

## ***Hydropower Project License Summary***

### ***HANCOCK CREEK, WASHINGTON***

HANCOCK CREEK HYDROELECTRIC PROJECT (P-13994)



Photo Credit: Snohomish PUD

*This summary was produced by the*  
**Hydropower Reform Coalition**

## **HANCOCK CREEK, WASHINGTON**

### HANCOCK CREEK HYDROELECTRIC PROJECT (P-13994)

#### ***DESCRIPTION:***

The Hancock Creek Hydroelectric Project is located on Hancock Creek, a tributary to the North Fork Snoqualmie River, near the city of North Bend, WA. A newly licensed project, the August 1, 2013 order allows for the construction, operation, and maintenance of the 6-megawatt run-of-the-river hydropower operation. The project is located on private timber land and flows for approximately 1.6 miles from Hancock Lake to its confluence with the North Fork Snoqualmie River.

The project involves the construction of a dam across Hancock Creek which will create a small reservoir, an intake, a penstock, a powerhouse, a tailrace, a transmission line, and several access roads. Construction of the project is expected to begin in fall 2016 with projected operation expected in winter 2017.

#### **A. SUMMARY**

1. License application filed: August 1, 2013
2. License Issued: June 19, 2015
3. License expiration: May 31, 2065
4. Capacity: 6 MW
5. Waterway: Hancock Creek
6. Counties: King County
7. Licensee: Public Utility District No. 1 of Snohomish County
8. Licensee Contact: Snohomish County PUD  
PO Box 1107  
2320 California Street  
Everett, WA 98201
9. Project Website:  
<http://www.snopud.com/PowerSupply/hydro/calliganhancock.ashx?p=1913>
10. Project area: The project is located on Hancock Creek roughly 30 miles east of Seattle, WA. The headwaters of Hancock Creek flow from the foothills of the Cascade Mountains on 89,500-acres of private forest land managed for timber production. Hancock Creek flows for a short distance of 1.6 miles from the outlet of Hancock Lake to its confluence with the North Fork Snoqualmie River.
11. Project Facilities: The Hancock Creek Project will involve the construction of the following: (1) A new dam across Hancock Creek, (2) a small reservoir, (3) an

intake, (4) a penstock, (5) a powerhouse, (6) a tailrace, (7) a transmission line, and (8) access roads.

a. Hydro-generation and stream flow facilities

- A 107-foot-long dam will impound a small reservoir with a surface area of 0.18 acres. The dam is operated as a run-of-the-river facility, and thus provides no active storage. Flows are directed to a sluiceway, where the water is then divided between a penstock, a sluiceway, a pool-and-weir fishway, and the minimum instream flow weir. Most of the flow will be directed into the penstock for power generation. However, 5 cfs will pass through the fishway and discharge into an entrance pool at the base of the diversion dam, and between 5 and 20 cfs will be directed from the sluiceway through an adjustable weir into the fishway entrance pool to maintain minimum flows in the bypassed reach and improve attraction flows for the fishway.
- Flows that enter the penstock intake will flow through a fish screen, then subsequently travel through a 1.5-mile-long penstock to the powerhouse.
- Flows then enter through one 6-MW Pelton turbine, and exit through an approximately 100-foot-long tailrace channel with a two-foot-high concrete drop structure to keep fish from entering the tailrace.

b. Recreation facilities

- Because the project little to no potential for recreation facilities, Snohomish PUD is exempt from building, modifying, or otherwise collecting any data regarding recreational facilities, as typically required by the FERC Form 80 Recreation Report.

## **B. IMPORTANT PROVISIONS AND REQUIREMENTS IN LICENSE**

The project is located upstream of Snoqualmie Falls, which represents an impassable natural barrier to anadromous fish found in the lower Snoqualmie River basin. Additionally, because the stream and project area offer little to no opportunity for recreation opportunities, the license is devoid of any requirements of that nature. As such, the requirements found within the license center primarily around these three topics:

- 1) The project's streamflow regime;
- 2) Resident trout protection; and
- 3) The project's construction and operation.

The most important license requirements, as they relate to the aforementioned topics, are set forth in Appendix A by the Washington Department of Ecology.

