

WATER QUALITY STUDY PLAN

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

**Dominion Energy South Carolina, Inc.
Cayce, South Carolina**

Prepared by:

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February 2021

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DOMINION ENERGY SOUTH CAROLINA, INC.

1.0 INTRODUCTION

Dominion Energy South Carolina, Inc. (DESC) is the licensee of the Stevens Creek Hydroelectric Project (FERC No. 2535) (Project). The Project, which has an installed capacity of 17.28 megawatts (MW), is located in Edgefield and McCormick counties, South Carolina and Columbia County, Georgia, at the confluence of Stevens Creek and the Savannah River. The Project's dam is located approximately one mile upstream of the Augusta Diversion Dam, and approximately 13 miles downstream of the U.S. Army Corps of Engineers (USACE) J. Strom Thurmond Dam (Thurmond Dam). The Stevens Creek Reservoir is approximately 25 miles long, extending upstream to the Thurmond Dam and 12 miles up Stevens Creek. The surface area of the reservoir is 2,400 acres at the normal full pond EL 187.5 feet. The Project drainage area is approximately 7,173 square miles.

DESC operates the Project to generate clean, renewable energy and re-regulate highly variable river flows discharged by the USACE from the Thurmond Dam. DESC's operational protocols include releasing all Thurmond Dam discharges on a weekly basis and operating to achieve full pool in the Stevens Creek reservoir by Friday evening to provide a continuous weekend downstream discharge.

On November 22, 1995, FERC issued a 30-year license which is scheduled to expire on October 31, 2025. DESC intends to file an application for a new license with FERC on or before October 31, 2023. The Project is currently involved in a relicensing process which involves cooperation and collaboration between DESC, as licensee, and a variety of stakeholders including state and federal resource agencies, state and local government, non-governmental organizations (NGO), and interested individuals. DESC established a Water Quality, Fish and Wildlife Resource Conservation Group (RCG), with interested stakeholders to address Project issues related to aquatic and terrestrial resources. The RCG determined there was a need for supplemental water

quality data at the Project, particularly dissolved oxygen (DO) and temperature. The Georgia Department of Natural Resources (GDNR) expressed a desire for more information on water quality in upstream areas of Stevens Creek to determine its suitability for fish habitat. The South Carolina Department of Natural Resources (SCDNR) expressed a desire for the periodic monitoring of water quality, specifically DO, in the Savannah River arm of the Stevens Creek reservoir, in an area typically higher in aquatic vegetation. The National Marine Fisheries Service (NMFS) expressed that the collection of continuous downstream water quality data over a period of time would aid in supporting the baseline water quality data currently available, as summarized in the Pre-Application Document prepared for the Project relicensing. This study plan addresses these requests.

2.0 STUDY OBJECTIVE

The objective of this study is to assess the water quality of the Savannah River, immediately downstream of the Stevens Creek Hydroelectric Project and in the Stevens Creek arm and Savannah River arm of Stevens Creek Reservoir.

3.0 GEOGRAPHIC AND TEMPORAL SCOPE

Water quality will be monitored at six sites in and around the Stevens Creek Reservoir, including five sites in the Savannah River and one site in Stevens Creek. Monitoring Site 1 will be used as a control, and will be located in Stevens Creek Reservoir, upstream of the hydro station.

Monitoring Site 2 will be located directly downstream of the Stevens Creek Dam. Monitoring Sites 3 and 4 will be located downstream and upstream of the east end of Stevens Creek Dam, respectively. Monitoring Site 5 will be located in Stevens Creek near Woodlawn Road, approximately 4.5 miles upstream of its confluence with the Savannah River at Stevens Creek Dam. Monitoring site 6 will be located in the Savannah River arm of Stevens Creek Reservoir, just upstream of the confluence with Stevens Creek. The monitoring sites are shown in Figure 1.

The study will begin January 1, 2021 and extend through December 31, 2021.

