

Columbia River Basin Water Management Program  
Technical Advisory Group

Phase Two Studies Presentation  
August 18, 2010

# Mill Creek Water Storage

# Mill Creek Water Storage



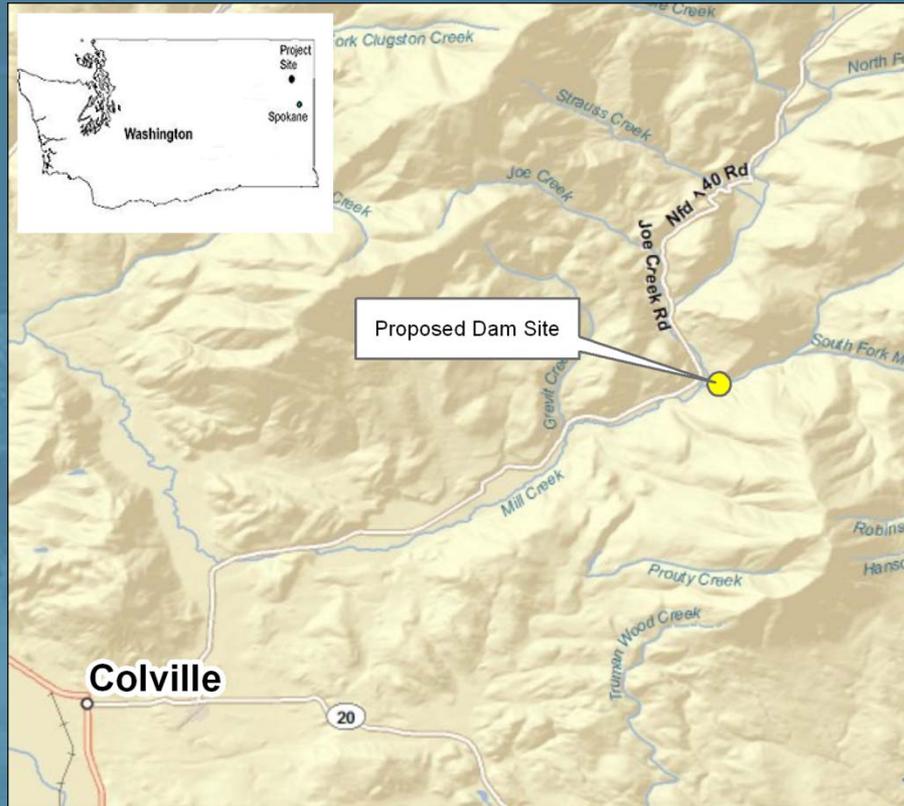
**Project Applicant/Sponsor:  
Stevens P.U.D.**

**General Manager/Engineer: Dick Price, PE**



**Project Manager: Blaine Graff, PE  
Principal in Charge: Ron Mason, PE**

# Project Location Map



# Drainage Area Map



# Mill Creek Hydrology

- **Site information**
  - ▶ **Site – South Fork Mill Creek upstream of confluence with North Fork**
  - ▶ **Drainage area – 41 square miles**
  - ▶ **Annual runoff (acre feet) – 17,442**
- **Gage #12408500 – used for analysis (discontinued gage)**
- **New gage installed at dam site (by others)**

# Mill Creek Storage Project

## Previous Study Elements

- Site survey
- Develop project hydrology
- Preliminary estimate of PMP & PMF
- Determine spillway & outlet configuration
- Geotechnical investigations
- Determine type of embankment
- Construction quantities
- Project drawings, (CADD)
- Preliminary environmental coordination
- Construction cost estimate
- Project alternatives analysis
- Feasibility report

