
Low Impact Hydropower Institute Application for Low Impact Hydropower Certification: Falls Creek Hydroelectric Project

Introduction

This report reviews the application submitted by Frontier Technology, Inc. (applicant) for Low Impact Hydropower Certification for the Falls Creek Hydroelectric Project (Project). The Project is located on Falls Creek, a tributary to the South Santiam River, in the Willamette National Forest, Oregon. Resource agencies, both during the time of licensing and more recently, have commended the Falls Creek project for its compliance with agency recommendations. Recommendation letters for certification by the Low Impact Hydropower Institute (LIHI) have been received as part of the application. In many cases, the letters indicate that the applicant not only follows the agency recommendations but also is very cooperative and proactive in trying to meet environmental goals. The FERC exemption incorporates all of the agencies' most stringent recommendations and the facility makes a good faith effort to comply.

Only one public review comment was submitted for the Project. Suzanne Wallace, an elementary school teacher from a nearby school, writes that the Facility has been a part of her curriculum for over 10 years, and that the applicant is very cooperative and supportive in explaining the importance of low impact hydropower production. The Falls Creek Hydroelectric Project meets all of the criteria to be certified and we recommend certification.

Because the application materials sent to us included all relevant FERC documents and recommendation letters, no additional documentation is provided with this review.

Facility Description

FERC exemption status was granted to the Falls Creek Hydroelectric Project in 1983, and construction was completed in 1985. The Falls Creek Project is located 25 miles east of Sweet Home, Oregon (see attached maps from exemption application) on lands owned by the U.S. Forest Service. The project is run-of-the-river, and uses only natural flows within Falls Creek for power generation. Power is delivered to PacifiCorp for distribution.

A 5-foot high diversion dam on Falls Creek located 2.3 miles upstream from the confluence with the South Santiam River creates a small pool (0.07 acres) from which the Facility diverts water into a penstock. Water is delivered to the powerhouse on the south bank of the South Santiam River through 7,380 feet of buried 30-, 24-, and 20-inch welded steel penstock. The water diverted through the powerhouse is discharged into the South Santiam River approximately 2 miles upstream of the confluence with Falls Creek where it naturally would have entered the river.

The Project draws approximately 26 cfs flow when flows are available (generally during winter rains and spring snowmelt). Natural flows during this time are typically 50 cfs, and can reach

200 cfs. The Project maintains 3 cfs in the channel at all times, and uses the summer months for routine and preventative maintenance.

The Falls Creek Hydroelectric Project has a head of 2,381 ft, and has one of the highest “Head-Pressures” in the Northwest. When the water reaches the powerhouse, a pressure of approximately 1,030 psi is created. The turbine generates 4.9 MW at full load. The actual plant output depends on the streamflow available for diversion. The turbine spear valves are opened or closed to regulate flows to the turbine based on signals from the point of diversion that indicate the amount of water availability.

The power plant operates using a GE Fanuc 90-30 PLC control system. Power is generated at 4,160 V, and then transformed to 20,800 V for transmission via PacifiCorp’s local distribution power lines. Power is sold to PacifiCorp under a 35-year operating agreement.

Low Impact Certification Criteria

A. Flows:

Criteria

- 1) **Is the facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?**

N/A

The Falls Creek Hydroelectric Project received its exemption prior to 12/31/86.

If N/A, go to A2.

- 2) **If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or “good” habitat flow standards calculated using the Montana-Tennant method?**

NO.

If no, go to A3.

- 3) **If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that**

demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality?

YES.

Letters (see Exhibits 10 and 11 attached to the application) and conversations with the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Forest Service confirm the applicant has demonstrated that flow conditions at the Facility are protective of fish, wildlife, and water quality.

PASS.

Discussion

The applicant could not meet criteria A2 due to the limits of the Montana-Tennant method for this stream. When applied to smaller rivers, the Montana-Tennant method does not account for ecologically important flow extremes and does not consider timing of flow. As the applicant states, based on the Montana-Tennant methodology, flows between April to September would have to be 6 cfs within Falls Creek to meet the criteria for “good” habitat flows. Although the stream may meet these conditions April–May and in September, natural flows within the creek often fall below 0.5 cfs during the summer months. Thus, on a daily basis, and as an annual average, even natural flows would not meet the Montana-Tennant requirements for “good” habitat flows. The applicant’s supporting documentation, as well as conversations with relevant agencies, support the effort the Falls Creek Hydroelectric Project has made to be sensitive to the environmental effects of its activities. The applicant maintains a minimum streamflow of at least one cubic foot per second continuously, as required by the ODFW. Moreover, structural constraints of the project prevent it from operating at streamflows less than 3 cfs, thereby guaranteeing that at least this amount (if it is naturally flowing) will flow in the channel.

