

Low Impact Hydropower Institute  
34 Providence Street  
Portland, ME 04103  
Tel. (207) 773-8190 • Fax (206) 984-3086  
[www.lowimpacthydro.org](http://www.lowimpacthydro.org)

#### LOW IMPACT HYDROPOWER QUESTIONNAIRE

[Excerpted from Part VI, Section E of the Low Impact Hydropower Certification Program. Words in *italics* are defined in Part VI, Section C, and line-by-line instructions are available in Section D of the program, available on-line in PDF format at

<http://www.lowimpacthydro.org>.

#### E. LOW IMPACT HYDROPOWER QUESTIONNAIRE

##### Background Information

**1) Name of the Facility.**

Falls Creek Hydroelectric Project.

**2) Applicant's name, contact information and relationship to the Facility. If the Applicant is not the Facility owner/operator, also provide the name and contact information for the Facility owner and operator.**

Gary Marcus, President and General Partner  
Falls Creek H.P. Limited Partnership  
1580 Valley River Drive, #290  
Eugene, OR 97401

**3) Location of Facility by river and state.**

20 miles east of Sweet Home, Oregon. Diverting stream is Falls Creek. Receiving river is South Santiam.

**4) Installed capacity.**

4.9 MW

**5) Average annual generation.**

14,600,000 kWh

**6) Regulatory status.**

FERC Exempt Generator, Project No. 6661-004. Original FERC Order granting exemption was issued March 4, 1983. An Order amending the exemption was granted on December 14, 1984. On March 20, 2006, the Falls Creek project filed a Notice with FERC of Self-Certification of the project as a qualifying small power production facility under the Public Utility Regulatory Policies Act of 1978, as amended (PURPA).

**7) Reservoir volume and surface area measured at the high water mark in an average water year.**

Diversion structure is 5.25 feet in height, 25 feet in length, and creates a pool areas of .1 acres. Estimated pool storage is negligible.

**8) Area occupied by non-reservoir facilities (e.g., dam, penstocks, powerhouse).**

In accordance with USDA Forest Service Special Use Permit #FSM 2714, the area occupied and permitted to occupy is 6.5 acres. The permit is issued for the purpose of operation and maintenance of the project's roads, diversion dam, penstock, powerhouse, self-contained toilet, antenna, and solar cells at the diversion.

**9) Number of acres inundated by the Facility.**

Approximately .25 acres. This is an area of about 80 feet wide by about 136 feet in length.

**10) Number of acres contained in a 200-foot zone extending around entire impoundment.**

Approximately 2.16 acres. Added 200 feet to the length and width to calculate sq ft, then divided by 43,560 to determine acreage.

**11) Please attach a list of contacts in the relevant Resource Agencies and in non-governmental organizations that have been involved in Recommending conditions for your Facility.**

(Copy of original FERC Application, containing Resource Agency contacts, was included with original LIHI application.)

**12) Please attach a description of the Facility, its mode of operation (i.e., peaking/run of river) and a map of the Facility.**

The Falls Creek project is a "run of river" facility, which means it uses whatever water is flowing in Falls Creek and does not hold or store it for later use. The project is sited to take advantage of the mountainous terrain—water is diverted from Falls Creek and funneled through a buried penstock that drops nearly one half a mile to the powerhouse below. Because of the natural steep drop in the Creek, salmon have never migrated up it, although trout are located in some of the pools, and a minimum instream flow is provided to protect that habitat. This "high head" facility has a capacity of 4.3 megawatts, and produces nearly 15 million kilowatt hours of electricity a year.

(Please see attached following in-depth description and maps at end of this questionnaire.)

**Questions for "New" Facilities Only:**

If the Facility you are applying for is "new" i.e., an existing dam that added or increased power generation capacity after August of 1998 please answer the following questions to determine eligibility for the program

13) When was the dam associated with the Facility completed?

14) When did the added or increased generation first generate electricity? If the added or increased generation is not yet operational, please answer question 18 as well.

15) Did the added or increased power generation capacity require or include any new dam or other diversion structure?

16) Did the added or increased capacity include or require a change in water flow through the facility that worsened conditions for fish, wildlife, or water quality, (for example, did operations change from run-of-river to peaking)?

17 (a) Was the existing dam recommended for removal or decommissioning by resource agencies, or recommended for removal or decommissioning by a broad representation of interested persons and organizations in the local and/or regional community prior to the added or increased capacity?

