

Willamette River Temperature Control, OR

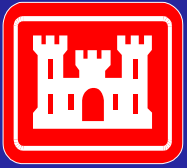


Project Location



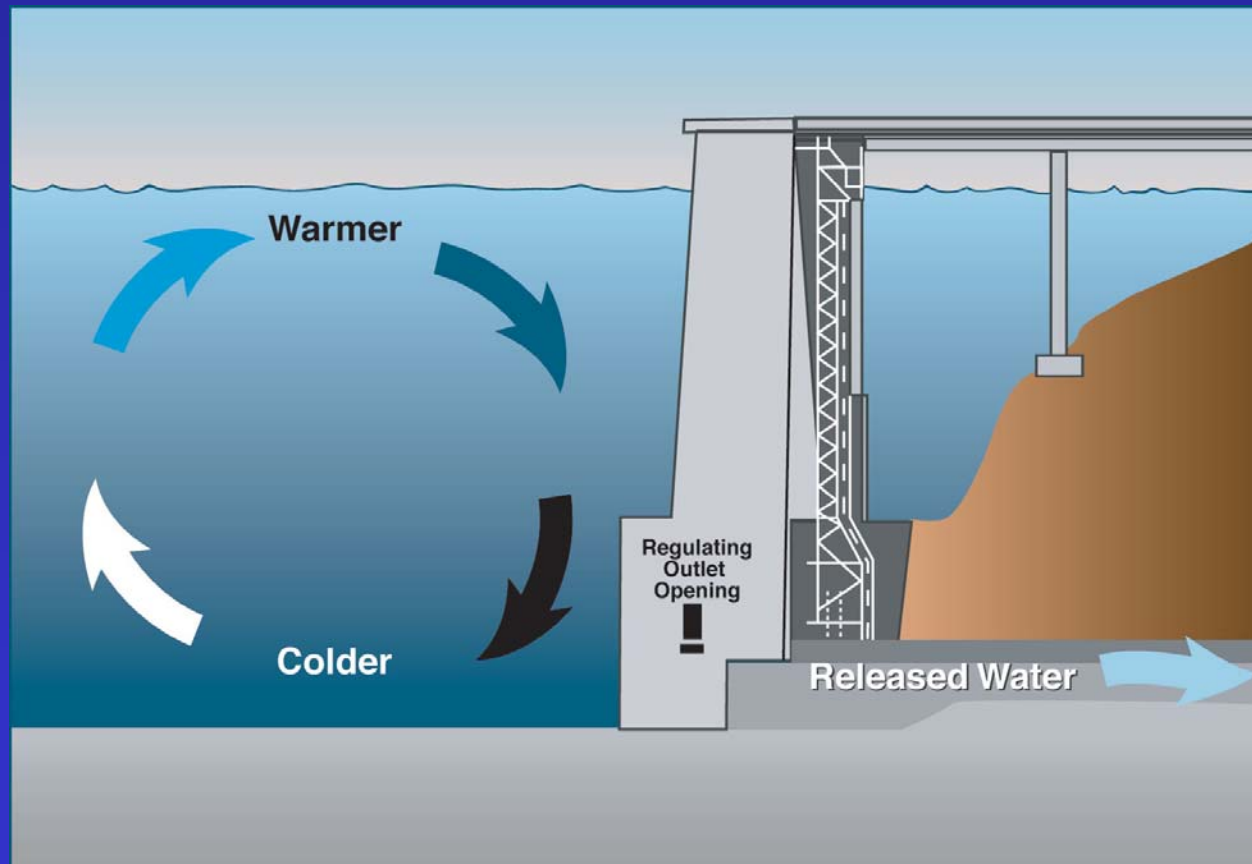
Cougar Project History

- **Flood Control Act of 1938, revised HD 531**
- **Cougar built 1963 w/ fish passage**
- **McKenzie River hatchery 1975**
- **Feasibility Report & EIS (April 1995)**
 - Collaborative support
- **WRDA 1996, WRDA 1999**
- **Contract Award January 2002**
- **Operational May 2005**
- **Cost \$50.5 million**



