Dominion Energy South Carolina, Inc. Fossil Hydro Operations 220 Operation Way, MC A221, Cayce SC 29033 DominionEnergySC.com



May 15, 2020

VIA E-FILING

Kimberly Bose, Secretary Federal Energy Regulatory Commission 888 First Street, N.E. Washington, DC 20426

Subject: Dominion Energy South Carolina, Inc. Stevens Creek Hydroelectric Project FERC Project No. 2535 Notice of Intent, Pre-Application Document, and Request to Use Traditional Licensing Process for the Stevens Creek Hydroelectric Project

Dear Secretary Bose:

Dominion Energy South Carolina, Inc. (DESC), in accordance with the requirements of 18 CFR Sections 5 and 16, herein electronically files with the Federal Energy Regulatory Commission (Commission) the Notice of Intent (NOI) and Pre-Application Document (PAD) for the relicensing of the Stevens Creek Hydroelectric Project (Project) (FERC No. 2535). The current license, issued by the Commission to South Carolina Electric & Gas Company¹ on November 22, 1995, is set to expire on October 31, 2025.

The Project is located in Edgefield and McCormick counties, South Carolina and Columbia County, Georgia, at the confluence of Stevens Creek and the Savannah River, approximately one mile upstream of the Augusta Diversion Dam². The Project has an installed capacity of 17.3 MW and occupies approximately 104 acres of federal lands within the Sumter National Forest.

Pursuant to 18 CFR §5.5(c) and §16.8, the PAD is being distributed electronically to the relevant resource agencies, tribes, non-governmental organizations, and other potential interested parties included on the attached distribution list. Electronic copies on CDs are available at the Edgefield County Library at 105 Court House Square, Edgefield, SC 29824; the McCormick County Library at 201 Railroad Avenue, McCormick, SC 29835; and the Columbia County Library at 7022 Evans Town Center Boulevard, Evans, Georgia 30809. The PAD is also available on the project website at www.stevenscreekrelicense.com.

DESC hereby requests Commission approval to use the Traditional Licensing Process (TLP) for the relicensing of the Stevens Creek Hydroelectric Project. During pre-PAD agency consultation, several agencies expressed their support of the use of the TLP for the Stevens Creek relicensing. Agency

¹ On April 30, 2019, South Carolina Electric & Gas Company (SCE&G) filed a letter notifying FERC that SCE&G had changed its name to Dominion Energy South Carolina, Inc. effective April 29, 2019.

² The Augusta Diversion Dam is part of the Augusta Canal Hydropower Project (FERC Project No. 11810), owned and operated by the City of Augusta, Georgia.

Kimberly Bose, Secretary Stevens Creek Hydroelectric Project FERC Project No. 2535 Notice of Intent, Pre-Application Document, and Request to Use Traditional Licensing Process for the Stevens Creek Hydroelectric Project Page 2

letters and emails of TLP support are contained in Attachment A to this cover letter. As provided in 18 C.F.R. § 5.3(d)(1), we note that comments on the request to use the TLP must be filed with the Commission within 30 days of this letter. Pursuant to 18 C.F.R. § 5.3(d)(2), DESC has published notice of the request to use the TLP in a daily newspaper of general circulation in the three counties in which the Project is located; the notice contains the information required by that section.

In accordance with 18 C.F.R § 5.5(e), the joint agency regulations at 50 CFR part 402, Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, and the implementing regulations at 50 CFR 600.920, DESC hereby requests to be designated as the Commission's non-federal representative for the purposes of consultation under section 7 of the Endangered Species Act. DESC requests authorization to initiate consultation under section 106 of the National Historic Preservation Act and to implement regulations at 36 CFR Section 8000.2(c)(4).

Should the Commission approve the use of the TLP, DESC proposes to host a joint agency and public meeting (JAM) of the Stevens Creek Hydroelectric Project in accordance with 18 CFR § 4.38 no earlier than 30 days, but no later than 60 days, from the Commission's TLP approval.

Currently, DESC proposes to hold the JAM at the Misty Lake Clubhouse in August of 2020. The date and location of the meeting may be altered after consultation with jurisdictional agencies and other licensing participants and pending FERC's decision regarding DESC's request to use the TLP. If FERC requires that DESC use the ILP, then FERC will hold a scoping meeting in accordance with the regulations at CFR § 5.8.

In addition to the parties listed in the Notice of Intent, copies of the Notice are also being sent to the South Carolina Public Service Commission and the Commission's Atlanta Regional Office.

Please direct any questions pertaining to the Project or process to Ms. Amy Bresnahan, Relicensing Project Manager for DESC at (803) 217-9965 or <u>Amy.Bresnahan@dominionenergy.com</u>.

Sincerely,

James M. Landreth, Vice President Power Generation Dominion Energy South Carolina, Inc.

Attachments: Attachment A – Agency TLP Support Letters Distribution List Notice of Intent Pre-Application Document

c: A. Bresnahan/File

AGENCY TLP SUPPORT LETTERS



United States Department of the Interior

FISH AND WILDLIFE SERVICE 176 Croghan Spur Road, Suite 200 Charleston, South Carolina 29407



April 28, 2020

Ms. Amy Bresnahan Dominion Energy South Carolina, Inc. Mail Code A221 220 Operation Way Cayce, South Carolina 29033-3701

Re: Use of the Traditional Licensing Process for the Relicensing of the Stevens Creek Hydroelectric Project (FERC No. 2535) Edgefield and McCormick Counties, South Carolina and Columbia County, Georgia. FWS Log No. 2020-CPA-0014

Dear Ms. Bresnahan:

The U.S. Fish and Wildlife Service (Service) has received your e-mail dated April 17, 2020, outlining why Dominion Energy South Carolina, Inc. (DESC) will request the use of the Traditional Licensing Process (TLP) to obtain a subsequent license for the Stevens Creek Hydroelectric Project (Project). Additionally, DESC requested a letter of support or of no objection to the use of the TLP for the Project to be submitted to the Federal Energy Regulatory Commission along with the Notice of Intent and Pre-Application Document (PAD).

The DESC began early consultation (pre-PAD) with natural resource agencies and has made substantial effort to date, to ensure the relicensing of the Project before the current license expires on October 31, 2025. During this early investment, DESC began collecting information and developing study plans to address information needs and to assess impacts to natural resources. Moreover, the Service has reviewed and provided comments on a draft PAD for the Project. Therefore, we foresee minimal controversy during relicensing. We are familiar with this process as it has been used for the relicense of other FERC projects of comparable size. For these reasons, we have no objections to using the TLP for the Project.

The Service appreciates the opportunity to participate in the relicensing of the Project and looks forward to working with DESC throughout the process to meet our collective goals. If you have any questions, please contact Ms. Melanie Olds at (843) 727-4707 ext. 205 or at melanie_olds@fws.gov, and reference FWS No. 2020-CPA-0014.

Sincerely, Thomas D. McCoy Field Supervisor

TDM/MJO



UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL MARINE FISHERIES SERVICE Southeast Regional Office 263 13th Avenue South St. Petersburg, Florida 33701-5505 https://www.fisheries.noaa.gov/region/southeast

May 4, 2020

F/SER47:TC/pw

Ms. Amy Bresnahan Dominion Energy South Carolina, Inc. 220 Operation Way, Mail Code A221 Cayce, South Carolina 29033-3701

Dear Ms. Bresnahan:

NOAA's National Marine Fisheries Service (NMFS) reviewed the request from Dominion Energy South Carolina (Dominion), sent by email on April 17, 2020, to use the Traditional Licensing Process (TLP) to obtain a new license from the Federal Energy Regulatory Commission (FERC) for the Stevens Creek Hydroelectric Project (P-2535). The Project is located in Edgefield and McCormick Counties, South Carolina, and Columbia County, Georgia, at the confluence of Stevens Creek and the Savannah River. On November 22, 1995, FERC issued the current license, which will expire on October 31, 2025. Dominion intends to file its application for a new license on or before October 31, 2023.

During the meeting of resource agencies and stakeholders on April 23, 2020, to review the Pre-Application Document (PAD), Dominion presented its rationale for using the TLP in lieu of FERC's Integrated Licensing Process. Dominion began early coordination efforts for the Project during 2018 and has progressed substantially identifying the additional information needed for the application, including developing study plans for obtaining that information. Based on a preliminary review of the draft PAD, the NMFS anticipates minimal controversy related to resource issues during licensing. The TLP is familiar to agencies involved in the Project and, and Dominion used the TLP for the licensing of another project of comparable size, the Parr Shoals Hydroelectric Project (P-1894). Accordingly, the NMFS has no objection to Dominion using the TLP for the Project and looks forward to continued coordination with Dominion during relicensing.

Thank you for the opportunity to provide these comments. Please direct related questions or comments to the attention of Ms. Twyla Cheatwood at our Beaufort Field Office, 101 Pivers Island Road, Beaufort, North Carolina 28516-9722, or at (252) 728-8758.

Sincerely,

/ for

Virginia M. Fay Assistant Regional Administrator Habitat Conservation Division

cc: SCDNR, MarshallB@dnr.sc.gov, MillerE@dnr.sc.gov USFWS, Melanie_Olds@fws.gov F/SER47, Twyla.Cheatwood@noaa.gov



See below

Alison Jakupca Senior Regulatory Coordinator Office: 803 462 5628 Mobile: 864 906 4119 www.KleinschmidtGroup.com

Providing practical solutions for complex problems affecting energy, water, and the environment

From: Williams, Jeffery <Jeffery.Williams@dnr.ga.gov>
Sent: Thursday, April 23, 2020 1:40 PM
To: Alison Jakupca <Alison.Jakupca@KleinschmidtGroup.com>
Cc: Darley, Jeff <Jeff.Darley@dnr.ga.gov>
Subject: Re: TLP Support Request: Stevens Creek Joint RCG Meeting Agenda

Our agency has no objection to the use of the Traditional Licensing Process (TLP).

Regards,

Jeffery Williams

East Central District Office

3525 Walton Way Ext.

Augusta, GA 30909

(706) 667-4343

From: Alison Jakupca <<u>Alison.Jakupca@KleinschmidtGroup.com</u>>

Sent: Friday, April 17, 2020 11:29 AM

To: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>; AMY BRESNAHAN

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Subject: TLP Support Request: Stevens Creek Joint RCG Meeting Agenda

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning All,

As a follow-up to Kelly's email, you will notice there is an agenda item reserved for the discussion of Traditional Licensing Process (TLP) support from agencies and stakeholders. You may recall that we are proposing the use of the TLP in lieu of FERC's default Integrated Licensing Process (ILP) for the Stevens Creek Relicensing. There are several reasons why DESC has chosen to request the use of the TLP for Stevens Creek. First, the TLP provides a greater level of process timeline flexibility for both the applicant (DESC) and stakeholders than the ILP. The ILP is "front-loaded" and involves very defined and stringent up-front process deadlines for agencies, NGO's and the applicant. Overall, the use of the ILP generally serves to intensify the schedule at the start of the process and set specific dates regarding holding meetings within a certain process timeframe, the filing of meeting notes with FERC, the filing of study plans and reports with FERC, and filing comments on all relicensing documents.

The initial stages of the TLP, prior to filing the Final License Application with FERC, is very much guided by the applicant and the agencies and stakeholders involved. There are still several FERC deadlines that must be met during prior to filing the license application (PAD and Notice of Intent; Joint Agency Meeting and Site Visit, Draft License Application Comment Period); however, DESC and agencies and stakeholders would have a greater degree of guidance of the relicensing process in order to fit the needs of the Project. For example, if DESC and relicensing stakeholder choose to pursue a Settlement Agreement for filing with the Final License Application, the TLP provides a more fitting process timeline under which this could

occur.

FERC requires that DESC address the following factors when requesting use of the TLP. These are as follows:

- Likelihood of timely license issuance: DESC believes that using the TLP will provide stakeholders with manageable timeframes during pre-filing consultation and will also assist FERC in achieving its goal of issuing a timely license for the Project.
- **Complexity of the resource issues and the level of anticipated controversy**: Through extensive pre-PAD consultation, DESC has already identified areas where additional information is needed on the existing environment surrounding the Project and has begun the process of developing study plans and mechanisms for fulfilling study goals.
- The amount of available information and potential for significant disputes over studies: There is a wealth of information available on the existing environment in the vicinity of the Project, as presented in the PAD. The pre-PAD consultation process, to date, has enabled DESC to join with interested governmental and non-governmental parties in identifying information gaps. The success of these efforts greatly diminishes the potential for significant disputes over studies. Therefore, DESC anticipates a low level of controversy and complexity relating to resource issues.

Some of you have a high degree of familiarity with the TLP process, as you were involved in the relicensing of the Saluda Hydroelectric Project (FERC No. 516) and/or the Parr Hydroelectric Project (FERC No. 1894). The use of the TLP for the Saluda and Parr Project relicensings involved a robust stakeholder consultation plan and resulted in the successful filing of Final License Applications and settlement agreements for both projects. DESC plans to implement an equally successful relicensing process at the Stevens Creek Project through the use of the TLP.

Given all of the factors discussed above, DESC believes the TLP to be the most appropriate means to obtain a new license for the Project. To aid FERC in their approval of the TLP for the Project, DESC is requesting that you (the state and federal resource agencies, NGO's and individuals that have been involved in pre-PAD consultation to date) provide a letter or email of support (or of no objection) from your organization (or yourself for an individual) in using the TLP for the Stevens Creek relicensing. This documentation will be included with DESC's TLP request to FERC that accompanies the Notice of Intent (NOI) and PAD.

As discussed, DESC plans to file the NOI and PAD in mid-May 2020. Given this timeframe, DESC is requesting that, if you are inclined to do so, please provide your letter/email of TLP support, or no objection, to Amy Bresnahan by May 4, 2020. I have attached examples of TLP support letters provided for the Parr Relicensing. We look forward to discussing this further on the

23 , and please do not

hesitate to contact Amy or me if you have any questions regarding this matter.

Thank you for your continued involvement in the Stevens Creek relicensing process. Best, Alison

Alison Jakupca Senior Regulatory Coordinator Office: 803 462 5628 Mobile: 864 906 4119 www.KleinschmidtGroup.com

Providing practical solutions for complex problems affecting energy, water, and the environment

From: Kelly Kirven < Kelly.Kirven@KleinschmidtGroup.com >

Sent: Friday, April 17, 2020 8:24 AM

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Good morning all,

Attached is the agenda for our Stevens Creek Joint RCG conference call. The call is scheduled for Thursday, April 23, 2020 from 1:00 PM-4:00 PM.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

South Carolina Department of Natural Resources

1000 Assembly Street PO Box 167 Columbia, SC 29202 843-953-3881 Office millere@dnr.sc.gov SOUTH CAROLANT ** DEMONSTRATION

Robert H. Boyles, Jr. Director

Lorianne Riggin Director, Office of Environmental Programs

April 29, 2020

Ms. Amy Bresnahan Dominion Energy South Carolina, Inc. Mail Code A221 220 Operation Way Cayce, SC 29033-3701

REFERENCE: Use of Traditional Licensing Process (TLP) for the relicensing of the Stevens Creek Hydroelectric Project (P-2535).

Dear Ms. Bresnahan:

The South Carolina Department of Natural Resources (SCDNR) has reviewed your email of April 17, 2020 presenting the reasons and intentions of Dominion Energy South Carolina, Inc. (DESC) to request the use of the TLP to obtain a subsequent license for the Stevens Creek Hydroelectric Project (Stevens Creek Project). Your email requested SCDNR and other stakeholders to provide a letter sharing our positions with respect to the use of the TLP.

SCDNR is supportive of using the TLP for the Stevens Creek Project because of the greater flexibility it affords for the stakeholders and the licensee. In addition, as participants in the early consultations already initiated by DESC with resources agencies and other stakeholders in preparation of the pre-application documents, we believe the relicensing time schedules, complexity of issues, and information needs for the Stevens Creek Project can and will be adequately addressed using the TLP as coordinated by DESC.

SCDNR appreciates the opportunity to participate in the relicensing of the Stevens Creek Project and we look forward to continuing cooperative work with DESC to protect and manage resources at the Stevens Creek Project.

Sincerely,

alizabeths C Miller

Elizabeth C. Miller FERC Coordinator, SCDNR

cc: Lorianne Riggin

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Wayne King Office of Energy Projects Federal Energy Regulatory Comm, ARO 3700 Crestwood Pkwy, NW, Ste 950 Duluth, Georgia, 30096-7155

Chairman Public Service Commission of South Carolina 101 Executive Center Drive #100 Columbia, SC 29210

Bob Swithers U.S. Bureau of Land Management Southeastern States Office 273 Market Street Flowood, Mississippi 39232 Honorable Jeff Duncan U.S. House of Representatives 2229 Rayburn House Office Building Washington, DC 20515

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FERC Courtesy Copies:

Office of Energy Projects Federal Energy Regulatory Commission 888 First Street, N.E. OEP Room 61-02 Washington, DC 20426

Office of General Council Federal Energy Regulatory Commission 888 First Street, N.E. OGC-EP Room 101-56 Washington, DC 20426 NOTICE OF INTENT

NOTICE OF INTENT TO FILE LICENSE APPLICATION STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535) DOMINION ENERGY SOUTH CAROLINA, INC.

MAY 2020

Pursuant to 18 C.F.R. Section 5.5 of the Federal Energy Regulatory Commission's (Commission or FERC) regulations, Dominion Energy South Carolina, Inc. (DESC), hereby gives notice and declares its intent to apply for a new license for the Stevens Creek Hydroelectric Project (FERC No. 2535) located in Edgefield and McCormick counties, South Carolina and Columbia County, Georgia, at the confluence of Stevens Creek and the Savannah River.

In accordance with 18 C.F.R. Section 5.5, the following information is provided.

1. The existing licensee's name and address:

Dominion Energy South Carolina, Inc. 220 Operation Way Mail Code A221 Cayce, SC 29033-3701

MAILING ADDRESS FOR LICENSING ACTIVITIES:

Mr. James Landreth Vice President Power Generation Dominion Energy South Carolina, Inc. 220 Operation Way Mail Code A221 Cayce, SC 29033-3701

Amy Bresnahan Relicensing Project Manager Dominion Energy South Carolina, Inc. 220 Operation Way Mail Code A221 Cayce, SC 29033-3712

J. Hagood Hamilton, Jr General Counsel Dominion Energy South Carolina, Inc. 220 Operation Way Mail Code C222 Cayce, SC 29033-3701

2. Project number:

Stevens Creek Hydroelectric Project, FERC No. 2535

3. License expiration date:

October 31, 2025

4. Applicant's statement of intention to file an application for a new license:

Dominion Energy South Carolina, Inc. hereby unequivocally declares its intent to apply for a new license for the Stevens Creek Hydroelectric Project, FERC Project Number 2535. DESC will file an application with the Commission before October 31, 2023. Moreover, DESC hereby requests Commission approval to use the Traditional Licensing Process (TLP) for the relicensing of the Stevens Creek Hydroelectric Project. Pursuant to 18 C.F.R. § 5.3(c)(1)(ii), DESC believes that use of the TLP will be in the best interest of the Commission and all parties in pursuing and achieving the goals of efficient, thorough, and fair consideration of all relicensing matters, to which:

- Likelihood of timely license issuance: DESC believes that using the TLP will provide local, state and federal agencies with manageable timeframes and assist FERC in achieving its goal of issuing a timely license for this Project.
- **Complexity of the resource issues and level of anticipated controversy:** During pre-PAD consultation with local, state and federal agencies and other interested stakeholders, DESC already has identified areas where additional information is needed on the existing environment surrounding the Project, and has, in consultative and cooperative fashion, begun the process of developing study plans and mechanisms for fulfilling study goals. Due to this extensive pre-PAD consultation, DESC does not anticipate a high level of complexity and controversy regarding resource issues during the relicensing process.
- Relative cost of the traditional process compared to the integrated process: Although the enhanced nature of the proposed TLP process will result in numerous meetings and discussions, DESC fully expects material cost savings for all participants through the use of the TLP rather than the ILP due to DESC's and other participants' knowledge and familiarity with the TLP.
- The amount of available information and potential for significant disputes over studies: There is a wealth of information available on the existing environment in the vicinity of the Project, as presented in the PAD. DESC has implemented a substantive, robust pre-PAD consultation process which has enabled us to join with interested governmental and non-governmental parties in identifying information gaps. The success of these efforts greatly diminishes the potential for significant disputes over studies.

Hence, DESC anticipates a low level of controversy and complexity relating to resource issues.

• Other factors believed by the applicant to be pertinent: DESC has recently completed TLP pre-filing consultation for the relicensing of the Saluda Hydroelectric Project (FERC No. 516) and the Parr Hydroelectric Project (FERC No. 1894) with many of the same resource agencies and NGOs and many of the same agency representatives have been involved in the pre-PAD consultation for the Stevens Creek Hydroelectric Project. The use of the TLP for the Saluda Hydroelectric Project relicensing and Parr Hydroelectric Project relicensing resulted in the filings of very robust settlement agreements. DESC expects to be able to implement a similar, successful pre-filing process at Stevens Creek through the use of the TLP. Given all of the factors discussed above, DESC strongly believes the TLP to be the most appropriate means to obtain a new license for the Project.

5. Principal Project works include:

Stevens Creek Project structures include: 1) non-overflow portions, located at the abutments with top EL of 198.54 feet (1929 NGVD, 184.0 Plant Datum); 2) 2,000-foot spillway composed of a (a) cyclopean concrete gravity section, ogee crest, with a top elevation (EL) of 183.54 (1929 National Geodetic Vertical Datum [NGVD], 169.0 Plant Datum), (b) 1,000 feet of 5-foot-high flashboards from the lock to the center of the spillway, (c) 1,000 feet of 4-foot-high flashboards from the center of the spillway to the South Carolina abutment; 3) a concrete gravity lock 85-feet-wide by 165.5-feet-long located between the powerhouse and spillway section; 4) a 388-foot-long powerhouse, integral with the dam, consisting of a reinforced concrete substructure and a steel-framed brick superstructure, and containing eight turbine-generators; 5) a reservoir with a surface area of approximately 2,400 acres (gross capacity is 23,600 acre-feet and usable storage is approximately 7,800 acre-feet); 6) transmission interconnecting electrical equipment including (a) for unit pairs 1-2 and 3-4, there are two 5600/6272/7000/7840 kVA, 2,300 V/46.000 V step-up transformers, (b) for unit pairs 5-6 and 7-8, there are two 5600/7000 kVA, 2,300 V/46,000 V step-up transformers, and (c) two 46 kV ties to a 46 kV/115 kV substation; and 7) appurtenant facilities as described in the PAD.

6. **Project Location:**

The Project is located in Edgefield and McCormick counties, South Carolina and Columbia County, Georgia, at the confluence of Stevens Creek and the Savannah River, approximately one mile upstream of the Augusta Diversion Dam¹.

7. Installed plant capacity:

The Stevens Creek Hydroelectric Project has an installed capacity of 17.28 MW.

¹ The Augusta Diversion Dam is part of the Augusta Canal Hydropower Project (FERC Project No. 11810), owned and operated by the City of Augusta, Georgia.

