SUBJECT - Low Impact Hydropower Institute (LIHI) Recertification Review for the Nisqually Hydroelectric Project (P-1862), October 29, 2013

BACKGROUND

The City of Tacoma’s (Tacoma) Nisqually Hydroelectric Project (Project) is located on the Nisqually River, between river miles (RM) 40.8 and RM 51.6, in Pierce, Thurston, and Lewis Counties, Washington, and is partially located on lands of the Mount Baker-Snoqualmie National Forest. The Nisqually River originates from the Nisqually Glacier on Mount Rainier and flows about 80 miles west to Puget Sound.

The original license for the Project was issued November 27, 1944 and expired December 31, 1993. The Project was issued a new 40 year FERC relicense in March 7, 1997 based on consultations with state and federal resource agencies and the Nisqually Tribe. These consultations resulted in new operating conditions to provide increased minimum flows in the bypassed reach and modified flows overall to provide for minimum flows in the river below the LaGrande powerhouse. There are anadromous fish (salmon species that spawn in fresh water and migrate to saltwater) in the lower portion of the LaGrande bypassed reach. There are historic barriers to fish passage in the LaGrande gorge. The Nisqually Tribe has treaty fishing rights in the Nisqually River, and operates the Clear Creek Hatchery downstream of the project area.

The Project is comprised of two facilities. Each development includes a dam, power tunnel and/or penstocks, powerhouse, and an associated power transmission system.

The upstream facility is the Alder Development; constructed following authorization of the Federal Power Commission in 1941. It is comprised of two generating units with a total installed capacity of 50 MW, operating in a peaking mode. Alder Dam is 285 feet high and creates Alder Lake which is 7.4 miles long and has a maximum surface area of 3,065 acres. Public and private recreational facilities are located on Alder Lake.

Just downstream from the Alder Development is the LaGrande Development, built by Tacoma in 1912 and expanded in 1945, operates in a run of river mode. The dam diverts flows into a 6,400-foot-long tunnel that terminates at a steel penstock leading to a manifold serving five individual penstocks in the LaGrande powerhouse. Four of the generating units have a capacity of 6 MW each. The fifth has a capacity of 41.25 MW. A small minimum flow unit with a capacity of 437 kW is located in an alcove (open to the downstream face of the dam) at the end of the river outlet works. The total generating capacity is 65.7 MW.

LaGrande Dam is 192 feet high and creates LaGrande Reservoir with at surface area of 75 acres. The LaGrande Reservoir is located within a steep gorge area, which extends about 1.5 miles to the base of Alder Dam. The project creates a bypassed reach of the Nisqually River between the LaGrande Dam

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1 On September 23, 2013, FERC issued an order amending license and revising annual charges. The authorized installed capacity of the Alder Development remained unchanged at 50,000 kW. The authorized installed capacity of the LaGrande Development was increased from 65,437 kW to 65,687 kW. Therefore, the project’s total authorized installed capacity is revised to 115,687 kW.
and the LaGrande powerhouse (water is diverted at the dam into penstocks or pipelines that go directly to the powerhouse, bypassing the natural channel of the river). The bypass reach is about 1.7 miles long. The minimum flow unit releases 30 cubic feet per second (cfs) into the bypass reach. The average annual generation from the total project is approximately 573 GWh.

The Project was initially certified by the LIHI for a five year period that ended on April 15, 2008 and recertified for an additional five years by LIHI at their August 28, 2008 Board Meeting. Tacoma submitted an application for a second recertification of the Project on March 27, 2013.

LIHI RE-CERTIFICATION PROCESS

Re-certification review focuses solely on determining the answers to the following two questions:

1) Has there been a material change in circumstances since the original certification was issued?

For purposes of recertification review, a “material change in circumstances” will mean one or both of the following:

(a) Non-compliance: Since receiving its last certification from LIHI, the certificate holder/applicant has not implemented, or has delayed implementing, or has done an inadequate job of implementing obligations at or near the facility that are of relevance to LIHI’s criteria. These obligations could be in the form of terms and conditions of license(s), settlement agreements, resource agency recommendations or agreements, LIHI conditions of certification including annual notifications, agreements with local municipalities or other third parties or similar relevant obligations; or

(b) New or renewed issues of concern that are relevant to LIHI’s criteria: Since receiving its last certification from LIHI, either new issues of concern and relevance to LIHI’s criteria have emerged that did not exist or were not made known to LIHI at the time of certification, or there continues to be ongoing problems with previously known issues that appeared to LIHI to be resolved or on the road to resolution at the time of certification but in fact are not resolved, and are ongoing at the time of the re-certification application.