(b) If you answered "yes" to question 17(a), the Facility is not eligible for certification, unless you can show that the added or increased capacity resulted in specific measures to improve fish, wildlife, or water quality protection at the existing dam. If such measures were a result, please explain.

18 (a) If the increased or added generation is not yet operational, has the increased or added generation received regulatory authorization (e.g., approval by the Federal Energy Regulatory Commission)? If not, the facility is not eligible for consideration; and

(b) Are there any pending appeals or litigation regarding that authorization? If so, the facility is not eligible for consideration.

#### A. Flows

**PASS**

**FAIL**

*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 rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?*

**YES = Pass, Go to B**

**N/A = Go to A2**

**NO = Fail**

N/A

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

*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?*

**YES = Pass, go to B**

**NO = Go to A3**

NO.

*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 = Pass, go to B**

**NO = Fail**

YES.

Letters (Exhibits 10 and 11 submitted with the original LIHI application) and conversations with the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Forest Service, confirmed that Falls Creek demonstrated that flow conditions at the Facility are protective of fish, wildlife, and water quality.

Falls Creek remains sensitive to the environmental effects of its activities. The facility continues to maintain a 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

**PASS**

**FAIL**

*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 = Go to B2**

**NO = Fail**

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) (Exhibit 12 of the original LIHI application) corroborates the compliance by Falls Creek with quantitative water quality standards. According to the state's water resources license, no other water quality issues are relevant.

*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 = Go to B3**

**NO = Pass**

**YES.**

Although Falls Creek is no 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.

***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 = Pass***

***NO = Fail***

**YES.**

Conversations with ODEQ during prior LIHI certification in 2002 determined that records did not indicate the Facility was the cause of the violation. Nothing has changed in the Facility's operations or methods since 2002 that would impact or cause any changes in water quality.

### **C. Fish Passage and Protection**

**PASS**

**FAIL**

***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?***

***YES = Go to C5***

***N/A = Go to C2***

***NO = Fail***

**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.

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)?

YES = Go to C2a

NO = Go to C3

NO.

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 = Go to C5

N/A = Go to C4

YES = Fail

NO.

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

**YES = Go to C6**

**N/A = Go to C6**

**NO = Fail**

N/A.

No fish passage prescriptions for riverine fish have been issued.

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

**YES = Pass, go to D**

**N/A = Pass, go to D**

**NO = Fail**

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.

#### **D. Watershed Protection**

**PASS**

**FAIL**

**1 ) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline**

**YES = Pass, go to E and receive  
3 extra years of certification**

**NO = go to D2**

N/A.

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

#### **E. Threatened and Endangered Species Protection**

**PASS**

**FAIL**

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

**YES = Go to E2**

**NO = Pass, go to F**

YES.

The ODFW identified three state of 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.

*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?*

**YES = Go to E3**

**NO = Fail**

**N/A = Go to E3**

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.

*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?*

**YES = Go to E4**

**N/A = Go to E5**

**NO = Fail**

N/A.

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

*5) If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?*

**YES = Pass, go to F**

**NO = Fail**

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 the 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. Nothing has changed with the Facility's methods of operation or maintenance since 2002 that would impact or harm any threatened or endangered species.

## **F. Cultural Resource Protection**

**PASS**

**FAIL**

**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 = Pass, go to G**

**N/A = Go to F2**

**NO = Fail**

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 at that time.

In 1983 the Oregon State Historic Preservation Office determined that the Santiam Wagon Road (SWR) retained enough historic integrity to warrant eligibility to the National Register of Historic Places. Further, in 1995, House Bill 2966, the Oregon Histroic Trails Bill, recognized 16 historic trails in Oregon, the Santiam Wagon Road (SWR) being one of them. The Facility's penstock crosses under the Santiam Wagon Road, and the powerhouse, switchyard, and the self-contained toilet sit beside this roadway.

An Implementation Guide, in concert with the Historic Properties Management Plan, provides guidance for (1) preservation of the SWR historic integrity, (2) public education and interpretation of, (3) appropriate enhancement of, and (4) appropriate uses and activities within the Santiam Wagon Road Special Interest Area. The SWR Implementation Guide provides a schedule of attainment for desired future conditions for the SWR following a proposed time table of five years.

