

JOHN SPELLMAN  
Governor

Env. FERC



Woods Creek

FRANK LOCI  
Director

STATE OF WASHINGTON

DEPARTMENT OF GAME

Seattle Regional Office—309 Fairview Avenue North, Seattle 98109 Telephone: 464-7784

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January 8, 1982

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GENERAL FILES  
MANAGEMENT

Kenneth F. Plumb, Secretary  
Federal Energy Regulatory Commission  
825 North Capitol Street, NE  
Washington, D.C. 20426

Re: Application for Exemption: Woods Creek, FERC No. 3602

Dear Mr. Plumb:

The Department of Game has reviewed the notice for application for a small hydroelectric project, Woods Creek, tributary to the Skykomish River in Snohomish County.

As the state agency with the responsibility for managing and protecting game fish and wildlife, we wish to make the following comments regarding this project:

1. The question of minimum flows in the bypass section of Woods Creek was addressed by utilizing Department of Ecology's administrative flow of 6 cfs. The short bypass segment has limited fish use, with the exception of downstream passage. The Department is willing to work with the applicant in determining the effectiveness of the 6 cfs flow. If this flow proves inadequate to safely pass downstream migrant trout through the bypass and over the falls, modification of the flow may be appropriate.
2. Because of the presence of game fish above the point of diversion, screening is necessary. The Department of Game recommends screening sufficient to provide protection for fingerling trout, which would be 1/4-inch mesh screening with sufficient area to provide an approach velocity of 0.5 feet per second. In addition, plans for maintenance and debris removed must be developed for both the screens and the bypass structure.
3. The powerhouse location is downstream of the upper limit of anadromous fish passage. For this reason upstream migrants, such as steelhead will be attracted to the tailrace. In order to afford these fish protection from delays, and injury from the powerhouse structure, it is necessary to block fish out of the tailrace using racks. It is suggested that the maximum bar opening in the tailrace rack be one inch.
4. Construction activities related to the diversion, powerhouse and penstock have the potential for impacting both terrestrial and aquatic habitats. Detailed plans for habitat restoration in the construction sites need to be developed. Long-term management plans for these areas also need to be specified. Timing and provisions for construction activities will be

Kenneth F. Plumb  
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addressed pointly by Department of Fisheries and Game through the  
Hydraulics Project Approval.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "A.G. Stendal".

Arthur G. Stendal  
Wildlife Biologist

AGS:td

cc: Neil McDonald  
WDF  
USFWS  
NMFS  
Tulalip Tribes  
Gufler  
Neal

**WOODS CREEK, INC.**

14 South Idaho Street  
Seattle, Washington 98134

A SUBSIDIARY OF GULL INDUSTRIES

March 24, 1982

Tom Payne  
U.S. Fish & Wildlife Service  
Division of Ecological Services  
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Olympia, WA 98502

R. Gary Engman, Project Manager  
Washington Department of Game  
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David Somers, Fisheries Biologist  
Tulalip Tribes  
3901 Totem Beach Road  
Marysville, WA 98270

RE: Woods Creek Hydroelectric Project

Gentlemen:

Woods Creek, Inc. (WCI) has reviewed the agency letters and petitions listed below which comment on the referenced application for exemption from licensing, and wishes to respond to the concerns expressed therein:

State of Washington Department of Game & Department of Fisheries,  
Petition To Intervene, dated 1/26/82.

State of Washington Department of Game letter, dated 10/31/81.

U.S. Department of the Interior letter, dated 1/20/82.

National Marine Fisheries Service Petition to Intervene, dated  
1/7/82.

National Marine Fisheries Service letter, dated 10/29/81.

Tulalip Tribes letter, dated 12/1/81.

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State of Washington Department of Game and Department of Fisheries Petition To Intervene:

The Washington Department of Fisheries (WDF) and the Washington Department of Game (WDG) submit several comments on the Exemption from Licensing:

1) Page 2, Section VII(a) addresses the concern that the intake be designed and screened to prevent juvenile fish entrainment in the power canal and to prevent the resulting turbine mortalities. As stated in Exhibit E, Section 2(c) of the Exemption, the Applicant has agreed to install fish screens with openings not to exceed 1/4 inch in the narrow direction, parallel to the direction of streamflow. WDF "General Technical Guidelines" for screening are included as Exhibit E-13 of the application. Exhibit E-14, a letter from the WDG dated 3/16/81, gives evidence of WCI having met with representatives of that Department and of its understanding of screening requirements. This point therefore was raised in the intervention without consideration to a demonstrated understanding that exists between the Applicant and representatives of the WDF and WDG.