If a new license, settlement agreement, prescription, biological opinion or other similar regulatory decision has been made since the original recertification, these documents will be evaluated to determine if new or renewed issues have been raised.

2) Have any of LIHI’s criteria, or the Board’s interpretation of one or more criterion, changed in meaningful ways since original certification that are applicable to the circumstances of the facility seeking re-certification?

Tacoma’s Recertification Application was reviewed to assess adherence to the LIHI certification criteria with the above in mind. A FERC e-library search was conducted to verify claims in the Recertification Application. The docket search was confined to the period from the start of the previous LIHI certification, approximately April 1, 2008 through October 29, 2013, for FERC docket number P-1862. Appendix A contains a reversed chronological list of docket items pertaining to this recertification.
No major issues were found in the docket search.

This reviewer also called each of the following individuals listed in the Project’s Recertification application:


- Nisqually Tribe: George Walter – (360-438-8687). Talked with George on 10/29/2013. George stated, “Tacoma is a pleasure to work with. There are no problems with the Project. Tacoma operates project properly regarding environmental requirements and is genuinely concern with any issues that might arise.” He also stated his appreciation for having an opportunity to comment on the LIHI application.

- US Fish & Wildlife Service (USFWS): Lou Ellyn Jones – (360-753-5822). Left voice message on 10/28/2013 to either call me or email me comments, if any.

- Washington Department of Ecology (WDOE): Deborah Cornett – (360-407-7269). Talked with Deborah on 10/28/2013. She stated, “I am unaware of any major concerns on the Project but I will check the department’s files and either call or email you by Friday (11/2/2013).”

- Washington Department of Fish and Wildlife (WDFW): Travis Nelson – (360-902-2390). Left voice message on 10/28/2013 to either call me or email me comments, if any. I received a call stating that Travis’s prior duties are now performed by Justin Allegro (360-902-2405). I then left voice message for Justin to either call me or email me comments, if any.

During the last certification period, FERC orders amending the license were issued on July 09, 2010 and September 23, 2013. The first order dealt with changing the original license Articles 405 and 409 to allow testing of the LaGrande Dam spillway gates with the reservoir at normal operating levels as a matter of dam safety. The latest order, previously footnoted, pertained with changes to the official generating capacity of the Project and its associated revised annual charges.

A review of these orders amending license indicate that no major issues were found. All State and Federal Agencies are on board with these changes to the license.

RE-CERTIFICATION REVIEW

Article 410 of the FERC license requires Tacoma to prepare an annual report detailing the status of instream flow records, reservoir elevations, and fish and wildlife protection and enhancement measures accomplished at the Nisqually Project. This report is submitted to the Washington Department of Fish and Wildlife and the U. S. Fish and Wildlife Service by March 1, annually. The report is also submitted to the FERC, Nisqually Tribe and National Marine Fisheries Service for their information.
1. **LIHI Criterion-Flows:** Article 402 of the Project license requires Tacoma to meet instream flows in the Nisqually River. The flow in the bypass section and in the main stem of the Nisqually River from LaGrande to the Yelm Project Diversion of the Nisqually River shall at all times equal or exceed:

<table>
<thead>
<tr>
<th>Date</th>
<th>Bypass</th>
<th>Main stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 1 -December 15</td>
<td>550 cfs</td>
<td>700 cfs</td>
</tr>
<tr>
<td>December 16- May 31</td>
<td>600 cfs</td>
<td>900 cfs</td>
</tr>
<tr>
<td>June 1 -July 31</td>
<td>500 cfs</td>
<td>750 cfs</td>
</tr>
<tr>
<td>August 1 - September 30</td>
<td>370 cfs</td>
<td>575 cfs</td>
</tr>
</tbody>
</table>

Tacoma's releases from LaGrande dam shall be sufficient so that the flow in the main stem portion of the Nisqually River, measured as the flow reaching the Yelm Project Diversion dam, shall at all times equal or exceed the greater of: (a) those flows specified above for the bypass, less 120 cfs, plus the lesser of 720 cfs or the calculated natural inflow at the Yelm Project Diversion dam; or (b) the flows specified above for the main stem.