B. Water Quality:

Criteria

1) Is the Facility either:

- a) In compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the facility after December 31, 1986? Or**
- b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?**

YES.

The determination was made as part of the FERC application and approved as part of the exemption that the Facility would have no impact on water quality above or below the diversion. The letter of support from Oregon Department of Environmental Quality (ODEQ)

(see Exhibit 12) corroborates the compliance by the applicant with quantitative water quality standards. According to the state's water resources license, no other water quality issues are relevant.

If yes, go to B2.

- 2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?**

YES.

Although Falls Creek is not on the Clean Water Act 303(d) list, the South Santiam River (of which Falls Creek is a tributary) is listed for exceeding temperature criteria.

If yes, go to B3.

- 3) If the answer to question B.2. is yes, has there been a determination that the Facility is not a cause of that violation?**

YES.

The letter the applicant enclosed does not explicitly state that the Facility is not the cause of the violation. However, conversations with the ODEQ determined that current records indicate the Facility is not the cause of the violation.

PASS.

C. Fish Passage and Protection:

Criteria

- 1) Is the facility in compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?**

N/A.

The Facility's exemption was granted prior to 1986 and therefore this criterion is not applicable. Furthermore, no mandatory fish passage prescriptions have been issued by resource agencies.

If N/A, go to C2.

- 2) Are there historic records of anadromous and/or catadromous fish movement through the facility area, but anadromous and/or catadromous fish do not presently move through**

the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?

NO.

If no, go to C3.

3) If, since December 31, 1986:

- a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and
- b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription,
- c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?

NO

If no, go to C5.

5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream or downstream passage of riverine fish?

N/A.

No fish passage prescriptions for riverine fish have been issued.

If N/A, go to C6.

6) Is the facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?

YES.

At the time of construction, resource agencies recommended that a screen be installed in the tailrace to prevent fish from trying to swim into the tailrace pipe when the Facility was being constructed. A screen was installed and continues to be in use. No other recommendations have been issued.

PASS.

D. Watershed Protection:**Criteria:**

- 1) Is the Facility in Compliance with Resource Agency Recommendations, or, if none, with license conditions, regarding protection, mitigation or enhancement of lands inundated by the Facility or otherwise occupied by the Facility, or regarding other watershed protection, mitigation and enhancement activities?**

N/A.

No agency recommendations or FERC license conditions were issued regarding watershed protection.

PASS.

E. Threatened and Endangered Species Protection:**Criteria:**

- 1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?**

YES.

The ODFW identified three state or federal endangered or threatened species present within the Facility area or downstream reach. Winter steelhead and spring-run chinook salmon both occur in the South Santiam River and the lower 0.1 miles of Falls Creek at the confluence of the South Santiam River. Northern spotted owl is also present in the project area.

If yes, go to E2.

- 2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?**

N/A.

Per conversations with the ODFW, no recovery plans have been issued for the listed species found within the Project area or potentially affected by the Project.

If N/A, go to E3.

- 3) If the Facility has received authority to Incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental take**

statement; (ii) Obtaining an incidental take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?

N/A.

The Facility has not received authority to incidentally take a species.

If N/A, go to E5.

5) If E2 and E3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

YES.

Fish screens in the tailrace channel prevent upstream movement of fish through the tailrace. A 20-ft corridor of trees was removed for the construction of the penstock. Potential impacts to northern spotted owl were not assessed during construction because the species was not listed at the time. Both USFWS and ODFW concur that the project has no adverse impacts on listed species or their habitats.

PASS.

F. Cultural Resource Protection:

Criteria:

1) If FERC-regulated, is the Facility in compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?

YES.

There are no specific requirements regarding cultural resource protection within the exemption. Appropriate surveys and research by qualified anthropologists were conducted prior to construction as part of the exemption application. No archaeological sites were found as part of these surveys. The penstock crosses under Santiam Wagon Road, a historic road eligible for nomination; the road was restored once construction was complete. This was accepted by the Oregon SHPO as adequate mitigation, as indicated in the FERC application.

PASS.

G. Recreation:

Criteria:

- 1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?**

YES.

