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

Colville

Proposed Dam Site
Drainage Area Map

Mill Creek Dam Watershed
26,443 Acres (41 sq. mi.)
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)
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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
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- Feasibility Study storage ranges 200 to 1,900 ac-ft
- Feasibility Study dam heights 68 to 118 feet
Mill Creek Storage Project
RCC 118ft high alternative
Mill Creek Storage Project

Typical Reservoir Operation - outflow and elevation with 10 cfs summer and 5 cfs winter releases
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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
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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.
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Project Cost – High RCC Dam

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

**STEVENS PUBLIC UTILITY DISTRICT**
Dick Price, P.E.
General Manager / Project Manager

**PROJECT MANAGER**
Blaine Graff, P.E.

**QA/QC**
Ron Mason, P.E.

**KEY STAFF RESOURCES**
- Richard Hannan, P.E.
  - Project Engineer / Geotechnical
  - Instream Flow
- Steven Thurin, P.E.
  - Water Use
- D. Michael Barclay
  - Geophysical Subconsultant
- Leandra Cleveland, CWS
  - Environmental
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Questions