**License Requirements- Washington Dept. of Ecology- Appendix A**

<b>Specific Condition No.</b>	<b>Category</b>	<b>Appendix A Description</b>
<b>1</b>	Streamflow regime	Instream flow
<b>2</b>	Streamflow regime	Down ramping and flow continuation
<b>3</b>	Trout protection	Adaptive flow management
<b>4</b>	Streamflow regime	Instream flow monitoring and reporting
<b>5</b>	Trout protection	Tailrace fish exclusion
<b>6</b>	Trout protection	Fish Screen
<b>7</b>	Trout protection	Upstream fish passage
<b>8</b>	Streamflow regime	Sediment and Woody Debris Passage
<b>9</b>	Project construction and operation	Construction activities
<b>10</b>	Project construction and operation	Water quality monitoring, reporting, and adaptive management
<b>11</b>	Streamflow regime	Temporary and emergency modification to flows and ramping rates
<b>12</b>	Project construction and operation	Oil spill prevention and control
*Appendix A- Washington Department of Ecology Specific Conditions		

Additionally, the license requires Snohomish PUD to file the following plans for Commission approval:

- Operational Compliance Monitoring Plan (Article 405)
- Terrestrial Resource Management Plan (Article 407)

- Unanticipated Discovery Plan (Article 410)

Because the project is entirely located on privately owned timber land, there are no terms and conditions set forth by the U.S. Forest Service, as is typically found in many FERC licenses. A summary of the Washington Department of Ecology Specific Conditions deemed most important to the project are summarized below.

**1. *Instream Flows*** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 1)]

Instream flows shall be maintained in the bypassed reach and downstream of the project according to the table below:

**Release schedule at diversion weir**

<b>Day of Year</b>	<b>Minimum Instream Flow</b>	<b>Measurement Location</b>
June 16 - October 15	20 cfs or inflow, whichever is less	Immediately downstream of the Hancock Creek Intake
October 16 - June 15	5 cfs or inflow, whichever is less	Immediately downstream of the Hancock Creek Intake

Per the license, if the project operation deviates from the above minimum flow requirements, Snohomish PUD shall notify the Washington Department of Fish & Wildlife (WDFW), and the Washington Department of Ecology within 10 business days of the incident.

**2. *Down Ramping and Flow Continuation*** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 2)]

The down ramping rate will be consistent with the table below, and will be implemented for project startup and shutdown operations downstream of the diversion and powerhouse:

**Down ramping rate downstream of the diversion and powerhouse**

Day of Year	Daylight Rate* (inches/hour)	Nighttime Rate (inches/hour)
November 1 - June 15	2	2
June 16 - October 31	2 (when instream flow is greater than or equal to critical flow); 1 (when instream flow is less than critical flow - critical flow set at 40 cfs)	1
*Daylight is defined as 1 hour before sunrise to 1 hour after sunset.		

Snohomish PUD must design and install mechanical deflectors in front of the Pelton turbine to provide flow continuation past the turbine for emergency situations when the turbine or generator function is terminated. The flow continuation system shall be operated according to the following criteria:

- When flows exceed the annual 10% exceedance flow, no flow continuation will be required;
- When flows are less than the critical flow (the flow above which there is no risk of stranding) flow continuation will be maintained for a minimum of 24 hours; and
- At all other times, a minimum of six hours of flow continuation will be provided.

**3. Adaptive Flow Management** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 3)]

Per the license, Snohomish PUD must implement the Instream Flow Adaptive Management Plan (IFAMP) that was filed with the Commission on April 25, 2014. The IFAMP specifies how Snohomish PUD will manage instream flows based on the results of licensed-mandated trout monitoring. If the monitoring reveals a decline in the resident trout populations in Hancock Creek, the following flow schedule shall be triggered, superseding the requirements in Specific Condition 1.

**Instream flow adaptive schedule based on trout monitoring results**

<b>Years of Project Operation</b>	<b>1-5 Years</b>	<b>6-10 Years</b>	<b>11-15 Years</b>	<b>16+ Years</b>
<b>Month</b>	<b>Start Flows in cfs*</b>	<b>Flow Adjustment Schedule in cfs</b>		
		<b>1st</b>	<b>2nd</b>	<b>3rd</b>
October 1-15	20	20	20	20
October 16-31	5	6	7	8
November	5	6	7	8
December	5	6	7	8
January	5	6	7	8
February	5	6	7	8
March	5	6	7	8
April	5	6	7	8
May	5	6	7	8
June 1-15	5	6	7	8
June 16-30	20	20	20	20
July	20	20	20	20
August	20	20	20	20
September	20	20	20	20

\* Stated flow level or natural flows, whichever are less.