8. The names and mailing addresses of:

a. Every county in which any part of the project is located, and in which any Federal facility that is used or to be used by the project is located:

Columbus Stephens McCormick County Administrator 610 South Mine Street McCormick, SC 29835

Thomas Paradise Edgefield County Administrator 124 Courthouse Square Edgefield, SC 29824

Scott D. Johnson Columbia County Administrator 630 Ronald Reagan Drive Evans, GA 30809

b. Every city, town, or similar political subdivision in which any part of the project is or is to be located and any Federal facility that is or is to be used by the project is located:

N/A

c. Every city, town, or similar political subdivision that has a population of 5,000 or more people and is located within 15 miles of the existing or proposed project:

Mayor Hardie Davis, Jr. City of Augusta 535 Telfair Street Suite 200 Augusta, GA 30901

Mayor Robert A. Pettit City of North Augusta 100 Georgia Avenue North Augusta, SC 29841

d. Every irrigation district, drainage district, or similar special purpose political subdivision:

The Applicant knows of no irrigation districts, drainage districts, or similar special purpose political subdivisions located near the project.

e. Every other political subdivision, or interested agencies or stakeholders in the general area of the Project or proposed Project that there is reason to believe would be likely to be interested in, or affected by, the notification:

Derrick Miller Special Uses Program Manager US Forest Service Francis Marion & Sumter National Forest Supervisor Office 4931 Broad River Road Columbia, SC 29212

Stan Simpson U.S. Army Corps of Engineers 100 West Oglethorpe Street Savannah, GA 31401

f. Affected Indian Tribes:

The Applicant knows of no Indian Tribes that would be affected by the continued operation of the Project. Nevertheless, DESC will consult with the Catawba Indian Nation, which is the only federally recognized tribe in the Project area:

Wenonah G. Haire, DMD Executive Director Catawba Cultural Center 1536 Tom Steven Road Rock Hill, South Carolina 29730

9. Whether the application is for a power or a non-power license:

The Stevens Creek Hydroelectric Project license application is for a power license.

Furthermore, in accordance with 18 C.F.R. Section 5.5, DESC must distribute this notification of intent to appropriate federal, state, and interstate resource agencies, Indian tribes, local governments, and members of the public likely to be interested in the proceeding. A complete listing of appropriate agencies, tribes, local governments and non-governmental organizations (NGOs) is provided in Appendix A to the PAD. The information required to be made available to the public pursuant to 18 C.F.R Section 5.2 is located at the Edgefield County Library at 105 Court House Square Edgefield, SC 29824; the McCormick County Library at 201 Railroad Avenue McCormick, SC 29835; the Columbia County Library at 7022 Evans Town Center Boulevard Evans, Georgia 30809; and the project website at <u>www.stevenscreekrelicense.com.</u>

10. Designation for Federal Representation

DESC requests that FERC designate it as the non-federal representative for purposes of consultation under Section 7 of ESA and the joint agency regulations hereunder at 50 CFR Part 402, section 305 (b) of the Magnuson-Stevens Fishery Conservation and Management Act; as well, DESC requests authorization to initiate consultation under section 106 of the National Historic Preservation Act and to implement regulations at 36 CFR Section 8000.2(c)(4).

CERTIFICATE OF SERVICE

I hereby certify that I caused to be served, by U.S. First Class Mail, the Notice of Intent to File Application for New License upon all interested parties designated on the attached service list in the Stevens Creek Hydroelectric Project, Project No. 2535, in accordance with Rule 2010 of the Rules of Practice and Procedure, 18 C.F.R. § 385.2010.

May 15, 2020

Jantath Signature

James M. Landreth Vice President Power Generation Dominion Energy South Carolina, Inc. 220 Operation Way Mail Code A221 Cayce, SC 29033-3701 **PRE-APPLICATION DOCUMENT**

PRE-APPLICATION DOCUMENT (PAD)

STEVENS CREEK HYDROELECTRIC PROJECT FERC PROJECT NO. 2535

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt Associates Lexington, South Carolina

KleinschmidtGroup.com

May 2020

PRE-APPLICATION DOCUMENT

STEVENS CREEK HYDROELECTRIC PROJECT FERC PROJECT NO. 2535

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt Associates Lexington, South Carolina

KleinschmidtGroup.com

May 2020

PRE-APPLICATION DOCUMENT

STEVENS CREEK HYDROELECTRIC PROJECT FERC PROJECT NO. 2535

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DEFINITIONS OF TERMS, ACRONYMS, AND ABBREVIATIONS

ACHP	Advisory Council on Historic Properties
Af	Acre-foot, the amount of water needed to cover one acre to a depth
	of one foot
APE	Area of potential effect as pertains to Section 106 of the National
	Historic Preservation Act
Applicant	Dominion Energy South Carolina, Inc.
BMP	Best Management Practice
CEII	Critical Energy Infrastructure Information
CFR	Code of Federal Regulations
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
DC	Direct current
DESC	Dominion Energy South Carolina, Inc.
DLA	Draft License Application
DO	Dissolved oxygen, generally expressed in units of parts per million
DO	or milligrams per liter (mg/L)
DOC	dissolved organic carbon
EFH	essential fish habitat
EL	Elevation
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FATS	Forks Area Trail System
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
FWS	U.S. Fish and Wildlife Service
GADNR	
GA SCORP	Georgia Department of Natural Resources
UA SCORP	Georgia's State Comprehensive Outdoor Recreation Plan 2017- 2021
Нр	Horsepower
HPMP	Historic Properties Management Plan
installed capacity	The nameplate megawatt rating of a generator or group of generators
ILP	Integrated Licensing Process
interested parties	Individuals and entities that have an interest in a proceeding
IPaC	Information for Planning and Consultation
JAM	Joint Agency Meeting
kW	Kilowatt
kV	Kilovolts
kVA	kilovolt-ampere
Licensee	Dominion Energy South Carolina, Inc.
Licensing	The process of acquiring a FERC license for the operation of a
Licensing	hydropower project
licensing participants	Individuals and entities that are actively participating in the
neensing participants	licensing proceeding
mg/I	milligrams per liter
mg/L MOA	
MOA	Memorandum of Agreement

msl mean sea level	
MW megawatt	
MWh megawatt-hour	
NEPA National Environmental Policy Act	
5	
6 6	
NH3 ammonia	
NHPA National Historic Preservation Act	
NMFS National Marine Fisheries Services, also known as NOAA	
Fisheries	
NOx nitrate/nitrite	
NOI Notice of Intent to file an application for license	
NRHP National Register of Historic Places	
NSBLD New Savannah Bluff Lock and Dam	
NWI National Wetlands Inventory	
PA Programmatic Agreement	
PAD Pre-Application Document	
PCB Polychlorinated Biphenyl	
PCWS Phinizy Center for Water Sciences	
Project Stevens Creek Hydroelectric Project (FERC No. 2535)	
Project Area Zone of potential, reasonably direct project effects within the	
FERC Project Boundary	
Project Boundary The boundary line defined in the license issued by FERC that	
surrounds areas needed for Project purposes	
Project Vicinity The general geographic area in which the Project is located for the	ne
purposes of describing the existing environment around a Project	
proposed Project	
RM river mile	
RMP Recreation Management Plan	
SCDHEC South Carolina Department of Health and Environmental Contro	1
SCDNR South Carolina Department of Natural Resources	1
SCEPPC South Carolina Exotic Pest Plant Council	
SCERTSouth Carolina Department of Parks, Recreation and Tourism	
SC SCORP South Carolina's 2014 State Comprehensive Outdoor Recreation Plan	
SHEP Savannah Harbor Expansion Project	
SHPO State Historic Preservation Officer	
SNSA Southeastern Natural Sciences Academy	
6 6	
TMDL total maximum daily load	
TLP traditional licensing process	
TOC total organic carbon	
USACE U.S. Army Corps of Engineers	
Forest Service U.S. Forest Service	
USGS U.S. Geological Survey	
V volt	

PRE-APPLICATION DOCUMENT

STEVENS CREEK HYDROELECTRIC PROJECT FERC PROJECT NO. 2535

1.0 INTRODUCTION

Dominion Energy South Carolina, Inc.¹ (DESC) is filing a Notice of Intent (NOI) and a Pre-Application Document (PAD) with the Federal Energy Regulatory Commission (FERC) to relicense the Stevens Creek Hydroelectric Project (Project), FERC No. 2535. The Project is located in Edgefield and McCormick counties, South Carolina and Columbia County, Georgia, at the confluence of Stevens Creek and the Savannah River and has an installed capacity of 17.28 megawatts (MW). The Project occupies approximately 104 acres of federal lands within the Sumter National Forest with pre-existing easements and 0.21 acres of federal lands within the Sumter National Forest without pre-existing easements. 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.

This PAD was prepared in accordance with §5.6 and §16.8 of FERC's regulations set forth in Title 18 of the Code of Federal Regulations (CFR). As required by the regulations, DESC exercised due diligence in preparing this PAD by contacting appropriate governmental agencies, non-governmental organizations (NGOs), Native American tribes, and others that might have relevant information. Due diligence was achieved by holding public and agency outreach meetings to identify existing and reasonably available information relevant to the Project. Public meetings were conducted at the Savannah Rapids Pavilion on November 29, 2018 at 2:00 pm and 6:00 pm. Agency meetings were held at the Misty Lake Clubhouse on January 10, 2019 at 9:30 am and via conference call on March 27, 2019 at 9:00 am. Agency and stakeholder outreach meetings continued through 2019 and early 2020 to support the development of the PAD. A site visit was held on May 15, 2019 to allow agencies and interested stakeholders to view Project structures and lands.

¹ On April 30, 2019, South Carolina Electric & Gas Company (SCE&G) filed a letter notifying FERC that SCE&G had changed its name to Dominion Energy South Carolina, Inc., effective April 29, 2019.

As discussed, DESC has worked closely with organizations and agencies to identify existing relevant studies conducted in the Project vicinity. A PAD Information Questionnaire was distributed to stakeholders on February 6, 2019 in an effort to identify existing information that should be included in the PAD. By exercising due diligence and involving the stakeholders early and thoroughly, DESC has ensured that this PAD provides existing, relevant and reasonably available information to FERC and other interested stakeholders. Appendix A is a record of the pre-PAD consultation process DESC initiated with agencies, tribes, and other organizations to obtain data and information about Project resources. The resulting comprehensive information assembled with this PAD will enable FERC and other stakeholders, prepare documents analyzing any license application that may be filed with FERC and develop additional information requests and study plans to the extent they are necessary and related to direct effects of the Project.

2.1 TIME FRAMES FOR PRE-APPLICATION CONSULTATION, INFORMATION GATHERING, AND STUDIES

In accordance with FERC's regulations (18 CFR §5.3), DESC is requesting to use the Traditional Licensing Process (TLP). This request, along with the reasons why DESC believes the TLP is the most appropriate licensing process for the Project, is outlined in the cover letter which accompanies this PAD. Typically, the TLP includes three stages, as described at 18 CFR §4.38. The first stage involves coordination among DESC, resource agencies, affected Native American tribes, and the public. This stage includes sharing Project information, notifying interested parties, and planning studies using the PAD as a guide. The second stage includes implementing studies (to the extent that pre-filing studies are necessary) to gather additional data, developing a draft license application (DLA), and submitting the DLA for review by resource agencies and FERC. The third stage begins with the filing of the final license application (FLA). During this stage, FERC conducts a review of the FLA and the public comment process, completes an environmental analysis under National Environmental Policy Act (NEPA), and makes a final decision regarding issuing a license for the Project.

Throughout the relicensing, DESC will provide adequate opportunities for all interested parties to be meaningfully involved in the process. As discussed above, and outlined in the NOI, DESC is requesting to use the TLP. The process plan and schedule, provided in Table 2-1, provides anticipated timeframes for accomplishing the pre-filing consultation, information gathering, and studies required by regulations governing the use of the TLP. Should FERC require the use of the Integrated Licensing Process² (ILP), the process plan and schedule will be adjusted accordingly. Please note that comments on DESC's request to use the TLP are due within 30 days of filing the NOI.

As required by TLP regulations, DESC will maintain a consultation record relating to the prefiling process. Appendix A includes records of the licensing proceedings to date, including information received from the stakeholders and appropriate communication records. DESC will maintain records of licensing and other relevant information on DESC's relicensing website at

² The Integrated Licensing Process is the default process for filing an application for an original, new or subsequent license.

www.stevenscreekrelicense.com. The PAD will be made available to the public at the Edgefield County Library in Edgefield, South Carolina, the McCormick County Library in McCormick, South Carolina, and the Columbia County Library in Evans, Georgia. DESC will maintain a copy of the PAD on the relicensing website at www.stevenscreekrelicense.com.

ACTIVITY ¹	RESPONSIBLE PARTY	TIMEFRAME	REGULATION	DATES ^{2.,3}
Prepare NOI and PAD and draft study plans	DESC	Recommended 9 to 12 months prior to filing deadline		5/1/2019
File NOI and PAD	DESC	At least 5 years but no more than 5.5 years prior to license expiration	18 CFR § 5.5	May 2020
Issue Notice of NOI/PAD and Request Comments on TLP	FERC	Concurrent with NOI	18 CFR § 5.3	May 2020
Comments on use of TLP	FERC/ Stakeholders	Within 30 days of Notice	18 CFR § 5.3	June 2020
FERC Notice of Commencement and TLP Approval	FERC	Within 60 days of Notice	18 CFR § 5.8	August 2020
Joint Agency Meeting (JAM) Notification and Agenda to FERC and Stakeholders	DESC	At least 15 days prior to the JAM	18 CFR §16.8	September 2020
Publish Public Notice of JAM in Newspaper	DESC	At least 14 days prior to the JAM	18 CFR § 16.8	September 2020
Conduct JAM and Site Visit	DESC	30 to 60 days after FERC Notice of Commencement and TLP Approval	18 CFR § 16.8	September 2020
File Comments on PAD, and Study Requests	Stakeholders	Within 60 days of JAM	18 CFR § 16.8	November 2020
Conduct First Season of Studies	DESC		18 CFR § 16.8	TBD 2021
Conduct Second Season of Studies (if necessary)	DESC		18 CFR § 16.8	TBD 2022
Issue Study Reports to Stakeholders	DESC/ Stakeholders	Upon study completion		2021 through 2022
Prepare DLA	DESC	Recommended 6-9 months prior to filing deadline		January 2022 through November 2022
File DLA with Stakeholders and FERC	DESC	No later than 150 days prior to deadline for filing FLA	18 CFR § 16.8	11/30/2022

 TABLE 2-1
 STEVENS CREEK PROJECT RELICENSING PROCESS PLAN AND SCHEDULE

ACTIVITY ¹	RESPONSIBLE PARTY	TIMEFRAME	REGULATION	DATES ^{2.,3}
File Comments on Applicant's DLA	Stakeholders	Within 90 days of filing DLA	18 CFR § 16.8	2/28/2023
File FLA	DESC	No later than 24 months before existing license expires	18 CFR § 5.17	10/31/2023

¹ Activities in shaded in blue are internal activities, with flexible schedules.

 2 If the due date falls on a weekend or holiday, the deadline is the following business day.

³ The schedule is subject to change throughout the relicensing proceeding.

2.2 PROPOSED LOCATION AND DATE FOR JOINT AGENCY MEETING AND SITE VISIT [§ 16.8 (B)(3)(II)]

DESC will host a Joint Agency Meeting (JAM) and site visit no earlier than 30 days, and no later than 60 days after TLP approval, if FERC approves this request. DESC invites FERC to the JAM to secure for itself and all other attendees and participants, FERC's perspective on the initial scoping of issues. The purpose of the JAM will be to provide stakeholders the opportunity to view the Project, to discuss the information presented in the PAD, and to identify issues related to the Project. For this Project, site visits and issue identification workshops have already occurred and have included many interested stakeholders. The JAM will provide another, formal opportunity for stakeholders and FERC to become involved. Currently, DESC proposes to hold the JAM at the Misty Lake Clubhouse in third quarter of 2020. The date and location of the meeting may be altered after consultation with jurisdictional agencies and other licensing participants and pending FERC's decision regarding DESC's request to use the TLP. If FERC requires that DESC use the ILP, then FERC will hold a scoping meeting in accordance with the regulations at CFR § 5.8.

3.0 PROJECT LOCATION, FACILITIES, AND OPERATIONS [§ 5.6 (d)(2)]

3.1 CONTACT INFORMATION FOR EACH PERSON AUTHORIZED TO ACT AS AN AGENT FOR APPLICANT (EXACT NAME, BUSINESS ADDRESS, AND PHONE NUMBER)

James M. Landreth Vice President – Power Generation Dominion Energy South Carolina, Inc. 220 Operation Way Main Code A221 Cayce, SC 29033-3701 Phone: (803) 217-7224 Email: jim.landreth@dominionenergy.com

Amy Bresnahan Relicensing Project Manager Dominion Energy South Carolina, Inc. 220 Operation Way Mail Code A221 Cayce, SC 29033-3701 Phone: (803) 217-9965 Email: amy.bresnahan@dominionenergy.com

3.2 MAPS OF LAND USE WITHIN PROJECT BOUNDARIES (TOWNSHIP, RANGE AND SECTION, STATE, COUNTY, RIVER, RIVER MILE, AND CLOSEST TOWN) AND, IF APPLICABLE, FEDERAL AND TRIBAL LANDS, AND LOCATION OF EXISTING FACILITIES

The Project is located at river mile (RM) 209.1 of the Savannah River, at its confluence with Stevens Creek, in Columbia County, Georgia and Edgefield County, South Carolina (Figure 3-1). The Project's dam is located approximately one mile upstream of the Augusta Diversion Dam, and approximately 13 miles downstream of the J. Strom Thurmond Dam (here after referred to in this document as Thurmond Dam). Exhibit G Project Boundary maps are included in Appendix B of this PAD. Detailed information on land use within the Project boundary is included in Section 4.7.

Stevens Creek Project structures include: 1) non-overflow portions, located at the abutments with top EL of 198.54 feet (1929 NGVD, 184.0 Plant Datum); 2) 2,000-foot spillway composed of a (a) cyclopean concrete gravity section, ogee crest, with a top elevation (EL) of 183.54 (1929 National Geodetic Vertical Datum [NGVD], 169.0 Plant Datum), (b) 1,000 feet of 5-foot-high flashboards from the lock to the center of the spillway, (c) 1,000 feet of 4-foot-high flashboards from the center of the spillway to the South Carolina abutment; 3) a concrete gravity lock 85-feet-

wide by 165.5-feet-long located between the powerhouse and spillway section; 4) a 388-foot-long powerhouse, integral with the dam, consisting of a reinforced concrete substructure and a steel-framed brick superstructure, and containing eight turbine-generators; 5) a reservoir with a surface area of approximately 2,400 acres (gross capacity is 23,600 acre-feet and usable storage is approximately 7,800 acre-feet); 6) transmission interconnecting electrical equipment including (a) for unit pairs 1-2 and 3-4, there are two 5600/6272/7000/7840 kVA, 2,300 V/46,000 V step-up transformers, (b) for unit pairs 5-6 and 7-8, there are two 5600/7000 kVA, 2,300 V/46,000 V step-up up transformers, and (c) two 46 kV ties to a 46 kV/115 kV substation; and 7) appurtenant facilities.



FIGURE 3-1 PROJECT LOCATION MAP

3.3 DETAILED DESCRIPTION OF EXISTING FACILITIES

3.3.1 COMPOSITION, DIMENSIONS, AND CONFIGURATION OF DAMS, SPILLWAYS, PENSTOCKS, POWERHOUSES, TAILRACES, INCLUDED AS PART OF THE PROJECT OR DIRECTLY CONNECTED

The Project is linearly configured from left to right (looking downstream) as a 97-foot-long concrete non-overflow section, a 2,000-foot-long concrete ogee spillway, an 85-foot-wide inoperative lock, a 388-foot-long powerhouse, and a 102.5-foot-long non-overflow section. The total length is 2,635 feet and height is approximately 30 feet. The spillway has approximately equal lengths of four-foot-high (left half) and 5-foot-high (right half) flashboards that trip when pool level is one-foot over the top of the flashboards. The rightmost 110 feet of the spillway contains five sluices that are no longer operated because the gates are covered by silt at the upstream face of the dam.

The Project powerhouse is a three-level structure with a concrete substructure with integral intake and water passages and a steel-framed, brick-covered superstructure. It has a total length of 388 feet, a width (upstream-downstream) of approximately 87 feet, and a structural height of 102 feet from the draft tube-foundation interface to the top of the superstructure. The brick superstructure is shorter in length (328 feet) because it does not enclose two unused turbine bays on the left end; it is approximately 50-feet-wide and 57-feet-tall. The powerhouse contains eight turbine-generator units. As noted, the two leftmost bays are not used and do not have units installed. There is an automated trash rake system installed at the powerhouse.

3.3.2 RESERVOIR NORMAL MAXIMUM WATER SURFACE AREA AND ELEVATION AND GROSS STORAGE CAPACITY

The Stevens Creek Reservoir extends upstream approximately 12 miles from the Stevens Creek Dam to a point approximately one-mile downstream of Thurmond Dam. The surface area of the reservoir is approximately 2,400 acres at full pool (EL 187.54 feet 1929 NGVD). Gross storage capacity in the reservoir is approximately 23,600 acre-feet, but usable storage in the top 4.5 feet of full pond is approximately 7,800 acre-feet. The reservoir normally fluctuates between EL 183.0 feet and 187.5 feet, using available storage capacity to re-regulate flow releases from Thurmond Dam.

3.3.3 Number, Type and Capacities of Turbines and Generators, and Installed (Rated) Capacity of Existing Turbines or Generators

The powerhouse contains eight turbine-generator units, with a total maximum rated capacity of 17,280 kilowatts (kW). This includes five I.P. Morris Francis vertical shaft turbines, each rated at 3,125 horsepower (hp) and 75 revolutions per minute (RPM); three S. Morgan Smith Francis vertical shaft turbines, each rated at 3,125 hp and 75 rpm; and eight synchronous Westinghouse generators, each rated at 2,700 kVA, 2,300 V, 60 cycle, 3 phase and 75 rpm. There are four Rapid Power Technologies excitation transformers rated 125 kVA, 2,400 V/121V, each feeding two Rapid Power Technologies static DC Excitation Power Supplies with rated output of 250 ADC, 150 VDC to supply excitation power to each generator field. Governors on Units 1, 2, 4, 5, 6, and 7 are digital governors by American Governor Company and governors on Unit 3 and 8 are Woodward 700H digital governors. The estimated total hydraulic capacity of the generating units at the Project is approximately 8,300 cubic feet per second (cfs) at a head EL of 28 feet.

3.3.4 NUMBER, LENGTH, VOLTAGE, AND INTERCONNECTIONS OF ANY PRIMARY TRANSMISSION LINES

Energy generated is conducted from the powerhouse step-up transformers through the main leads exiting the powerhouse, via 46 kV overhead lines to SF6 breakers approximately 100 feet west of the powerhouse, and then another 100 feet west to the Project switchyard interconnecting the Project to the local grid via the Georgia Power substation. There are no transmission lines included in the Project boundary. Single line drawings for the Project are included in Appendix C, which is filed as Critical Energy Infrastructure Information (CEII).

3.3.5 ENERGY PRODUCTION (ESTIMATE OF DEPENDABLE CAPACITY, AVERAGE ANNUAL, AND AVERAGE MONTHLY ENERGY PRODUCTION)

The Project's dependable capacity estimate is 10 MW during the winter and 8 MW during the summer, with November being the period of critical streamflow. Listed below is a summary of the monthly and annual average generation values for the Project from 1999-2019 (in megawatt hours [MWh]).