The USFS has oversight of compliance for the SWR Implementation Guide criteria. When the Facility's USFS Special Use Permit (SUP) was renewed in June 2006, negotiations between Falls Creek, the Historic Preservation Council, and the USFS regarding the goals of the SWR Implementation Plan were concluded and added as Exhibit A of the USFS SUP. (Copies of the Falls Creek SUP, dated October 7,

2006 with expiration on December 31, 2025, and the Santiam Wagon Road Special Interest Area Implementation Guide, are included with this recertification application.

#### **G. Recreation**

**PASS**

**FAIL**

*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 = Go to G3**

**N/A = Go to G2**

**NO = Fail**

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 Facility has a Special Use Permit with the Forest Service (renewed on October 7, 2006 through December 31, 2025), which provides conditions guiding the use of Forest Service Lands. Recreational access and use is not impacted by the Project. Falls Creek offers annual tours providing presentations of its Facility to the public, along with a presentation on the historic significance of the area. 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.

Falls Creek is working on a 5-year landscape improvement plan per conditions negotiated in the recently renewed USFS SUP, to maintain the historic preservation of the Santiam Wagon Road. (See F.1 above.) Exhibit A of the SUP (included with this recertification application) outlines criteria that will further mitigate any visual impacts the Facility has on the campground across the river or from the roadway in front of the powerhouse.

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

*YES = Pass, go to H*

*NO = Fail*

YES.

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

#### **H. Facilities Recommended for Removal**

*PASS*

*FAIL*

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

*NO = Pass, Facility is Low Impact*

*YES = Fail*

NO.

There have been no recommendations for removal of the diversion.

**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) on lands owned by the U.S. Forest Service. The project is a run-of-the-river, and uses only natural flows within Falls Creek for power generation. Power is delivered to PacifiCorp for distribution.

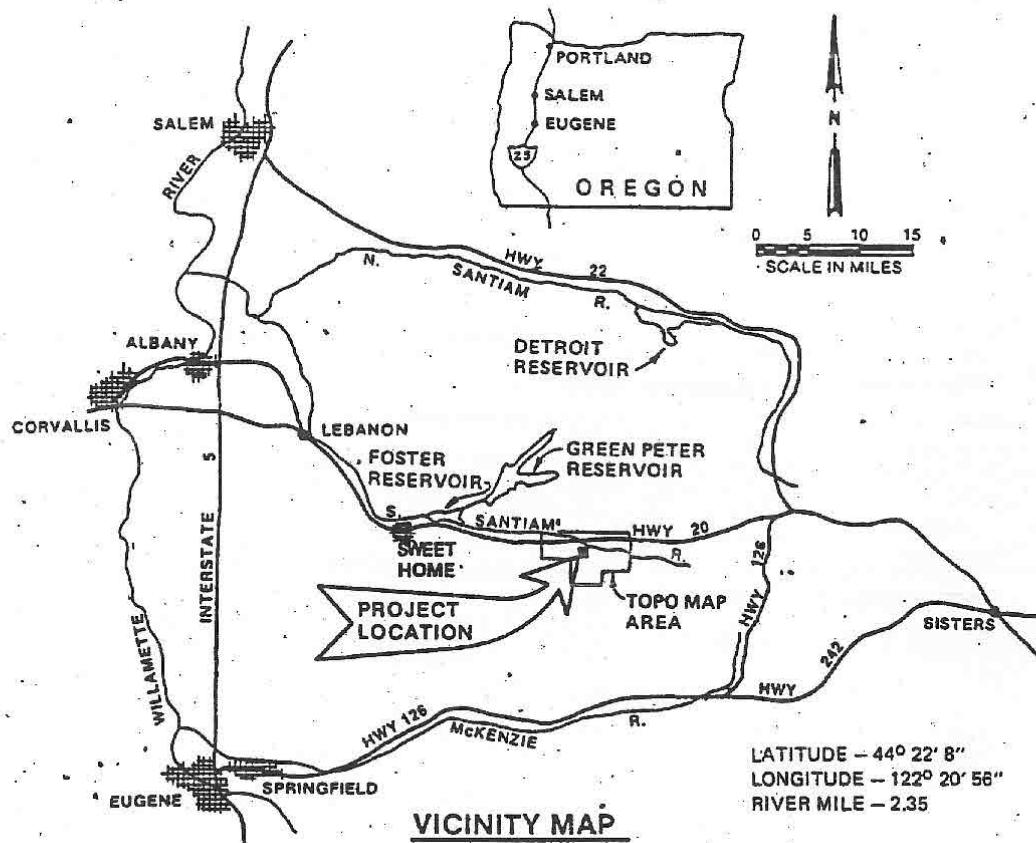
A 5-foot high diversion dam on Falls Creek, located 2.3 miles upstream from the confluence with the South Santiam River, creates a small pool (0.07 acres) from which the Facility diverts water into a penstock. Water is delivered to the powerhouse on the south bank of the South Santiam River through 7,380 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.

