

Low Impact Hydropower Institute

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LOW IMPACT HYDROPOWER QUESTIONNAIRE APPLICANT FORMAT

[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/Jan02criteria.pdf>].

E. LOW IMPACT HYDROPOWER QUESTIONNAIRE

Background Information	Applicant Answer
1) Name of the <i>Facility</i> .	Nisqually Hydroelectric Project, FERC No. 1862, comprised of two facilities, the upstream Alder facility, and the downstream LaGrande facility, operated together. This is a consolidated application, so when referring to them both, the term "project" will be used.
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.	City of Tacoma Owner/operator 3628 South 35 th Street Tacoma, WA 98409-3192 Applicant contact: Eric Beach Wildlife & Recreation Coordinator (253) 502-8782
3) Location of Facility by river and state.	Nisqually River, WA

4) Installed capacity.	114 MW: LaGrande 50 MW; Alder: 64 MW
5) Average annual generation.	LaGrande: 228 million kWh Alder: 345 million kWh
6) Regulatory status.	Relicensed in 1997. A rehearing order modifying some of the license articles was issued in 1998. Both are attached.
7) Reservoir volume and surface area measured at the high water mark in an average water year.	The maximum pool for Alder is 3065 surface acres; LaGrande is 450 acres.
8) Area occupied by non-reservoir facilities (e.g., dam, penstocks, powerhouse). [Requested information, but not required]	
9) Number of acres inundated by the Facility. [Requested information, but not required]	Same as surface area.
10) Number of acres contained in a 200-foot zone extending around entire impoundment. [Requested information, but not required]	.
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.	USFWS: Gwill Ging—360-753-6041 NMFS: Steve Fransen: 360-753-6038 steven.m.fransen@noaa.gov Wash Dept of Fish & Wildlife: Curt Leigh: 360-902-2422 Nisqually Tribe: George Walter 360-438-8687; Wash. Dept of Ecology (water quality): Steve Craig; 360-407-6784
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 Nisqually project consists of the Alder dam, reservoir, and powerhouse, and the downstream LaGrande dam, reservoir, and powerhouse, plus an additional generation unit recently added to the outlet of LaGrande dam. Alder is operated as a peaking facility, and LaGrande is operated as a run of river facility.

<p>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. [If your facility was constructed and operating as of August of 1998, skip questions 13-17 and proceed to section A].</p>	<p>A new turbine generator was added to the LaGrande dam in 2002 to generate from the required minimum flows.</p>
<p>13) When was the dam associated with the Facility completed?</p>	<p>1942</p>
<p>14) When did the added or increased generation first generate electricity?</p>	<p>2002</p>
<p>15) Did the added or increased power generation capacity require or include any new dam or other diversion structure?</p>	<p>No</p>
<p>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)?</p>	<p>No, the unit runs off the minimum flows that are released to provide beneficial conditions for salmonids.</p>

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<p>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?</p> <p>(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.</p>	No		
A. Flows	PASS	FAIL	Applicant Answer
<p>1) Is the Facility in <i>Compliance with Resource Agency Recommendations</i> 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?</p>	<p>YES = Pass, Go to B N/A = Go to A2</p>	<p>NO = Fail</p>	<p>Yes. Resource agency recommended flows are in effect throughout the project.</p> <p>Starting with the upstream Alder Lake, lake levels must remain above 1,197 feet from Memorial Day to Labor Day, and above 1,170 feet at all other times, except as necessary to meet minimum instream flows. If they fall below that level, the project must conserve water in accordance with a conservation flow formula. See License Article 404.</p> <p>The reach from Alder Dam downstream to LaGrande dam is essentially a reservoir, as the LaGrande reservoir is in a deep canyon, extending about 1.5 miles to the base of Alder Dam, so there are no flow requirements.</p>