TIMEFRAME	AVERAGE GENERATION*
January	5,773
February	5,822
March	6,385
April	5,762
May	5,495
June	5,259
July	5,194
August	5,320
September	4,284
October	4,340
November	4,385
December	5,292
Annual	63,183

TABLE 3-1	MONTHLY AND ANNUAL AVERAGE GENERATION
AT TH	e Stevens Creek Project (1999 – 2019)

*measured in megawatt hours

3.4 CURRENT PROJECT OPERATION, INCLUDING DAILY OR SEASONAL RAMPING RATES, FLUSHING FLOWS, RESERVOIR OPERATIONS, AND FLOOD CONTROL OPERATIONS

The Project is manned five days a week, eight hours a day and is operated remotely from DESC's Urquhart Steam Station near Beech Island, South Carolina. The Project serves an important function to the Savannah River in that it operates as a re-regulating project as required by Article 402 of the current FERC license. More specifically, Stevens Creek Project redistributes the varying discharges from the upstream Thurmond Dam Project to provide a more uniform flow in the Savannah River, downstream of the Stevens Creek Project. The Thurmond Dam Project is the furthest downstream of three multiple purpose projects in the upper Savannah River Basin operated by the Savannah District of the US Army Corps of Engineers (USACE). Thurmond Dam and the other two projects, Hartwell and Richard B. Russell, are operated to maximize the public benefits of hydroelectric power, flood damage reduction, recreation, fish and wildlife, water supply, and water quality.

The Stevens Creek Project is operated in accordance with an Operating Plan on file with FERC (Order issued June 22, 2018). The Operating Plan was developed in consultation with the USACE, U.S. Fish and Wildlife Service (USFWS), Georgia Department of Natural Resources (GADNR), South Carolina Department of Natural Resources (SCDNR), and the City of Augusta and includes details regarding how the Project is to be operated. The normal operating target range for the Project is to provide an hourly discharge of +/- 15 percent of the scheduled daily average discharge

from Thurmond Dam, if the actual discharge from Thurmond Dam is within 500 cfs of the scheduled discharge. Excerpts from the Operating Plan, with minor edits, are provided in the following sections to describe Project operations under varying flow conditions.

When reviewing Project operations, it is important to note that the Project provides an important service to downstream resources in its function as a re-regulating facility. Maximum flow releases from Project generating facilities are only a fraction of the amount of flow normally released from the upstream Thurmond Dam Project. Moreover, the Stevens Creek Reservoir has very little storage capacity to accommodate incoming USACE releases. Therefore, normal operations require Project operators to lower the Stevens Creek Reservoir to accept incoming flows from USACE operations. Lowering the reservoir allows the Project to "soften" USACE flows released downstream and thereby meet its function as a re-regulating facility.

3.4.1 OPERATING CONDITIONS – FLOOD (INFLOW GREATER THAN 30,000 CFS)

During flood conditions (periods of sustained flows of greater than 30,000 cfs from the Savannah River and Stevens Creek), the Stevens Creek Project will generate to its full capability (approximately 8,300 cfs), while spilling all additional flow over the 2,000-foot-long overflow section of the dam (flashboards will be tripped). In this situation, all water coming down the Savannah River passes directly through the Stevens Creek Reservoir. The reservoir elevation may exceed EL 187.5 feet, depending upon the volume of flow at any given time. If the reservoir and river elevation reach a level which threatens to flood the plant, operation will cease, and personnel will evacuate the plant. At this point, all river flow will be discharged over the spillway. When river flow returns to a level controllable by normal operation at Thurmond Dam, the Stevens Creek Reservoir will be drawn down to an approximate EL of 183.5 feet so that flashboards can be reset. The resetting may take three to five days or more, depending on the amount of debris on the spillway, and damage to the flashboards. Normal operation of the Project will resume when any damage to the plant has been repaired and flashboards have been reset.

3.4.2 OPERATION CONDITIONS – HIGH FLOWS (INFLOW OF 8,300 CFS TO 30,000 CFS)

During periods of sustained high flow in the Savannah River, the Stevens Creek Project will generate to its full capability (approximately 8,300 cfs), while spilling all additional flow over the 2,000-foot-long overflow section of the dam (some flashboards will be tripped). In this situation, all water coming down the Savannah River passes directly through the Stevens Creek Reservoir.

The reservoir elevation may exceed EL 187.5 feet, depending on the volume and duration of the high flow. When river flow returns to a level controllable by normal operation at the Thurmond Dam, the Stevens Creek Reservoir will be drawn down to approximate EL 183.5 feet allowing the flashboards to be reset. The amount of time required to reset the flashboards will depend on the number of boards tripped and the amount of debris on the spillway. Normal operation of the Project will resume when the flashboards have been reset.

3.4.3 OPERATION CONDITIONS – NORMAL FLOWS (INFLOW OF 4,200 CFS TO 8,300 CFS)

During periods of normal flow in the Savannah River, the Stevens Creek plant will generate in accordance with the schedule in Table 3-2 to approximate the scheduled daily average discharge from Thurmond Dam on weekdays, with the Stevens Creek Reservoir elevation fluctuating within its normal operating range (EL 183.0 feet to 187.5 feet) daily, but gradually increasing to approximately EL 186.0 feet by midnight on Friday night, so that stored water will be available to supplement the typically low weekend discharges from Thurmond Dam.

SCHEDULED THURMOND DISCHARGE - CFS								
Stevens Creek Headwater	2500	2700	2900	3000	3200	3500	3800	4000
Elevation (ftNGVD 1929*)								
	MW	MW	MW	MW	MW	MW	MW	MW
183.0-184.0	3.5	3.8	4.1	4.2	4.5	5.0	5.4	5.7
184.0-186.0	3.9	4.2	4.5	4.7	5.0	5.5	6.0	6.3
186.0-187.0	4.5	4.9	5.2	5.4	5.7	6.2	6.8	7.1
187.0-187.5	4.9	5.2	5.6	5.7	6.1	6.6	7.1	7.4
SCHEDULED THURMOND DISCH	ARGE -	CFS						
Stevens Creek Headwater	4300	4500	4700	5000	5800	6300	6600	7000
Elevation (ftNGVD 1929)								
	MW	MW	MW	MW	MW	MW	MW	MW
183.0-184.0	6.2	6.5	6.8	7.2	8.4	9.2	9.6	10.2
184.0-186.0	6.8	7.1	7.4	7.9	9.2	10.0	10.5	11.1
186.0-187.0	7.6	7.9	8.3	8.8	10.2	11.0	11.5	12.2
187.0-187.5	7.9	8.3	8.6	9.1	10.5	11.3	11.8	12.5

 TABLE 3-2
 STEVENS CREEK GENERATION SCHEDULE

Source: Stevens Creek Hydroelectric Project Operations Plan, rev. June 22, 2018 * ft, NGVD 1929 feet in National Geodetic Vertical Datum 1929

When daily average discharges from Thurmond Dam vary from those originally scheduled, Stevens Creek Project operation is adjusted as needed to accommodate the change. In the normal flow range, the re-regulating operation at Stevens Creek requires using the full active storage (between EL 183.0 feet and 187.5 feet).

3.4.4 OPERATION CONDITIONS – LOW FLOWS (INFLOWS OF 4,000 CFS TO 4,200 CFS)

During periods of low flow in the Savannah River, when Thurmond Dam discharges are reduced to a daily average of 4,000 cfs to 4,200 cfs, the Stevens Creek Project will continue to generate in accordance with the schedule in Table 3-2 to approximate the scheduled daily average discharge from Thurmond Dam. The plant would generate 6 MW to 9 MW, depending on the reservoir elevation. The primary difference from normal conditions would be that the discharge from the Stevens Creek Project would not exceed approximately 4,200 cfs unless more water is discharged from Thurmond Dam. Stevens Creek reservoir fluctuation would be slightly less than under normal conditions, due to the reduced storage required to re-regulate the lower Thurmond Dam discharges.

3.4.5 OPERATION CONDITIONS – DROUGHT (INFLOW OF 3,800 CFS TO 4,000 CFS)

During periods of drought, when Thurmond Dam discharges are reduced to a daily average of 3,800 cfs to 4,000 cfs, the Stevens Creek Project will continue to generate in accordance with the schedule in Table 3-2 to approximate the scheduled daily average discharge from Thurmond Dam. The Project would generate 5 MW to 7 MW, depending on the reservoir elevation. The primary difference from normal conditions would be that the discharge from Stevens Creek Project would not exceed approximately 4,000 cfs unless more water is discharged from Thurmond Dam. Stevens Creek Reservoir fluctuation would be slightly less than under normal conditions, due to the reduced storage required to re-regulate the lower Thurmond Dam discharges.

3.4.6 OPERATION CONDITIONS – SEVERE DROUGHT (INFLOW OF LESS THAN 3,800 CFS)

During periods of severe drought, when Thurmond Dam discharges are less than 3,800 cfs, the Stevens Creek Project will continue to generate in accordance with the schedule in Table 3-2 to approximate the scheduled daily average discharge from Thurmond Dam. Daily average discharge from Thurmond Dam can fall as low as 3,100 cfs as noted in the Savannah River Basin Drought Management Plan.

3.5 CURRENT NET INVESTMENT

The current net investment for the Project as of December 31, 2019 is identified in Appendix D, which is filed as Privileged.

3.6 SUMMARY OF PROJECT GENERATION AND OUTFLOW RECORDS

From 2014 to 2018, total Project gross generation has averaged 61,288 MWh, ranging annually from approximately 44,000 to 80,500 MWH.

Discharges from the Project are measured at the U.S. Geological Survey (USGS) Streamflow Gage No. 02197000 (Savannah River at Augusta, Georgia). This gaging station is also referred to as the Butler Creek gage and is located approximately 12 miles downstream of Stevens Creek Dam, and a short distance downstream of the New Savannah Bluff Lock and Dam operated by USACE. Flows released from the Stevens Creek Dam (as measured at the above gage) for the past five years have averaged 8,118 cfs. The minimum instantaneous flow was 2,460 cfs, occurring on June 5, 2019 and the maximum instantaneous flow was 54,700 cfs, occurring on January 2, 2016.

3.7 CURRENT LICENSE REQUIREMENTS

The current Project license contains several Project-specific requirements in addition to the general L-form license articles required of all FERC licensees (FERC 1995). Project-specific requirements relating to operating the Project are summarized below. License articles are included in their entirety in the current Project license (Appendix E).

Article 402: Article 402 requires the Project to be operated to re-regulate releases from the upstream Thurmond Dam. This article further details that the licensee shall contact the Thurmond Dam operators to obtain the predicted operating schedule for the Thurmond Dam and release all flow discharged to it from the Thurmond Dam on a weekly basis. The licensee is required operate the Project with the goal of attaining full pool by the end of the Thurmond Dam's production week to provide, to the extent practicable, a continuous weekend release. This article further requires that the Project is operated in order to minimize pool fluctuations to the extent practicable while discharging flow in response to daily and weekly projects from the Thurmond Dam. Additionally, the reservoir shall be maintained between EL 183.0 feet and 187.5 feet NGVD.

Article 403: Article 403 details the filing and updating of the Project operating plan. The operating plan is required to be updated every five years to accommodate changing operations at up-stream or down-stream dams. The operating plan shall address Project flows, placing particular emphasis on minimizing reservoir fluctuations from March through June, which encompasses the spawning periods of the majority of important game fish. The plan shall also address emergency plant shutdowns, procedures to follow when the flashboards trip, notification of down-stream users

when the minimum flow cannot be provided, provisions to address potential future minimum release requirements at the Augusta Diversion Dam, and operating rules that correspond to the anticipated range of average daily flows from the Thurmond Dam.

Article 404: Article 404 details the licensee's participation in a cooperative planning process for enhancing dissolved oxygen in the Stevens Creek Reservoir and downstream of the Stevens Creek Dam. This article also requires the filing of annual water quality monitoring status reports.

Article 405: Article 405 requires the filing of a water quality monitoring plan for FERC approval. The licensee shall collect data on pH, temperature, dissolved oxygen, and conductivity on a monthly basis from seven monitoring locations. The monitoring results shall be included in the annual status reports required in Article 404. When dissolved oxygen enhancement measures are in place and the monitoring data show that state dissolved oxygen standards are consistently being met in the Stevens Creek Reservoir and down-stream of the dam, the Licensee may petition FERC to reduce the frequency of water quality monitoring.

Article 406: Article 406 requires the licensee to fund resource-based activities in the Savannah River basin in the amount of \$4,700 (1995 dollars), annually. These payments are adjusted to reflect changes in the Consumer Price Index.

Article 407: Within six months after license issuance, and every ten years thereafter, the licensee shall file a resource enhancement plan and implementation schedule for FERC approval using the funds described in Article 406. The plan shall describe specific enhancement activities to be undertaken and contain provisions to monitor the success of these measures. The licensee shall finance the enhancement measures annually, until or unless the FERC determines otherwise. Any enhancement activities may include, but are not limited to, fish stocking, habitat improvement projects, and dissolved oxygen improvement.

Article 408: Article 408 requires the licensee to provide for the construction, maintenance, and operation of upstream fish passage facilities at its own expense as prescribed by the Secretary of the Interior and Secretary of Commerce. Upstream fish passage facilities shall consist of a refurbished navigation lock at the Stevens Creek Dam, which shall be operated using attraction flows or other fish attraction mechanisms to provide a minimum of 30 lockages during the American shad migration season. The licensee shall complete design of upstream fish passage facilities at the Project if and when upstream fish passage facilities are installed at the Augusta

diversion dam downstream of the Project. Actual construction and operation of the USFWSapproved final design will be required within two years after fish passage facilities are in place at the Augusta diversion dam, unless the licensee can effectively document that upstream fish passage facilities at the Augusta diversion dam are not successfully passing anadromous fish species upstream to the Stevens Creek Dam. In such case, the licensee shall provide upstream fish passage facilities within two years after fish passage facilities are successfully operating at the Augusta diversion dam.

Article 409: Article 409 details the filing of an aquatic plant management plan for FERC approval.

Article 410: Article 410 requires the licensee to maintain a 50-foot shoreline buffer of trees on licensee-owned land on the Stevens Creek Reservoir to minimize soil erosion and maintain aesthetic quality.

Article 413³: Article 413 details the development and submittal of a Project recreation plan to include the following recreation enhancements:

- 1. Existing Stevens Creek recreation site The licensee shall provide the following enhancements in addition to the existing facilities:
 - a. One barrier-free picnic table
 - b. One barrier-free restroom
 - c. A paved access road, parking for 20 vehicles, and turn-around area
 - d. One barrier-free parking space
- 2. Existing Fury's Ferry recreation site The licensee shall provide the following enhancements in addition to the existing facilities:
 - a. Three picnic tables, one of which is barrier-free
 - b. Paved walkways and a shoreline trail
 - c. One stationary barrier-free fishing pier with a floating boat dock
 - d. One barrier-free rest room
 - e. Gravel parking for 20 vehicles, including one barrier-free parking space
- 3. Proposed recreation site #1 (Mims Site) The licensee shall develop appropriate access to this site and provide:
 - a. An unpaved boat launch
 - b. Gravel parking area for six cars and four trailers

³ Article 413 has been revised since the original license order and several recreation sites were removed from the Recreation Management Plan as described in Section 3.8.

- c. One trash receptacle and safety sign
- 4. Proposed recreation site #2 (Chota Drive) This licensee shall develop appropriate access to this site and provide:
 - a. An unpaved boat launch
 - b. Gravel parking area for seven cars and four trailers
 - c. Four fishing stations connected by 520 feet of trails. The fishing stations shall consist of cleared areas on the bank of the creek. Three years after construction, the licensee shall evaluate the fishing stations to determine if benches are appropriate.
 - d. One safety sign
- 5. Tailwater Fishing Platform The licensee shall provide:
 - a. A shore fishing platform below the dam on the Georgia side of the river
 - b. Parking for 10 vehicles, including one barrier-free parking space
 - c. A walkway from the parking area to the fishing platform
 - d. One safety sign

In addition, the licensee shall restrict access to the area in the Sumter National Forest at the end of Forest Road 636B that was originally proposed as a recreation site by installing a gate across the access road to the site. The recreation plan shall comply with the Cultural Resources Management Plan for the project, include a schedule for implementing improvements, and a maintenance plan. The licensee shall provide funds to the Forest Service to maintain the existing Fury's Ferry recreation site and proposed recreation sites #1 and #2. The design and construction of all recreational facilities shall comply with the standards and provisions of the Americans with Disabilities Act (ADA).

Article 414: Article 414 states that a recreation plan update must be filed with the Commission every six years following license issuance, in conjunction with the Form 80 filing. The six-year recreation plan updates must include:

- 1. Annual recreation use figures for the reservoir and recreation sites,
- 2. A discussion of the adequacy of the licensee's recreation facilities to meet recreation demand.
- 3. An assessment of the need for new or expanded facilities
- 4. A description of the methodology used to collect all study data.
- 5. Consideration of the following project-specific issues:
 - a. Safety, security and vandalism

- b. Navigational problems such as shallow water, heavy boat traffic, and aquatic weed growth
- c. The viability of providing a recreation site, including a year-round accessible boat launch ramp, on the Georgia-side of the reservoir.

If the Commission determines that recreation facilities in the Project area are inadequate to meet demand, the Commission may require the Licensee to provide recreation facilities adequate to meet recreation needs in the Project area.

3.8 COMPLIANCE SUMMARY

Compliance with the Project-specific license requirements is described below.

Articles 402 and 403: DESC currently operates the Project according to requirements in Article 402 and maintains the reservoir level within the required fluctuation range of 183.0 feet to 187.5 feet NGVD29. DESC developed their original operating plan according to Article 403 and FERC approved this plan on September 13, 1996. As required by Article 403, DESC updates the operating plan every five years, with the most recent revised operating plan approved by FERC on June 22, 2018. The article also requires DESC to file annual operation reports with FERC. DESC filed the most recent operation report on January 31, 2020.

Articles 404 and 405: DESC prepares an annual Dissolved Oxygen (DO) report according to the requirements listed in Articles 404 and 405. The most recent DO report was filed with FERC on January 31, 2020.

Articles 406 and 407: According to Article 407, DESC must file a resource enhancement plan and implementation schedule every 10 years during the license term using the funds described in Article 406. DESC filed the Fisheries Resource Enhancement Plan and Implementation Schedule for the period 2006-2015 on November 7, 2005 and FERC approved the plan on October 20, 2006. DESC filed the Fisheries Resource Enhancement Plan and Implementation Schedule for the period 2016-2025 on November 4, 2015 and FERC approved this plan on February 25, 2016. DESC is due to submit the next revised plan in 2025.

Article 408: DESC is required to provide for the construction, maintenance, and operation of upstream fish passage facilities as prescribed by the Secretary of the Interior and Secretary of Commerce. Actual construction and operation of the fish passage facility will be required within

two years after successful fish passage facilities are installed at the Augusta Diversion Dam downstream of the Project. Fish passage facilities have not yet been installed at the Augusta Diversion Dam.

Article 409: DESC filed an Aquatic Plant Management Plan for the Project according to Article 409 on May 23, 1996. FERC approved the plan on December 4, 1996. DESC continues to implement appropriate plant control measures according to this plan.

Article 410: As required in this article, DESC maintains a 50-foot shoreline buffer of trees on licensee-owned land at the Project.

Articles 413 and 414: DESC developed their original Recreation Plan in 1997. An updated Recreation Plan was filed with FERC on February 5, 2014 and supplemented September 11, 2014. FERC approved the revised Recreation Plan on March 24, 2015. DESC filed a recreation plan status report pursuant to paragraph (G) of the March 24, 2015 Order and Article 414 on July 16, 2015. FERC approved this status report on July 7, 2016. The next update will be filed between April 1 and October 1, 2021.

There are two changes to the requirements in the original Article 413 to note. First, after consultation with the Forest Service and other applicable agencies, DESC filed a request to amend Article 413 and the Project Recreation Plan to remove proposed Recreation Site #1 (Mims Site) from the Plan. As of the filing of this PAD, this request is currently pending with the Commission. Second, the tailwater fishing platform was to be located in close proximity to Stallings Island, a National Historic Landmark, sparking concern that vandalism of the site could increase. For this reason, the tailwater fishing platform requirement was removed from Article 413.

3.9 A DESCRIPTION OF NEW FACILITIES OR COMPONENTS TO BE CONSTRUCTED, PLANS FOR FUTURE DEVELOPMENT OR REHABILITATION OF THE PROJECT, AND CHANGES IN PROJECT OPERATION

There are no current plans for additional facilities, or modification of existing Project structures or equipment. Additionally, no changes to currently licensed operations are planned for the Project. Studies and relicensing consultation may result in modifications of Project features or operations, and any such plans will be submitted as part of the FLA.

3.10 **References**

- Federal Energy Regulatory Commission (FERC). 1995. Order Issuing New License. South Carolina Electric & Gas Company, Project No. 2535-003 South Carolina/Georgia.
- FERC. 2018. Order Approving Revised Operating Plan Pursuant to Article 403. South Carolina Electric & Gas Company. Project No. 2535-123. Issued June 22, 2018.

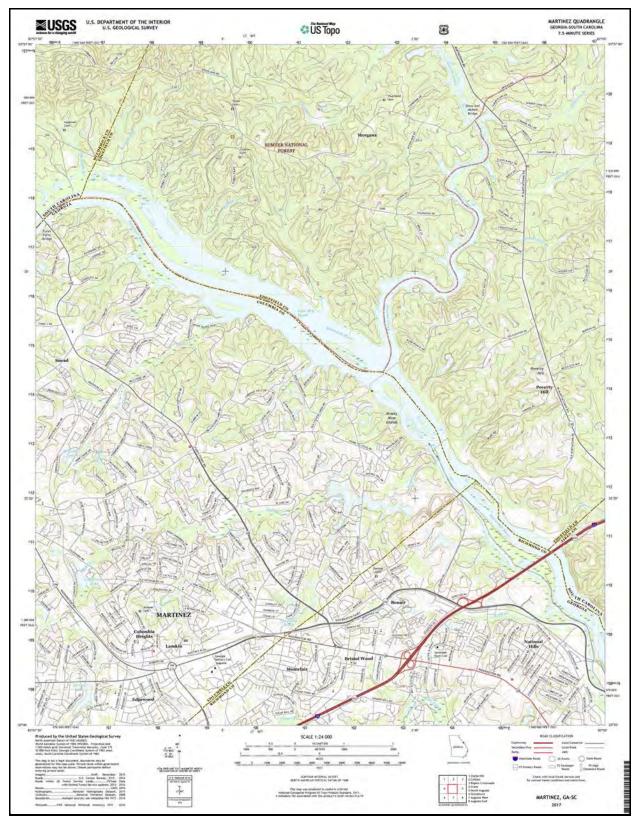
4.0 EXISTING ENVIRONMENT AND RESOURCE IMPACTS [§ 5.6 (d)(3)(i)]

4.1 GEOLOGY AND SOILS [§ 5.6 (D)(3)(II)]

4.1.1 DESCRIPTION OF GEOLOGICAL FEATURES

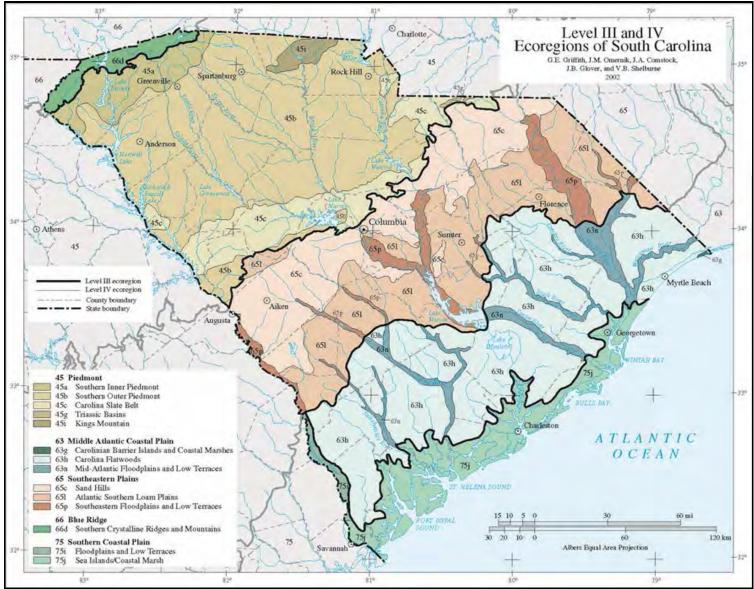
The Project is located between the borders of Columbia County, Georgia and Edgefield and McCormick Counties South Carolina, in the Piedmont physiographic region. The region generally consists of rolling hills dissected by narrow stream and river valleys. Elevations within the region range from approximately 400 feet to 1,000 feet (SCDNR 2019).

