

Hydropower Project Summary

YADKIN RIVER, NC

W. KERR SCOTT HYDROELECTRIC PROJECT (P-12642)



Photo Courtesy of Army Corp of Engineers

This summary was produced by the

Hydropower Reform Coalition

and

River Management Society

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DESCRIPTION:

Wilkesboro Hydroelectric Company, LLC proposes to construct, operate, and maintain a new 4-megawatt (MW) facility using the existing W. Kerr Scott Dam and Reservoir, which are owned and operated by the Army Corps of Engineers (Corps). The W. Kerr Scott Dam and Reservoir were constructed by the Corps and became operational in 1963 to provide flood control, water supply, recreation, and low flow releases. The 1,475-acre reservoir offers boating, canoeing, kayaking and swimming opportunities. Anglers catch channel catfish, large and smallmouth bass, bluegill, threadfin shad, spotted bass, hybrid striped bass and tiger muskellunge.

Wilkesboro Hydro proposes to operate the project in a run-of-release mode using flows released from the W. Kerr Scott Reservoir by the Corps. Run-of-river projects simply imply that the outflow will be the same as the inflow. They often involve a physical structure, such as a dam, weir or a diversion which for this case is the W. Kerr Scott Dam. The project will be designed to operate with reservoir levels ranging from 1,000.0 feet msl (mean sea level) to 1,030.0 feet msl, and the powerhouse units will release the Corps-directed minimum flows between 125 cfs (cubic feet per second) and 800 cfs.

A. SUMMARY

1. License application filed: September 29, 2009
2. License Issued: July 17, 2012
3. License expiration: July 31, 2062
4. Waterway: Yadkin River, NC
5. Capacity: 4.0 MW
6. Licensee: Wilkesboro Hydroelectric Company, LLC
7. Licensee address: Wilkesboro Hydroelectric Company, LLC Name
PO Box 143
Mayodan, NC 27027
8. County: Wilkes County, North Carolina
9. Project area: The W. Kerr Scott Project boundary encompasses about 3.5 acres of federal lands administered by the Corps. The Corps owns and operates the dam and reservoir; thus, these features are not included in the project boundary. The hydropower project boundary encloses the modified multilevel intake structure, the existing water outlet conduit, the new penstock bifurcations and penstocks, the new powerhouse, the new tailrace, the new substation, the new primary transmission line, and the new interpretive kiosk.

10. Project Facilities:

- a. A new multilevel intake structure, with trashracks having a maximum clear spacing of 2.5 inches;
- b. An existing 749-foot-long reinforced concrete water outlet conduit;
- c. A new 580-foot-long, 11-foot-diameter steel penstock installed within the water outlet conduit;
- d. A new penstock bifurcation and two new 11-foot-diameter steel penstocks;
 - 1) One leading to a new gate at the end of the water outlet conduit, with a Howell-Bunger-ring-jet-type fixed cone valve installed in the gate;
 - 2) The other leading to the powerhouse will bifurcate into two new 8-foot-diameter penstocks leading to the turbine units;
- e. A new 80-foot-long by 30-foot-wide powerhouse to be constructed adjacent to the existing discharge channel containing one 2-MW Kaplan unit and one 2-MW propeller type unit;
- f. A 30-foot-long, 80-foot-wide tailrace;
- g. A substation next to the powerhouse; and
- h. An underground 12.47-kilovolt primary transmission line extending 150 feet from the substation to an existing utility pole south of the powerhouse.

B. IMPORTANT PROVISIONS AND REQUIREMENTS IN LICENSE

The license requires measures to protect aquatic habitat and water quality in the Yadkin River, protect terrestrial and aquatic resources, minimize the effects of project facilities on aesthetic resources, and protect and enhance recreation during and after construction of the new hydropower facilities. These measures are covered in the following plans:

- Dissolved Oxygen Management Plan;
- Minimum Flow Plan for Construction;
- Intake Trashrack and Trashrack Cleaning and Monitoring Plan;
- Revegetation Plan;
- Invasive Species Control Plan;
- Aesthetics Protection Plan; and
- Interpretive Kiosk Plan.