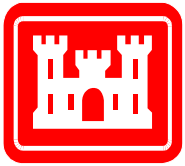
Temperature Problem

Adult Movement, Early emergence



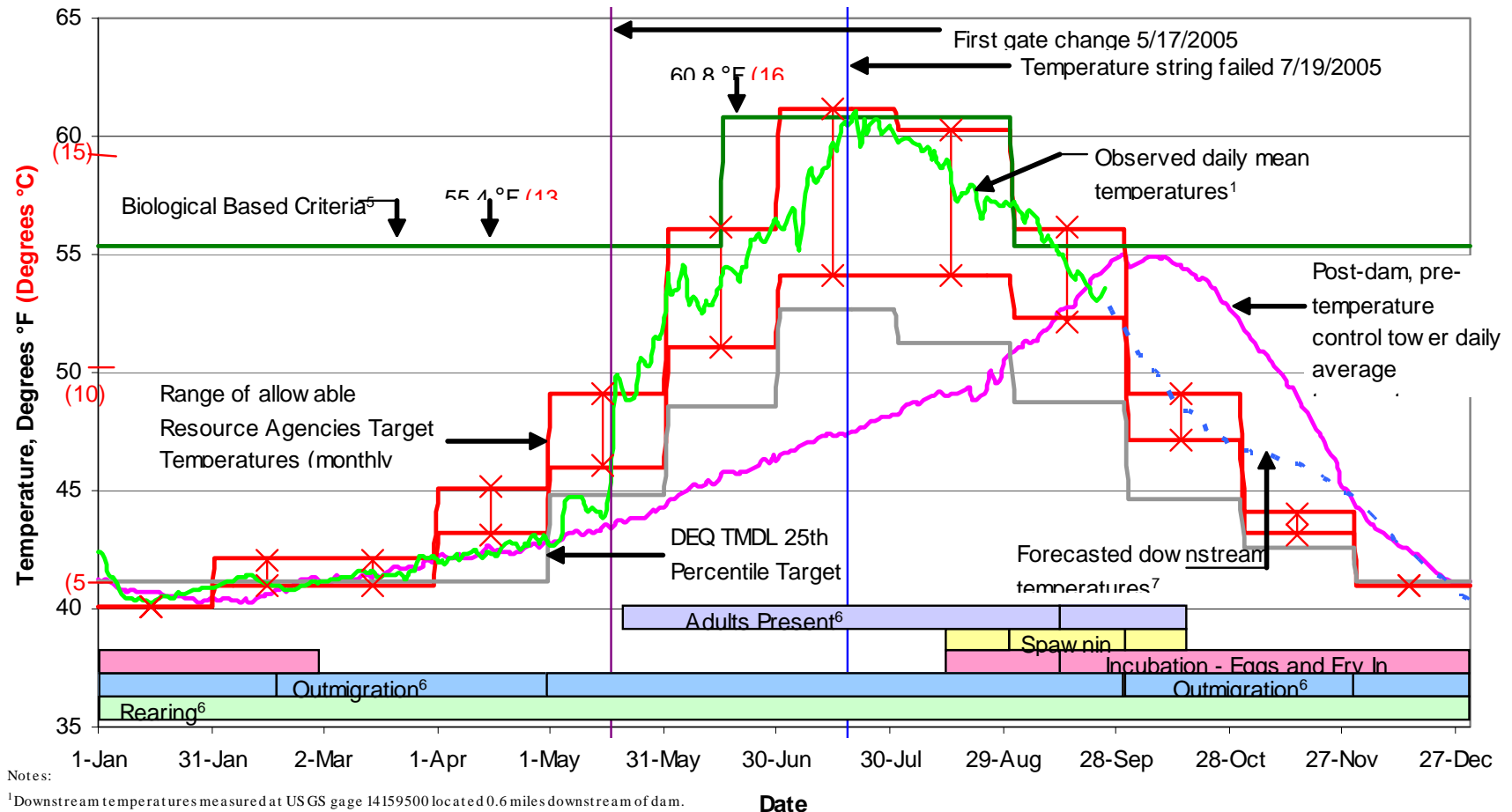
Project Benefits

- Provides spring warming and fall cooling
- Draws water from lake surface as opposed to depths base of tower
- Meets temperature targets set by NOAA, USFWS, & ODFW at project formulation
 - mainstem to Vida - 12 river miles
 - South Fork McKenzie - 4.5 river miles
- Indicator species include UW spring Chinook, resident trout, and bull trout



Temperature Operation

Cougar Temperature Control Performance in 2005



Notes:

¹ Downstream temperatures measured at USGS gage 14159500 located 0.6 miles downstream of dam.