\*\* Flow increases to be adjusted only if approved monitoring plan determines a decrease in the resident trout population index occurred. The first adjustment could occur as early as Year 3 if there are two sequential catastrophic declines in the population index.

If the results of the trout monitoring plan indicate that an increase in flows is warranted, then Snohomish PUD shall increase flows in the bypassed reach according to the table above no later than February 28 of the following year.

Snohomish PUD must conduct surveys of trout abundance annually until the FERC determines that the prescribed flow regime adequately protects the resident trout population. Pre-Project baseline snorkel surveys of eight selected pools in the project reach were conducted during August and September 1992, 2001, 2010, 2011, 2012, 2013, and 2014. Snohomish PUD shall repeat these surveys between August and September each year until the project is constructed and continue these surveys for at least five years following power generation. Construction is expected to begin in fall 2016 with projected operation expected in winter 2017.

Snohomish PUD must follow the guidelines below as they relate to trout monitoring:

**Trout monitoring guidelines**

<b>Activities</b>	<b>Frequency</b>	<b>Timing</b>
Conduct Pre-Operation Surveys	Annually, until commencement of operation	August 15-September 15, as conditions allow
Provide Pre-Operation Survey Report (Annual Report) to WDFW for Review	Annually, after conducting pre-operation survey	October 31
Conduct Post-Operation Surveys	Annually for 5 years after commencement of operation	August 15-September 15, as conditions allow
Provide Post-Operation Survey Report (Annual Report) to WDFW for Review	Annually for years 1-4 after commencement of operation	October 31
Provide Final Post-Operation Survey Report to WDFW for Review	5 year after commencement of operation	December 31
File Final Post-Operation Survey Report with FERC	Once	60 days (by March 1st) after providing Final Post-Operation Survey Report



		to WDFW for review
--	--	--------------------

**4. Tailrace Fish Exclusion** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 5)]

Snohomish PUD must build a tailrace exclusion barrier to prevent upstream migration of fish into the tailrace. The design of the barrier must be approved by WDFW.

**5. Fish Screen** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 6)]

Snohomish PUD must install self-cleaning fish screens in the intake chamber upstream of the penstock inlet.

**6. Upstream Fish Passage** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 7)]

Snohomish PUD shall install a passage for resident fish at the project intake facilities consistent with that provided under existing channel conditions. Passage will be provided using flows no greater than the release of previously licensed minimum instream flow rate of 5 cfs at the Hancock intake.

**7. Construction Activities** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 9)]

The license requires Snohomish PUD to develop and implement a Water Quality Protection Plan (WQPP) for all project-related construction, maintenance, and repair work that is in- or near-water that has the potential to impact surface and/or groundwater quality. The WQPP must include the following:

- **Stormwater Pollution Prevention Plan for Upland Construction Work.** Among other requirements, the plan must specify the best management practices to prevent pollutants from entering the state's surface and groundwater from upland construction activities.

- **In-Water-Work Protection Plan for In-Water Construction work.**  
This plan must specifically address the best management practices and other control measures to prevent contaminants from entering surface water and groundwater during work within the project's surface waters. The plan must address water quality monitoring provisions for all in-water work, including monitoring outside the area that could be influenced by the work.
  - **Best Management Practices for Construction Work**  
The WQPP requires that the best management practices used for upland construction activities must be consistent with the *Stormwater Management Manual for Western Washington*.
8. ***Water Quality Monitoring, Reporting and Adaptive Management*** [Reference: Washington Department of Ecology (Appendix A, Specific Condition 10)]

While the license goes into more detail, Snohomish PUD generally shall, on a consistent basis, sample and monitor the streams water quality during and after the project's construction. Suspension or modification of water quality monitoring may be requested if, after a minimum of five years of data collection following the completion of the project construction, demonstrates that there are no violations of water quality standards.

### C. MAP

There are two convenient ways to become familiar with this project on the Hydropower Reform Coalition website, [www.hydroreform.org](http://www.hydroreform.org).

- Go directly to the project page <http://www.hydroreform.org/projects/hancock-creek-p-9025>
- To understand the geographical context of the project, visit the *On Your River* section of the site. This link (<http://www.hydroreform.org/on-your-river/Northwest>) will take you to the section for rivers in the Northwest. Zoom in until you can see the Seattle area. Mouse over five markers east of Seattle. P-13994 is the second from the left near the town of Snoqualmie.