2) Page 2, Section VII(b) raises the concern that the reduction in flow between the intake and powerhouse will adversely affect existing spawning and rearing habitat. The powerhouse is located 700 feet downstream of the intake structure, of which only 120 feet are accessible for anadromous salmonid spawning. The 700 foot reach available for rearing and the 120 feet available for spawning are believed to be insignificant when compared to approximately 12 miles of rearing area located upstream and the 7.5 miles of spawning area located downstream.

Juvenile outmigration through the 700 foot reach should be as rapid as at the present time due to spilling from spring flows. Food organisms produced in the 700 foot reach should be an insignificant part of the total watershed production. Minimum instream flows have been established at 6 cfs, by the Washington Department of Ecology in cooperation with the fish and wildlife agencies.

3) Page 3, Section VII(c) and (e) alleges that construction activities could adversely affect salmon, game fish and wildlife by the addition of mud and silt to the stream and by the removal of vegetation. Woods Creek, Inc.'s understanding of this concern is demonstrated in Exhibit E, Section 2(d) of the Exemption Application. A more specific water management plan has been formulated in conjunction with the detailed design process. To minimize adverse impacts to water quality during and following

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construction, both temporary and permanent erosion/sedimentation control facilities will be constructed. During construction of the road and bridge abutments, temporary straw-bale dams will be built between the excavation limit and the stream channel. In addition, rock check-dams will be constructed in the access road ditch at 100-150 foot intervals. These will control runoff velocities and thereby reduce the potential for erosion. Finally, several sedimentation/storage ponds will be constructed. These will provide 200-500 cubic feet of storage per acre drained and are intended to be part of both the temporary and permanent drainage control facilities. Maintenance of the erosion/sedimentation facilities will be the responsibility of the contractor during construction and the Owner after completion of the project. Upon completion of grading operations, all disturbed areas will be reseeded. This will further reduce the potential for erosion and siltation during and after construction and should minimize the impact on resident wildlife.

4) Concern is also raised (Page 2, Section VII(d)) over the configuration of the tailrace. The outlet is designed to run parallel to the contour of the bank with a screened opening approximately 70 square feet in wetted area. WDF and Interior suggest a maximum bar spacing of 1 1/4 inch in the narrow direction. WDG, however, recommends a maximum spacing of 1 inch. The Applicant will assume a conservative position on this matter and adopt Game's suggested spacing in order to satisfactorily protect all members of the salmonid species.

Migrating fish are naturally attracted to turbulent waters such as will be found at the tailrace outlet. This cannot be prevented; however, the proposed configuration will significantly reduce the possibility of delay to migrants. The tailrace opening has been designed with attention paid to the habit of fish to congregate at calm inlets of the stream preceding turbulence. Transition from tailrace to stream bank has been carefully designed to eliminate any such inlets and therefore any delay to migrating fish will be kept to a minimum. It is unlikely that any mortalities will result at the tailrace outlet and by adopting the narrower bar spacing, the migrating adults will be protected from gilling.

The tailrace outlet is located only 120 feet downstream of an impassable waterfall. This natural barrier severely limits the spawning area available above the tailrace, and as a result a large population of migrating fish is not expected this far up the reach of Woods Creek.

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In conclusion, the Applicant recognizes that WDF and WDG filed this Petition to Intervene in order to ensure their ability to become parties to any future proceedings that may be necessary, and not after having reviewed the Application for Exemption filed by WCI. The allegations put forth do not reflect the meetings and correspondence that have taken place between the Applicant and these agencies over the past year, the majority of which were included in the Application for Exemption from Licensing.

State of Washington Department of Fisheries letter, dated 12/29/81:

The Washington Department of Fisheries submits several comments on Exhibit E of the Exemption Application:

1) WDF is concerned that a maximum approach velocity of 0.5 fps and sizing requirements for screen openings be observed. The Applicant states on page 12, Section ii(a-d) and Section iii its willingness and intention to comply with these standards.