² Resource Agencies Target Temperatures from letter dated September 14, 1984 signed by representatives from NOAA, FWS, and ODFW. These are the targets that we have operated to meet this year.

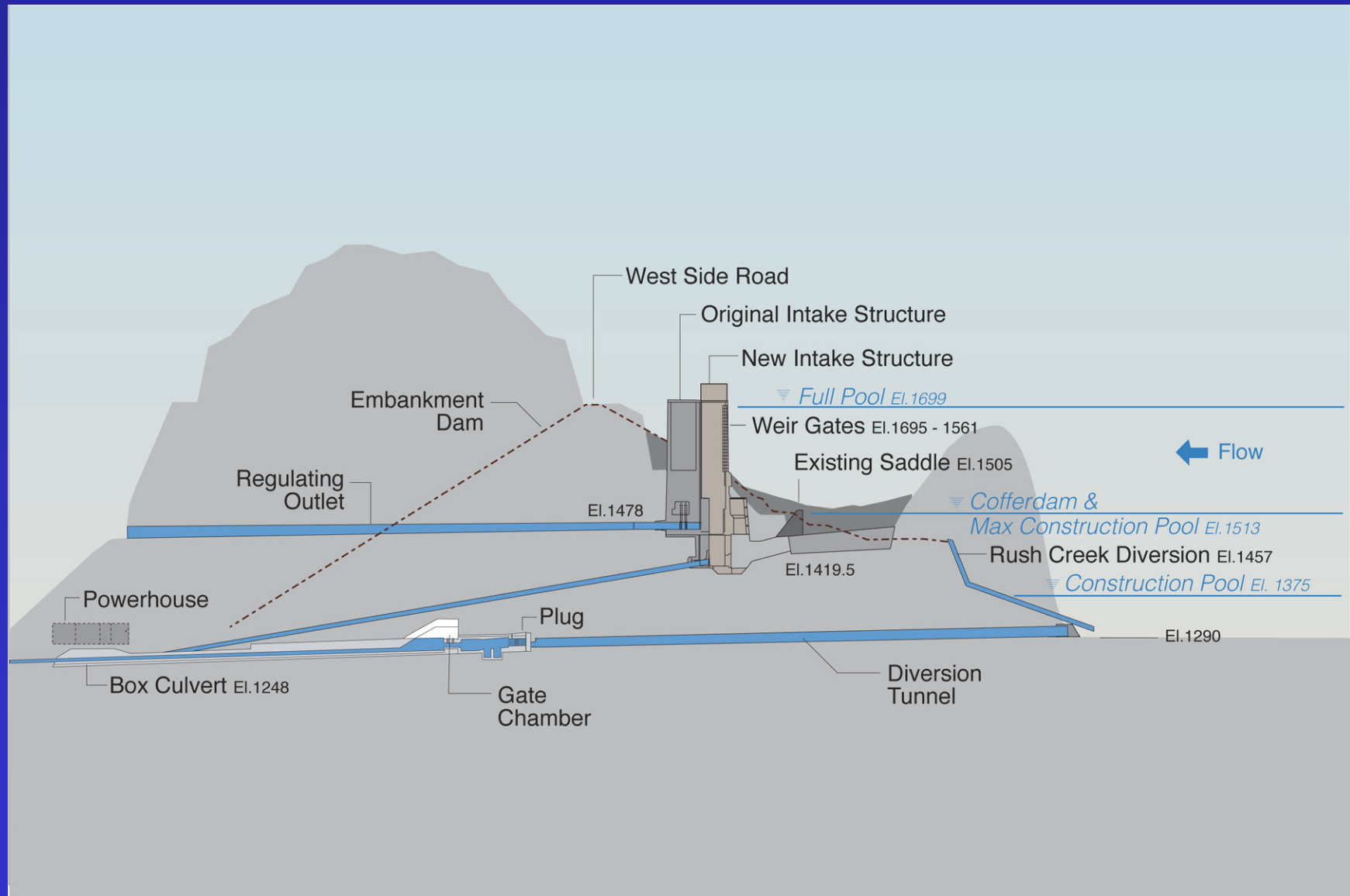
³ Oregon Department of Environmental Quality (DEQ) proposed total maximum daily load (TMDL) target temperatures from DRAFT Willamette Basin TMDL, p. 4-113. The Willamette TMDL has not been published and we are not operating to meet these targets. **This data is for information only.**

⁴ Daily average historical temperatures below Cougar Dam from 01 OCT 1963 to 30 SEP 2003 measured at USGS gage 14159500 located 0.6 miles downstream of dam.

