

**MEETING NOTES**  
**Stevens Creek Hydroelectric Project (FERC No. 2353)**

**Dominion Energy South Carolina, Inc.**  
**Water Quality, Fish and Wildlife RCG Meeting**

**November 13, 2019**

Final KMK 1-8-2020

---

**ATTENDEES:**

Amy Bresnahan (DESC)	Elizabeth Miller (SCDNR)
Ray Ammarell (DESC)	Chris Thomason (SCDNR)
Randy Mahan (DESC)	Jason Bettinger (SCDNR)
Caleb Gaston (DESC)	Melanie Olds (USFWS)
Alison Jakupca (Kleinschmidt)	Twyla Cheatwood (NMFS)
Kelly Kirven (Kleinschmidt)	Keith Whalen (US Forest Service)
Henry Mealing (Kleinschmidt)	Derrick Miller (US Forest Service)
Jason Moak (Kleinschmidt)	Jamie Sykes (USACE)
Jordan Johnson (Kleinschmidt)	Cameron Henderson (SCDHEC) via conf. call
Paula Marcinek (GDNR)	Rachel Freeman (SRK)
Ed Betross (GDNR)	Tony Hicks (individual)
Jeffrey Williams (GDNR)	
Jeff Darley (GDNR)	

---

*These notes are a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

The purpose of the meeting was to review the draft Water Quality Monitoring Study Plan, review shoreline/substrates and potential habitat in the Project reservoir, discuss potential Environmentally Sensitive Areas in the reservoir, and discuss any additional study needs. The draft Water Quality Monitoring Study Plan was distributed to stakeholders prior to the meeting and is attached to the end of these notes.

**Draft Water Quality Monitoring Study Plan Discussion**

Jason M. provided a brief overview of the draft study plan. The objective is to assess dissolved oxygen levels in Stevens Creek and the Project tailrace portion of the Savannah River. Monitoring locations will be at Stevens Creek at Woodlawn Drive (aka Sportsman's Corner), Stevens Creek Dam Forebay and Stevens Creek Tailrace. Monitoring parameters include continuous (15-minute interval) monitoring of temperature and dissolved oxygen from April 1 to November 30, 2021. Amy noted that the USGS gage in Stevens Creek is USGS 021963601 Stevens Creek near Murphy Village. The USGS gage near the Stevens Creek Dam is USGS 02196483 Savannah River at Stevens Creek Dam near Morgana, SC.

Henry said that since there is a lot of vegetation near the intakes, Kleinschmidt will put out dummy monitors prior to the start of monitoring to determine if this will cause issues.

Henry asked if the 401 Water Quality Certification will be issued by the Georgia DNR's Environmental Protection Division (EPD) and the Georgia DNR-EPD representatives affirmed this. He asked if this study will provide sufficient data to characterize water quality. Jeff D. suggested adding two more monitoring sites at the dam on the opposite side of the river from the powerhouse. Paula requested monitoring additional parameters, including nutrients, conductivity, pH, and turbidity. Alison said that there is some existing data for these parameters and DO and temperature were the only two parameters that were previously requested by stakeholders. However, monthly grab samples for nutrients can be collected and the continuous monitors that are installed can include pH, conductivity, and turbidity. Jason M. said that these continuous monitors typically don't collect pH readings for longer than a week or two before accuracy suffers. However, one or two good weeks each month could provide enough data to describe pH ranges in the project areas.

Paula suggested extending the study season to encompass at least an entire year. Elizabeth and Melanie agreed and Melanie suggested starting in February instead of April to catch the entire spawning season. Elizabeth suggested that data be collected for a second season in the event of high flows.

Alison said that currently, DESC has a license requirement to submit an annual water quality report to FERC, which was based on DO issues at Thurmond Dam/Reservoir upstream. These DO issues have been mostly resolved due to upgrades at Thurmond. An expanded water quality study at Stevens Creek could help in the removal of this annual reporting requirement in the next license. Alison said that Kleinschmidt will do some reconnaissance work on additional monitoring sites and monitor specifications and provide a short memo to the RCG. The study plan will be revised and sent back to the RCG for additional review.