# Mill Creek Storage Project

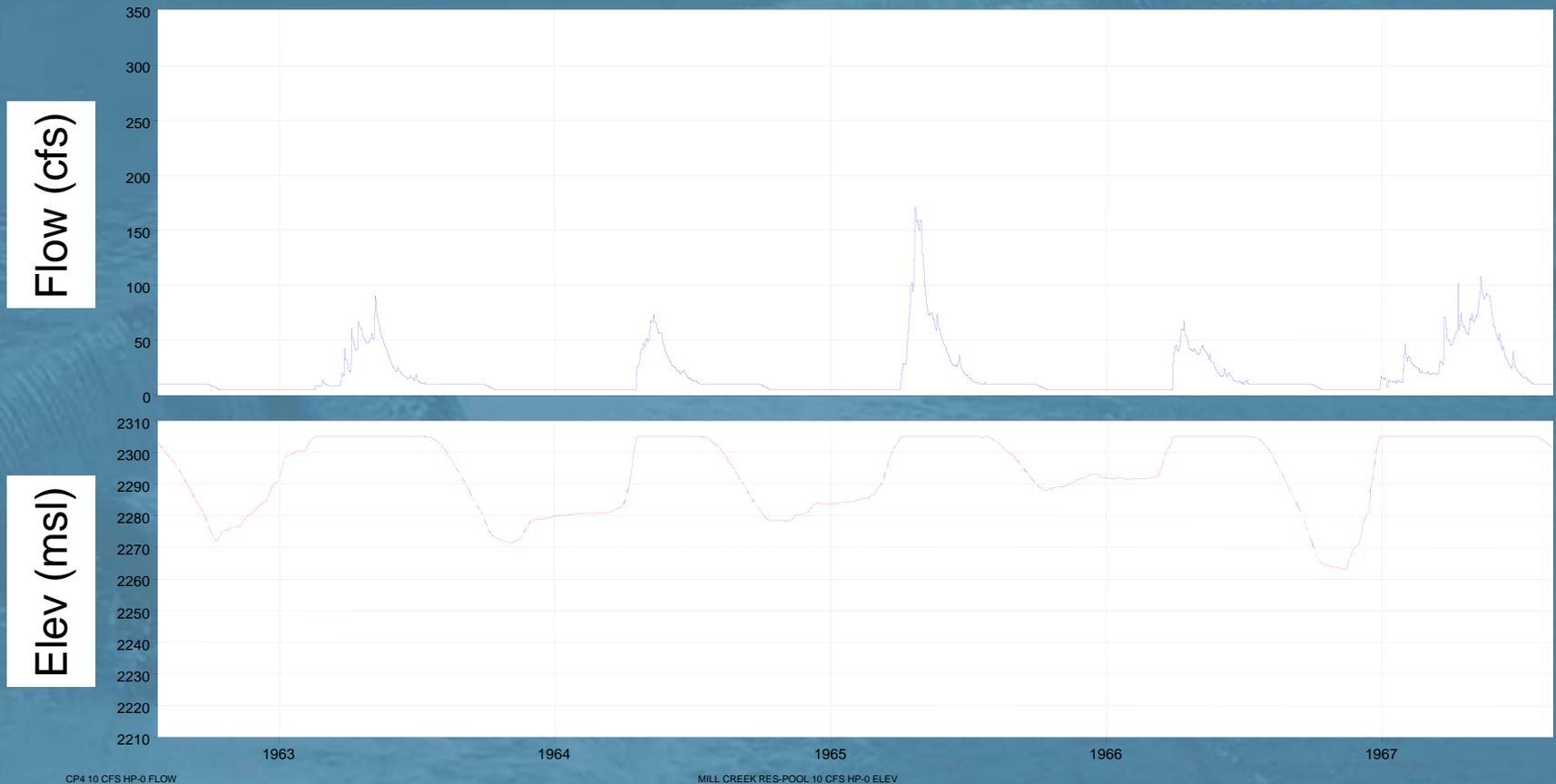
- Feasibility Study storage ranges 200 to 1,900 ac-ft
- Feasibility Study dam heights 68 to 118 feet





# Mill Creek Storage Project

Typical Reservoir Operation - outflow and elevation with 10 cfs summer and 5 cfs winter releases



CP4 10 CFS HP-0 FLOW

MILL CREEK RES-POOL 10 CFS HP-0 ELEV

# Mill Creek Storage Project

## Potential Project Purposes

- In-stream flows
- Offset water rights
- Irrigation flows
- Low flow augmentation
- Benefit for fish & wildlife
- Improved habitat
  - ▶ Upstream
  - ▶ Downstream
- Water quality benefits
- Other

# Mill Creek Storage Project

## Project Advantages

- High in Mill Creek watershed at border of National Forest.
- Regulation of water supply in 14 miles of Mill Creek.
- Augmentation of summer and fall flows that are historically very low. High dam alternative can provide 10 to 20 cfs flows in May – September.
- No reservoir impact to residences.
- Compact storage area.