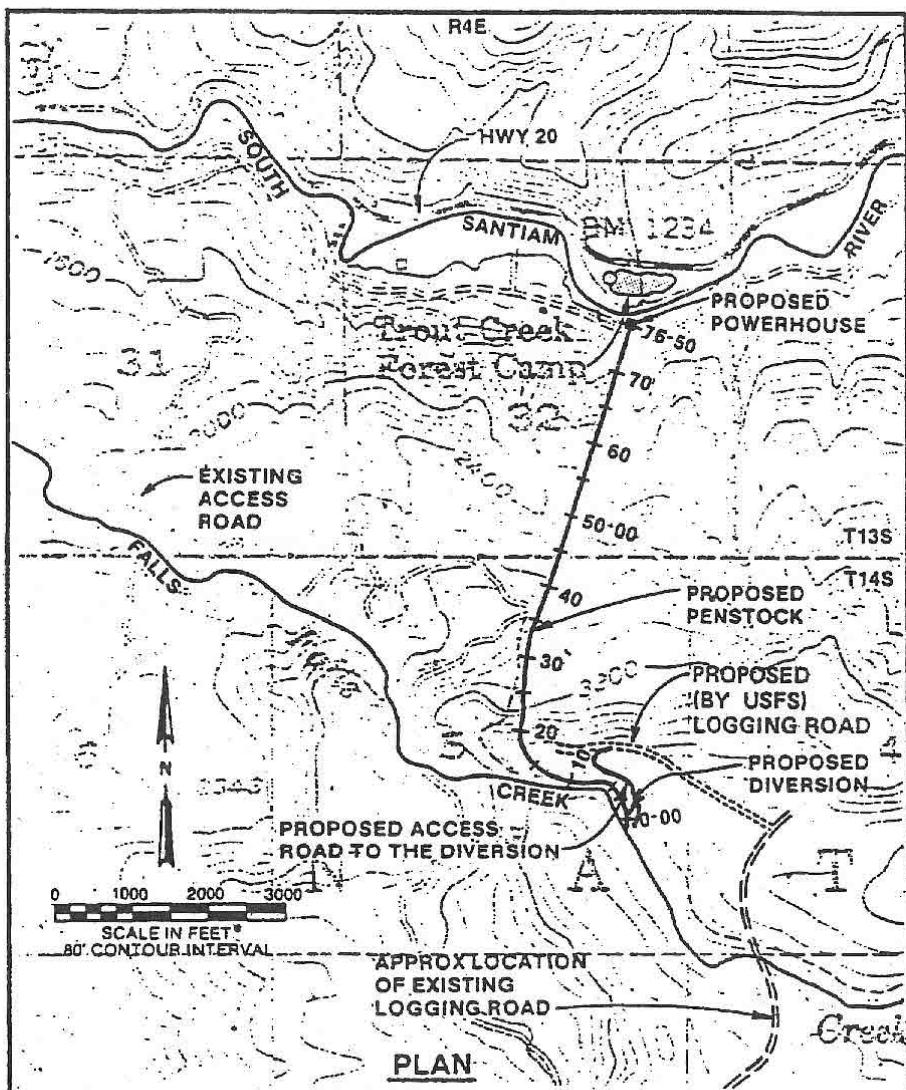
04974 (Falls Creek - Dam)



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

004874 (Falls Creek - Dam)



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

## UPDATED AGENCY CONTACTS

U.S. Department of Agriculture  
Forest Service  
Dallas J. Emch, Forest Supervisor  
Willamette National Forest  
211 East 7<sup>th</sup> Avenue  
Eugene, OR 97401  
[demch@fs.fed.us](mailto:demch@fs.fed.us)