The flows for the period June 1 through July 31 shall be extended up to August 15 if in-season steelhead spawning data indicate this is warranted as determined by the Nisqually River Coordinating Committee. For the period October 1 through December 15, Tacoma agrees to provide higher flow in the main stem if water conditions are good and to maintain such higher flow, up to 900 cfs, after it has been established.

Under adverse water conditions Tacoma may petition the Nisqually River Coordinating Committee for modifications in these minimum flow requirements. This flow schedule may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods of agreement between the Licensee and the Nisqually River Coordinating Committee. If this flow schedule is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each incident.

Throughout the prior LIHI certification period, flows released from the Nisqually Project were in compliance with Article 402 with minor exceptions. On a few occasions, minimum flows were not met. In each case, Tacoma reported the violation and gave a justifiable reason for the under release of flow. In general, the FERC, tribal, State and Federal Agencies have accepted Tacoma’s responses.

Article 403 of the Project license requires Tacoma to maintain within the LaGrande bypass reach a minimum instream flow of 30-cfs or the inflow into Alder Lake, whichever is less for the protection and enhancement of fish and wildlife resources. This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the Licensee, the Nisqually Tribe, Washington Department of Fish and Wildlife, National Marine Fisheries Service, and FWS. If this flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Throughout the prior LIHI certification period, Tacoma maintained at least 30-cfs instream flows in the LaGrande Canyon bypass. No new areas of concern were found.
2. **LIHI Criterion-Water Quality:** Under Article 420, Tacoma was required to develop a 1-year dissolved oxygen (DO) monitoring plan in order to determine if discharges from the LaGrande powerhouse were meeting the minimum standards for DO concentrations (8.0 mg/l for Class A waters) as established by Washington Department of Ecology (WDOE). Monitoring was conducted from September 2001 to October 2002 and a report of the findings was submitted to FERC in January 2003. Some concerns pertaining to total dissolved gases (TDG) were stated by WDOE. In a 2003 final letter on the matter, FERC concluded that, while there appears to be some uncertainty regarding the source of DO and its correlation to supersaturated TDG, there have been no reports of gas bubble trauma in fish below LaGrande powerhouse, and therefore Tacoma should not be required to conduct further DO or TDG monitoring. The FERC letter concluded that, should fish kills occur in the tailwater of the LaGrande powerhouse, Tacoma may be required to implement minimization measures for TDG.

*Throughout the prior LIHI certification period, no non-compliance issues or new areas of concern were found.*

3. **LIHI Criterion-Fish Passage and Protection:** The historical range of anadromous fish in the Nisqually River appears to have been limited by a set of falls situated between the present-day locations of LaGrande and Alder dams. According to the applicant, resource agencies, and tribal representatives, there are no known historical records or scientific surveys indicating anadromous fish presence upstream of LaGrande Dam, and few if any records exist for the bypass reach immediately downstream of LaGrande Dam. Therefore, it appears unlikely that anadromous fish regularly utilized the area upstream of LaGrande Dam under pre-project conditions.

*Throughout the prior LIHI certification period, resource agencies have not issued mandatory fish passage prescriptions for the project and no new areas of concern were found.*

4. **LIHI Criterion-Watershed Protection:** Article 422 of the Project license required Tacoma to purchase 2,450 acres of wildlife habitat lands in the Nisqually watershed.

*Article 422 conditions were completed in 2005 and no further actions are required.*

Article 424 of the Project license requires Tacoma to prepare a wildlife management plan for the transmission right-of-way. Tacoma submitted a wildlife management plan for the transmission right-of-way to the FERC on August 10, 1998. FERC approved the plan in the Order Approving Transmission Right-of-Way Wildlife Management Plan dated September 11, 1997. The plan includes three major components: Vegetation management, Nest box management, and Wetland restoration and enhancement. The restoration of three wetland areas along the transmission line was completed in 2002. These sites include: (1) Tanwax Creek No. 1, (2) Tanwax Creek No.2, and (3) 46th Avenue.

*Throughout the prior LIHI certification period, all vegetation, nest box and wetland management activities were performed in compliance with Article 424 and the LaGrande Transmission Right-of-Way Wildlife Management Plan.*
5. **LIHI Criterion-Threatened and Endangered Species:** Article 425 of the Project license requires Tacoma to prepare a plan to protect federally listed animals and their habitats on and in the vicinity of Project lands before the start of any land disturbing, land clearing, or habitat enhancement activities. Tacoma submitted a threatened and endangered species protection plan to FERC on September 4, 1997 to protect federally listed animals and their habitats from land-disturbing activities. The Commission approved the plan in the Order Approving Endangered Species Plan, dated April 15, 1998. The plan typically applies to land use actions such as construction or habitat enhancement measures that could impact listed species.