No specific recommendations were issued as part of the FERC exemption. However, the Facility is located on Forest Service lands and a campground is located across the river from the powerhouse. The applicant has a Special Use Permit with the Forest Service, which provides conditions guiding the use of Forest Service Lands. Recreational access and use is not impacted by the Project. Conversations with the Forest Service corroborated this, adding that the applicant is very agreeable to giving tours and providing campfire presentations at the campground describing the Facility. Although some noise can be heard from the powerhouse during high flow periods, the campground's peak season (July–August) generally coincides with when the Facility is off-line, resulting in minimal impacts to recreational resources.

If yes go to G3.

- 3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?**

YES.

Because the project is located on Forest Service lands, access to the project reach is available without fee.

PASS.

H. Facilities Recommended for Removal:**Criteria:**

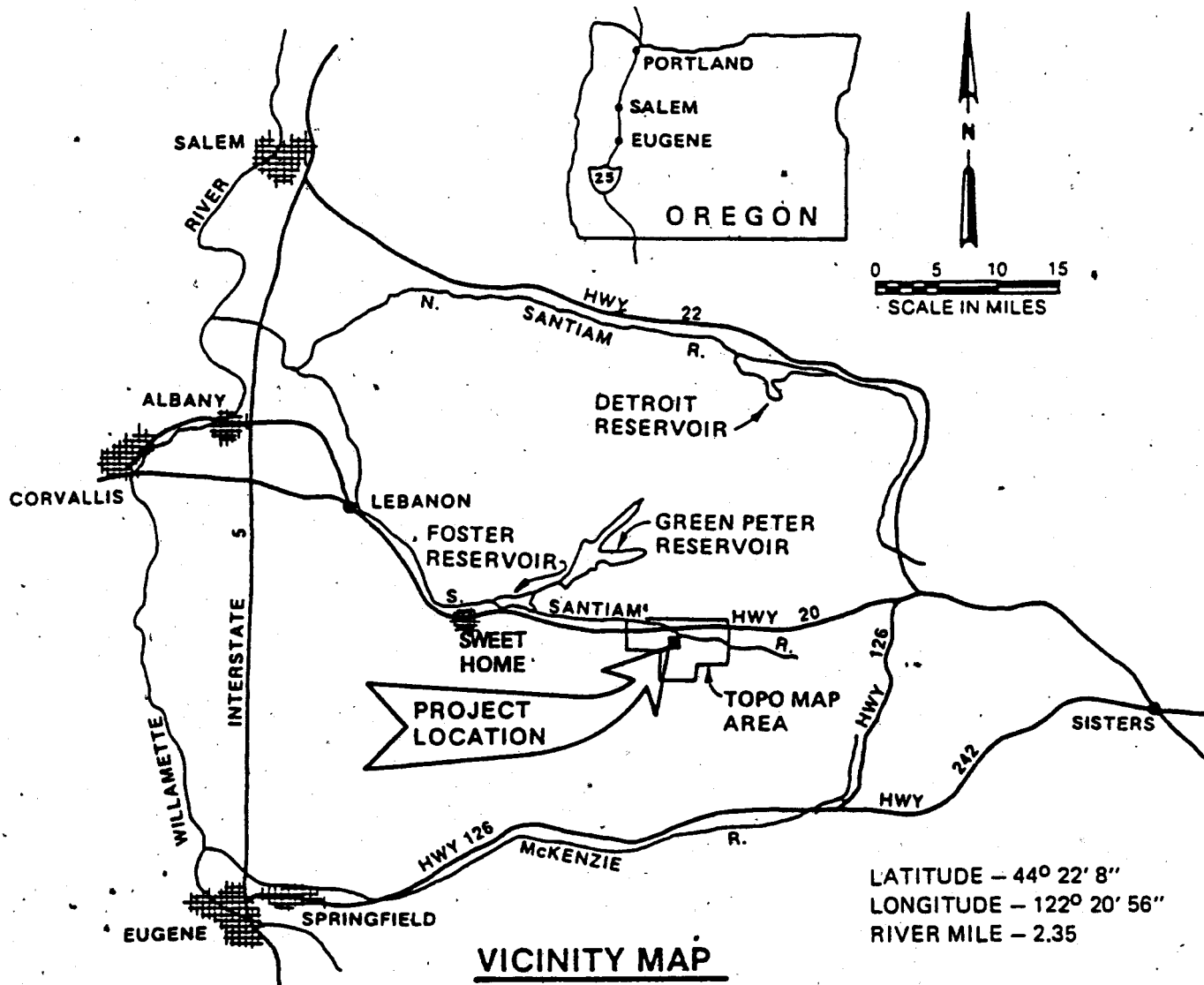
- 1) Is there a Resource Agency recommendation for removal of the dam associated with the Facility?**

NO.