### **Shoreline/Substrate and Potential Habitat/Environmentally Sensitive Areas Discussion**

Alison said during the August meeting there was discussion on the substrates and shorelines in the Project area. While the reservoir was lowered to complete work on the flashboards, Jason M. and Jordan visited the Project and documented the shoreline through pictures. Jason M. noted that a drone may be used in the future. Pictures shown during the meeting will be converted to PDF and distributed to stakeholders.

Alison said that the group should discuss what constitutes environmentally sensitive areas at the Stevens Creek Project, as well as the potential outcome of defining and identifying environmentally sensitive areas. At other projects, these areas are identified so that they can be exempted from the installation of boat docks, recreation sites, and other construction activities. At Stevens Creek, boat docks are permitted by the USACE. Ray added that DESC doesn't own much land in fee at the Project, so besides providing some public education, there isn't much DESC could do to protect the environmentally sensitive areas once they are identified.

Jason B. said that shoreline habitat should be preserved as much as possible. Since a majority of the land on the South Carolina side of the Project is owned by the Forest Service, stakeholders should focus on the Georgia side of the Project. Derrick said that the Forest Service is concerned about losing national forest lands from erosion caused by reservoir fluctuations. Amy said that currently, DESC monitors the shoreline annually for erosion and includes this information in the annual cultural report to FERC.

Rachel noted that there is a population of rocky shoals spider lilies downstream of the Project below the Augusta Diversion Dam.

Elizabeth asked for a map that shows ownership of the Project shoreline. She said that SCDNR is interested in protecting buffer zones around the shoreline.

Alison asked that Jason B. talk with Ron Ahle, who indicated concern over environmentally sensitive area protection at a previous meeting, to get his perspective on what would be classified as an environmentally sensitive area at the Stevens Creek Project.

The group discussed potential outcomes after these areas are defined and identified. Options include development of a public education pamphlet and a formal, expanded erosion monitoring plan.

### **Additional Study Request Discussion**

Melanie said that the USFWS is requesting a mussel study, particularly along the Stevens Creek arm of the Project reservoir. Alison said that Kleinschmidt and DESC will pull together a draft study plan and send to the RCG for review and revisions. Melanie will send information on areas of interest to the USFWS. Derrick added that information on the Carolina heelsplitter is of interest to the Forest Service.

Twyla asked if there is any bathymetry data for the tailrace of Stevens Creek Dam and any flow data for this area. Amy said that the USGS has attempted to install a gage in this area before, but they had issues establishing flow curves. Ray said that they only have an estimate for flows at this time. Twyla said that flow and bathymetry data will be important in the future for determining where to best install fish passage. Ray said that DESC will pull together some information on flows for the upcoming Operations RCG meeting. In addition, the USACE is developing a flow model from Thurmond dam to the New Savannah Bluff Lock and Dam. The USACE may be able to provide an update on the model at the Operations RCG meeting.

Kleinschmidt and DESC will start a white paper to characterize Stevens Creek aquatic habitat. The white paper will include information on water quality, substrates in various areas, presence of gravel bars, presence of old mill dams, stream flows, and fish restoration efforts for species such as American eel, American shad, blueback herring, striped bass and robust redhorse.

Kleinschmidt and DESC will also start a white paper on rare, threatened and endangered species in the Project area. The white paper will include all federal at-risk species and specific information on relict trillium.

Action items from the meeting are listed below.

---

#### ***ACTION ITEMS:***

- Kleinschmidt will incorporate edits to the draft Water Quality Study Plan and send back to RCG for review and comment. Kleinschmidt will also develop a brief memo with reconnaissance information on additional proposed study sites and parameters.

