

STATE OF OREGON
COUNTY OF KLAMATH
PRELIMINARY PERMIT
FOR A HYDROELECTRIC PROJECT

SWAN LAKE NORTH HYDRO, LLC
975 SOUTH STATE HIGHWAY
LOGAN, UTAH 84321

is issued this preliminary permit to develop a pumped storage hydroelectric project in the Swan Lake basin for a project with a total installed capacity of 1,380 Megawatts (2,359,350 Theoretical Horsepower).

This preliminary permit is issued under application HE 592. The date of priority is MAY 12, 2010. The upper reservoir will be constructed with an east dam approximately 150 feet high and a west dam approximately 80 feet high. It will have a surface area of 242 acres and 12,655 acre feet of storage. The lower reservoir will be constructed with a dam approximately 130 feet high. It will have a surface area of 197 acres and storage of 13,935 acres-feet. Up to 15,922 cubic feet per second (cfs) of water would be released from the upper reservoir when all four turbines are generating. The maximum operating head between the two reservoirs is 1304 feet.

The points of appropriation for initial fill of the reservoirs would be located at existing wells:
Well #1: 660 Feet North and 1690 Feet West from the SE Corner of Section 9, being within the SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 9, Township 37 South, Range 10 East, W.M.,

Well #2: 48 Feet North and 20 Feet East from the SW Corner of Section 8, being within the SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 8, Township 37 South, Range 10 East, W.M.,

Well #4: 2000 feet North and 800 Feet East from the SW Corner of Section 8, being within the NW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 8, Township 37 South, Range 10 East, W.M.,

Well #5: 100 Feet North and 1400 Feet East from the SW Corner of Section 14, being within the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 14, Township 37 South, Range 10 East, W.M.

Appeal Rights

This is a final order in other than contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

This statement of judicial review rights does not create a right to judicial review of this order, if judicial review is otherwise precluded by law.

Initial filling of the reservoir is proposed under a transfer or forbearance agreement of the rights under Water Rights Certificate No. 29530 (3446.4 acre-feet per year) and Water Rights Permit G-10952 (3360 acre-feet per year). Reservoir maintenance is proposed from Well #5 under a permanent transfer (1574 acre feet per year).

The location of the upper reservoir is proposed to be in Sections 13, 14, and 24:
The location of the lower reservoir is proposed to be in the South half of Section 15.
The location of the underground powerhouse is proposed in the SE ¼ SW ¼, Section 14, all being in Township 37 South, Range 10 East, W.M.

The upper reservoir will be located on Swan Lake Rim, approximately 1 mile west of Welsh Spring. The reservoir will have a maximum surface elevation of 5,500 feet above mean sea level (MSL). The lower reservoir site is located north of Swan Lake, between Grizzly Butte and Stiles Spring. The reservoir will have a maximum surface elevation of 4280 feet MSL.

Each of the three proposed dams will be more than 5,000 feet long. The dams will be constructed with an impervious clay core surrounded by zones of more pervious outer layers, referred to as shells. The dams will be designed and constructed in compliance with Uniform Building Code Seismic Zone 3 minimum requirements. The shell material is available locally from outcrops in the project area. Additional study will be required to identify a source for the core material (i.e. clay).

Water will be exchanged between the reservoirs via a concrete-lined 36.5-foot-diameter, 1,200-foot vertical shaft which will connect to a concrete-lined penstock. The penstock will extend for 4,160 feet at a slope of three percent. The penstock will bifurcate into four 640-foot-long, 12.25-foot-diameter steel penstocks, each of which will connect to a reversible pump-turbine. At the top of the shaft, in the upper reservoir, there will be an intake/discharge structure with a trash rack to exclude debris.

Four 150-foot-long, 17-foot-diameter steel tailrace tunnels will extend from the reversible pump-turbines and will combine into one 2,225-foot-long, 49-foot-diameter concrete-lined draft tube. The tailrace tunnel will discharge into the lower reservoir during generation mode and intake during pumping mode. At the end of the draft tube there will be an intake/discharge structure with a trash rack to exclude debris.

The proposed powerhouse will be located underground. It will be 125 feet wide and 555 feet long and contain four reversible pump-turbine units with a total installed capacity of 1,380 megawatts (MW). A 30-foot-diameter access tunnel would extend 1,000 feet to the powerhouse. The entrance to the access tunnel would be approximately 1,000 feet southeast of the lower dam. Other factors contributing to the selection of the powerhouse location include: (1) minimizing disturbance to the area, (2) the proximity to quality bedrock, and (3) the ability to place the tunnel to the powerhouse in bedrock.