2) At the downstream end of the screening structure, a bypass will return 6 cfs to Woods Creek immediately below the weir. This system has been developed to transport the outmigrating smolts and will consist of a 12 inch diameter pipe, with velocities limited to 7.6 fps. In accordance with WDF recommendations (Rolland A. Schmitten, letter dated 10/21/81), the bypass has been redesigned to eliminate a 90 degree elbow which could have caused injury to the fish. It will be replaced by two 45 degree elbows to provide a more gradual sweep. The interior of the pipe will be smooth throughout its length. A weir box at the pipe outlet will control the flow. To reduce the potential injury to fish discharging into the weir box, the floor of the box will be designed to sweep upward toward the weir plate, directing fish and water over the weir. Fish which are intercepted by the screens will continue downstream via the bypass, the natural stream and over the falls.

Woods Creek, Inc. acknowledges the importance of a scheduled maintenance program, the frequency of which will be dependent upon seasonal conditions. A resident caretaker at the site will inspect the screen and bypass port daily to ensure that the structures are kept free of debris and will function adequately to protect the fish.

3) Chapter 173-507 WAC establishes a minimum instream flow of 6 cfs for this reach of Woods Creek. This minimum flow rate was confirmed to WCI by both Kevin Bauersfeld of WDF and Gary

Engman of WDG at a project meeting held 7/16/81. It was their recommendation that at least 6 cfs be maintained in the stream at all times. Should further studies by the WDF or WDG prove this volume of water to be insufficient for the safe transportation of juveniles through the bypass system, a plan for the modification of the instream flow requirement will be developed.

All other conditions set forth by the WDF for project development and operation are accepted by the Applicant, namely:

- a. The tailrace will be racked with a maximum bar spacing of 1 1/4 inches. As mentioned earlier, these racks actually will have a maximum bar spacing of 1 inch as requested by WDG.
- b. A ramping rate will be established by WDF after the project is in operation.
- c. Material which accumulates behind the weir will be removed on a regular basis.
- d. WCI will comply with provisions and restrictions set forth in the Hydraulics Project Approval.

State of Washington Department of Game letter, dated 10/30/81:

1) The WDG suggests that pedestrian access be provided at the project site to allow public right-of-way to what may be existing fishing sites. The Applicant argues that this reach of Woods Creek has long been held by private owners and consequently public access has been restricted. There is a year-round private residence on the site, and as the landowner, the Applicant has no wish to displace the occupants nor to invite public access to this private residence. Restricted access to the site will also reduce the risk of vandalism.

2) Riparian habitat characteristically contains remarkably resilient and persistent cover vegetation. The only permanent change in the streamside community will be to those ground surfaces disturbed by the bridge piers, the powerhouse foundations and support area, and the road. Temporary disruption of the habitat will be restricted to that absolutely necessary for construction. Topsoil that is removed during road construction will be stockpiled and used in the restoration of areas disturbed during construction. Native species will be replanted and tended on any affected area.

There are no plans to rehabilitate the existing powerhouse; instead its removal is scheduled. The structure has been vandalized and is in very poor condition and therefore not usable.

3) WDG is correct in its assertion that an approach velocity of 0.5 fps should be the maximum allowable rather than the average, as erroneously stated in the Exemption Application. The approach velocity normal to the screens will be limited to 0.5 fps measured at the gross wetted area of the screens. An even distribution of flow through the intake will be achieved through design, and will be maintained by a regular flushing of the screens.

4) As stated earlier, the Applicant will defer to the more conservative posture of WDG on the issue of tailrace bar-spacing. Fisheries and Interior suggest a bar spacing of 1 1/4 inch for the protection of adult anadromous fish. WDG's concern is for the smaller trout species, hence the requirement of 1 inch bar spacing.

U.S. Department of the Interior, Fish and Wildlife Service,  
letter dated 1/20/82:

Interior accepts the Exemption Application as presented providing certain conditions and recommendations are applied appropriately:

1) Page 2, item number 5, states as a condition of approval that the Applicant comply with criteria established in the Hydraulics Project Approval which will be issued by the WDF and WDG. These criteria will be complied with by the construction contractor.

2) Page 2, item number 6, specifies that power transmission lines be built to prevent electrocution or collision mortality to raptors, waterfowl, or other avian species. As stated in the Exemption Application, transmission lines will be designed in accordance with the Raptor Research Foundation, "Suggested Practices for Raptor Protection on Power-Lines."