The Piedmont region within South Carolina is subdivided into four ecoregions. The Project is located within the Southern Outer Piedmont ecoregion; which tends to have lower elevations, less relief, and irregular plains when compared to other Piedmont ecoregions. The Piedmont region within Georgia is subdivided into five ecoregions. As is the case with South Carolina, the Project is located within the Southern Outer Piedmont ecoregion. General rock types within the region include gneiss, schist, and granite overlain by saprolite and red, clayey subsoils. Local formations within the Project area include migmatite paragneiss and schist of Kiokee belt in Georgia and the Savannah River terrane in South Carolina (SCDNR 2019). The most common rock types are metasedimentary, including biotite-amphibole paragneiss, sillimanite schist, and quartzite.



Source: USGS 2017

FIGURE 4-1 TOPOGRAPHY IN THE PROJECT AREA



Source: Griffith et al. 2002



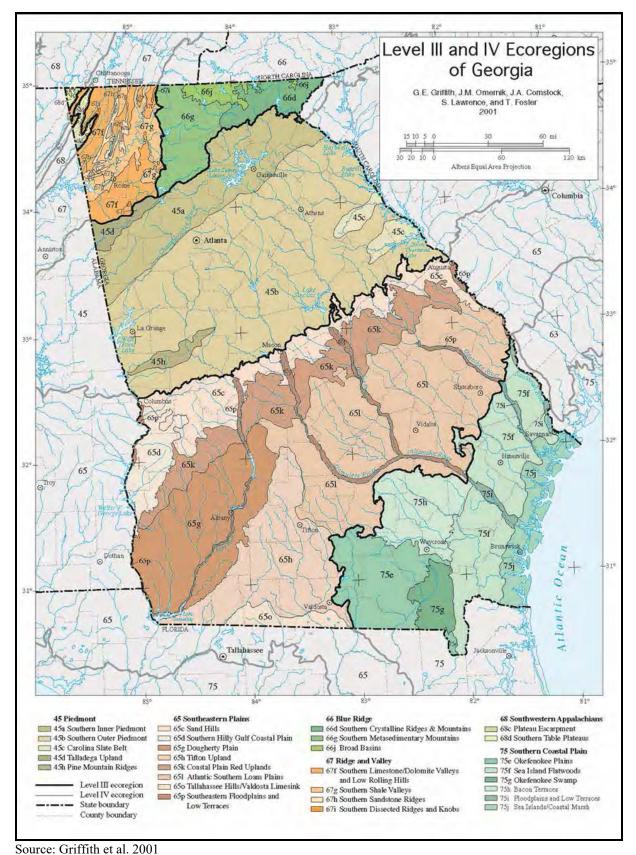


FIGURE 4-3 ECOREGIONS IN GEORGIA

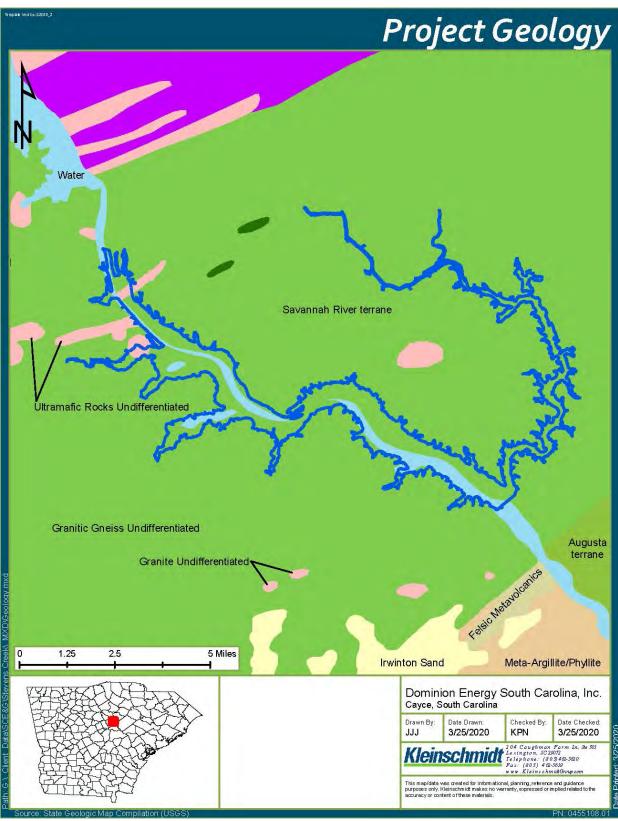


FIGURE 4-4 GENERAL GEOLOGY SURROUNDING THE PROJECT

4.1.2 **DESCRIPTION OF SOIL TYPES**

Table 4-1 and Figure 4-5 describe soils surrounding the Project area. The most prevalent soil families in the Project area include the Wehadkee, Chewacla, Congaree, Toccoa, Cartecay, and the Cecil-Pacolet (NRCS 2014). The Wehadkee family soils, consisting primarily of silt loams, are poorly drained with zero percent to two percent slopes. Chewacla family soils, consisting of silt loams, loams, and sandy clay loams, are somewhat poorly drained with zero percent to two percent slopes. Congaree family soils, consisting primarily of silt loams, are well drained with zero percent to two percent slopes. Toccoa family soils, consisting of primarily sandy loams, are moderately well drained with zero percent to two percent slopes. Cartecay family soils, consisting of very fine sandy loams, are somewhat poorly drained with zero percent slopes. Cecil-Pacolet complex consists of both Cecil and Pacolet family soils. Cecil family soils, consisting of sandy loams, are well drained with 15 percent to 25 percent slopes. Pacolet family soils, consisting of sandy loam and clay, are also well drained with 15 percent to 25 percent slopes.

	COLUMBIA, MCDUFFIE, AND WARREN COUNTIES, GEORGIA	L	
Map Unit	Map Unit Name	Acres in	Percent
Symbol		AOI*	of AOI
AkA	Altavista sandy loam, 0 to 2 percent slopes	24.0	0.4%
AmB	Appling sandy loam, 2 to 6 percent slopes	30.2	0.5%
AmC	Appling sandy loam, 6 to 10 percent slopes	14.6	0.2%
CfB2	Cecil sandy clay loam, 2 to 6 percent slopes, eroded	6.0	0.1%
CfC2	Cecil sandy clay loam, 6 to 10 percent slopes, eroded	9.1	0.1%
CfE2	Cecil sandy clay loam, 10 to 25 percent slopes, moderately eroded	73.0	1.2%
CK	Chewacla and Congaree soils	474.5	7.7%
EnD	Enon sandy loam, 10 to 15 percent slopes	20.2	0.3%
GeB	Grover sandy loam, 2 to 6 percent slopes	0.0	0.0%
GeC	Grover sandy loam, 6 to 10 percent slopes	0.6	0.0%
GeD	Grover sandy loam, 10 to 15 percent slopes	0.2	0.0%
HeB	Helena loamy coarse sand, 2 to 6 percent slopes	6.2	0.1%
HeC	Helena loamy coarse sand, 6 to 10 percent slopes	6.4	0.1%
MdB	Madison sandy loam, 2 to 6 percent slopes	0.0	0.0%
MdC	Madison sandy loam, 6 to 10 percent slopes	8.7	0.1%
MdE	Madison sandy loam, 10 to 25 percent slopes	5.5	0.1%
Tv	Toccoa loam	266.9	4.4%
W	Water	1,079.7	17.6%
WeB	Wedowee loamy sand, 2 to 6 percent slopes	1.9	0.0%
WeC	Wedowee loamy sand, 6 to 10 percent slopes	6.2	0.1%
WeD	Wedowee loamy sand, 10 to 15 percent slopes	19.1	0.3%
WeE	Wedowee loamy sand, 15 to 25 percent slopes	7.9	0.1%
Wf	Wehadkee silt loam	621.2	10.1%
WhB	Wickham fine sandy loam, 2 to 6 percent slopes	92.0	1.5%
Subtotals for	Soil Survey Area	2,774.4	45.3%
	EDGEFIELD COUNTY, SOUTH CAROLINA		
Map Unit	Map Unit Name	Acres in	Percent
Symbol		AOI	of AOI
ApB	Appling sandy loam, 2 to 6 percent slopes	7.0	0.1%
ApC	Appling sandy loam, 6 to 10 percent slopes	11.6	0.2%
CaB	Cataula sandy loam, 2 to 6 percent slopes	1.8	0.0%
CaC	Cataula sandy loam, 6 to 10 percent slopes	4.7	0.1%
CcB	Cecil sandy loam, 2 to 6 percent slopes	3.1	0.1%
CcC	Cecil sandy loam, 6 to 10 percent slopes	1.5	0.0%
CcD	Cecil sandy loam, 10 to 15 percent slopes	71.3	1.2%
СрЕ	Cecil-Pacolet complex, 15 to 25 percent slopes	240.1	3.9%
Cw	Chewacla loam, 0 to 2 percent slopes, frequently flooded	74.8	1.2%
EN	Enoree silt loam, 0 to 2 percent slopes, frequently flooded	29.4	0.5%
HwB	Hiwassee sandy loam, 2 to 6 percent slopes	6.9	0.1%
HwC	Hiwassee sandy loam, 6 to 10 percent slopes	32.1	0.5%
HwD	Hiwassee sandy loam, 10 to 15 percent slopes	0.1	0.0%
MeB	Mecklenburg sandy loam, 2 to 6 percent slopes	0.1	0.0%
Rv	Riverview silt loam	44.3	0.7%

TABLE 4-1 GENERAL GEOLOGY SURROUNDING THE PROJECT

То	Toccoa sandy loam	438.1	7.2%
W	Water	1,328.2	21.7%
WeE	Wateree sandy loam, 10 to 25 percent slopes	2.0	0.0%
WkE	Wilkes sandy loam, 15 to 40 percent slopes	14.8	0.2%
WnB	Winnsboro fine sandy loam, 2 to 6 percent slopes	1.0	0.0%
WnD	Winnsboro fine sandy loam, 10 to 15 percent slopes	2.2	0.0%
Subtotals for	Soil Survey Area	2,315.1	37.8%
	MCCORMICK COUNTY, SOUTH CAROLINA		
Map Unit	Map Unit Name	Acres in	Percent
Symbol		AOI	of AOI
ApB	Appling loamy sand, 2 to 6 percent slopes	4.3	0.1%
ApC	Appling loamy sand, 6 to 10 percent slopes	0.4	0.0%
Ca	Cartecay and Toccoa soils	352.4	5.8%
CdB	Cecil sandy loam, 2 to 6 percent slopes	16.0	0.3%
CdC	Cecil sandy loam, 6 to 10 percent slopes	1.6	0.0%
Cn	Chewacla loam, 0 to 2 percent slopes, frequently flooded	90.0	1.5%
LoE	Louisburg loamy sand, 10 to 25 percent slopes	2.3	0.0%
PaF	Pacolet sandy loam, 15 to 40 percent slopes	0.4	0.0%
W	Water	283.6	4.6%
We	Wehadkee soils	282.4	4.6%
Subtotals for Soil Survey Area		1,033.5	16.9%
Totals for A	rea of Interest	6,123.0	100.0%

Source: NRCS 2014

*AOI area of interest

Project Soils

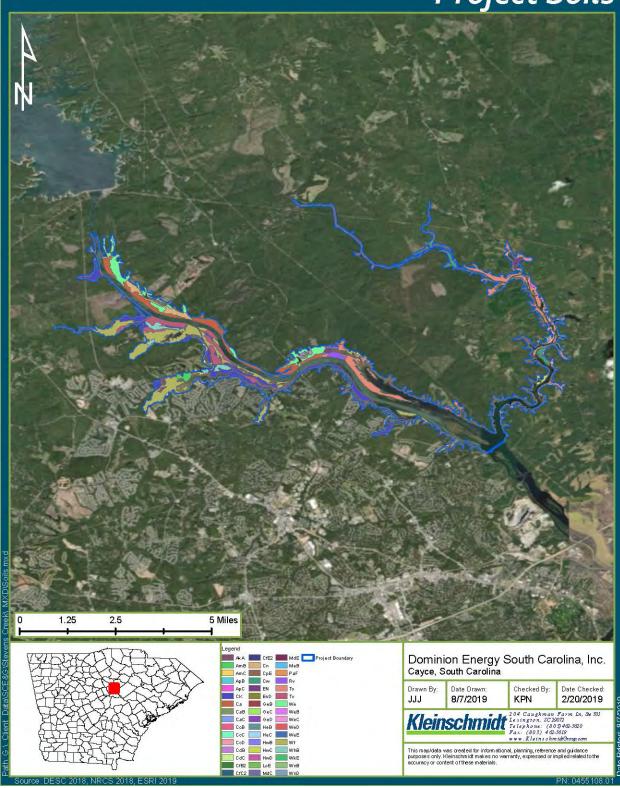




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4.1.3 DESCRIPTION OF RESERVOIR SHORELINES AND STREAM BANKS

Most of the area within the Project boundary consists of gradual slopes ranging from zero percent to five percent. Some smaller portions of the shoreline contain steeper slopes ranging from 5 percent to 45 percent. Figure 4-6 illustrates representative slopes within the Project boundary.

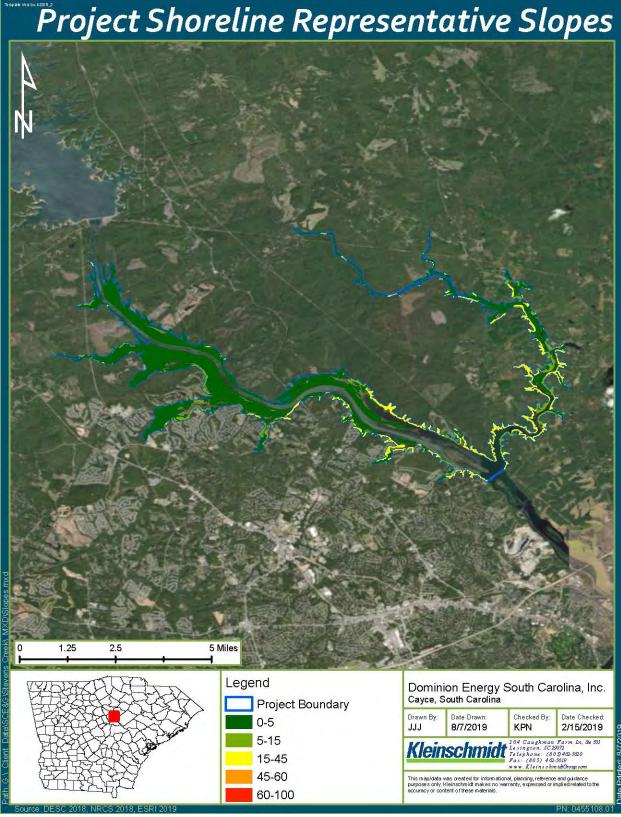


FIGURE 4-6 SLOPES WITHIN PROJECT BOUNDARY

Shorelines within the Project boundary are subject to anthropogenic disturbances including residential developments and structures to support recreational and Project-related activities. Shorelines surrounding the Project are primarily forested, with a large majority of the northern shoreline bordering Forest Service lands. The western shoreline in Georgia and the eastern shoreline in South Carolina contain the areas most influenced by residential development.

4.1.4 EXISTING EROSION, MASS SOIL MOVEMENT, SLUMPING, OR OTHER FORMS OF INSTABILITY

DESC performs annual shoreline inspections at Stevens Creek Reservoir to identify any areas of erosion along the shorelines. Annual erosion inspections are generally conducted simultaneously with required inspections of historic properties at the Project. Shoreline inspections at the Project are conducted upstream of Stevens Creek Dam following both the Stevens Creek and Savannah River arms. Stevens Creek shorelines are inspected up to the Woodlawn Road Bridge. Savannah River shorelines are inspected up to the Thurmond Dam. Inspections during 2017 and 2018 found no signs of significant erosion. Shorelines were found to be well vegetated with aquatic vegetation as well as mature timber that provides adequate protection from erosion during normal river flows and plant operations.

4.1.5 POTENTIAL ADVERSE EFFECTS AND ISSUES

Fluctuations of Stevens Creek Reservoir caused by operations of Thurmond Dam have the potential to contribute to shoreline erosion at the reservoir. DESC monitors the shorelines annually for signs of erosion. Shoreline erosion is currently not a significant issue at Stevens Creek Reservoir.

Sedimentation within the Project reservoir was identified as a concern during public scoping meetings. Sedimentation was noted as an issue by a resident on the Georgia side of Stevens Creek Reservoir. Sedimentation is also known to occur around the confluence of Stevens Creek and the Savannah River. Individuals indicated that navigation can be difficult in this area due to high sediment deposits, causing boaters to enter the buoy lines upstream of the dam to access the main river channel. Although a navigation concern, the sedimentation has not caused any issues with Project operations. High sediment load in the Project waters is attributed to heavy rains and high flows in the Project area. Sediment deposits appear to change depending on these factors.

Additionally, the Stevens Creek arm of the Project has been noted as contributing a high degree of sediment to the Project Area. This has been attributed to "King Cotton"-era agricultural erosion which has accumulated in stream valleys and braided portions of the river basin, and is transported downstream during high flow events (Alderman 2017).

4.1.6 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

No mitigation or enhancement measures relating to geology and soils at the Project are planned. Should questions about Project effects on geology or soils arise during relicensing, DESC will consider appropriate actions to assess these questions and determine if mitigation is appropriate and has a Project nexus. If any major structural changes of the Project are planned, construction will comply with appropriate sediment erosion control requirements; however, no structural changes to the Project are proposed.

4.1.7 **REFERENCES**

- Alderman Environmental Services, Inc. (Alderman). 2017. Sumter National Forest Freshwater Mussel Survey Report. Prepared for the U.S. Forest Service. September 2017.
- Griffith, G.E., J.M. Omernik, J.A. Comstock, S. Lawrence, and T. Foster. 2001. Level III and IV Ecoregions of Georgia: Corvallis, Oregon. U.S. Environmental Protection Agency (map scale 1:1,500,000).
- Griffith, G.E., J.M. Omernik, J.A. Comstock, J.B. Glover, and V.B. Shelburne. 2002. Level III and IV Ecoregions of South Carolina: Corvallis, Oregon. U.S. Environmental Protection Agency (map scale 1:1,500,000).
- South Carolina Department of Natural Resources (SCDNR). 2019. Piedmont Ecoregion Aquatic Habitats. Online URL:<u>https://www.dnr.sc.gov/cwcs/pdf/habitat/PiedmontAquatic.pdf.</u> Accessed on February 5, 2019.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2014. Web Soil Survey. Online URL: <u>http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.</u> Accessed February 5, 2019.
- U.S. Geological Survey (USGS). 2017. Martinez Quadrangle, Georgia-South Carolina, 7.5-Minute Series. The National Map: US Topo.

4.2 WATER RESOURCES [§ 5.6 (D)(3)(III)]

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 discharge. Article 402 of the existing license requires the licensee to obtain the predicted Thurmond Dam discharge schedule from the USACE to minimize pool fluctuations while providing discharges in response to Thurmond Dam's planned operational schedule. DESC maintains the Stevens Creek Reservoir between EL 183.0 feet and 187.5 feet NGVD in accordance with the FERC operating license for the Project.

DESC files updates to the operating plan with FERC every five years pursuant to License Article 403. The operating plan describes operational protocols at the Project based on releases from Thurmond Dam during flood conditions (i.e., higher than 30,000 cfs), high flow conditions (8,300 to 30,000 cfs), normal flows (4,200 to 8,300 cfs), low flows (4,000 to 4,200 cfs), drought (3,800 to 4,000 cfs), and severe drought (flows less than 3,800 cfs). The intent of the operating plan is to develop minimum flows for Stevens Creek under various operating conditions, improve operational efficiency, minimize reservoir fluctuations (particularly during March through June spawning periods), provide more uniform downstream flows, and to address planned storage under different Thurmond Dam operating scenarios. Re-regulation of river flows benefits downstream water users (e.g., Augusta Canal), sustains aquatic habitats, and improves water quality by re-oxygenating water released from the Thurmond Dam.

4.2.1 DRAINAGE AREA

The Project is approximately 8 RMs upstream of Augusta, Georgia, and 209 RMs from the Atlantic Ocean. The drainage area at the Project is approximately 7,173 square miles (FERC 1995) and is shown in Figure 4-7.

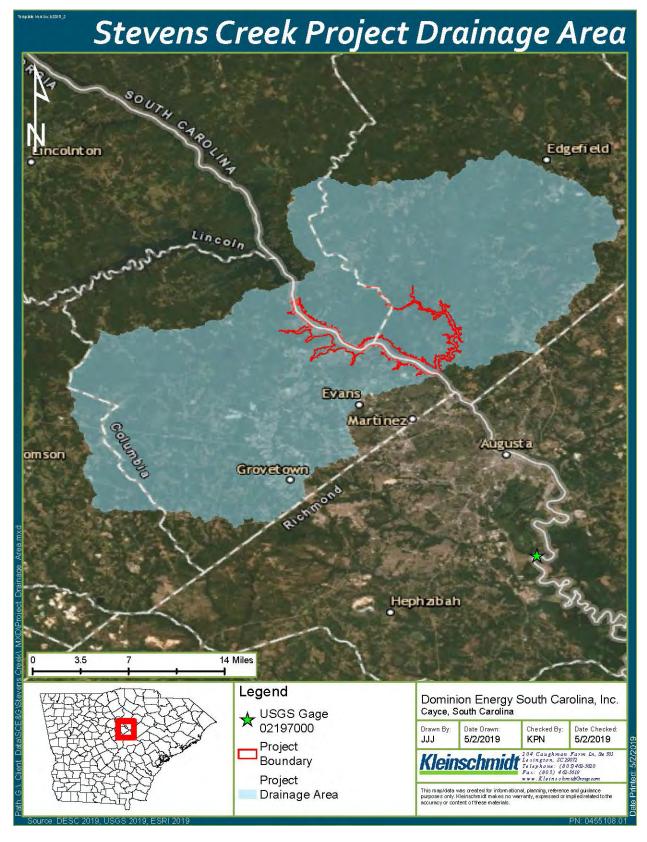


FIGURE 4-7 STEVENS CREEK PROJECT DRAINAGE AREA

4.2.1.1 **RIVER FLOW CHARACTERISTICS**

Mean, median, minimum, and maximum river flows by month as reported by USGS at river gage # 02197000 (Savannah River – Augusta; located just downstream of the New Savannah Bluff Lock and Dam (NSBLD) approximately 21 RMs downstream of the Stevens Creek Dam) are provided in Table 4-2. Annual and monthly flow duration curves are provided in Appendix F. Data from USGS gage # 02197000 was pro-rated by a factor of 0.95 (i.e., river flow values at the USGS gage were reduced by five percent) to account for the difference in the drainage area at the Project (7,173 square miles) and the gage (7,510 square miles). The period of record for this hydrologic analysis is 30 years (1990 to 2019).