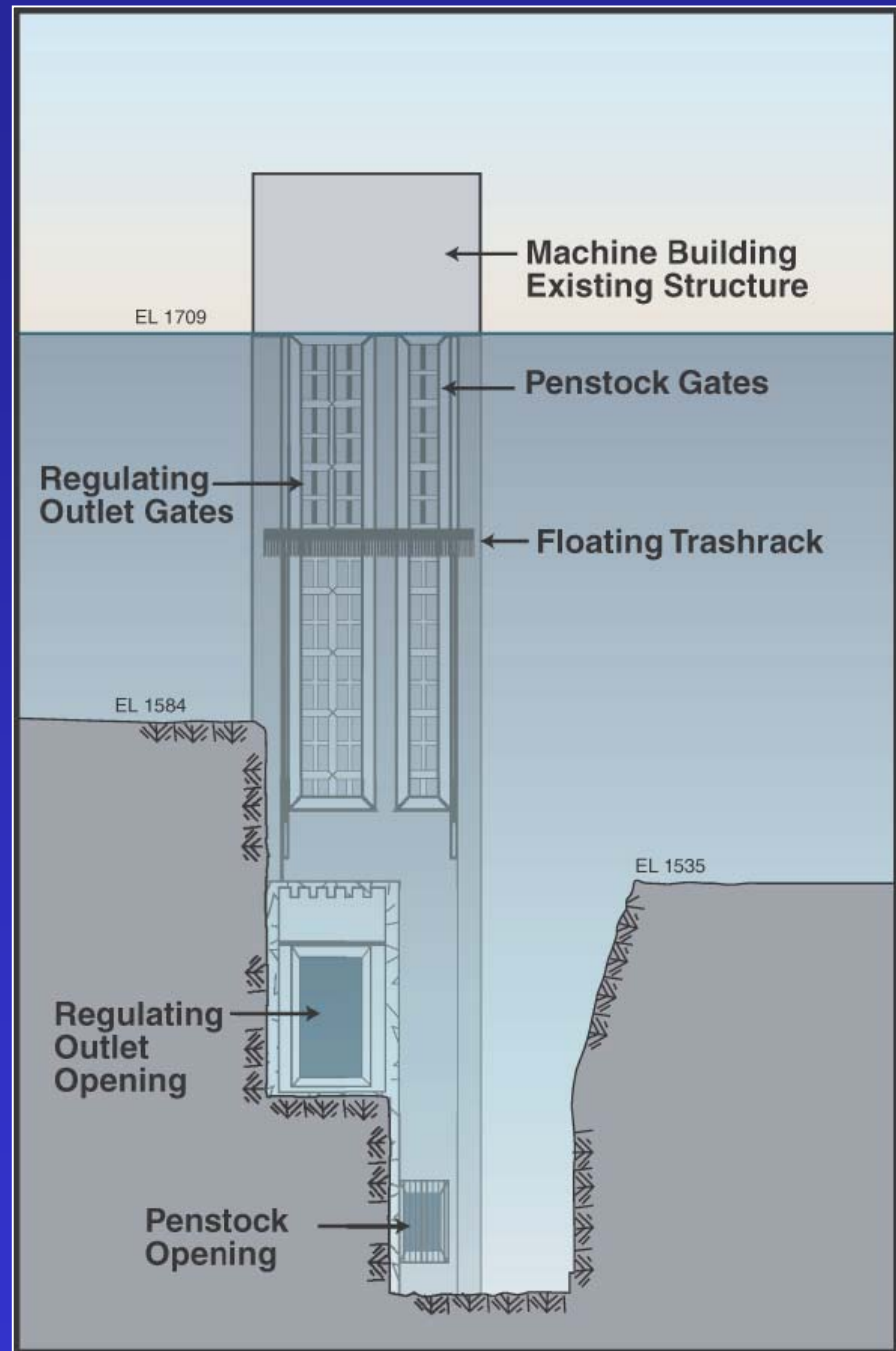
⁵ Biological criteria developed by DEQ as outlined in Oregon Administrative Rules (OAR), Chapter 340, Division 041, *Water Quality Standards: Beneficial Uses, Policies, and Criteria for Oregon*.

