

- Dam Safety Reviews
- Geotechnical Investigations
- Seismic Assessments
- Hydrological and Hydraulic Assessments
- Dam Breach Assessments and Inundation Zone Mapping
- Design of Instrumentation System Improvements
- Major Updates to Operations, Maintenance, and Surveillance Manuals and Dam Emergency Plans

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## What is the CRD doing to improve dam safety?

The CRD is developing a Dam Safety Management System to formalize the approach to achieving its dam safety goals and to help reduce the current potential downstream risks to people, property and infrastructure. The CRD is also investing in dam safety upgrades in a prioritized and risk-informed way throughout its dam portfolio.

## What are the long-term capital plans to continue to reduce potential risks to the dams?

IWS staff are working on long-term capital plans to reduce potential risks to the dam's portfolio which include:

- **Instrumentation Improvements:** Focusing on replacing aging piezometers and installing a new automated monitoring system consisting of automated sensors (piezometers, seepage weirs, seismographs, deformation monitoring, cameras, etc.)
- **Seismic Hazard Assessment:** Continuing to conduct assessments of dams to continue to improve our understanding of seismic risks and select preferred options to help mitigate seismic risks
- **Continued Development of Flood Forecasting:** Continuing to develop and improve our flood forecasting system to inform dam operational decision-making during adverse weather conditions
- **Dam Failure Modes Analysis:** Continuing to analyze and perform risk assessments to identify dam safety risks to inform project prioritization and capital improvement plans

For more information about the dam safety program, please visit [www.crd.ca/damsafety](http://www.crd.ca/damsafety)