There have been no recommendations for removal of the diversion.

PASS.

FACILITY IS LOW IMPACT

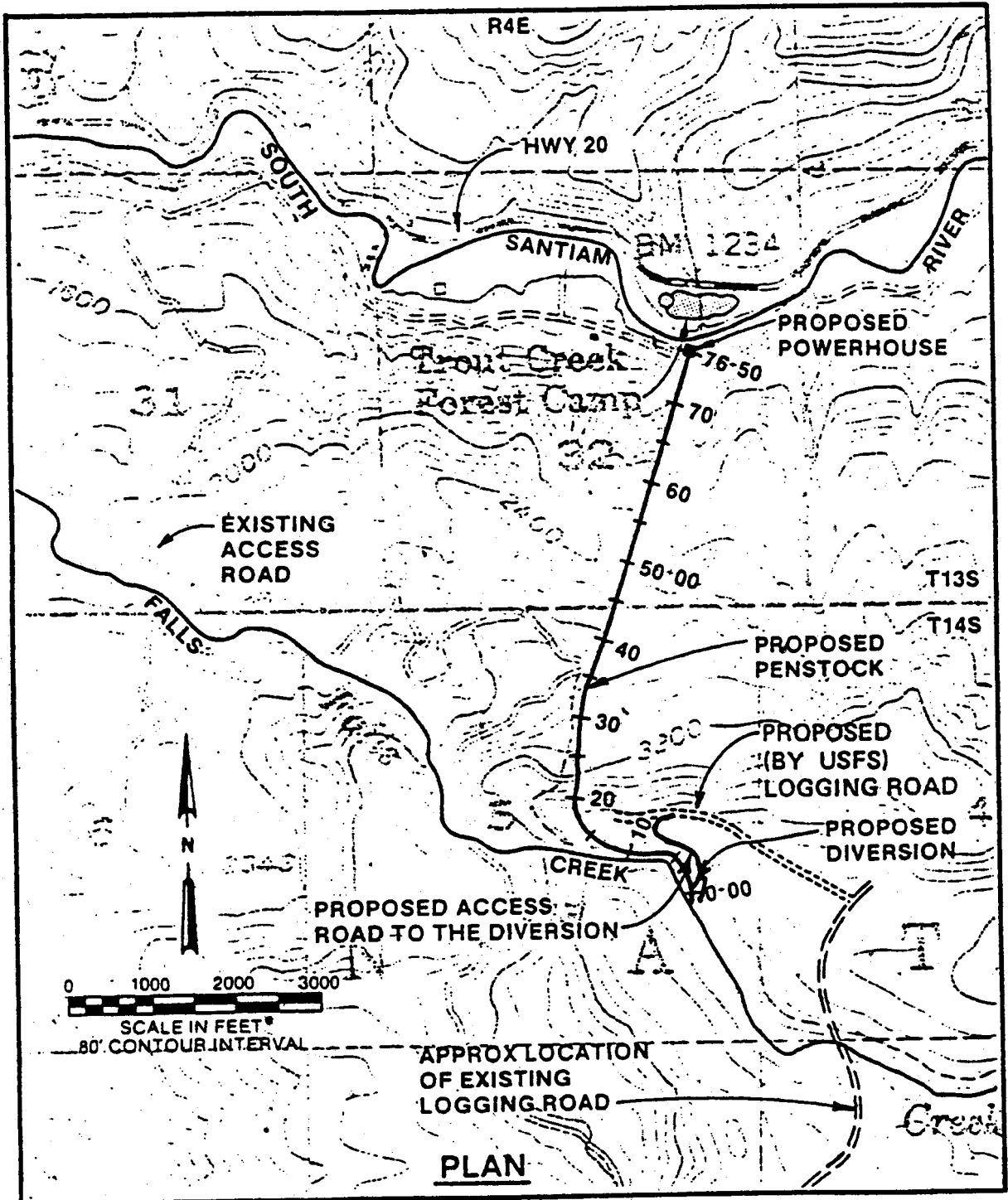


LOCATION POINT OF DIVERSION

N 2,200 feet, W 1,200 feet of SE corner of
Section 5 being within the NE 1/4 of the SE 1/4 of
Section 5, Township 14S, Range 4E, WM, in Linn County

**PROPOSED FALLS CREEK
HYDROELECTRIC PROJECT**

IN: FALLS CREEK RIVER MILE: 2.35
NEAR: SWEET HOME
COUNTY: LINN
APPLICANT: GARY P. MARCUS
DATE: APRIL 11, 1983



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