Sweet Home Ranger District  
Willamette National Forest  
Brian McGinley, Recreation Supervisor  
3225 Hwy 20  
Sweet Home, OR 97386  
541-367-9234  
[bmcginley@fs.fed.us](mailto:bmcginley@fs.fed.us)

Willamette National Forest  
Ms. Shari Monson, Special Use Coordinator  
Federal Building  
211 East 7<sup>th</sup> Avenue  
Eugene, OR 97401  
[smonson@fs.fed.us](mailto:smonson@fs.fed.us)

Oregon Water Resources Department  
Mary S. Grainer, Hydroelectric Program Coordinator  
North Mall Office Building  
725 Summer Street NE, Suite A  
Salem, OR 97301-1271  
503-986-0900  
503-986-0904 FAX  
[Mary.S.Grainey@state.or.us](mailto:Mary.S.Grainey@state.or.us)

Oregon Water Resources Department  
R. Craig Kohanek, Hydroelectric Project Analyst  
North Mall Office Building  
725 Summer Street NE, Suite A  
Salem, OR 97301-1271  
503-986-0823  
503-986-0904 FAX  
[R.Craig.Kohanek@state.or.us](mailto:R.Craig.Kohanek@state.or.us)

**UPDATED AGENCY CONTACTS - cont.**

Van Ness Feldman, P.C.  
Margaret A. Moore, Attorney  
1050 Thomas Jefferson Street, N.W.  
Seventh Floor  
Washington, D.C. 20007  
202-298-1800  
202-338-2416 FAX  
[mam@vnf.com](mailto:mam@vnf.com)

Davis Wright Tremaine LLP  
Richard M. Glick, Attorney  
Suite 2300  
1200 SW Fifth Avenue  
Portland, OR 97201-5630  
503-241-2300  
503-778-5299 FAX  
[rickglick@dwt.com](mailto:rickglick@dwt.com)

CH2MHILL  
Adam Sussman  
Senior Water Resources Consultant  
2300 NW Walnut Blvd.  
Corvallis, OR 97330-3538  
541-768-3212  
541-752-0276 FAX  
[Adam.Sussman@CH2M.com](mailto:Adam.Sussman@CH2M.com)

National Oceanic & Atmospheric Administration  
National Marine Fisheries Service  
1201 NE Lloyd Blvd.  
Portland, OR 97232  
503-230-5400

Environmental Protection Agency  
U.S. EPA, Region 10  
Jeff Philip  
1200 Sixth Avenue  
Seattle, WA 98101  
(206) 553-1465  
(800) 424-4EPA  
(206) 553-1200  
[philip.jeff@epa.gov](mailto:philip.jeff@epa.gov)

**UPDATED AGENCY CONTACTS - cont.**

National Park Service  
Pacific West Region  
Jon Jarvis, Regional Director  
One Jackson Center  
1111 Jackson Street, Suite 700  
Oakland, CA 94607  
510-817-1304

U. S. Army Corps of Engineers  
Shawn Zinszer, Section Chief (Portland)  
P.O. Box 2946  
Portland, OR 97208-2946  
503-808-4373  
503-808-4380

Oregon Department of Fish and Wildlife  
Ken Homolka, Hydropower Program Leader  
Water Quality/Quantity  
3406 Cherry Avenue N.E.  
Salem, OR 97303  
503-947-6090  
503-947-6000  
[Ken.Homolka@state.or.us](mailto:Ken.Homolka@state.or.us)

Oregon Department of Environmental Quality  
Portland Office  
811 Sixth Avenue  
Portland, OR 97204-1390  
503-229-5696  
800-452-4011  
503-229-6124 FAX  
Water Quality Standards, (503) 229-6691  
Assessment, Limited Streams - 303(d) List, (503) 229-6099

DEQ Northwest Region  
Portland Office  
2020 SW Fourth Avenue, Suite 400  
Portland, OR 97201-4987  
503-229-5263  
503-229-6945 FAX

**UPDATED AGENCY CONTACTS - cont.**

Oregon State Historic Preservation Office  
Parks and Recreation Department  
Roger Roper, Deputy State Historic Preservation Officer  
1115 Commercial Street NE, Suite 2  
Salem, OR 97301  
503-986-0677  
[Roger.Roper@state.or.us](mailto:Roger.Roper@state.or.us)

Oregon Parks and Recreation Department  
State Parks  
725 Summer Street NE, Suite C  
Salem, OR 97301  
Tim Wood, Director  
503-986-0719