3) Interior advises that the project is located within the usual and accustomed fishing grounds of the Tulalip Tribes. WCI has received a letter dated 12/1/81 from the Chairman of the Tulalip Tribes stating that the Tribes have no objection to the project as proposed.

4) Interior points out the location of a producing stone and/or sand and gravel operation near the site of the proposed

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Project. The AAA Diorite Quarry, Inc. operates a facility within 1/2 mile of the proposed Project that produces crushed rock, pit run, and riprap and will not be affected by project operation.

National Marine Fisheries Service, Petition to Intervene, dated 1/7/82:

Following issuance to WCI of the FERC Exemption from Licensing, the National Marine Fisheries Service (NMFS) submitted its Motion to File a Late Petition to Intervene. The basis for this motion is the Petitioner's obligation to protect the anadromous fishery production of Woods Creek from the potential cumulative disruptive effects of hydroelectric development.

The following are conditions that NMFS requests the Applicant to incorporate:

1) NMFS asks that a turbine bypass system be installed in the powerhouse that will operate from the wicket gate controls to shunt water through the bypass when the turbines are not in operation. As noted earlier, ramping rates had been addressed in correspondence with WDF, whose decision has been to evaluate the project and determine a ramping rate once the plant has begun operation.

Woods Creek, Inc. has attempted to demonstrate its willingness to comply with all reasonable agency requirements for the project. Consultation was begun formally in July of 1981, and informally prior to that. It was hoped that interested agencies would identify their concerns during the early phases of development so that any design requirements could be incorporated into the project. For the most part, such agency requirements were identified prior to filing of the Exemption Application; those identified prior to exemption issuance were incorporated subsequently.

The request for a turbine bypass system to be located in the powerhouse represents a significant change in project design. At this point in time, substantial funds would be necessary to alter equipment design; purchase orders have been placed for all hydraulic equipment, and manufacture is underway. In addition, on-site power plant construction is scheduled to begin in July, and redesign of primary facilities at this time could cause significant delay.

For these reasons, WCI would like to demonstrate to NMFS what hydraulic conditions will be present on the stream if the plant should be shutdown rapidly, under current design plans:

The project presents a less-than-critical configuration in high water conditions. Two turbine-generators will be operated in this run-of-the-river facility. There will be no regulation of downstream flows. Automatic sensing devices will operate at the intake structure signaling the operation of either one or two turbines, depending upon the rate of flow.

Under normal operating conditions, a minimum flow of 6 cfs will be maintained in the reach between the intake and the tailrace, at the same time that a flow between 22 and 144 cfs passes through the power plant. Streamflow in excess of 150 cfs will pass over the diversion weir and follow the existing stream course. At the time of turbine shutdown, the 144 cfs passing through the plant will stop, causing a reduction in flow rate and water depth downstream of the tailrace. As this flow is rejected at the intake, it will begin to pass over the diversion weir and follow the existing stream course. Engineering computations indicate that the total time from turbine shutdown to the restoration of uniform, steady streamflow downstream of the tailrace will be not more than 15 minutes. During this period, the 6 cfs minimum flow will be maintained or exceeded at all points below the diversion weir. (See attached Technical Memorandum.)

We trust that this flow regime will be adequate to retain downstream habitat for anadromous fish. It is not our desire to object to the provisions requested by any agency, but as can be seen from the above, if existing plans can be made to accommodate environmental concerns, it is highly desirable not to change them at this stage of development.

2) Condition number (5) of the Intervention requests WCI to ensure that the discharge of suspended solids and other foreign substances be controlled to the maximum extent possible. Preventative measures to be taken during the construction process are described under item number (3) of the response to the "WDG and WDF Petition to Intervene", in this letter. Project operation will result in no discharge of this nature; during periodic maintenance procedures, care will be taken to prevent such releases completely or to keep them to an absolute minimum.

3) NMFS presents as condition number (7) their concern for any eventual abandonment of the project site. They ask WCI to ensure that no conditions remain on the site which might adversely affect the fishery resource. In the event that the Woods Creek Hydroelectric Project ceases operation, WCI has agreed to prior consultation with the agencies concerned with the management of the fishery resource of this region.