- Kleinschmidt will send pictures of reservoir shoreline to RCG.
- Kleinschmidt will develop a mussel study plan strawman and distribute to the RCG for review and comment.
- USFWS will send information on priority areas for mussel surveys in Stevens Creek.
- Kleinschmidt will develop an RTE white paper and distribute to the RCG for review and comment.
- Kleinschmidt will develop a draft aquatic habitat white paper and distribute to the RCG for review, discussion, and comment.
- Jason B. will discuss potential environmentally sensitive areas definition with Ron Ahle and provide feedback to the RCG.

# WATER QUALITY STUDY PLAN

**STEVENS CREEK HYDROELECTRIC PROJECT  
(FERC No. 2535)**

*Prepared for:*

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

*Prepared by:*

**Kleinschmidt**

Lexington, South Carolina  
[www.KleinschmidtUSA.com](http://www.KleinschmidtUSA.com)

October 2019

WATER QUALITY STUDY PLAN

STEVENS CREEK HYDROELECTRIC PROJECT  
(FERC No. 2535)

*Prepared for:*

Dominion Energy South Carolina, Inc.  
Cayce, South Carolina

*Prepared by:*

**Kleinschmidt**

Lexington, South Carolina  
[www.KleinschmidtUSA.com](http://www.KleinschmidtUSA.com)

October 2019

**WATER QUALITY STUDY PLAN**  
**STEVENS CREEK HYDROELECTRIC PROJECT**  
**(FERC No. 2535)**  
**DOMINION ENERGY SOUTH CAROLINA, INC.**

**TABLE OF CONTENTS**

1.0	INTRODUCTION .....	2
2.0	STUDY OBJECTIVE.....	3
3.0	GEOGRAPHIC AND TEMPORAL SCOPE .....	3
4.0	DATA COLLECTION METHODS AND ANALYSIS.....	5
5.0	SCHEDULE.....	5
6.0	USE OF STUDY RESULTS .....	5

**LIST OF FIGURES**

FIGURE 1	STEVENS CREEK HYDROELECTRIC PROJECT DOWNSTREAM WATER QUALITY MONITORING SITES.....	<b>ERROR! BOOKMARK NOT DEFINED.</b>
----------	--	-------------------------------------

**WATER QUALITY STUDY PLAN**  
**STEVENS CREEK HYDROELECTRIC PROJECT**  
**(FERC No. 2535)**  
**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 ~~RM~~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 expressed a desire for more information on water quality in upstream areas of Stevens Creek to determine its suitability for fish habitat. The National Marine Fisheries Service 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.