Approximately 23 miles of 345 kilovolt transmission lines will be constructed to connect the project to the existing Bonneville Power Administration's Captain Jack Substation located southeast of the project site. The transmission corridor will be approximately 221 acres. One 6.5 acre surface switchyard/substation will be constructed near the power plant site.

RESOURCE STANDARDS

All proposed hydroelectric projects in Oregon must meet the resource protection standards contained in Oregon Administrative Rule (OAR) 690-051-0170 to -0290.

- **Protection of Designated Resource Areas and Special Management Areas (OAR 690-051-0170)**

The Project will be located on property owned by Jeld-Wen Inc., the U.S. Bureau of Land Management or Jespersen-Edgewood Inc. A final application must show that the project will not have effects on any designated resource areas listed in OAR 690-051-0030(1) or 690-051-0170(2).

- **Mitigation, No Net Loss (OAR 690-051-0180)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards on mitigation and no net loss.

- **Water Resources (OAR 690-051-190)**

In its preliminary permit application, Swan Lake North Hydro LLC proposes to initially fill the lower reservoir and to offset annual losses due to evaporation with groundwater from the wells identified above. Irrigation uses from these wells are expected to be halted while the reservoir is being filled. Filling of the reservoir will be conducted over a two to three year period to reduce impacts to the aquifer.

The Applicant shall prepare a study plan to conduct a groundwater interference test under the direction of a qualified hydrogeologist. The applicant will collect data of groundwater levels during pumping and recovery of the wells over a one-week to one-month test period. The test shall be conducted under controlled conditions to determine the possible impacts of pumping the proposed well(s) on other wells in the vicinity of the project. The plan for the proposed groundwater interference test should be discussed with, reviewed by, and approved by OWRD Groundwater Section staff before beginning. Generally, such a test should be conducted during the months of January or February before groundwater pumping for irrigation begins for the season. OWRD can offer assistance in selecting other wells in the vicinity to be monitored during the drawdown and recovery periods of the test. It should be noted that a water level response to the test in the wells monitored in a given compartment and/or sub-area does imply a

potential for interference, but a lack of response does not imply no interference will occur. Data and analyses shall be provided to OWRD for review.

It was recommended in a comment from the Pine Flat District Improvement Company that surplus water that is now pumped from the Pine Flat area to the Lost River basin be considered as an alternate source of water for this project. The Applicant may pursue further investigation of this option.

The water basin program that applies to the Klamath Basin is the Klamath River Basin Compact Oregon Revised Statute (ORS) 542.610 through 542.630. ORS 542.620 Article IV Hydroelectric Power states "It shall be the objective of each state, in the formulation and the execution and the granting of authority for the formulation and the execution of plans for the distribution and use of water of the Klamath River Basin, to provide for the most efficient use of available power head and its economic integration with the distribution of water for other beneficial uses in order to secure the most economical distribution and use of water and lowest power rates which may be reasonable for irrigation and drainage pumping, including pumping from wells."

Construction and operation of the proposed project shall comply with water quality standards established in OAR Chapter 340, Division 41. The applicant must comply with all water quality standards adopted by the Environmental Quality Commission pursuant to state and federal law, ORS 468B.048 and Section 303 of the Clean Water Act.

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards for water resources.

▪ **Fish Resources (OAR 690-051-0200)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards on fish resources.

This project will consist of two man-made reservoirs working as a closed-loop system. The project is entirely off stream; therefore no fish will be directly impacted by the project. Every reasonable precaution should be taken to ensure that fish and aquatic species are not introduced in either reservoir.

▪ **Wildlife (OAR 690-051-0210)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards on wildlife resources.

The location, design, construction or operation of the proposed project shall not jeopardize the continued existence of animal species which have been designated, or officially proposed as threatened or endangered.

The location design, construction, or operation of the proposed project will minimize adverse impacts on wildlife habitat, nesting and wintering grounds, and wildlife migratory routes. Unavoidable adverse impacts on wildlife or wildlife habitat will be mitigated in the project vicinity.

The proposed project must be consistent with ODFW management programs.

▪ **Plant Life (OAR 690-051-0220)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards on plant resources.