*Throughout the prior LIHI certification period, no such actions occurred that required Tacoma to implement provisions of the threatened and endangered species protection plan.*

Article 426 of the Project license requires Tacoma to install avian markers on the Project transmission lines over water bodies to protect birds. Tacoma submitted a plan to FERC on September 4, 1997 to install and monitor avian markers on the transmission lines above Mashel River and Ohop Creek as required in Article 426. The Commission approved the plan in the Order Approving Avian Marker Plan, dated September 29, 1997.

Avian markers were installed in 1998 and bird surveys initiated promptly afterward. No evidence of bird collisions or electrocutions associated with the transmission line was detected. Based on these results, further surveys were determined to be unnecessary. The markers are currently in place as designed. Tacoma has fulfilled the requirements of License Article 426 and the Avian Marker Plan. Tacoma will continue to periodically evaluate the condition of the avian markers to assure that they remain properly installed and operational.

*Throughout the prior LIHI certification period, no non-compliance issues or new areas of concern were found.*

6. **LIHI Criterion-Cultural Resource Protection:** The applicant appears to have met all cultural resource protection requirements of the FERC license. According to a May 2000 FERC inspection report, there are no sites listed in the National Register of Historic Places that are located within the project boundary, and no sites are known to be impacted by the project. The cultural resource assessment conducted as part of the relicensing process concluded that no known historic or archaeological sites exist in the project area (FERC 2000). FERC license Article 429 requires Tacoma to consult a state Historic Preservation Officer before starting ground-disturbing activities.

*Throughout the prior LIHI certification period, no non-compliance issues or new areas of concern were found.*

7. **LIHI Criterion-Recreation:** Article 428 required Tacoma to study the feasibility of recreational flow releases in the LaGrande bypass reach. Since 2002, FERC position is recreational releases in the bypass reach are not required due to safety and cost concerns. Access to Alder Lake is free at all of its developed parks and from the undeveloped lands that surround the reservoir. Access to LaGrande Reservoir and the downstream riparian areas is not developed, but it is open to the public and there is no fee.
Throughout the prior LIHI certification period, no new areas of concern were found.

Article 413 requires that Tacoma annually stock kokanee salmon fry in Alder Lake to enhance the reservoir’s resident kokanee fishery and requires monitoring of the fishery to assess the effectiveness of the stocking program, in consultation with WDFW, USFWS, and the Nisqually Tribe.

Throughout the prior LIHI certification period, no non-compliance issues or new areas of concern were found.

8. LIHI Criterion-Facilities Recommended for Removal:

A review of the FERC docket indicates that during the prior LIHI certification period, Tacoma does not have any facility that has been recommended for removal by a natural resource agency.

RECOMMENDATION

A review of the Recertification application and a FERC docket search from the start of the previous LIHI certification, approximately April 1, 2008 through October 29, 2013, exemplifies Tacoma is a good steward of the environment. My contact with State and Federal agencies personnel familiar with the Project seems to echo this view. Tacoma and the agencies have developed a good working relationship.

Tacoma has been proactive regarding environmental issues associated with the Project. Most required filings were on time without the need of time extension requests. The docket search review resulted in no major non-compliance issues surfacing in the record. Additionally, no new or renewed issues of concern were discovered. The project continues to satisfy the entire LIHI criteria. It is my recommendation that Tacoma be issued a LIHI recertification for an additional five years for the Nisqually Project, FERC Docket P-1862.