## **2.0 STUDY OBJECTIVE**

---

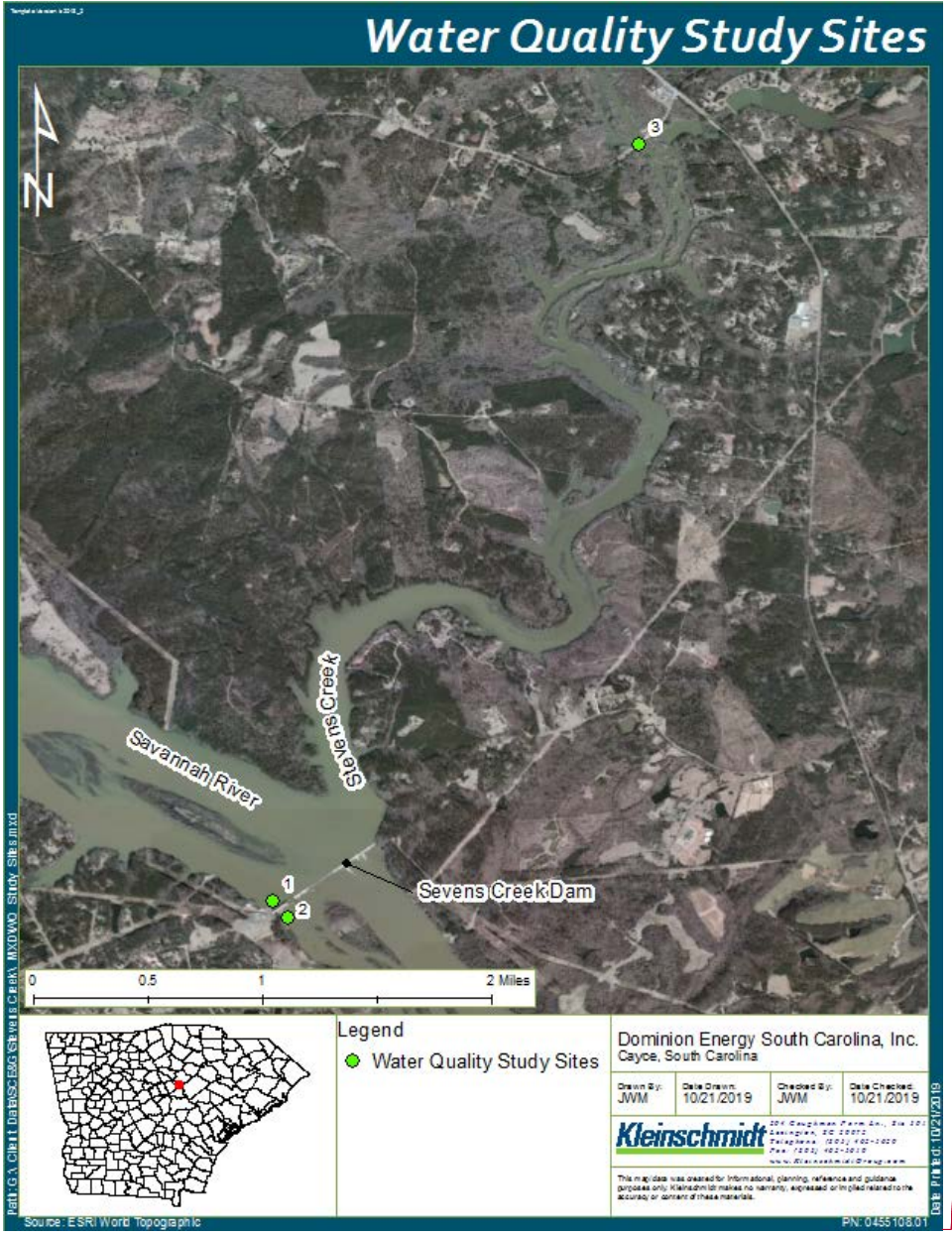
The objective of this study is to assess the water quality, specifically DO levels, of the Savannah River, immediately downstream of the Stevens Creek Hydroelectric Project and in Stevens Creek.

## **3.0 GEOGRAPHIC AND TEMPORAL SCOPE**

---

Water quality will be monitored at two 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 Hydroelectric Project. Monitoring Site 3 will be located in Stevens Creek at Woodlawn Road, approximately 4.5 miles upstream of its confluence with the Savannah River at Stevens Creek Dam. The monitoring sites are shown in Figure 1.

The study will begin April 1, 2021 and extend through November 30, 2021.



Commented [AJ1]: Correct Stevens Creek

FIGURE 1 STEVENS CREEK HYDROELECTRIC PROJECT WATER QUALITY STUDY SITES

#### 4.0 DATA COLLECTION METHODS AND ANALYSIS

---

Water quality will be monitored at the three monitoring sites shown in Figure 1 for temperature and DO 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 collect temperature and DO data 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 and water temperature 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.

#### 5.0 SCHEDULE

---

The water quality monitoring instruments will be deployed at each monitoring site on, or around, April 1, 2021 and will collect data for approximately eight months. The instruments will be checked monthly, at a minimum, during the study period. 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.

#### 6.0 USE OF STUDY RESULTS

---

Study results will be used as an information resource during the discussion of resource issues with relicensing stakeholders.

Commented [AJ2]: 12- Months instead of 8. Deployment in January

Commented [AJ3]: Suggestion to go a whole year on monitoring.