Month	AVERAGE	MEDIAN	MINIMUM	MAXIMUM
January	12,449	8,483	4,311	49,637
February	12,929	9,562	4,913	43,343
March	13,360	10,104	4,941	32,678
April	10,711	8,363	5,034	29,809
May	9,602	7,630	5,317	30,136
June	9,088	7,773	5,264	36,296
July	9,448	7,891	5,231	40,673
August	9,467	8,294	5,297	34,202
September	8,247	7,523	5,390	24,205
October	8,453	7,222	4,732	49,339
November	9,421	7,226	3,875	42,199
December	11,123	7,863	5,372	33,817
Annual	10,339	7,894	3,875	49,637

TABLE 4-2MONTHLY MINIMUM, MEAN, AND MAXIMUM RIVER FLOWS
AT USGS GAGE # 02197000

Source: USGS 2019

4.2.2 EXISTING AND PROPOSED USES OF PROJECT WATERS

DESC operates the Project to generate hydropower and re-regulate flows from the Thurmond Dam Project. The USACE is authorized by Congress to manage the Thurmond Dam Project for water supply, water quality, hydropower production, flood risk management, downstream navigation, recreation, and fish and wildlife management. The Augusta Diversion Dam and Augusta Canal (FERC Project No. 11810), a 13-mile-long historic and functional canal, are located approximately one-mile downstream of the Project. The impoundment created by the Augusta Diversion Dam extends to the toe of the Stevens Creek Dam. Likewise, FERC project boundary associated with the Augusta Diversion Dam Project includes the impoundment up to the toe of the Stevens Creek Dam. The Augusta Canal was designed to harness waterpower at the Fall Line⁴ to drive mills, provide transportation of goods, and provide a municipal water supply. It is the only canal in the United States in continuous use for its original purposes of providing power, transport, and municipal water. Today, the Augusta Canal provides drinking water to the City of Augusta, recreational and tourism opportunities, and hydropower.

Municipalities and industries withdraw water from, and discharge treated waste water into the Savannah River in compliance with state permitting requirements. Entities near the Project withdrawing water from or discharging treated wastewater into the Savannah River include the City of Augusta (GA), the City of North Augusta (SC), Columbia County (GA) Water and Sewer, and Edgefield County Water and Sewer (SC). Columbia County's Little River Water Pollution Control Plant discharges to the Savannah River within the Project reservoir approximately one mile upstream of the Highway 28 bridge crossing.

4.2.3 EXISTING INSTREAM FLOW USES OF STREAMS IN THE PROJECT AREA THAT WOULD BE AFFECTED BY PROJECT OPERATION

DESC will continue to re-regulate river flow released from the USACE's upstream hydropower facilities. DESC is proposing no changes to operations that would affect the USACE facilities, the City of Augusta's Diversion Dam and canal system, or other water users. DESC holds all flowage easements necessary to operate the Project.

4.2.4 RELEVANT FEDERALLY APPROVED WATER QUALITY STANDARDS APPLICABLE TO PROJECT WATERS

The Environmental Protection Division of GADNR is charged with establishing and maintaining the quality and quantity of Georgia's water resources. South Carolina's water quality is managed and administered by the South Carolina Department of Health and Environmental Control. The

⁴ A 20-mile-wide geologic boundary that divides the Piedmont and Coastal Plain physiographic provinces.

Savannah River at the Project is a Class A water, with a designated use of drinking water. All freshwater systems in Georgia and South Carolina must meet the following criteria:⁵

- DO: A daily average of 5.0 milligrams per liter (mg/L) and no less than 4.0 mg/L for water supporting warm water species of fish.
- pH: Within the range of 6.0 8.5.
- Water Temperature: Not to exceed 90°F. At no time is the temperature of the receiving waters to be increased more than 5°F above intake temperature except that in estuarine waters the increase will not be more than 1.5°F.
- Safe Drinking Water Standards numerous standards exist for safe drinking water and pollutant discharges (e.g., arsenic, polychlorinated biphenyl [PCB]); however, given that the Project does not produce or discharge toxins, these standards are not discussed further.

The states of Georgia and South Carolina classified the Savannah River from J. Strom Thurmond Reservoir to Johnson's Landing as impaired due to low DO. The impaired reach includes the Project area, the USACE dams, and the Augusta Diversion Dam. Water released from behind the Thurmond Dam can have low DO levels depending on the depth of the withdrawal and the time of the year. A total maximum daily load (TMDL) was completed by the state of Georgia in 2000. In 2011, USACE installed a major oxygen diffuser system in the Thurmond Dam Reservoir to provide supplemental DO to support aquatic and fisheries habitat. The system consists of nine diffuser pipes installed at four elevations that supply DO to the impounded waters. The diffusers are supplied with pure gaseous oxygen from an onsite liquid storage and supply facility. The oxygen supply facility is capable of infusing over 200 tons of oxygen per day.

4.2.5 EXISTING WATER QUALITY INFORMATION

As required by License Article 404 and Article 405 of the Project license, DESC has been involved with the collection and synthesis of DO, pH, conductivity, and water temperature data for the past 22 years at eight monitoring locations throughout the Stevens Creek Reservoir and in the tailwater. DESC files annual reports with FERC in January each year describing the monitoring results from the previous year. Data is provided by the USACE and the USGS for incorporation into the annual reports. Annual water quality reports are incorporated by reference into this filing.

⁵ Rules and Regulations of the State of Georgia (<u>http://rules.sos.ga.gov/GAC/391-3-6-.03</u>); South Carolina Water Classifications and Standards (<u>https://live-sc-dhec.pantheonsite.io/sites/default/files/media/document/R.61-68.pdf</u>).

Monitoring results from 2010 to 2019 revealed that DO levels in the Thurmond Dam and Stevens Creek reservoirs were above the instantaneous state standard (4 mg/L) during the winter and spring. The J. Strom Thurmond Reservoir begins to stratify annually in early summer, resulting in decreased DO levels near the low-level turbine intakes. DO levels typically become hypoxic/anoxic by mid-August within the hypolimnion of the J. Strom Thurmond forebay. DO levels in discharges from J. Strom Thurmond are typically below 4 mg/L starting in early July and continuing through October. During these seasonally low DO months, the main body of the Stevens Creek Reservoir in the Savannah River remained above the instantaneous standard for DO of 4 mg/L. DO levels in the Savannah River immediately downstream of the Project (i.e., in the tailwater) also remained above the 4 mg/L standard. The lowest DO levels in the Stevens Creek Reservoir are typically found in Stevens Creek, approximately three miles upstream of its confluence with the Savannah River. The J. Strom Thurmond Reservoir typically de-stratifies annually in mid-fall, resulting in DO levels in J. Strom Thurmond and Stevens Creek Reservoirs that meet or exceed state standards. The monitoring data demonstrate that re-oxygenation occurs as water passes through Stevens Creek Reservoir and the Stevens Creek powerhouse. Additionally, values for temperature, pH and specific conductivity were within the normal range through the main body of the reservoir and below the Project. Figure 4-8 depicts the locations at which DESC has collected water quality data under its current license requirements. Box plots of mean monthly water temperature, DO, specific conductance, and pH are provided in Figure 4-9 through Figure 4-14.

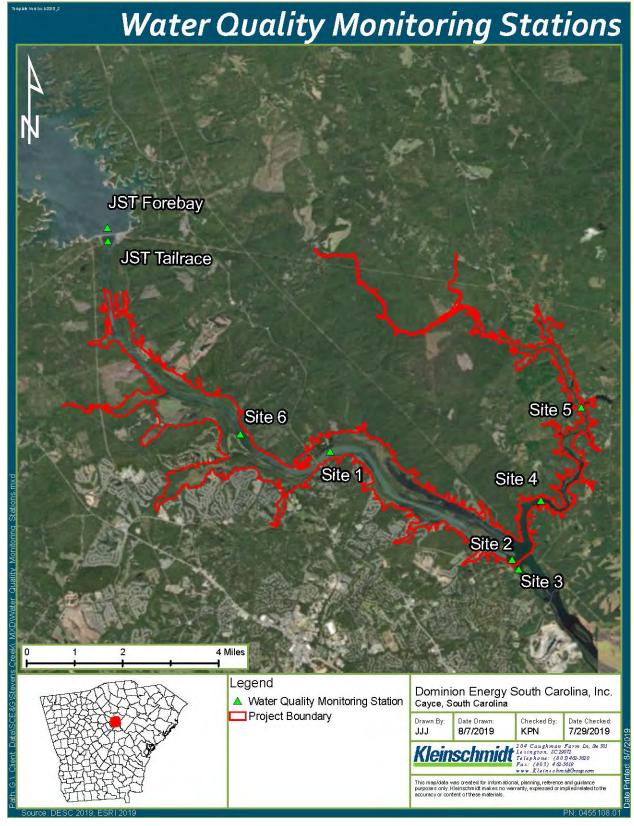


FIGURE 4-8 WATER QUALITY MONITORING STATIONS AT STEVENS CREEK PROJECT

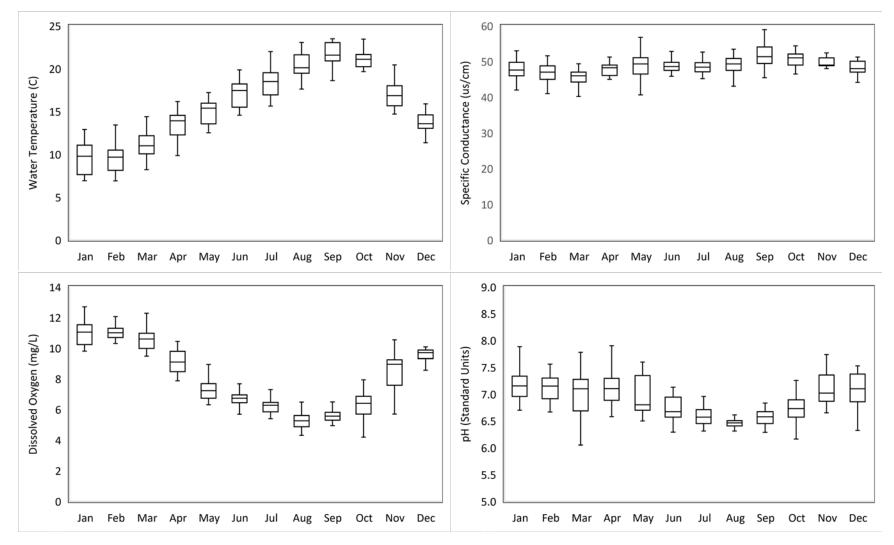


FIGURE 4-9 BOX PLOTS OF WATER QUALITY MEASUREMENT RESULTS AT SITE 1 (2010 - 2019)

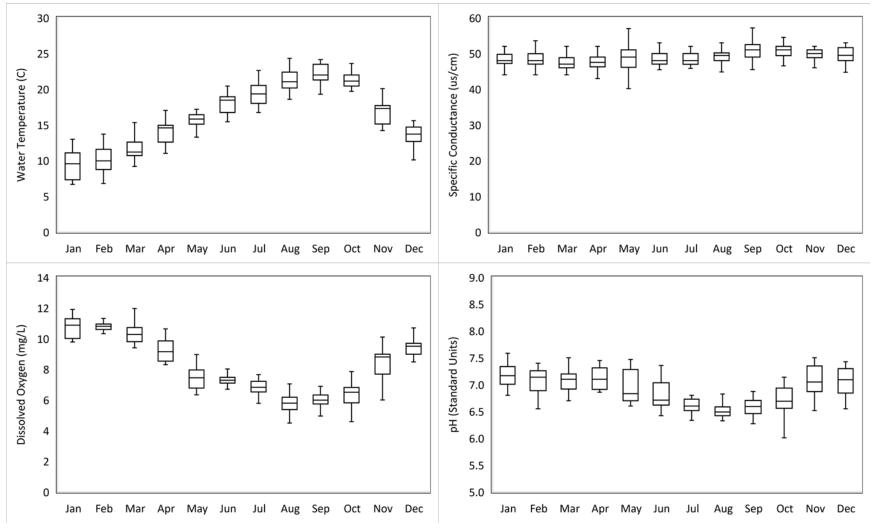


FIGURE 4-10 BOX PLOTS OF WATER QUALITY MEASUREMENT RESULTS AT SITE 2 (2010 - 2019)

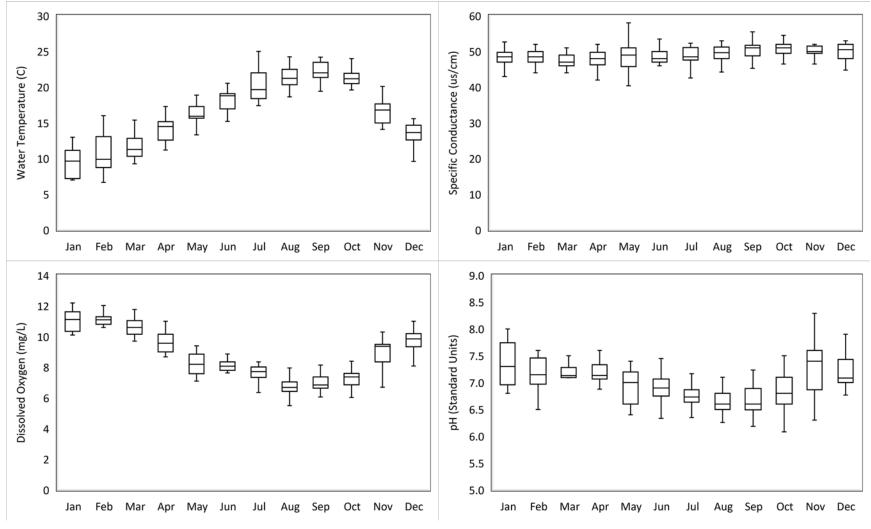
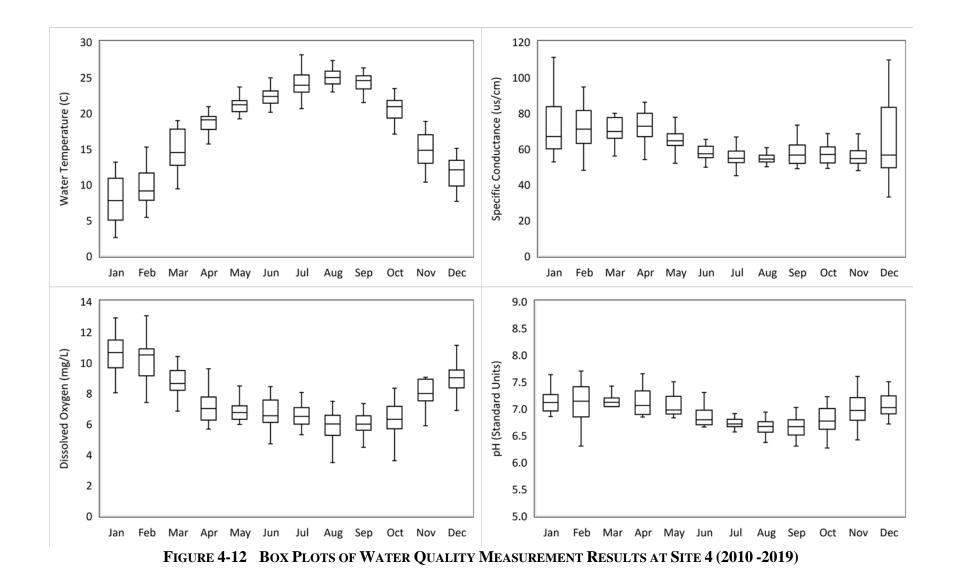


FIGURE 4-11 BOX PLOTS OF WATER QUALITY MEASUREMENT RESULTS AT SITE 3 (2010 - 2019)



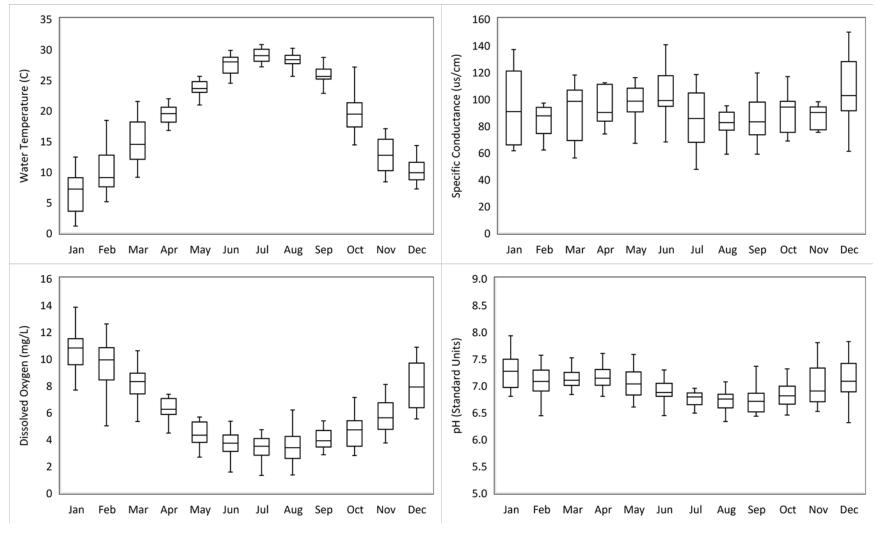


FIGURE 4-13 BOX PLOTS OF WATER QUALITY MEASUREMENT RESULTS AT SITE 5 (2010 - 2019)

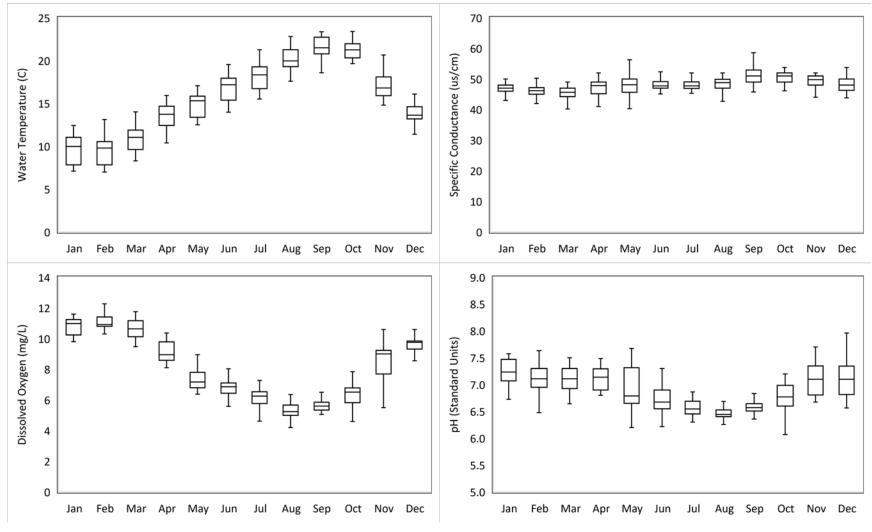


FIGURE 4-14 BOX PLOTS OF WATER QUALITY MEASUREMENT RESULTS AT SITE 6 (2010 - 2019)

Phinizy Center for Water Sciences (PCWS) has monitored DO, water temperature, pH, and specific conductance⁶ in the Savannah River at several stations since 2005. In water year 2017 (October 1, 2016 – September 30, 2017), PCWS's closest station to the Project was located at RM 202 at the base of the Augusta Shoals, which is approximately 7 RMs downstream of the Stevens Creek Dam. PCWS's sampling at RM 202 during the 2017 water year demonstrated that:⁷

- There were no average daily temperatures or instantaneous readings above the state standard of 90°F; average monthly water temperature ranged from 54.1°F in January to 77.9°F in August.
- There were no daily or instantaneous DO measurements below state standards during the 2017 water year; monthly average DO ranged from 8.2 mg/L in August to 10.5 mg/L in January.
- Monthly average pH met the standard (6.0 to 8.5) throughout the year; average monthly pH ranged from 7.0 to 7.3.
- Instantaneous pH was above 8.5 for 57.5 hours in 2017, primarily in May (86 percent of the values were measured in May); elevated pH values were attributed to high levels of production (i.e., photosynthesis) within the Augusta Shoals.
- Monthly average measurements of specific conductance ranged from 50.6 in November to 55.6 in September; specific conductance was relatively low at RM 202 as compared to stations lower in the river system.

In water years 2014, 2015, and 2016, PCWS monitored water quality at RM 214, which is, approximately 5 miles upstream from the Stevens Creek Dam and 8 miles downstream of the Thurmond Dam. PCWS's sampling during the 2016 water year at station 202 and 214 demonstrated that:⁸

- There were no average daily temperatures or instantaneous readings above the state standard of 90°F; average monthly water temperature ranged from 50.9°F in February to 76.1°F in September at RM 202 and from 48.6°F in February to 72.1°F in October within the Stevens Creek Reservoir at RM 214.
- Mean daily DO levels met or exceeded state water quality standards at RM 202 and 214; monthly average DO ranged from 8.2 mg/L in September to 11.1 mg/L in February at RM 202 and from 5.4 in August to 10.9 in February at RM 214.
- Monthly average pH ranged from 6.6 to 7.4 at RM 202 and from 6.1 to 6.9 at RM 214.
- Monthly average measurements of specific conductance ranged from 47.8 to 51.2 at RM 202 and from 45.8 to 52.9 at RM 214; specific conductance was relatively low at RM 202 and 214 as compared to stations lower in the river system.

⁶ Specific conductance is a measure of dissolved ions in the water and can be an indication of pollution.

⁷ PCWS 2017.

⁸ PCWS 2016.

• Water quality met or exceeded state standards at both sites.

Similar patterns were observed at RM 214 during water year 2015 and 2014 by PCWS, except that daily average DO was below 5 mg/L for six days in the summer of 2015 and 21 days during the summer of 2014; no instantaneous measurements were below 4 mg/L (PCWS 2015;2014). Precipitation in the summer of 2014 and 2015 was below the long-term average, resulting in the early onset of stratification in the JST Reservoir (PCWS 2015; 2014), which may have contributed to the low DO values observed in the Stevens Creek Reservoir. Regardless, given that DO can reach 0.0 mg/L in waters released from the Thurmond Dam, monitoring data demonstrate that re-oxygenation occurs as water passes through Stevens Creek Reservoir, powerhouse, and through the Augusta Shoals.