Gary M. Franc

FRANC LOGIC
Licensing & Compliance
Hydropower Consulting & Modeling
1. Letter to Tacoma Public Utilities discussing the 2012 Annual Report for Articles 413 and 415 of the Nisqually River Project under P-1862.
2. Order granting temporary variance of reservoir spill requirements under Article 409 regarding City of Tacoma, Washington under P-1862.
5. Tacoma Public Utilities submits the annual Natural Resources Report for 2012 for the Nisqually River Project under P-1862.
7. Tacoma Power requests an exemption to Article 409 of the Nisqually River Project Operating License to conduct a planned 10-day spill event from LaGrande Dam between 9/3/13 & 9/13/13 for the Nisqually River Project under P-1862.
9. Comments of the Washington State Department of Fish & Wildlife on the License Article 416 Reports in P-1862.
15. The City of Tacoma, Department of Public Utilities, submits the annual Natural Resources Report for 2011 for the Nisqually River Project required by Article 410 under P-1862.
16. Letter acknowledging City of Tacoma's 10/24/11 letter transmitting the updated Chapter 4 for the Public Safety Plan for the Nisqually Hydroelectric Project under P-1862.
17. Letter to the parties addressed discussing a wide variety of recreation issues in conjunction with licensing and operation hydropower projects under P-2652 et al.
19. Comments of Tacoma Public Utilities regarding the Nisqually River Project under P-1862.
21. Tacoma Public Utilities submits the updated Chapter 4 of the Public Safety Plan for the Nisqually Project under P-1862.
22. Tacoma Public Utilities submits the updated Chapter 4 of the Public Safety Plan for the Nisqually Project under P-1862. LARGE FORMATS ONLY.
24. Tacoma Public Utilities submits updated Public Safety Plan for the Nisqually Hydroelectric Project under P-1862. LARGE FORMATS ONLY.
27. Letter order accepting the City of Tacoma, WA's filing of the 2010 Natural Resources Report under P-1862.
28. City of Tacoma submits the annual Natural Resources Report for 2010, pursuant to Article 401 regarding the Nisqually River Project under P-1862.
32. Tacoma Power 2010 Annual Report for Article 416: Maintenance of Fish Passage in the LaGrande Bypass Reach under P-1862.
33. Email dated 10/29/10 from Glen of FERC's PRO acknowledging the 7/2/10 letter informing of a plan and schedule to address the 5/11/10 comments for the LaGrande Dam of the Nisqually River Project under P-1862.
34. Tacoma Power submits their Spillway Testing Plan pursuant to License Articles 405 and 409 for the Nisqually Hydroelectric Project under P-1862.
35. Tacoma Power submits the 2010 Environmental Inspection for the Nisqually Project under P-1862.
37. Letter to Tacoma Power requesting that they provide photographic evidence of completion of parking signs w/in 30 days for the Nisqually Project under P-1862.
38. Order amending license regarding City of Tacoma, Washington under P-1862.
40. Letter to Tacoma Power confirming the telephone conversation regarding the 2010 environmental inspection scheduled for 6/29 and 6/30/10 for the Wynoochie and Nisqually Projects under P-6842 et al.
41. The U.S. Department of the Interior Provides Comments on the Notice of Application for Amendment of License for the Nisqually Hydroelectric Project, FERC No. 1862 Pierce, Thurston, and Lewis Counties, Washington.
42. Letter order accepting Tacoma Public Utilities 11/23/09 filing of the 2009 Bypass Reach Fish Passage Report which satisfies the requirements of license Article 416 for the Nisqually River Hydro Project under P-1862.

43. Letter order accepting Tacoma Public Utilities' 2/1/10 filing of the 2009 Kokanee Stocking and Tributary Fish Passage Report regarding the Nisqually River Project under P-1862.

44. Notice of application for amendment of license and soliciting comments, motions to intervene, and protests regarding City of Tacoma, Washington's Nisqually Hydroelectric Project under P-1862.


46. Memo dated 3/30/10 from Energy Projects regarding the Documentation of Consultation for the Nisqually Hydroelectric Project under P-1862.

47. Tacoma Power Nisqually River Project, Revisions to License Articles 405 and 409 under P-1862.


49. Tacoma Power Submits Article 413 Kokanee Stocking Report and Article 415 Tributary Fish Passage Report for 2009 under P-1862.

50. Tacoma Power under P-1862, Nisqually River Project, Article 416 Fish Passage Annual Report


55. Form 80 of Tacoma Power for Nisqually, Alder Dam under P-1862-000.


57. Letter to Department of Public Utilities of Tacoma, WA requesting certification to the number of federal acres within each specific county no later than 2/5/09 under P-1862.

58. Tacoma Power under P-1862, Nisqually River Hydroelectric Project Article 416, 2008 Annual report, Maintenance of Fish Passage in the LaGrande Bypass Reach.

59. Letter order accepting City of Tacoma, WA's 4/14/08 filing of the annual wildlife management report for the Nisqually River Proj-1862.

60. Letter order accepting City of Tacoma, WA's 2007 annual report on maintenance of fish passage in the Nisqually River Project's LaGrande bypass reach, dated 12/7/07 regarding Nisqually River Hydro Project Article 416 under P-1862.