# Mill Creek Storage Project

## Project Cost – High RCC Dam

- \$33,200,000 without hydropower or fish passage
- \$17,500 per acre-ft

# Mill Creek Storage Project

## Phase Two Study objectives Refine initial feasibility studies

- **Beneficial use study**
  - ▶ **Municipal water**
  - ▶ **Irrigation**
  - ▶ **In-stream flows**
  - ▶ **Fish & Wildlife**
  - ▶ **Water quality**
  - ▶ **Recreation**
- **Report outlining water needs and delivery scenarios**

# Mill Creek Storage Project

## Phase Two Study objectives Refine initial feasibility studies

- **Reservoir site biological resources**
  - ▶ Fish and aquatic resources
  - ▶ Terrestrial wildlife resources
  - ▶ Wetland resources
  - ▶ Botanical resources
  - ▶ Fish passage determination
- **Environmental baseline report, in-stream flow report, and rare species report**

# Mill Creek Storage Project

## Phase Two Study objectives Refine initial feasibility studies

- **Geotechnical investigations**
  - ▶ **South abutment geotechnical investigation**
  - ▶ **Reservoir site geotechnical reconnaissance**
  - ▶ **Supplementary geotechnical technical memorandum**
- **Alternatives assessment**
  - ▶ **Alternative Sites Evaluation Technical Memorandum**

# Mill Creek Storage Project

## Phase Two Study Budget

- HDR Project Management \$30,000
- Beneficial use study \$79,000
- Reservoir site biological resources \$205,000
- Geotechnical investigations \$37,000
- Alternatives assessment \$63,000
- Stevens PUD Administration \$10,000
- Total = \$424,000

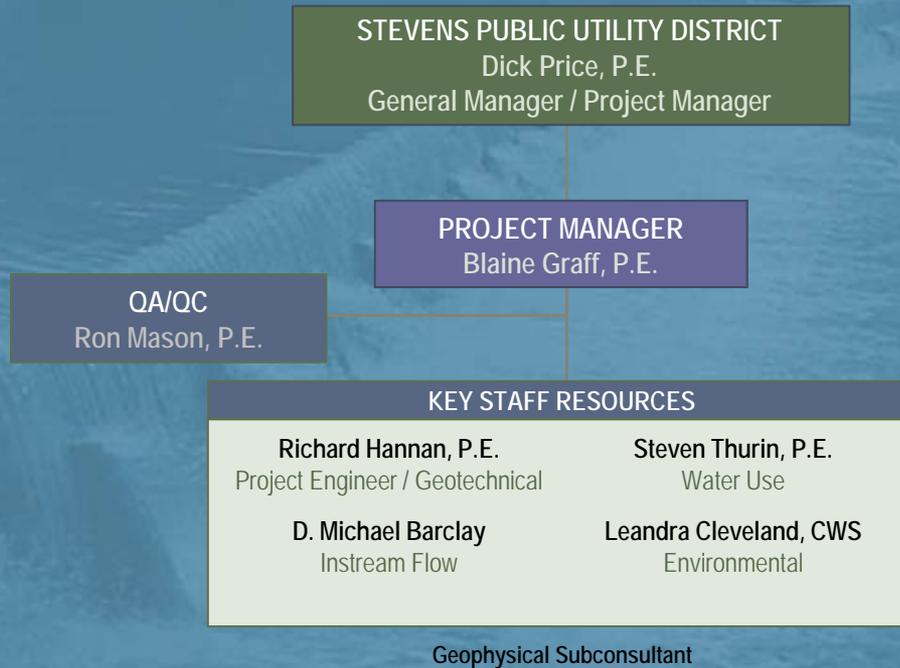
# Mill Creek Storage Project

## Phase II Study

### HDR Engineering

- 17 Washington, Idaho and Oregon Offices
- Water resources engineering
- Civil and structural engineering
- Environmental analysis
- Fisheries / fish passage
- Hydropower

# Mill Creek Storage Project



# Contact info:

Dick Price, General Manager  
Stevens Public Utility District  
Box 592  
Loon Lake, WA 99148  
(509)233-8700

Blaine Graff, Project Manager  
HDR, Inc.  
1001 SW 5<sup>th</sup> Ave  
Portland, OR 97204  
(503)423-3866

## Questions