PCWS monitored concentrations of nutrients and carbon at RM 202 and 214 in 2016 and 2017 (Table 4-3). Nutrients and carbon are important components of aquatic ecosystem function and can cause water quality problems if they are present in large qualities. Primary production can be limited by one or more of these nutrients, usually phosphorus or nitrogen. PCWS analyzed water samples from RMs 214 and 202 for ammonia (NH3), nitrate/nitrite (NOx), total nitrogen, total phosphorus, dissolved organic carbon (DOC), and total organic carbon (TOC). Table 4-3 summarizes the monitoring results. Median nutrient (nitrogen and phosphorus) concentrations within the river met or exceeded levels recommended by the U.S. Environmental Protection Agency (EPA) that are considered minimally impacted by human activities and protective of aquatic life and recreational uses (PCWS 2017).

	RIVER MILE 214		RIVER MILE 202	
VARIABLE MEASURED	2016 (MIN/MAX)	2017 (MIN/MAX)	2016 (MIN/MAX)	2017 (MIN/MAX)
NH3	0.00 / 0.14		0.00 / 0.14	0.00 / 0.14
NOx	0.11 / 0.27		0.13 / 0.33	0.06 / 0.26
Total N	0.10 / 0.60	Not measured	0.00 / 0.64	0.00 / 0.59
Total P	0.01 / 0.06		0.00 / 0.05	0.00 / 0.10
DOC	2.70 / 6.91		3.20 / 6.10	2.00 / 5.77
TOC	2.40 / 5.92		2.80 / 14.00	2.20 / 14.00

TABLE 4-3NUTRIENT AND CARBON CONCENTRATION (MG/L)AT RIVER MILE 202 AND 214, 2016 AND 2017

Source: PCWS 2016, 2017

4.2.6 **Reservoir Characteristics**

The Stevens Creek Reservoir is approximately 25 RMs long, extending 13 miles upstream to the Thurmond Dam and 12 miles into Stevens Creek. The surface area of the reservoir is 2,400 acres at the normal full pond EL 187.5 feet⁹ (FERC 1995). Substrates consist mostly of sand and silt (FERC 1995). The gradient of the river bottom is moderately steep in the upper reservoir but is less steep in areas downstream of the Route 28 bridge (FERC 1995). The Savannah River at the Stevens Creek Dam is approximately 3,500-feet-wide with numerous islands and shoreline habitats. The river narrows to approximately 700-feet near the Thurmond Dam. The maximum drawdown of 4.5-feet exposes approximately 575 acres of littoral zone habitat (FERC 1995).

As required by License Article 404 and Article 405 of the Stevens Creek Project license, DESC has collected DO, pH, conductivity, and water temperature data for the past 22 years at monitoring stations throughout the Stevens Creek reservoir and in the tailwater. Measurements were collected once monthly on two consecutive days during the months of November to May. In June to October, measurements were collected diurnally (morning and afternoon) on two consecutive days twice per month. Measurements were collected at the surface (0.2 meters) and at 1-meter intervals. Figure 4-15 to Figure 4-18 provide a summary of vertical profile measurements collected at Site 2, located in the Project forebay, from 2010 to 2019. The data in the figures represent the monthly average value at each depth strata for each parameter during the monitoring period. Based on the data, the Stevens Creek reservoir does not appear to exhibit thermal or chemical stratification and is relatively homogenous and well-mixed.

⁹ Elevations reported using the National Geodetic Vertical Datum.

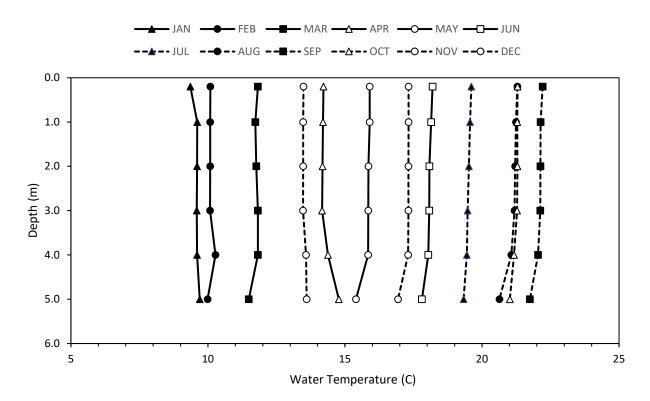


FIGURE 4-15 VERTICAL PROFILE WATER TEMPERATURE MEASUREMENTS IN THE PROJECT FOREBAY FROM 2010 TO 2019

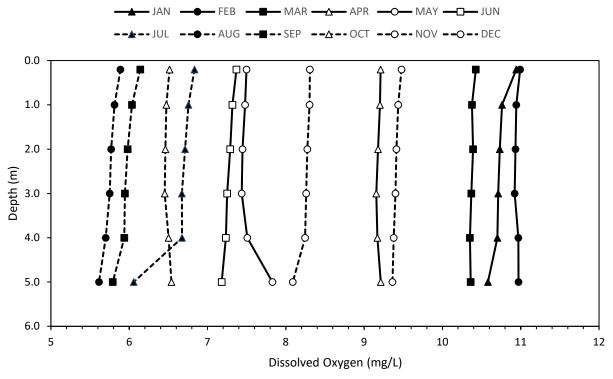


FIGURE 4-16 VERTICAL PROFILE DISSOLVED OXYGEN MEASUREMENTS IN THE PROJECT FOREBAY FROM 2010 TO 2019

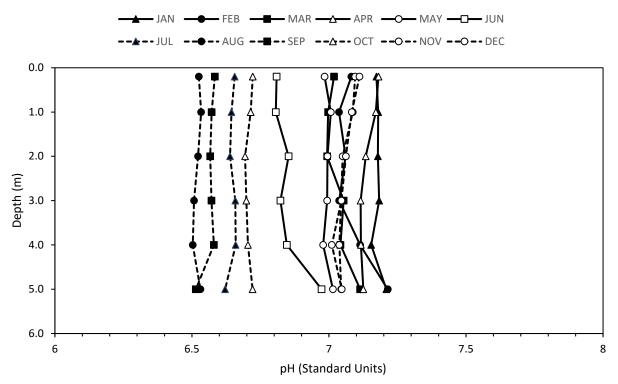
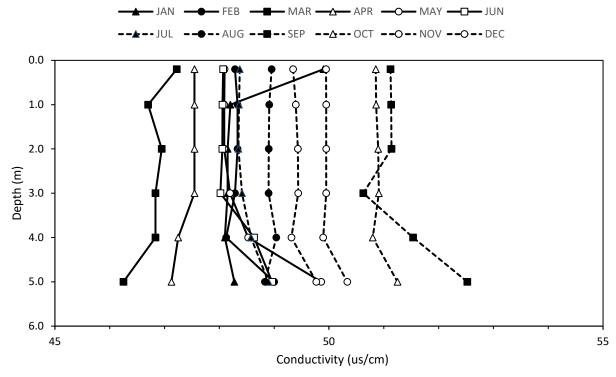


FIGURE 4-17 VERTICAL PROFILE PH MEASUREMENTS IN THE PROJECT FOREBAY FROM 2010 TO 2019





4.2.7 GRADIENT OF AFFECTED DOWNSTREAM REACHES

The Savannah River is at mean sea level (msl) for 15 miles above its mouth and then rises gradually at a slope of 0.00011 as it reaches Augusta (Carlston 1969). Above Augusta, the river slope increases as it crosses the Fall Line, rising 50 feet in 6 miles across the Fall Line and through Augusta Shoals (Carlston 1969).

4.2.8 POTENTIAL ADVERSE EFFECTS AND ISSUES

No adverse effects or issues related to water resources have been identified through existing data. Operation of the Project will continue to moderate flow releases from upstream dams and reoxygenate water that has low DO levels.

Although there are no known water quality issues at the Project, pre-PAD scoping identified a need for supplemental water quality data to answer discrete questions on water quality in particular portions of the Project area. More specifically, the GADNR requested additional information on water quality in upstream areas of Stevens Creek to determine suitability for fish habitat. Additionally, the NMFS requested the collection of continuous downstream water quality data to supplement existing baseline water quality data presented in this PAD. The Water Quality Study Plan, included in Appendix I, was developed in consultation with resource agencies and stakeholders to collect the additional information identified above. DESC will also collect water quality data as part of the Mussel Study (Appendix I). This includes the collection of DO, temperature, and conductivity data near the mussel sample locations. Level loggers will be deployed as part of the Mussel Study to collect information on Project influence and potential backwatering in the upstream areas of Stevens Creek. Information gathered during these study efforts will ultimately help inform licensing proposals and aid in answering specific agency and stakeholder questions regarding water quality in the Project area.

4.2.9 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

There are no mitigation or enhancement needs identified for water resources at this time.

4.2.10 REFERENCES

Carlston, C. 1969. Longitudinal Slope Characteristics of Rivers of the Mid-Continent and the Atlantic East Gulf Slopes. International Association of Scientific Hydrology. Bulletin. 14: 4, 21-31.

- Federal Energy Regulatory Commission (FERC). 1995. Final environmental assessment for hydropower license. Stevens Creek Hydroelectric Project. FERC Project 2535.
- Phinizy Center for Water Sciences (PCWS). 2017. 2017 Savannah River Monitoring Report. Available online: <u>https://phinizycenter.org/river-monitoring/</u>. Accessed February 1, 2019.
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4.3 FISH AND AQUATIC RESOURCES [§ 5.6 (D)(3)(IV)]

4.3.1 EXISTING FISH AND AQUATIC COMMUNITIES

4.3.1.1 AQUATIC HABITAT

The Stevens Creek Reservoir provides approximately 25 RMs of shallow, littoral, and shoreline habitat for cool and warm water fish species and other aquatic species (e.g., aquatic macroinvertebrates, amphibians and aquatic reptiles), extending 13 miles upstream to the Thurmond Dam and 12 miles into Stevens Creek. The surface area of the reservoir is 2,400 acres at the normal full pond EL 187.5 feet¹⁰ (FERC 1995). Habitat in the Stevens Creek reservoir is characterized by shallow, clear water with numerous stumps, snags, and aquatic macrophyte (i.e., rooted plants) beds; however, the Stevens Creek arm of the reservoir can be more turbid (FERC 1995). Substrates consist mostly of sand and silt (FERC 1995). The gradient of the river bottom is gently sloped in the portion of the reservoir near the Stevens Creek Dam but becomes moderately steep in areas upstream of the Route 28 bridge (see Figure 4-1) (FERC 1995). The Savannah River at the Stevens Creek Dam is approximately 3,500-feet-wide with numerous islands and shoreline habitats. As you progress upstream, the river narrows to approximately 700-feet near the Thurmond Dam.

The one-mile-long reach of the Savannah River immediately downstream of the Stevens Creek Dam is impounded by the Augusta Diversion Dam and included in the Augusta Diversion Dam FERC project boundary. The Savannah River in this reach is riverine and relatively shallow with numerous islands and former shoal habitat (FERC 1995). Substrates in the reach include rock outcrops, boulders, sand, and silt (Entrix 2002a). Macrophyte beds are common, especially in areas downstream of the Interstate 20 bridge (FERC 1995). Discharge from the Project typically ranges from 4,500 to 8,300 cfs under normal flow conditions. Previous research by DESC documented water depths of five feet or more are common throughout the reach (FERC 1995). Water depth may exceed ten feet, depending on river flow conditions (Entrix 2002a).

4.3.1.2 **RESIDENT FISH SPECIES**

The middle Savannah River supports a diverse, productive, and healthy fish community typical of a large river in the southeastern United States (Marcy et al. 2005). At least 70 species of fish representing 15 families occur in the Savannah River in the vicinity of the Project (Table 4-4).

¹⁰ Elevations reported using the National Geodetic Vertical Datum.

Common fish species include Bluegill, Yellow Perch, Largemouth Bass, Redbreast Sunfish, Threadfin Shad, Golden Shiner, Longnose Gar, Gizzard Shad, Chain Pickerel, White Bass, Pickerel, Northern Hogsucker, Brown Bullhead, Yellow Bullhead, Redeye Bass, White Crappie, and Black Crappie (Avondale 2001). Entrix (2002a) reported that Redbreast Sunfish, Yellow Perch, Bluegill, Gizzard Shad, Spottail Shiner, and Spotted Sucker were the most abundant fish species in the middle Savannah River. The dominant species by biomass are reported as Common Carp, Spotted Sucker, Longnose Gar, Gizzard Shad, and American Shad (Entrix 2002). Bluegill, Redear Sunfish, Largemouth Bass, and Redbreast Sunfish were the most common species collected by GADNR between 2006 and 2017. Cool water fishes such as Yellow Perch, Smallmouth Bass, Striped Bass, and Redeye Bass are bolstered by releases of cool water from the Thurmond Dam (Entrix 2002a).

The SCDNR reports Coastal Shiners were the most dominant species in the Stevens Creek Reservoir during electrofishing efforts in October of 2016 and 2017 (Bettinger and Bulak, 2019). Bluegill, Redear Sunfish, Spotted Sucker, Largemouth Bass, and Redbreast Sunfish were the dominant species collected in Stevens Creek proper (Bettinger and Bulak, 2019). The SCDNR 2016/2017 study also examined condition and growth rates of sportfish species. Relative weight and growth rates of centrarchids and Chain Pickerel in the Stevens Creek Reservoir indicate sufficient forage and suitable water quality for these species. Some species, such as Bluegill and Yellow Perch, have a much higher growth rate compared to the national standards (Bettinger and Bulak, 2019). Alternatively, Largemouth Bass growth rates were lower compared to other reservoirs in South Carolina, requiring approximately 2.7 years to reach the 12-inch minimum length limit for possession (Bettinger and Bulak, 2019).

The Robust Redhorse, an uncommon, large-bodied sucker that historically occupied the Savannah River, was documented in the Augusta Shoals area in the 1990s and 2000s. The Savannah River now contains a substantial population of Robust Redhorse, although no estimates of the size of the Savannah River population have been made (GADNR 2016a). New individuals continue to be encountered, indicating relatively steady recruitment into the Savannah River population. Within the last five years, Robust Redhorse has been documented as occurring in the Savannah River immediately downstream of the Stevens Creek dam (RRCC 2020). Repeated brood stock collection indicates that the Savannah River is likely the most stable of the known wild populations (GADNR 2016a).

Bartram's Bass (*Micropterus* sp. cf *cataractae*), historically known as Redeye Bass, is a species of interest among state fishery management agencies. Savannah River populations of this species have shown to be genetically distinct and are listed as a species of Highest Conservation Concern by SCDNR. The primary threat to this species is hybridization with Alabama Bass and Smallmouth Bass, which are both introduced species. Although this species is known to thrive in a variety of habitats, hybridization has severely impacted this species in lentic environments, above the fall line, in the Savannah River system (SCDNR 2015). State agencies and universities are continuing to investigate this species and its status. Relicensing documents will be updated with additional information regarding this species' presence in the Project vicinity.

The Savannah River provides excellent angling opportunities for common cool and warm water game fish including Largemouth Bass, Smallmouth Bass, Redear Sunfish, Bluegill, Redbreast Sunfish, White Catfish, Channel Catfish, hybrid Bass, Striped Bass, Black Crappie, Yellow Perch, and Chain Pickerel (GADNR 2018). Fishing for catfish is excellent in the Savannah River; White Catfish make up the majority, but Channel Catfish tend to be a bit larger. Since 2005, Striped Bass greater than 27 inches have been open to anglers. The number of Striped Bass and the number of legal-size fish have rebounded due to a stocking program by GADNR that began in the 1990s. Striped and hybrid Bass are stocked annually to help control forage fish populations and provide great action for big fish.

The Largemouth Bass population is healthy despite drought conditions that have contributed to slightly slower growth rates over the last few years. A radio telemetry monitoring study conducted in the Stevens Creek Reservoir by the SCDNR in 2019 estimated the total annual mortality rate of Largemouth Bass was approximately 35% (95% credible interval (CI) 23%-49%), which is considered on the lower end of typical mortality rates observed in South Carolina reservoirs (23% - 60%). Fishing mortality in Stevens Creek Reservoir was 15% (95%CI 7% - 26%), which is lower than the mean annual rate of other North American Largemouth Bass fisheries (Bettinger and Bulak 2019).

Nearby J. Strom Thurmond Reservoir provides 1,200 miles of shoreline and 71,100 acres of water for experienced and novice anglers. Hartwell Lake and R. B. Russell Lake also provide ample angling opportunities. Striped and hybrid Bass are stocked each year to help control forage fish populations and provide great action for big fish. The Bassmaster Elite Series fishing tournament was held on Thurmond Lake in 2007. Abundant forage fish (e.g., Threadfin Shad and Blueback Herring) provide for rapid growth of game species. In 2016, there were over 100 bass tournaments on Thurmond, Hartwell, and R. B. Russell, and the main stem of the Savannah River totaling over 12,500 fishing hours; three to four-pound bass are common (GADNR 2016). Numerous recreation areas, fishing piers, and bank fishing areas provide fishing opportunities in Savannah River lakes. There are over 30 public fishing areas near the Project, most of which are along the shoreline of J. Strom Thurmond Lake. Fishing access to the Savannah River is also provided at Savannah Rapids Park in Augusta, and at three Project recreation sites.

FAMILY	SCIENTIFIC NAME	COMMON NAME	
Lepisosteidae	Lepisosteus osseus	Longnose Gar	
Amiidae	Amia calva	Bowfin	
Anguillidae	Anguilla rostrate	American Eel	
	Alosa aestivalis	Blueback Herring	
Clupeidae	Dorosoma cepedianum	Gizzard Shad	
1	Dorosoma petenense	Threadfin Shad	
	Carassius auratus	Goldfish	
	Ctenopharyngodon idella	Grass Carp	
	Cyprinus carpio	Common Carp	
	Cyprinella leedsi	Bannerfin Shiner	
	Cyprinella nivea	Whitefin Shiner	
	Hybognathus regius	Eastern Silvery Minnow	
	Hybopsis rubrifrons	Rosyface Chub	
	Nocomis leptocephalus	Bluehead Chub	
Cyprinidae	Notemigonus crysoleucas	Golden Shiner	
	Notropis hudsonius	Spottail Shiner	
	Notropis chalybaeus	Ironcolor Shiner	
	Notropis cummingsae	Dusky Shiner	
	Notropis lutipinnis	Yellowfin Shiner	
	Notropis maculatus	Taillight Shiner	
	Notropis petersoni	Coastal Shiner	
	Opsopoeodus emiliae	Pugnose Minnow	
	Semotilus atromaculatus	Creek Chub	
	Erimyzon oblongus	Creek Chubsucker	
	Erimyzon sucetta	Lake Chubsucker	
Catostomidae	Hypentelium nigricans	Northern Hogsucker	
	Minytrema melanops	Spotted Sucker	
	Moxostoma collapsum	Notchlip Redhorse	
	Ameiurus brunneus	Snail Bullhead	
	Ameiurus catus	White Catfish	
	Ameiurus natalis	Yellow Bullhead	
	Ameiurus nebulosus	Brown Bullhead	
Ictaluridae	Ameiurus platycephalus	Flat Bullhead	
	Ictalurus punctatus	Channel Catfish	
	Ictalurus furcatus	Blue Catfish	
	Noturus gyrinus	Tadpole Madtom	
	Noturus insignis	Margined Madtom	
	Noturus leptacanthus	Speckled Madtom	
Esocidae	Esox americanus	Redfin Pickerel	
	Esox niger	Chain Pickerel	

TABLE 4-4FISH SPECIES TYPICAL OF AQUATIC HABITATSIN THE STEVENS CREEK PROJECT VICINITY

FAMILY	SCIENTIFIC NAME	COMMON NAME	
Aphredoderidae	Aphredoderus sayanus	Pirate Perch	
Fundulidae	Fundulus chrysotus	Golden Topminnow	
Fundundae	Fundulus lineolatus	Lined Topminnow	
Poeciliidae	Gambusia holbrooki	Eastern Mosquitofish	
Atherinopsidae	Labidesthes sicculus	Brook Silverside	
	Morone americana	White Perch	
Moronidae	Morone chrysops	White Bass	
	Morone saxatilis	Striped Bass	
	Centrarchus macropterus	Flier	
	Enneacanthus gloriosus	Bluespotted Sunfish	
	Lepomis auratus	Redbreast Sunfish	
	Lepomis cyanellus	Green Sunfish	
	Lepomis gibbosus	Pumpkinseed	
	Lepomis gulosus	Warmouth	
	Lepomis macrochirus	Bluegill	
Centrarchidae	Lepomis marginatus	Dollar Sunfish	
	Lepomis microlophus	Redear Sunfish	
	Lepomis punctatus	Spotted Sunfish	
	Micropterus salmoides	Largemouth Bass	
	Micropterus coosae	Redeye Bass	
	Micropterus sp. cf. coosae	Bartram's Bass	
	Pomoxis annularis	White Crappie	
	Pomoxis nigromaculatus	Black Crappie	
	Etheostoma fricksium	Savannah Darter	
	Etheostoma fusiforme	Swamp Darter	
	Etheostoma hopkinsi	Christmas Darter	
Percidae	Etheostoma inscriptum	Turquoise Darter	
	Etheostoma olmstedi	Tessellated Darter	
	Perca flavescens	Yellow Perch	
	Percina nigrofasciata	Blackbanded Darter	

Source: Marcy et al. 2005

4.3.1.3 DIADROMOUS FISH SPECIES

Historically, the Savannah River basin supported seven diadromous species: American Shad, Blueback Herring, Hickory Shad, American Eel, Striped Bass, Atlantic Sturgeon, and Shortnose Sturgeon. All seven species are known to occur downstream of the Augusta Diversion Dam presently; Striped Bass and Blueback Herring occur throughout the USACE reservoirs due to stocking efforts to establish a game fishery. Atlantic and Shortnose Sturgeon are listed as endangered species under the Endangered Species Act (ESA). Shortnose Sturgeon were listed in 1967 and Atlantic Sturgeon were listed in 2012 (Section 4.6). Atlantic Sturgeon and Shortnose sturgeon historically migrated throughout the Savannah River to reach spawning or rearing grounds at the Augusta Shoals.

Major river channel modifications near Savannah for shipping and commerce have occurred since colonial times. These activities have altered salinity, decreased DO at depth, increased flushing rates in the lower estuary, and reduced freshwater tidal wetlands, all of which have adversely affected migratory fish species and their habitats (SCNDR and GADNR 2014). There are six dams on the Savannah River, of which only the first dam, the NSBLD at RM 187, approximately 21 RMs downstream of the Project, has an upstream fish passage system. The Augusta Diversion Dam, which is approximately 19 RMs upstream of the NSBLD and one-mile downstream of the Stevens Creek Dam, does not currently have fish passage, nor do the three USACE dams upstream of the Project.

The USACE is currently implementing the Savannah Harbor Expansion Project (SHEP) to deepen the 18.5-mile outer harbor to 49 feet at mean low water and the Savannah River channel (i.e., inner harbor) to 47 feet (USACE 2018). As mitigation for the SHEP, the USACE is currently required to provide sturgeon passage at NSBLD (USACE 2018). The lock at NSBLD was designed for navigation and initially provided limited fish passage. In the late 1980s, the USACE began implementing more efficient passage methods.