The license requires construction to commence within two years (July 31, 2014) of license issuance with completion within five years (July 31, 2017) of license issuance.

1. Dissolved Oxygen Management Plan [Reference: License Article 403 (page 34 of the license)]

The purpose of this plan is to ensure that streamflows, as measured immediately downstream of the project's tailrace, maintain an instantaneous DO concentration of no less than 4 milligrams per liter (mg/L) and a daily average of 5 mg/L.

2. Minimum Flow Plan for Construction Activities[Reference: License Article 404 (page 35 of the license)]

The purpose of the plan is to minimize the effects of construction-related flow interruptions on downstream aquatic resources in the Yadkin River. The plan is required to include:

- a. A provision to release Corps-directed minimum flows during construction and minimize flow interruptions;
- b. A provision to install the new penstocks within the water outlet conduit, in late September or October, to coincide with historically cooler water temperatures and low flows; and
- c. A construction schedule identifying any periods where construction activities will require temporary reductions or interruptions of flow releases.

3. Intake Trashrack Plan and Trashrack Cleaning and Monitoring Plan

[Reference: License Article 405 and Article 406 (pages 35 and 36, respectively, of the license)]

The Intake Trashrack Plan is required to reduce entrainment of resident fish. The purpose of the Cleaning and Monitoring Plan is to ensure effective maintenance and cleaning of the trashracks during construction and operation of the facility.

4. Revegetation Plan [Reference: Article 408 (page 37 of the license)]

The license requires that vegetation is re-established in areas that are excavated or disturbed during construction. The plan is required to include:

- a. A provision to maintain riparian vegetation within the project boundary;
- b. A provision to re-establish riparian vegetation disturbed during and after construction;
- c. A provision to re-seed, using native species, non-riparian areas that shall be disturbed during construction;
- d. A list of species to be seeded, the seeding densities for each species; a map showing, and a written description of, vegetation disturbed during construction;
- e. A schedule for seeding; and
- f. A protocol to determine the success of any re-vegetation effort.

5. Invasive Species Control Plan [Reference: Article 409 (page 38 of the license)]

The purpose of the plan is to prevent colonization of Japanese privet and kudzu and is required to include:

- a. A protocol that will be used to survey for these invasive species during and after project construction;
- b. A description of methods to remove Japanese privet or kudzu in the event of colonization;
- c. A provision to wash the construction vehicles to prevent the transport of these invasive species; and
- d. A provision to use weed-free straw for erosion control.

6. Aesthetics Protection Plan [Reference: Article 410 (page 38 of the license)]

The purpose of the plan is to minimize the effects of the project on the aesthetic character of the project site. The plan is required to include:

- a. Identification of colors and materials for the project's facilities compatible with the surroundings;
- b. Identification of the native vegetation to be used to screen the powerhouse; and
- c. A provision to monitor and maintain the vegetation throughout the license term.

This plan is required to coordinate with the Revegetation Plan so that provisions for re-vegetation are consistent.

7. Interpretive Kiosk Plan [Reference: Article 411 (page 39 of the license)]

The plan is required to include:

- a. A drawing or drawings that clearly identifies the specifications for an interpretive kiosk and the location of the interpretive kiosk in relation to the project boundary;
- b. A description of the information to be included on the kiosk;
- c. A discussion of how the needs of the disabled were considered in the planning and design of the kiosk; and
- d. A schedule for installing and maintaining the kiosk.

C. MAP

There are two convenient ways to become familiar with this project on the Hydropower Reform Coalition website, www.hydroreform.org.

- Go directly to the project page <http://www.hydroreform.org/node/6412>
- 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/South>) will take you to the section for rivers in the South. Search by state (select NC). The marker for P-12642 is between Boone and Winston-Salem.