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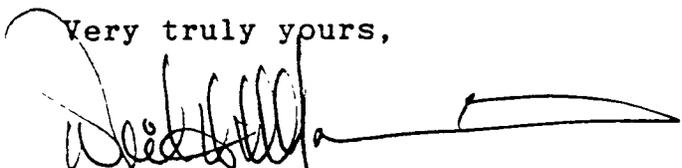
National Marine Fisheries Service Letter, dated 10/29/81:

Each of the points raised by NMFS in this letter already has been addressed herein, with the exception of item number (1) which references a discrepancy between the text of the Exemption Application and one of the accompanying drawings. The text states the existing crest elevation to be 346.00 feet MSL and that a wedge of concrete will be added to the downstream face. The text also states that the crest elevation of the concrete weir will be modified to reach an elevation of 347.00 feet, as indicated in Exhibit G. NMFS accurately observes that the addition of concrete to the crest is not mentioned.

Woods Creek, Inc. plans to incorporate the NMFS recommendation that the inlet to the fish bypass conduit be constructed with the centerline 18 inches above the floor slab of the screen structure. This will ensure that the inlet of the bypass conduit remains submerged should the flashboards be released.

Woods Creek, Inc. appreciates the interest you have taken in the project, and your willingness to work with us in the development of this and other facilities. Drawings showing the mitigative structures described in this letter will be forwarded shortly for approval, together with the Hydraulic Project Application to WDG and WDF. We trust that this information satisfies your concerns to date.

Very truly yours,



Neil H. Macdonald  
WOODS CREEK, INC.

cc: Ilene Belvin, HAEC



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UNITED STATES OF AMERICA  
 FEDERAL ENERGY REGULATORY COMMISSION

- 2 -

Woods Creek, Inc. ) Project No. 3602-001

ORDER GRANTING EXEMPTION FROM LICENSING OF A  
 SMALL HYDROELECTRIC PROJECT OF 5 MEGAWATTS OR LESS  
 ( Issued February 3, 1982 )

The Applicant 1/ filed an application for exemption from all or part of Part I of the Federal Power Act pursuant to 18 C.F.R. Part 4 SUBPART K (1980) implementing in part Section 408 of the Energy Security Act (Act) of 1980 for a project as described in the attached public notice. 2/ 3/

Notice of the application was published in accordance with Section 408 of the Act and the Commission's regulations and comments were requested from interested Federal and State agencies including the U. S. Fish and Wildlife Service and the State Fish and Wildlife Agency. All comments, protests and petitions to intervene that were filed have been considered. No agency has any objection relevant to issuance of this exemption.

Standard Article 2 included in this exemption, requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. The terms and conditions referred to in Article 2 are contained in any letters of comment by these agencies which have been forwarded to the Applicant in conjunction with this exemption.

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- 1/ Woods Creek Inc. Project No. 3602-001, filed October 8, 1981.
  - 2/ Pub. Law 96-294, 94 Stat. 611. Section 408 of the ESA amends inter alia, Sections 405 and 408 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. §§2705 and 2708).
  - 3/ Authority to act on this matter is delegated to the Acting Director, Office of Electric Power Regulation under §375.308 of the Commission's regulations 45 Fed. Reg. 21216 (1980), as amended by Order No. 112 in Docket No. RM81-5, issued November 21, 1980, (45 Fed. Reg. 79024).

Should the Applicant contest any terms or conditions that were proposed by Federal or State agencies in their letters of comment as being outside the scope of Article 2, the Commission shall determine whether the disputed terms or conditions are outside the scope of Article 2.

It is ordered that:

(A) Woods Creek Hydroelectric Project No. 3602-001 as described and designated in Woods Creek, Inc.'s application filed on October 8, 1981, is exempted from all of the requirements of Part I of the Federal Power Act, including licensing, subject to the standard articles in §4.106 of the Commission's regulations attached hereto as Form E-2, 18 C.F.R. §4.106 45 Fed. Reg. 76115 (November 18, 1980).

(B) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in Section 1.7(d) of the Commission's regulations, 18 C.F.R. 1.7(d)(1981), as amended, 44 Fed. Reg. 46449 (1981). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this order, except as specifically ordered by the Commission.

( S E A L )

*Robert E. Cackowski*  
 Robert E. Cackowski  
 Acting Director, Office of  
 Electric Power Regulation