DESC's existing license for the Project requires upstream passage following the construction of a fishway at the Augusta Diversion Dam. The Section 18 prescription in the current Project license includes a requirement to refurbish the navigation lock, which would be operated using attraction flows or other fish attraction mechanisms to provide a minimum of 30 lockages during the shad migration season (SCDNR and GADNR 2014). The USFWS and NMFS submitted a preliminary fishway prescription for the Augusta Canal Project (i.e., the Augusta Diversion Dam) in 2004 that included a vertical slot fishway on the Georgia side of the river. Based on comments received from the city of Augusta, and additional evaluation and review by the USFWS and NMFS, the fishway prescription was modified to include a vertical slot fishway on the South Carolina side of the Savannah River. Negotiations between the USFWS and NMFS and the city of Augusta are ongoing and construction of the fishway has not been initiated.

4.3.1.4 BENTHIC MACROINVERTEBRATES

The Southeastern Natural Sciences Academy (SNSA) conducted a water quality study within the Savannah River Basin in 2006 and 2007 to characterize the effects of the urban corridor on Savannah River water quality under baseline and storm event conditions. As part of the study, SNSA sampled the benthic macroinvertebrate community at two sampling locations within the Project boundary: 7 miles downstream of Thurmond Dam within the Stevens Creek impoundment, and 4.2 miles upstream of the Stevens Creek and Savannah River confluence.

SNSA researchers deployed pairs of Hester-Dendy sampling plates at each location for approximately 30 days to sample the invertebrate community in the Savannah River and Stevens Creek. The results of the study demonstrated that some EPT taxa¹¹ were present in the Project area, but at lower densities than in other sampling stations downstream; EPT taxa were lower in pooled waters (i.e., impoundments) upstream of RM 185 compared to free-flowing sections lower in the river. EPT taxa are sensitive species that are generally intolerant of polluted water or water that has low DO levels. SNSA's research indicated that water with low DO released from the Thurmond Dam and flow fluctuations resulting from Thurmond peaking operations adversely affected the benthic macroinvertebrate community at the two sampling sites in the Project area (SNSA 2008).

4.3.1.5 FRESHWATER MUSSELS

In 2006, the Catena Group inventoried freshwater mussels in the Savannah River from the Augusta Shoals area (near RM 203) downstream to estuarine waters (near RM 23). The Catena Group identified 26 species of freshwater mussels during the survey, noting that diverse and viable mussel populations occur throughout the Savannah River. Carolina slabshell, Eastern elliptio, and Roanoke slabshell were the most common native species; however, the most abundant bivalve throughout the Savannah River drainage was the Asian clam (The Catena Group 2007). The Catena Group identified 15 freshwater mussel species that occur downstream of the Project (i.e., between RM 203 and RM 196.2) (Table 4-5). Two rare species identified by the Catena Group (Atlantic pigtoe and brother spike) were described as "potentially occurring" based on pending DNA testing. The Atlantic pigtoe, which the USFWS is currently planning to list as a federally threatened species, is presumed extirpated from the southern portion of its range, including the Savannah

¹¹ Ephmeroptera, Plecoptera, and Trichoptera.

River basin; proposed critical habitat for species recovery is within North Carolina and Virginia (Federal Register 2018). The brother spike is a state-threatened species in South Carolina and Georgia.

SITE LOCATION	SITE DESCRIPTION	NUMBER OF SPECIES	SPECIES COMPOSITION
RM 203	Augusta Shoals – Island	5	Variable spike and Eastern elliptio most abundant; brother spike, Carolina lance, and Carolina slabshell present
RM 202.8	Augusta Shoals – River Run	6	Variable spike and Eastern elliptio most abundant; brother spike, Carolina lance, Atlantic pigtoe, and Carolina slabshell present
RM 202.2	Augusta Shoals	6	Variable spike, Carolina slabshell, and Eastern elliptio most common; Altamaha slabshell, Atlantic pigtoe, and Roanoke slabshell present
RM 201.5	Below King Mill canal discharge	9	Variable spike, Carolina slabshell most abundant; Altamaha slabshell, Carolina lance, Eastern elliptio, delicate spike, Atlantic spike, Roanoke spike, and Eastern creekshell present
RM 196.2	River Run on SC side	7	Variable spike most abundant; Carolina slabshell, Northern lance, Altamaha slabshell, Atlantic spike, Tidewater mucket, and Florida pondhorn present

 TABLE 4-5
 Description of Freshwater Mussel Species Near Stevens Creek Project

Source: Catena Group 2006

Researchers found nine live freshwater mussel species in the Augusta Shoal area in 2002: Carolina Slabshell, Sad Elliptio, Roanoke Slabshell, Variable Spike, Pod Lance, Carolina Spike, Eastern Elliptio, Florida Pondhorn, and Eastern Creekshell (Entrix 2002). No state or federally threatened or endangered freshwater mussel species were found (Entrix 2002).

In 2017, Alderman Environmental Services, Inc. performed freshwater mussel surveys along approximately 38 miles of stream within the Sumter National Forest in McCormick, Greenwood, and Edgefield counties, South Carolina. Stream miles surveyed are outside of, but adjacent to, the Stevens Creek arm of the Project boundary. Biologists documented four freshwater mussel species during survey activities. These included Eastern Elliptio (23 live/36 shells), Sad Elliptio (1 live), Eastern Creekshell (3 live/1 shell), and Atlantic Spike (8 live). Asian Clam was also observed within most streams surveyed. Substrate compositions observed during survey streams varied from mostly sand and gravel, to silt, sand, gravel, pebble, cobble, boulder and bedrock. Beaver activity was observed on most survey streams. Alderman noted that the relatively low numbers of mussels observed was likely due to sediment accumulation and transport within stream valleys (Alderman 2017).

4.3.1.6 INVASIVE AQUATIC SPECIES

Non-native fish species that occur or may occur in the middle or upper Savannah River include Grass Carp, Green Sunfish, Spotted Bass, Smallmouth Bass, Alewife, White Crappie, Threadfin Shad, Fathead Minnow, Blue Catfish, Channel Catfish, Flathead Catfish, White Bass, wiper (hybrid white-striped bass), Yellow Perch, Sauger, and Walleye (USGS 2018). Researchers have documented large numbers of Asian Clam in the Savannah River downstream of the Project (Entrix 2002, USGS 2018).

4.3.2 TEMPORAL AND SPATIAL DISTRIBUTION OF FISH AND AQUATIC COMMUNITIES

Warm and cool water fish known to occur in the Savannah River and game and non-game resident species are likely to occur throughout the Project area. The Robust Redhorse is believed to spawn in the Augusta Shoals (Entrix 2002a). Robust Redhorse inhabit mainstream rivers in riffles, runs, and pools (Entrix 2002a). Adults are usually found with tree snags, often in deep water near shore. Spawning occurs in course gravel habitats (GANDR 2016a). In the Savannah River, spawning occurs from late April through early June, when water temperatures approach 64 to 68°F. Spawning has been observed in rivers with water depths ranging from approximately 1 foot to 3.5 feet with water velocities of less than 0.10 feet per second over coarse gravel bed sediments (GADNR 2016a). Suitable gravel spawning habitat was documented approximately 8 RMs downstream of the NSBLD in 2000 (Entrix 2002a).

The Savannah River from RM 40 to the NSBLD provides spawning habitat for American Shad and other migratory species (SCNDR and GADNR 2014). Since the late 1980s, USACE has implemented fish passage at NSBLD using the navigation lock, allowing migratory species access to an additional 20 RMs of the Savannah River from the NSBLD to the base of the Augusta Diversion Dam, which does not have dedicated upstream fish passage (SCNDR and GADNR 2014). However, due to structural issues at NSBLD, lockages for fish passage were discontinued in 2015.

Striped Bass populations in the Savannah River are essentially riverine with spawning occurring in downstream estuarine habitats (Entrix 2002). Upstream migrations of striped bass in the spring and summer are associated with a search for cool water refugia supplied by the hypolimnetic releases from Thurmond Dam rather than spawning habitat (Entrix 2002). Although Striped Bass are present in the Thurmond Dam tailrace year-round, they are most predominant between June

and September (Bettinger and Bulak 2019). Adult fish congregate in the area downstream of NSBLD during warm season months to remain in the cool water that occurs there (Entrix 2002). Some individuals subsequently pass upstream through operation of the NSBLD or during periods of high runoff, when water levels equilibrate on both sides of the dam (Entrix 2002). Juvenile Striped Bass are more tolerant of water temperatures above 77° F and may occur throughout the Savannah River during the summer (Entrix 2002). Adult Striped Bass migrate downstream during fall and are thought to remain in the estuary during the winter (Entrix 2002). Although seasonal distribution of Striped Bass and hybrid Striped Bass is similar, Striped Bass occupy warmer waters, such as Stevens Creek proper, in winter and early spring (Bettinger and Bulak 2019).

Blueback Herring occur in the main stem of the Savannah River and as land-locked populations within the USACE reservoirs because of stocking efforts (ASMFC 2017). Blueback Herring, which are riverine spawners, typically enter the Savannah River in the spring and out-migrate as young of year fish in the fall. Blueback Herring may pass the NSBLD during high water conditions or during locking activities.

A survey, conducted by SCDNR in 2018, evaluated the abundance of forage fishes in the Stevens Creek reservoir between the Thurmond and Stevens Creek Dams. Blueback Herring were the most predominant forage species, followed by Golden Shiner and Threadfin Shad (Bettinger and Bulak, 2019). Density of forage species were highest in August, particularly in the lower section of the reservoir, just upstream of Stevens Creek Dam. In November, densities remain the highest in the lower two-thirds of the reservoir, but smaller fishes (<200mm) are more predominant than larger (>200mm) forage fishes (Bettinger and Bulak, 2019).

There are spawning populations of Atlantic and Shortnose Sturgeon in the Savannah River (Post et al. 2018). According to historical distribution records much of the historically available spawning and nursery habitat for sturgeons in the Savannah River remains accessible (Post et al. 2018). Shortnose Sturgeon swim up large coastal rivers to spawn, then return to the lower river or estuary for the rest of the year, only occasionally venturing into the Atlantic Ocean. In the southern portion of their range, Shortnose Sturgeon inhabit freshwater during the late spring and summer, migrating to estuarine areas during the fall and winter. Spawning in Georgia for both species begins in February when water temperatures exceed 48°F, and post-spawning migrations downriver begin in March (GADNR 2018a; Federal Register 2012).

4.3.3 ESSENTIAL FISH HABITAT

Essential Fish Habitat (EFH) is designated by NMFS for species with established federal fishery management plans that occupy federal waters, which extend offshore from state waters (three miles in the South Atlantic) to 200 nautical miles, sometimes referred to as the Exclusive Economic Zone. NMFS's Southeast Region's Habitat Conservation Division implements the EFH program in coastal states from North Carolina south to Texas, as well as the Territories of Puerto Rico and the U.S. Virgin Islands (NMFS 2017). The Magnuson-Stevens Act requires federal agencies that authorize, fund, or undertake projects that may adversely affect EFH to consult with NMFS. Through consultation, the Habitat Conservation Division provides recommendations to federal agencies to avoid, minimize, mitigate, or otherwise offset the effects of their actions on EFH.

The Magnuson-Stevens Act created regional fishery management councils to advise NMFS on fishery management issues and EFH. The South Atlantic Council currently manages and has identified EFH for eight fisheries within the Exclusive Economic Zone in the South Atlantic: shrimp, snapper-grouper, Sargassum, corals, dolphin-wahoo, spiny lobster, golden crab, and coastal migratory pelagic species (NMFS 2017). There are no federal fishery management plans for diadromous fish species that occupy the freshwater, inland regions of the Savannah River basin; therefore, there is no designated EFH near the Project.

4.3.4 POTENTIAL ADVERSE IMPACTS AND ISSUES

4.3.4.1 ENTRAINMENT

During the previous relicensing of the Project, DESC studied entrainment of fishes through the turbines. The study results provided the following:

- Some reservoir fish approaching the Stevens Creek Dam are entrained at the powerhouse intakes and become subject to mortality risks associated with turbine passage;
- Trash racks on the intake structures, consisting of vertical bars with 3-inch to 3.5inch spacing, generally exclude larger game fish from passing through the turbines;
- Over 90 percent of fish entrained at the Project survive passage;
- Multi-seasonal fish entrainment surveys and intensive entrainment mortality studies conducted at the Project indicate that turbine-induced mortality results in the annual loss of approximately 15,000 fish representing 16 or 17 species under normal operating conditions (FERC 1995);

- Species with the highest estimated mortalities were Threadfin Shad, Bluegill, Yellow Perch, American Eel, and Blueback Herring (FERC 1995);
- Turbine-related morality rates documented in the study (i.e., four to six percent) represent only a small proportion of the high natural mortality that occurs among small fish;
- Adult and catchable-size game fish were less susceptible to turbine entrainment; therefore, the effect of operations on recreational fisheries was expected to be minimal;
- Based on the completed fisheries studies, the effect of entrainment on fish populations residing in Stevens Creek Reservoir is minor (FERC 1995).

Because of the study findings, FERC required DESC to develop an enhancement plan related to fish entrainment mortality. License Article 406 requires DESC to set aside annual payments in the amount of \$4,700 (1995 dollars) adjusted annually to reflect changes in the Consumer Price Index, to finance specific resource-based enhancements in the Savannah River basin that are developed and implemented in coordination with DOI, SCDNR, and GADNR. The fisheries enhancements plan was to be developed instead of implementing extremely expensive and marginally effective fish protection measures (e.g., screens, bar racks, louvers) (FERC 1995). The first 10-year plan was submitted on July 3, 1996 and a FERC order modifying and approving the plan was issued on October 20, 2006. The third 10-year plan, covering the period 2016 to 2025 was approved by FERC on February 25, 2016.

In 2013, the Stevens Creek fisheries enhancement fund contributed to the development of research related to stocking Redear Sunfish in Stevens Creek Reservoir. The objectives of the study were to evaluate the effectiveness of stocking and gather baseline information about the Redear Sunfish population in Stevens Creek reservoir. A three-month angler survey revealed that Largemouth Bass and Sunfish were the primary species sought by anglers and that the reservoir was almost exclusively a local fishery. Stocking was successfully performed in the fall of 2006 and 2007. Electrofishing evaluations the following year revealed that stocked fish were making a substantial contribution to the cohort. Growth data showed that hatchery fish were larger than wild fish. The researchers concluded that stocking appears to be a good management tool for the Stevens Creek Reservoir; however, continued evaluation of possible effects on wild fish is warranted (Bulak 2013).

DESC and the stakeholders identified two priority enhancement areas for the most recent enhancement plan (2016 to 2025): 1) fisheries and freshwater mussel restoration and/or

enhancement, and 2) river bottom habitat enhancement. Recent and expected continued improvement of DO conditions due to installation of auto-venting turbines at the Thurmond Dam and an oxygen diffuser system in the Thurmond reservoir have made stocking or re-introduction of fish species a viable option for resource enhancement in the Stevens Creek area. Fish reintroduction was designated as a priority resource enhancement action in the 2016 to 2025 plan. American Shad, Robust Redhorse, and Striped Bass were identified by the stakeholders as potential species for re-introduction. Cool-water species such as Walleye or Sauger may be evaluated for introduction. Additional focus of the third ten-year plan will be on the evaluation and enhancement of freshwater mussel resources. DESC identified the use of stone to provide bottom structure in areas of flow as a potential means of improving fish spawning and rearing habitat near the Project. Removal of accumulated sediment was also identified as a potential method for improving spawning and rearing habitat.

4.3.4.2 **RESERVOIR FLUCTUATION**

Daily and weekly fluctuations of the Stevens Creek reservoir within a 4.5-foot band to accommodate flow releases from Thurmond Dam result in routine changes to the water surface elevation, microhabitat characteristics (e.g., water depth and water velocity), and change water levels along shoreline habitats. The maximum drawdown of 4.5-feet exposes approximately 575 acres of littoral zone habitat (FERC 1995). The most notable effect on shoreline habitats is in shallow water flats and tributary embayments, which can provide quality spawning habitat for centrarchid species (e.g., bass, sunfish species). Backwatering effects of these fluctuations results in flow direction reversals in Stevens Creek for several miles upstream of its confluence with the river. Fisheries sampling in Project waters demonstrates good reproductive success, regardless of the reservoir fluctuations (FERC 1995).

4.3.4.3 **PROPOSED STUDIES**

During preliminary relicensing discussions, the USFWS requested a mussel study be completed at the Project, particularly in the Stevens Creek arm of the Project reservoir (see Mussel Study Plan in Appendix I). This study will gather quantitative and qualitative data on the diversity, spatial distribution and relative abundance of the mussel fauna in Stevens Creek.

In addition, DESC will be preparing an Aquatic Habitat Whitepaper that will serve to describe aquatic habitat in the Stevens Creek Reservoir. Information collected during the proposed studies

will be included in this whitepaper, which will be filed with the FLA. An outline for the whitepaper is included in Appendix I.

4.3.5 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

DESC is not proposing any mitigation or enhancement measures related to fish and aquatic resources at this time.

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4.4 WILDLIFE AND BOTANICAL RESOURCES [§ 5.6 (D)(3)(V)]

The Project is located in a small area that is designated as Southern Outer Piedmont Ecoregion, just south of a portion of South Carolina that is designated as Carolina Slate Belt (Griffith et al. 2002). The Georgia portion of the Project also lies within this land class designation. The Southern Outer Piedmont Ecoregion is characterized by rolling hills with broad, shallow, stream-cut valleys. Oak-hickory forests are widely distributed in this ecoregion, and in some areas these hardwoods are co-dominant with pines (SCDNR 2005). The landscape has a long history of deforestation associated with economic uses including agriculture. These anthropogenic alterations have resulted in land that, along with mixed hardwood and oak-hickory-pine forests, include agricultural land and forests that are managed for timber production. Loblolly pine plantations are an especially prevalent form of timber production in this region (Griffith et al. 2002; SCDNR 2005). This habitat supports wildlife typical of the Piedmont, including white-tailed deer, raccoon, box turtle, copperhead, and American toad (Conant and Collins 1998, Reid 2006). The following sections provide additional detail regarding the wildlife and botanical communities found in the Project area are discussed in Section 4.6.

4.4.1 UPLAND HABITAT(S) IN THE PROJECT VICINITY

The Project boundary includes the area around Stevens Creek reservoir between EL 192.5 feet and 198.5 feet, thus, this area includes only a small area of upland habitat. Nearby areas include some upland pine forests, a habitat that may be utilized by the federally listed red-cockaded woodpecker. Project operations do not affect areas where this habitat type occurs. Second growth stands of natural and agriculturally propagated loblolly pine are present in the area, as are hardwood-pine stands that include white oak and sweetgum (FERC 1995).

4.4.1.1 PINE FORESTS

Naturally occurring and agriculturally produced pine forests are present in the Project vicinity. These are generally even-aged stands that are characterized by a closed canopy and little understory growth. While the low vegetated diversity in these stands does not produce habitat for many wildlife species, it can be suitable habitat for the federally listed red-cockaded woodpecker (FERC 1995; SCDNR 2005).

4.4.1.2 MIXED PINE-HARDWOOD FOREST

Mixed pine-hardwood forests in the Project vicinity include loblolly pine and a variety of hardwood species including multiple oak species, hickory species, red maple, and winged elm. Understory in this habitat type can include species such as yaupon holly, American beautyberry, and multiple species of woody vines (FERC 1995).

4.4.1.3 HARDWOOD FOREST

Hardwood dominant stands occur on side slopes and along stream edges. This habitat type is found in some low-lying areas adjacent to the reservoir. Along with oak and hickory species, American beech is present along with smaller understory trees include flowering dogwood. Wet tolerant species including water oak, willow oak, sweetgum, and river birch are found closer to the reservoir (FERC 1995).

4.4.1.4 WETLANDS

Wetlands are discussed in greater detail in Section 4.5. Wetlands in the Project vicinity are found in low lying areas adjacent to the reservoir, as well as areas directly downstream of the dam. Riverine wetlands associated with floodplain type habitat are found along the riverbank and on islands in the mainstem river as well as the impoundment. Submerged and aquatic vegetation that is found in shallow water habitats at Stevens Creek include creeping primrose, floating bladderwort, water-starwort, variable-leaf pondweed, and coontail (FERC 1995).

4.4.2 PLANT AND ANIMAL SPECIES IN THE PROJECT VICINITY

A variety of wildlife species typical of the Southern Outer Piedmont ecoregion of South Carolina and Georgia inhabit the forested, wetland, and aquatic habitats of the Project vicinity, including amphibians, reptiles, birds, and mammals.

4.4.2.1 **MAMMALS**

Mammals that are documented or expected to occur in the Project vicinity include species typically found in the Piedmont and Sandhills regions. Species include white tailed deer, black bear, eastern cottontail, grey squirrel, red fox, grey fox, coyote, muskrat, beaver, hispid cotton rat, eastern mole, house mouse, eastern spotted skunk, opossum, and raccoon (FERC 1995; Reid 2006).

4.4.2.2 AMPHIBIANS AND REPTILES

The Southern Outer Piedmont Ecoregion does not have the herpetofauna biodiversity as mountainous or coastal regions (SCDNR 2005); however, several species of reptiles and amphibians are likely to occur in the Project vicinity. These include box turtle, copperhead, and American toad (Conant and Collins 1998).

4.4.2.3 **BIRDS**

The multiple habitat types in the Project vicinity, including forested, wetland, and upland habitats, support a diverse bird population. Over 300 bird species are documented in the adjacent Sumter National Forest. This includes dabbling ducks such as wood duck, mallard, and green-winged teal. Bald eagles and red-cockaded woodpecker are known to nest in or adjacent to the Project vicinity. Multiple migratory and non-migratory birds also occur in the Project vicinity (FERC 1995; Peterson 2002).

4.4.3 INVASIVE UPLAND PLANT AND WILDLIFE SPECIES

Non-native wildlife species known or expected to occur in the Project vicinity include feral hogs and coyotes (FERC 1995; Reid 2006). There are also numerous exotic plant species that are known to occur in the Piedmont and Sandhills regions of South Carolina and are expected to occur in the Project area and vicinity. Previous studies conducted by the Forest Service suggest that exotic plants are prevalent in this part of South Carolina (SCDNR 2005). The South Carolina Exotic Pest Plant Council (SCEPPC) has identified numerous exotic plant pest species that occur in the Piedmont ecoregion of South Carolina (Table 4-6). Site-specific data are not available, but any of the species listed in Table 4-6 may occur in the Project area. Some of the more ubiquitous species include kudzu, mimosa, and Japanese honeysuckle. These species could occur in abundance.