		<p>There are ramping rate restrictions, as follows (see Article 405) :</p> <p>Downramping rates: February 16-June 15: No ramping during daylight hours, and 2 inches per hour at night June 16-October 31: 1 inch per hour, day and night November 1 through February 15 2 inches per hour, day night.</p> <p>Upramping rates (downstream from LaGrande dam)(see Article 407): Cannot exceed 6 inches per hour for the first hour of any spill.</p> <p>There is a bypassed reach between the LaGrande dam and powerhouse, extending about 1.7 miles. Flows for the bypassed reach are:</p> <p>30 cfs, or inflow to Alder Lake, whichever is less</p> <p>This flow was recommended by the resource agencies, though it was objected to by the Nisqually Tribe, which believed no flows should be provided to discourage attraction to the reach which they believe is marginal. (See Article 403)</p> <p>In addition, there are flow requirements for below the LaGrande powerhouse, as well as releases required for helping to maintain minimum flows in the bypassed reach of the separate Yelm project, downstream (see Article 402):</p>
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			<p>October 1 to December 15: LaGrande Power House: 700 cfs Yelm bypass reach: 550 cfs</p> <p>December 16 to May 31 LaGrande PH: 900 cfs Yelm bypass: 600 cfs</p> <p>June 1 to May 31 LaGrande PH: 750 cfs Yelm bypass: 500 cfs</p> <p>August 1 to September 30 LaGrande PH: 575 cfs Yelm bypass: 370 cfs</p> <p>These flows originated from work by the Nisqually River Coordinating Committee (comprised of Tacoma, Centralia, the Nisqually Tribe, the Washing Department of Fisheries and Wildlife, the National Marine Fisheries Services, and the U.S. Fish and Wildlife Service) established in response to concerns about the impact of this project and the downstream Yelm project on anadromous fish in the lower reaches of the river. The flows were formally adopted by Administrative Law Judge decision in 1993, and were recommended during relicensing by the resource agencies.</p>
	YES = Pass, go to B 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	YES = Pass, go to B	NO = Fail	

demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality?			
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 project was issued a section 401 water quality certification in 1992, and the project is in compliance with that certification. The certification is attached to the 1997 FERC order issuing a new license.
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		No, not listed
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	
C. Fish Passage and Protection	PASS	FAIL	
1) Is the Facility in Compliance with <i>Mandatory Fish Passage Prescriptions</i> 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: There are no section 18 fish passage prescriptions.
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	YES = Go to C2a NO = Go to C3		No, the project generally lies outside the range of anadromous fish species because of a natural barrier just upstream (approximately ½ mile) of the LaGrande powerhouse in what is now the LaGrande

<p>a downstream dam or the fish run is extinct)?</p> <p>a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?</p> <p>b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?</p>	<p>YES = Go to C2b N/A = Go to C2b</p> <p>YES = Go to C5 N/A = Go to C3</p>	<p>NO = Fail</p> <p>NO = Fail</p>	<p>reservoir.</p> <p>With the 30 cfs flow in the LaGrande bypassed reach, anadromous fish (fall chinook, probably some coho, and steelhead) exist in the lower portion of the reach.</p>
<p>3) If, since December 31, 1986:</p> <p>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</p> <p>b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription,</p> <p>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?</p>	<p>NO = Go to C5 N/A = Go to C4</p>	<p>YES = Fail</p>	<p>There is no fish passage prescription because there are natural barriers to passage. However, there is interest in improving the bypassed reach below LaGrande dam for anadromous fish, so in addition to the 30 cfs minimum flow, Tacoma has undertaken other efforts (including barrier removal) to help improve habitat based on agency recommendations (see response to C5).</p>

<p>4) If C3 was not applicable:</p> <p>a) Are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? Or</p> <p>b) If the Facility is unable to meet the fish passage standards in 4.a., has the Applicant demonstrated, and obtained a letter from the US Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource?</p>	<p>YES = Go to C5</p>	<p>NO = Fail</p>	
<p>5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of <i>Riverine</i> fish?</p>	<p>YES = Go to C6 N/A = Go to C6</p>	<p>NO = Fail</p>	<p>There are no section 18 prescriptions, but there were section 10(j) recommendations to remove some man made barriers to passage for cutthroat trout in the LaGrande bypassed reach (see Article 416). There was one man-made dam in the bypass reach that was a considered a complete anadromous blockage at the 30 cfs flow release. This old dam was removed to facilitate fish passage and release substrate that has aggraded upstream. Due to the dynamic nature of the canyon (bypass reach) there are currently no plans to alter the other natural fish passage obstacles.</p> <p>Tacoma is required to place 1000 cu yds. of spawning gravel into the bypass reach each year as a means to enhance habitat (Article 418). This material is placed immediately downstream of the LaGrande Dam. It is assumed the placed material will distribute downstream in conjunction with spill events.</p> <p>Tacoma is required to plant up to 500,000 kokanee</p>