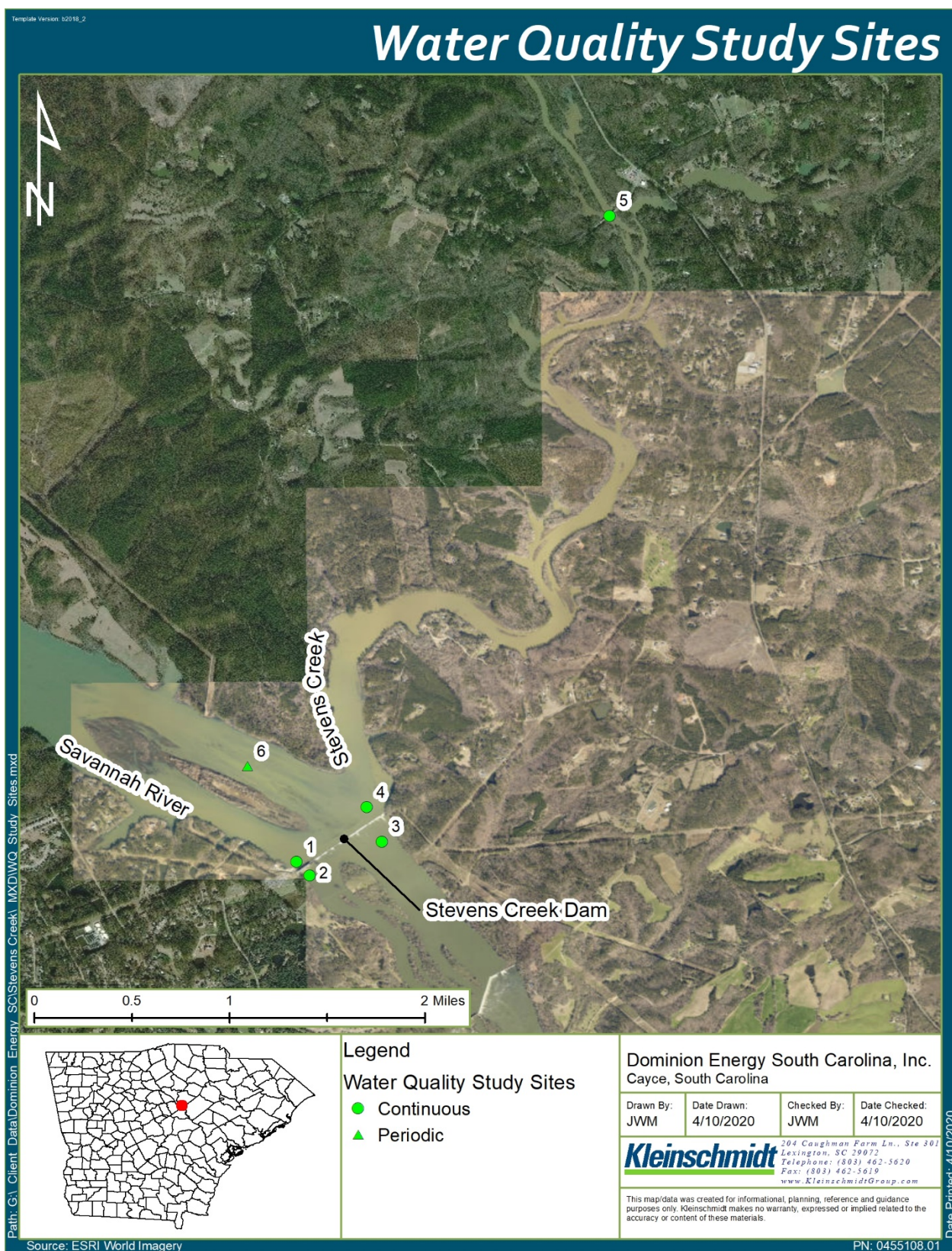


FIGURE 1 STEVENS CREEK HYDROELECTRIC PROJECT WATER QUALITY STUDY SITES

4.0 DATA COLLECTION METHODS AND ANALYSIS

4.1 CONTINUOUS MONITORING

Water quality will be monitored at Monitoring Sites 1-5 shown in Figure 1 for temperature, dissolved oxygen, pH, conductivity, and turbidity using continuous water quality monitoring instruments. The instruments will be deployed at approximately mid-depth in the stream channel. The instruments will be calibrated according to the manufacturer's specifications and will be set to record measurements at hourly intervals.

The instruments will be cleaned, checked for accuracy, and downloaded on a monthly basis, at minimum, though more frequent checks will be conducted after initial deployment to determine the extent of fouling from aquatic vegetation. A separate, calibrated meter will be used to record DO, water temperature, pH, conductivity, and turbidity readings during each maintenance visit to the sites. These data will be compared to deployed instrument data as a check on accuracy and for use in post-processing and correction of any fouling or calibration drift.

All continuous data will be compiled at the end of the monitoring season. The data will be analyzed by computing daily and monthly minimum, maximum, and average values for DO and water temperature and comparing them to applicable water quality criteria.

4.2 PERIODIC MONITORING

Water quality will be monitored periodically at Monitoring Site 6 shown in Figure 1 for temperature, dissolved oxygen, and pH during summer months for 24-48 hour periods using continuous water quality monitoring instruments. Specifically, data will be collected for one period in mid-June; two periods each in July, August and September; and one period in mid-October. The instruments will be deployed at approximately mid-depth in the stream channel. The instruments will be calibrated according to the manufacturer's specifications and will be set to record measurements at 15-minute intervals.

A separate, calibrated meter will be used to record DO and water temperature readings during each deployment and retrieval visit to Monitoring Site 6. These data will be compared to continuous instrument data collected at Monitoring Site 6 as a check on accuracy and for use in post-processing and correction of any fouling or calibration drift.

All periodic data collected at Monitoring Site 6 will be compiled at the end of the monitoring season. The data will be analyzed by computing daily minimum, maximum, and average values for DO, water temperature, and pH and comparing them to applicable water quality criteria.

4.3 NUTRIENT SAMPLING

Water samples will be collected monthly at Sites 1 through 5, and at Site 6 during periodic sampling, and submitted to a certified laboratory for analysis of ammonia, nitrate-nitrite, total Kjeldahl nitrogen, orthophosphate, and total phosphorus. A set of duplicate samples and one field blank sample will also be included for quality assurance.

4.4 EXISTING MONITORING DATA

Data collected by the USGS in 2020 and 2021 as required by Article 405 of the existing license will be summarized and included in the final report.

5.0 SCHEDULE

The continuous water quality monitoring instruments will be deployed at Monitoring Sites 1-5 on, or around, January 1, 2021 and will collect data for approximately twelve months. The instruments will be checked monthly, at a minimum, during the study period. Periodic sampling at Monitoring Site 6 will occur once in mid-June, twice monthly in July, August and September, and once in mid-October. Nutrient samples will be collected monthly during 2021 and timed to coincide with maintenance visits to the continuous monitors. Study methodology, timing and duration may be adjusted based on consultation with resource agencies and interested stakeholders.

A final report summarizing study findings will be issued within four months of the end of field work. The report will include tabular and graphical summaries of the DO and water temperature data, as well as summaries of pertinent hydrologic and meteorological data, and data collected by the USGS as part of the existing Project license requirement.

6.0 USE OF STUDY RESULTS

Study results will be used to inform discussion of various resource issues during the relicensing process.