



# Sustainable energy

## *Dam engineering and dam safety*

By their very nature, dams pose serious risks and keeping them in excellent operating condition is paramount. This is why dam safety is critical for identifying and addressing potential issues in their early stages. High stakes mean that dam owners must rely on the most qualified professional engineering consultants who have the in-depth knowledge and experience that it takes. Whether a dam inspection to ensure its compliance, or for a complex dam rehabilitation project, WSP USA can help at any stage of the project.

### OUR SERVICES

#### Operations and asset management

- Design studies
- Dam safety assessments/reviews
- Public safety around dams
- 1D, 2D and 3D modeling of discharge on dams and spillways
- Environmental assessment and permitting
- Specialized studies for ice dynamics, structural stability, etc.
- Detailed inspections and investigations of water retaining structures
- Detailed engineering for new structures or rehabilitations
- Dam decommissioning and land reclamation projects
- Dam rehabilitation and construction tenders
- Project management
- Services during construction
- Preparation of operations, maintenance and surveillance manuals
- Emergency action plans
- Design and assessment of tailing dams

## Engineering

- Hydraulic/hydrological engineering
- Structural engineering
- Geotechnical engineering and geology
- Mechanical engineering
- Heavy mechanical engineering
- Electrical engineering

## OUR PROJECTS

### Saint-Alban Dam Rehabilitation

*Quebec, Canada*

WSP was mandated for the permitting, detailed engineering and construction supervision of the rehabilitation of the arch dam section of the Saint-Alban hydropower facility—using a 25-meter high, concrete gravity dam founded on bedrock with a total volume of 6,000 m<sup>3</sup>.

### Ghost Lake Dam Safety Review

*Alberta, Canada*

To ensure that Ghost Lake dam was in compliance with the Alberta Government Regulations and with the Canadian Dam Association Guidelines, WSP performed a dam safety review including an inspection of the dam, a PFMA and a stability analysis of the concrete structures.

### Scotts Mills Dam Design

*Ontario, Canada*

WSP performed a concept design for the replacement of this dam and created a two-dimensional hydrodynamic model to help in assessing the discharge capacity of the site, the environmental impact of the project on fish habitat and the construction staging.

## Donnacona Dam Reconstruction

*Quebec, Canada*

WSP was mandated to perform a feasibility study for the reconstruction of the spillway. Investigated options had also included the dam demolition to return the site to its natural state. Once the reconstruction option was selected, WSP's scope was expanded to include permitting, detailed engineering and construction supervision.

## ELITE DAM EXPERTS

WSP has been at the forefront of many important dam projects throughout Canada and around the world. Having performed dam safety reviews that cover every type of dam on the market—from concrete gravity to arch dams to rockfill to embankment to wood crib—WSP's unparalleled expertise and proven track record has helped our clients future-proof their dams.

The WSP team includes some of Canada's dam-safety industry authorities. These leading expert engineers are active contributors to the Canadian Dam Association's Dam Safety Review task group, with some possessing over 30 years of experience. Using state-of-the-art engineering systems and technologies that set the benchmark in the industry, while providing the most accurate data that enables dam owners to quickly make the decisions they need to protect their investments, our elite team offers premier engineering consulting.

---

## ABOUT WSP

WSP USA is the U.S. operating company of WSP, one of the world's leading engineering, environment and professional services firms. Recognized on [Fast Company's Brands that Matter List for 2022](#) as a top Community-Minded Business, WSP USA brings together engineers, planners, technical experts, strategic advisors and construction management professionals who are dedicated to collaborate in the best interests of serving local communities. WSP USA designs lasting solutions in the buildings, transportation, energy, water and environment markets. With more than 15,500 employees in 300 offices across the U.S., WSP partners with its clients to help communities prosper.

## CONTACT US

For more information about how we can help you deliver your next project, contact:

**Matthew Chan, PhD**  
Hydropower Market Lead  
Energy

[matthew.chan@wsp.com](mailto:matthew.chan@wsp.com)  
+1 971-346-5726



[wsp.com](http://wsp.com)