			in Alder Lake annually for the purpose of recreational fisheries (see Article 413) . Alder Lake tributaries are utilized by these planted kokanee for spawning. Tacoma has a fish passage maintenance plan to maintain passage from Alder Lake into the tributaries (Article 415).
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; the agencies (with the exception of the Nisqually Tribe) recommended that a study be done to evaluate tailrace attraction and injury or mortality at the LaGrande powerhouse to determine if a tailrace barrier is need to protect anadromous fish (Article 417) That assessment is due in 2005.
D. Watershed Protection	PASS	FAIL	
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, and regarding other watershed protection, mitigation and enhancement activities?	YES and N/A= Pass	NO = Fail	Yes; the project includes 3,400 acres of wildlife habitat, including upland and lakeside areas; 900 lakeside acres are preserved, and on the remaining acreage, some silviculture is allowed for wildlife enhancement only.
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, bald eagles use the Nisqually River, and active nest sites are in the project area; in addition, suitable habitat for both the Northern spotted owl and the marbled murrelet exist in within the project area. Chinook salmon are found downstream of the project and were listed as threatened after the license was issued.
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	YES = Go to E3 N/A = Go to E3	NO = Fail	N/A

plan relevant to the Facility?			
3) If the Facility has received authority to incidentally <i>Take</i> 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
4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that: a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or d) The recovery plan under active development will have no material effect on the Facility's operations?	YES = Pass, go to F	NO = Fail	
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; based on the protective measures implemented by the project (including surveys, activity restrictions, and other measures), and the management plan approved in 1998 (see Article 425) the project does not negatively affect listed

			avian species. See January 28, 1997 concurrence letter from USFWS, attached. Chinook were not a listed species at the time of the license agreement (they were listed as threatened in the Puget Sound area in 1999). However, no issue regarding stream flows or other project impacts upon chinook have been raised. The National Marine Fisheries Service has confirmed that the Nisqually Project is not currently a concern and is not believed to negatively affect the recently listed chinook.
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, the FERC license requires that the licensee conduct a cultural resource survey before starting any land-clearing or land-disturbing activities, and if any previously unidentified properties are identified, consult with the SHPO and prepare a cultural resources management plan. The project is in compliance with this requirement. No cultural resource sites have been discovered on the project lands to date.
2) If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or <i>Native American Tribe</i> , or a letter from a senior officer of the relevant agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility?	YES = Pass, go to G	NO = Fail	
G. Recreation	PASS	FAIL	
1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational	YES = Go to G3 N/A = Go to G2	NO = Fail	Yes, the project maintains 3 recreation areas on Alder Lake that provide for day use, angling,

flow releases) and facilities conditions in its FERC license or exemption?			boating, and camping. The project is in compliance with FERC requirements for these recreation improvements. Whitewater boating: the FERC license required Tacoma to conduct a three-year evaluation of the potential for whitewater boating in the LaGrande Canyon, including spills in November and December. These occurred; however, there were safety hazards (including one death) and after the three-year period, A final report recommended that the spills be discontinued. FERC concurred with the report
2) If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and facilities, as Recommended by Resource Agencies or other agencies responsible for recreation?	YES = Go to G3	NO = Fail	
3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?	YES = Pass, go to H	NO = Fail	Access to Alder Lake is free in two of the three park areas, as is the boat launch—fees are charged for parking in a few areas, and for the developed sites; access to riparian corridors downstream is not developed, but there is no 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. Some agencies did recommend a decommissioning fund be established, the tribe did not concur, and the recommendation was not approved by the FERC. No agencies recommend dam removal of either of the dams.