The location, design, construction or operation of the proposed project shall not jeopardize the continued existence of plant species which have been designated, or officially proposed as threatened or endangered.

▪ **Recreation (OAR 690-051-0230)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards on recreation resources.

Project facilities will be designed, located and operated to substantially avoid visible or audible intrusion on the natural setting. The proposed project will not reduce the abundance or variety of recreational facilities or opportunities available in the vicinity.

▪ **Historic, Cultural, and Archaeological Resources (OAR 690-051-240)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards on historic, cultural, and archaeological resources.

The project will not result in significant adverse impacts on any historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places.

The project will comply with state laws to protect Indian graves (ORS 97.740-97.760), historical materials (ORS 273.705-273.711, and archaeological objects and sites (ORS 358.905-358.955).

▪ **Land Resources (OAR 690-051-0250)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards on land resources.

Adverse impacts on prime forest lands, high value or important farmlands or agricultural lands, or wetlands shall be avoided, minimized or offset by acceptable mitigation.

The location, design, construction or operation of the project will not disturb fragile or unstable soils, or cause soil erosion.

Project facilities shall be designed with appropriate safety standards with regards to geological hazards and naturally occurring conditions or hazards, such as flooding or ice formation.

Land Use (OAR 690-051-260)

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards of Acknowledged Comprehensive Plans from the local county government.

▪ **Economics (OAR 690-051-270)**

The applicant must show in a final hydroelectric application that the applicant, along with all co-owners, possesses or has reasonable assurance of obtaining the funds necessary to cover estimated construction, maintenance, operating, mitigation and compensation costs.

▪ **Need for Power (OAR 690-051-280)**

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards of Need for Power.

▪ **Consolidated Review (OAR 690-051-290)**

The Klamath Irrigation District has an approved preliminary permit for a project at the C-Drop on its existing canal in the Lost River subbasin. This Project in the Swan Lake basin will not cause any additional impacts with the KID project in the Lost River subbasin. There are no other proposed projects in the Klamath basin at this time.

The applicant must show in a final hydroelectric application that the proposed use will be consistent with the standards of avoiding individual and cumulative impacts to natural resources when considered with other existing, approved, or proposed hydroelectric projects in the same river basin.

PRELIMINARY PERMIT CONDITIONS

This Preliminary Permit does NOT convey the right to construct any project facilities for hydroelectric purposes. A preliminary permit will allow the applicant to gather streamflow and groundwater data; pursue the necessary use permits; assess environmental impacts of the proposed action, develop mitigation measures, complete detail design plans and associated cost estimates, and file draft and/or final water right applications. Issuance of a preliminary permit does not assure approval of any subsequent license application for hydroelectric use.

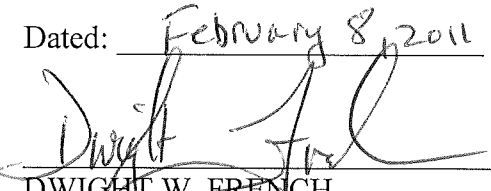
A final application must show that the resource protection standards contained in ORS 543.017(1) and OAR 690-051-0170 to -0270, and -0290 will be met by the project.

The Applicant shall prepare a study plan to conduct a groundwater interference test under the direction of a qualified hydrogeologist. The applicant will collect data of groundwater levels during pumping and recovery of the wells over a one-week to one-month test period. The test shall be conducted under controlled conditions to determine the possible impacts of pumping the proposed well(s) on other wells in the vicinity of the project. The plan for the proposed groundwater interference test should be discussed with, reviewed by, and approved by OWRD Groundwater Section staff before beginning. Generally, such a test should be conducted during the months of January or February before groundwater pumping for irrigation begins for the season. OWRD can offer assistance in selecting other wells in the vicinity to be monitored during the drawdown and recovery periods of the test. It should be noted that a water level response to the test in the wells monitored in a given compartment and/or sub-area does imply a potential for interference, but a lack of response does not imply no interference will occur. Data and analyses shall be provided to OWRD for review.

If the Applicant fails to file an application for hydroelectric water right within two years, the permit may be subject to termination by the OWRD.

Issuance of the permit does not absolve the Applicant from compliance with the requirements and enforcement of the requirements under other applicable local, state, and federal laws.

Dated: February 8, 2011


DWIGHT W. FRENCH,
Administrator of Water Rights & Adjudications for
PHILLIP C. WARD, DIRECTOR
Water Resources Department