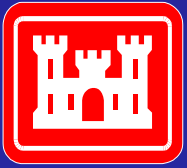
⁶ Life history of Spring Chinook above Willamette Falls, below Willamette Reservoirs taken from Willamette Project Biological Assessment, April 2000. Dark color represents normal peak period.

Cougar Dam Cross Section



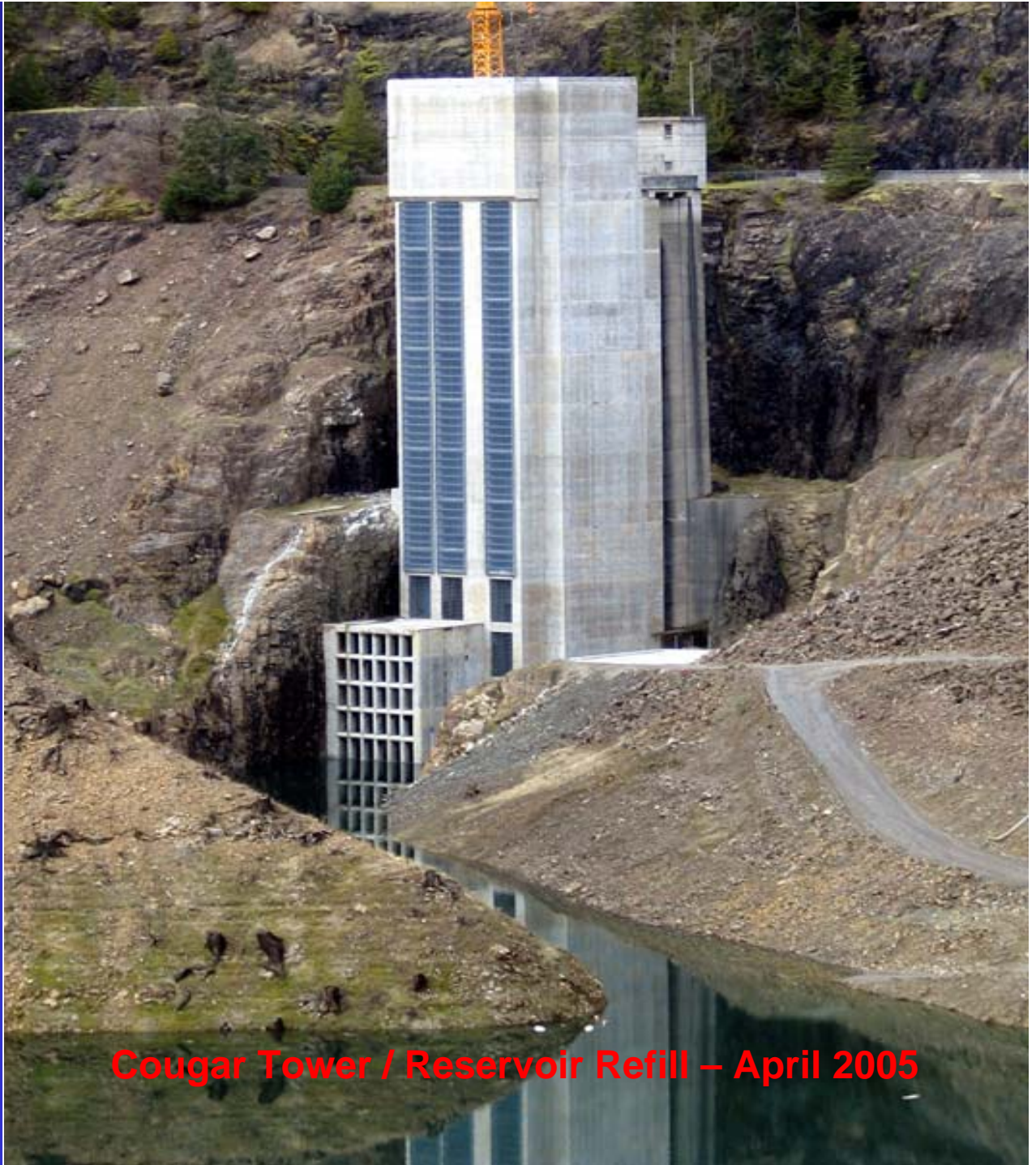
Cougar Intake Tower Gate Schematic





Cougar Intake Tower

- Award January 2002
- Drawdown May 2002
- Operational May 2005
- Dedication July 2005



Cougar Tower / Reservoir Refill – April 2005