

Safe Dam Design Principles



Risk Assessments & Risk-Informed Decision Making

*Put public safety first
in every design decision*



Seismic Resilience

*Design the dam to withstand
earthquakes and remain
safe afterwards*



Flood Risk Management

*Manage floods safely
under changing conditions*



Seepage & Erosion Control

*Control water movement within
and beneath the dam*



Structural Strength & Stability

*Avoid sudden failure and provide
multiple layers of protection*



Hazard Classification

*Match the level of safety
to what is downstream*



The Chehalis flow-through flood-control dam is being designed to meet or exceed applicable dam safety requirements, including the following examples of state and federal laws, regulations, and technical standards.



Revised Code of Washington (RCW)

- Establishes state statutes for dam safety governance under the Washington Department of Ecology



Washington Administrative Code (WAC)

- Establishes state agency review and approval requirements for safe design and construction of dams to protect public safety, prevent property damage, and protect the environment



National Dam Safety Program Act

- Establishes federal guidelines and standards through the Federal Emergency Management Agency (FEMA) and Interagency Committee on Dam Safety (ICODS)



Federal Emergency Management Agency

- Earthquake Analyses and Design of Dams (FEMA P-65)
- Federal Guidelines for Dam Safety (FEMA P-93)
- Federal Guidelines for Dam Safety Risk Management (FEMA P-1025)



U.S. Army Corps of Engineers

- Earthquake Design & Evaluation for Civil Works Projects (ER 1110-2-1806)
- Gravity Dam Design (EM 1110-2-2200)



Bureau of Reclamation

- Design & Construction Considerations for Hydraulic Structures: Roller-Compacted Concrete, 2nd Edition
- Design Standards No. 14: Appurtenant Structures for Dams (Spillways and Outlet Works)

Design and Construction Review and Approvals

WE ARE HERE



Quality Assurance & Quality Control

*Project is currently in the
design and environmental
review phase*



Independent Engineering Reviews



State Dam Safety Official Approval

*Dam designs are reviewed by
state agencies and must comply
with state dam safety laws.*



Federal Agency Reviews & Approvals

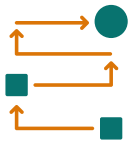
*Federal agencies maintain
rigorous technical standards and
establish acceptance criteria for
safe dam design.*



Construction Oversight



Instrumentation & Monitoring



Continual Inspection Programs



Recurring Risk & Condition Assessments