COMMON NAME	SCIENTIFIC NAME
Trees	
Tree of heaven	Ailanthus altissima
mimosa, silktree	Albizia julibrissin
chinaberry	Melia azedarach
princess tree/royal paulownia	Paulownia tomentosa
Chinese tallow tree	Triadica sebifera
Shrubs	
thorny olive	Elaeagnus pungens

TABLE 4-6SEVERE EXOTIC PLANT PEST SPECIES OCCURRING
IN THE PIEDMONT ECOREGION

COMMON NAME	SCIENTIFIC NAME
autumn olive	Elaeagnus umbellata
two-color bush clover, shrub lespedeza	Lespedeza bicolor
Japanese privet	Ligustrum japonicum
Chinese privet	Ligustrum sinense
Japanese knotweed	Polygonum cuspidatum
multiflora rose	Rosa multiflora
Vines	
English ivy	Hedera helix
Japanese climbing fern	Lygodium japonicum
Japanese honeysuckle	Lonicera japonica
kudzu	Pueraria montana
Asian/Japanese wisteria	Wisteria floribunda
Chinese wisteria	Wisteria sinensis
bigleaf periwinkle	Vinca major
common periwinkle	Vinca minor
Grasses/Sedges	
tall fescue	Lolium arundinaceus
Japanese stilt grass, Nepalese browntop	Microstegium vimineum
Chinese silvergrass	Miscanthus sinensis
bahia grass	Paspalum notatum
golden bamboo, fishpole bamboo	Phyllostachys aurea
Johnson grass	Sorghum halepense
Herbs	
tropical spiderwort, Bengal dayflower	Commelina bengalensis
wart removing herb, marsh dewflower,	Murdannia keisak
aneilema	
tropical soda apple	Solanum viarum
Source: SCEPPC 2008	

4.4.4 TEMPORAL OR SPATIAL DISTRIBUTION OF COMMERCIALLY, RECREATIONALLY, OR CULTURALLY IMPORTANT SPECIES

Multiple migratory waterfowl species are known to occur on the Savannah River during the fall and winter months. Diving ducks such as lesser scaup, ring-necked ducks, and buffleheads, as well as dabbling ducks such as mallards and green-winged teal, pass through the area during the annual migration. Additionally, some wood ducks occur in the area year-round, with others migrating through during the fall and winter (Peterson 2002). These species attract high volumes of waterfowl hunters to the area.

4.4.5 POTENTIAL ADVERSE EFFECTS AND ISSUES

No adverse effects or issues related to wildlife and botanical resources have been identified.

4.4.6 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

No mitigation or enhancement measures related to wildlife or botanical resources are proposed at this time.

4.4.7 **REFERENCES**

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4.5 FLOODPLAINS, WETLANDS, RIPARIAN, AND LITTORAL HABITAT [§ 5.6(D)(3)(VI)]

4.5.1 DESCRIPTION AND MAP OF WETLANDS, RIPARIAN, AND LITTORAL HABITAT

The USFWS maintains the National Wetlands Inventory (NWI) that provides reconnaissance level information on the location, type, and size of wetlands and deep-water habitats (USFWS 2019). The NWI indicates that wetland and deep-water habitats occurring within the Project vicinity include freshwater emergent, freshwater forested and shrub wetlands, freshwater ponds and lakes, and riverine habitat. Most of the mapped wetland in the Project area is classified as L1UBHh, which is a lacustrine system (Figure 4-19). The Project area also contains palustrine emergent, palustrine forested and/or palustrine shrub, and palustrine unconsolidated bottom systems around reservoir islands and in backwater coves.

Lacustrine habitat within the Project vicinity is constituted of the permanently impounded habitat located above the Stevens Creek Dam. This classification describes deep water habitats created by dammed river channels and contains less than 30 percent vegetative cover (USFWS 1992).

Palustrine habitat includes all freshwater wetlands such as freshwater emergent wetlands, freshwater forested and shrub wetlands, and freshwater ponds. Ponds are freshwater bodies of water with an area of less than 20 acres. Palustrine wetlands are most commonly found along shorelines of lake or rivers and contain water depths less than two meters and salinity less than 0.5 percent (USFWS 1992).

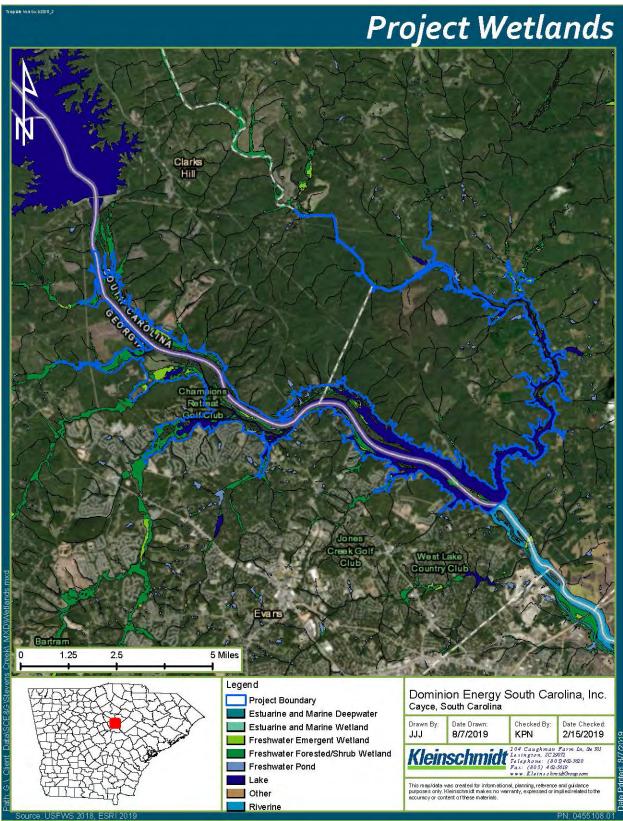


FIGURE 4-19 PROJECT WETLAND HABITAT

4.5.2 LIST OF PLANT AND ANIMAL SPECIES, INCLUDING INVASIVE SPECIES, THAT USE THE WETLAND, LITTORAL, AND RIPARIAN HABITAT

SCDNR lists priority species in South Carolina by ecoregion and habitat. Many plant and animal species have the potential to occur in the littoral, wetland, and riparian habitats of the Project. Species within the Piedmont ecoregion that utilize these habitats are listed in Table 4-7.

COMMON NAME	SCIENTIFIC NAME	STATE PRIORITY FOR
		CONSERVATION
Mammals		
Northern river otter	Lontra canadensis	
mink	Neovison vison	High
big brown bat	Eptesicus fuscus	Highest
red bat	Lasiurus borealis	Highest
hoary bat	Lasiurus cinereus	Highest
tri-colored bat	Perimyotis subflavus	Highest
Southern fox squirrel	Sciurus niger	Moderate
Birds		
prothontary warbler	Protonaria citrea	
Acadian flycatcher	Empidonax virescens	High
wood duck	Aix sponsa	High
blue-winged teal	Anas discors	Moderate
mallard	Anas platyrhynchos	Highest
American black duck	Anas rubripes	Highest
great blue heron	Ardea herodias	Moderate
red-shouldered hawk	Buteo lineatus	Moderate
broad-winged hawk	Buteo platypterus	Moderate
green heron	Butorides virescens	Highest
chuck-will's-widow	Caprimulgus carolinensis	High
whip-poor-will	Caprimulgus vociferus	High
belted kingfisher	Ceryle alcyon	High
yellow-billed cuckoo	Coccyzus americanus	High
pileated woodpecker	Dryocopus pileatus	Moderate
little blue heron	Egretta caerulea	Highest
Acadian flycatcher	Empidonax virescens	High
rusty blackbird	Euphagus carolinus	Highest
American coot	Fulica americana	Moderate
red-bellied woodpecker	Melanerpes carolinus	Moderate
red-headed woodpecker	Melanerpes erythrocephalus	Moderate
Reptiles		1
spotted turtle	Clemmys guttata	
yellowbelly slider	Trachemys scripta	High
common snapping turtle	Chelydra serpentina	

TABLE 4-7Species Expected to Occur in Littoral, Wetland,
AND Riparian Habitats in the Project Vicinity

COMMON NAME	SCIENTIFIC NAME	STATE PRIORITY FOR CONSERVATION
spiny softshell turtle	Apalone spinifera	Moderate
snapping turtle (Common)	Chelydra serpentina	Moderate
painted turtle (Eastern)	Chrysemys picta	Moderate
river cooter	Pseudemys concinna	Moderate
Eastern box turtle	Terrapene carolina	Moderate
yellow-bellied slider	Trachemys scripta	High
Amphibian		
Eastern narrowmouth toad	Gastrophyrne carolinensis	
Northern cricket frog	Acris crepitans	Moderate
Chamberlain's dwarf salamander	Eurycea chamberlainii	Highest
four-toed salamander	Hemidactylium scutatum	High
pickerel frog	Rana palustris	High
Freshwater Fishes		
American eel	Anguilla rostrata	Highest
Plants		
golden canna	Canna flaccida	
swamp tupelo	Nyssa biflora	
willow oak	Quercus phellos	
loblolly pine	Pinus taeda	
cypress-knee sedge	Carex decomposita	High

Sources: SCDNR, 2005, 2008, 2015

Two species of non-native, invasive aquatic plant occur at the Project, including Brazilian elodea (*Egeria densa*) and Eurasian watermilfoil (*Myriophyllum spicatum*) (SCDNR 2008). Large mats of these plants develop and clog the intake screens at the Stevens Creek Dam (SCDNR 2008a). On May 23, 1996, DESC filed an Aquatic Plant Management Plan for the Project, pursuant to Article 409 of the current license. The plan was modified and approved by FERC on December 4, 1996. Per the modified plan, DESC explored the use of herbicides to aid in the control and management of invasive aquatic plants. However, today DESC only employs the use of mechanical harvesting at the plant intake as a means to mitigate the effect of these plant species on plant operations. Aquatic plant material that is removed from the trash racks is raked into a hopper and hauled to an area upstream, unloaded and stockpiled for drying. After it has dried, the material is composted on Project lands or hauled away for permanent disposal. DESC also has signs posted at all boat ramps requesting boaters to remove aquatic plants from boats and trailers to help prevent the spread of these species to other waters.

4.5.3 POTENTIAL ADVERSE IMPACTS AND ISSUES

Reservoir fluctuations because of operations at Thurmond Dam could impact littoral and riparian areas within the Project boundary. Reservoir fluctuations could contribute to erosion or loss of aquatic habitat; however, no areas of significant erosion have been noted during annual surveys. Nuisance aquatic vegetation was noted as a stakeholder concern during initial issues scoping. The Aquatic Habitat Whitepaper proposed by DESC (Appendix I) will aim to inform DESC and stakeholders of the potential for any issues related to floodplains, wetlands, littoral and riparian areas.

4.5.4 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

Although no mitigation or enhancement measures relating to floodplains, wetlands, littoral and riparian areas are planned at this time, current Project operations are aimed at minimizing shoreline erosion and loss of aquatic habitat through re-regulation operations. Additional measures to minimize impacts to wetland, riparian and littoral habitats, including mitigating the effect of nuisance aquatic vegetation, will be considered during relicensing.

4.5.5 **References**

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4.6 RARE, THREATENED, AND ENDANGERED SPECIES [§ 5.6 (D)(3)(VII)]

DESC used the USFWS's Information for Planning and Consultation (IPaC) online system to identify federally protected species that may occur near the Project. The area under consideration included the main stem of the Savannah River from the Thurmond Dam downstream to the NSBLD (approximately 44 RMs), the main stem of Stevens Creek, from the Stevens Creek Dam upstream to the top of the Project boundary (approximately 12 RMs), and associated shoreline habitats. According to the IPaC, six federally-protected species could occur near the Project (Table 4-8; see IPaC report, Appendix G). The Forest Service also provided a list of Threatened, Endangered, and Sensitive species that occur in the Long Cane Ranger District of the Sumter National Forest. These species are also included in Table 4-8. In addition, NMFS is responsible for the protection of threatened and endangered anadromous and marine fish species. Atlantic Sturgeon and Shortnose Sturgeon, two species that inhabit freshwater seasonally, are listed under the ESA as threatened and endangered, respectively. These species are not known to occur in the Project area at this time, however there is potential for the species to occur in the future, following the implementation of fish passage downstream of Stevens Creek dam. These species are discussed in further detail in Section 4.6.1.

COMMON NAME	SCIENTIFIC NAME	FEDERAL PROTECTION	FOREST SERVICE TES SPECIES - SNF			
	ANIMALS					
Atlantic Spike	Elliptio producta		Sensitive			
Bachman's Sparrow	Peucaea aestivalis		Sensitive			
Bald Eagle	Haliaeetus leucocephalus	*				
Bartam's Bass	Micropterus coosae		Sensitive			
Brook Floater	Alasmidonta varicosa		Sensitive			
Carolina Heelsplitter	Lasmigona decorata Endangered		Endangered			
Monarch Butterfly	Danaus plexippus		Sensitive			
Piedmont Prairie Burrowing Crayfish	Distocambarus crockeri		Sensitive			
Red-Cockaded Woodpecker	Dryobates borealis	Endangered	Endangered			
Roanoke Slabshell	Elliptio roanokensis		Sensitive			
Robust Redhorse	Moxostoma robustrum		Sensitive			
Tricolored Bat	Perimyotis subflavus		Sensitive			
Webster's Salamander	Plethodon websteri		Sensitive			
Wood Stork	Mycteria americana	Threatened	Endangered			

 TABLE 4-8
 FEDERALLY-PROTECTED AND FOREST SERVICE TES SPECIES THAT MAY

 OCCUR IN THE STEVENS CREEK PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	FEDERAL PROTECTION	FOREST SERVICE TES SPECIES - SNF
Yellow Lampmussel	Lampsilis cariosa		Sensitive
	PLANTS		
Faded Trillium	Trillium discolor		Sensitive
Georgia Aster	Symphyotrichum georgianus		Sensitive
Lanceleaf Trillium	Trillium lancifolium		Sensitive
Miccosukee Gooseberry	Ribes echinellum	Threatened	Threatened
Oglethorpe Oak	Quercus oglethorpensis		Sensitive
Relict Trillium	Trillium reliquum	Endangered	Endangered
Shoals Spider Lily	Hymenocallis coronaria		Sensitive
Sweet Pinesap	Monotropsis odorata		Sensitive

* This species is protected under the Bald and Golden Eagle Protection Act of 1940.

The states of Georgia and South Carolina maintain databases of rare and protected species. In February 2019, the state of Georgia provided a list of state-protected plants and animals that are known to occur near the Project, including three federally-listed species (Table 4-9; Attachment B). In March 2020, state of South Carolina provided a list of state-protected plants and animals that are known to occur in the Project area. This list is provided in Table 4-9 and Attachment B.

TABLE 4-9SOUTH CAROLINA AND GEORGIA PROJECTED SPECIES THAT MAY
OCCUR IN THE PROJECT AREA

COMMON NAME	GEORGIA PROTECTED SPECIES ¹	SOUTH CAROLINA PROTECTED SPECIES ²				
	ANIMALS					
American Eel		highest				
Atlantic Pigtoe	high					
Atlantic Spike		high				
Atlantic Sturgeon	high					
Bald Eagle		high				
Baltimore Oriole		high				
Bartram's Bass		highest				
Brother Spike	high					
Carolina Slabshell	*					
Christmas Darter		highest				
Delicate Spike	high					
Dwarf Waterdog	high					
Eastern Creekshell		moderate				
Eastern Elliptio		moderate				
Flat Bullhead		moderate				
Florida Pondhorn		*				

COMMON NAME	Georgia Protected Species ¹	SOUTH CAROLINA PROTECTED SPECIES ²
Highfin Shiner		moderate
Ironcolor Shiner	*	
Notchlip Redhorse		moderate
Roanoke Slabshell	*	
Rosyface Chub		moderate
Robust Redhorse	high	highest
Savannah Elimia	*	<u> </u>
Savannah Lilliput	high	
Shortnose Sturgeon	high	
Snail Bullhead		moderate
Spotted Turtle	high	
Tiger Salamander		highest
Turquoise Darter		high
Webster's Salamander		highest
Yellow Lampmussel	high	highest
	PLANTS	
Aethusa-like		
Trepocarpus		moderate
American Barberry	high	
American Ginseng		high
Carolina Larkspur		moderate
Carolina Trefoil	high	
Curly-Heads	*	
Dixie Mountain		
Breadroot	high	
Dutchman's Breeches		moderate
Eared Goldenrod		moderate
Faded Trillium		*
False-Rue Anemone	*	moderate
Georgia Aster		highest
Georgia Plume	high	
James' Sedge		moderate
Lanceleaf Wakerobin		
(Narrow-leaved Trillium)		high
Log Fern	*	
Lowland Bladderfern		*
Miccosukee Gooseberry		highest
Ocmulgee Skullcap	high	*
One-Flowered		
Broomrape		*
Pale Yellow Trillium	*	
Pineland Barbara Buttons	*	

COMMON NAME	GEORGIA PROTECTED SPECIES ¹	SOUTH CAROLINA PROTECTED SPECIES ²
Relict Trillium	high	highest
Shoals Spider Lily	high	high
Side-Oats Grama	*	
Slender Sedge		moderate
Smooth Indigobush		*
Southern Nodding		
Trillium		high
Streambank Mock		
Orange		*
Tall Bellflower		moderate
Tuberous Gromwell		moderate
Virginia Spiderwort		moderate
Weak Nettle		*
Whiteleaf Sunflower		moderate
Wingpod Purslane	high	
Yellow Nailwort	high	

¹GA State Wildlife Action Plan (SWAP) species with state protection are indicated with an asterisk (*); species

identified as "high" are state protected species with high priority status. ² Listed species categorized in the SC SWAP are noted as having moderate, high or highest priority status; species identified with an asterisk (*) are state "tracked" species.

4.6.1 CRITICAL HABITAT AND HABITAT USE

No critical habitat for federally protected species occurs within the Project area (IPaC Report, Appendix G). Critical habitat for Atlantic Sturgeon (designated in 2017 by NMFS) begins at the mouth of the Savannah River and extends to the NSBLD, which is located at RM 180, approximately 20 RMs downstream of the Project. There is no designated critical habitat for Shortnose Sturgeon. SCDNR documented 13 adult and two juvenile Shortnose Sturgeon make presumed spawning runs to potential spawning habitat near RM 130 during late winter and early spring over a five-year period from 2014 to 2018 (Post et al. 2018). Similarly, SCDNR documented four adult Atlantic Sturgeon make presumed spawning runs to potential spawning habitat between RM 104 and to within approximately 9 RMs of NSBLD during late winter and early spring from 2014 to 2018 (GADNR 2017; Post et al. 2018). Juveniles of both species tend to stay lower in the river system closer to the mouth (GADNR 2017, Post et al. 2018, Collins et al. 2002). Hall et al. (1991) reported that Shortnose Sturgeon made spawning runs upstream to between RM 111 and 118 and between RM 170 and 172; Collins and Smith (1993) reported that Shortnose Sturgeon made spawning runs upstream to between RM 111 and 141. GADNR reports that Shortnose and Atlantic Sturgeon may inhabit the Savannah River up to or near the NSBLD at RM 180 (Appendix G).

Habitat requirements and range in the Project vicinity for federal-protected species are shown in Table 4-10.

COMMON	STATUS	DESCRIPTION OF HABITAT REQUIREMENTS	RECOVERY PLAN
NAME		AND RANGE IN PROJECT AREA	REFERENCE
Red-	Endangered	Mature forests with old growth longleaf pines	USFWS 2003
cockaded		and loblolly pines; not known to occur in	
woodpecker		Project area but may occur in surrounding	
		upland habitats. Given habitat requirements,	
		unlikely to be adversely affected by Project	
		relicensing.	
Wood stork	Threatened	Various freshwater and estuarine wetlands for	USFWS 1997
		nesting, feeding, and roosting throughout range;	
		Occurs occasionally in Project area.	
Carolina	Endangered	One population known from Turkey Creek, a	USFWS 1996
heelsplitter		tributary to Stevens Creek in the upper Stevens	
_		Creek watershed; * not known to occur in or	
		near the Project area.	

TABLE 4-10FEDERALLY PROTECTED SPECIES AND THEIR HABITAT REQUIREMENTS THAT
MAY OCCUR IN THE STEVENS CREEK PROJECT VICINITY

Common Name	STATUS	DESCRIPTION OF HABITAT REQUIREMENTS AND RANGE IN PROJECT AREA	RECOVERY PLAN Reference
Miccosukee gooseberry	Threatened	Upland plant that grows in deciduous forest stands; occurs within a 35-acre plot within the Stevens Creek Heritage Preserve; not known to occur in Project area but may occur in surrounding upland habitats. Given habitat requirements, unlikely to be adversely affected by Project relicensing.	No recovery plan identified; see five- year review (USFWS 2015)
Relict trillium	Endangered	Known to occur in understory of mature, undisturbed hardwood forest stands; <i>known to</i> occur near Project area – given habitat requirements, unlikely to be adversely affected by Project relicensing.	USFWS 1991
Atlantic Sturgeon	Endangered	May occupy Savannah River from mouth upstream to NSBLD during spawning runs.	Post et al. 2018
Shortnose Sturgeon	Endangered	May occupy Savannah River from mouth upstream to NSBLD during spawning runs.	Post et al. 2018

Source: USFWS 2019

* Turkey Creek is approximately 40 RMs upstream from the Stevens Creek Dam.

4.6.2 FOREST SERVICE SENSITIVE SPECIES

There are approximately 104 acres of Forest System lands within the Project boundary. Therefore, in addition to state and federally listed species, this PAD considers Forest Service Threatened, Endangered and Sensitive (TES) Species that may occur in Long Cane Ranger District of the Sumter National Forest. TES species considered potentially occurring in the Long Cane Ranger District of the Sumter National Forest are included in Table 4-11 (Appendix G).

	SPECIES			HABITAT
SPECIES	GROUP	STATUS	HABITAT DESCRIPTION	GROUP ¹
CAROLINA HEELSPLITTER	Mussel	Federally	Known historically from Catawba, Pee Dee, and Savannah	1
Lasmigona decorata		Endangered	River basins in North Carolina and South Carolina with a	
			possibility that they were historically found in the Saluda	
			River basin in South Carolina; it is found in the Upper	
			Stevens Creek, Bush River – Saluda River, and Turkey	
			Creek –Stevens Creek watersheds on or adjacent to the	
			Forest; on the Forest it has been found in the Beaverdam	
			Creek – Turkey Creek and Lower Turkey Creek – Stevens	
	D1	E 1 11	Creek subwatersheds	0
FLORIDA (MICCOSUKEE)	Plant	Federally	Known from the Stevens Creek drainage on north-facing	8
GOOSEBERRY		Threatened	hardwood slopes in association with basic soils	
Ribes echinellum	D : 1	E 1 11		
RED-COCKADED	Bird	Federally	Known from Edgefield County; historically known from	4,5
WOODPECKER		Endangered	Laurens County; nests in live large pines and forages in open	
Dryobates borealis	D1	E 1 11	pine woodlands	
RELICT TRILLIUM	Plant	Federally	Occurs in basic mesic forests in Savannah and	8
Trillium reliquum		Endangered	Chattahoochee drainages; known from Aiken County in	
	D' 1	F 1 11	proximity to the Sumter National Forest	1.2
WOOD STORK	Bird	Federally	Known to forage in freshwater wetlands on both Enoree and	1,3
Mycteria americana		Endangered	Long Cane Ranger Districts	
ATLANTIC SPIKE	Mussel	Sensitive	Widespread in South Carolina, the species is found in	1
Elliptio producta			streams or rivers with sandy, rocky, and/or muddy bottoms	
			in sections where the current is not too rapid; on the Forest it	
			is known from the Long Cane and Andrew Pickens Ranger	
			Districts	
BACHMAN'S SPARROW	Bird	Sensitive	Inhabits forest stands with open canopies and herbaceous	4
Peucaea aestivalis			understories	

TABLE 4-11 SENSITIVE SPECIES POTENTIALLY OCCURRING IN SUMTER NATIONAL FOREST

	SPECIES			HABITAT
SPECIES	GROUP	STATUS	HABITAT DESCRIPTION	GROUP¹
BARTRAM'S REDEYE BASS <i>Micropterus coosae</i>	Fish	Sensitive	In South Carolina this species occurs in the Savannah River drainage and has been introduced in the Saluda River drainage; it inhabits small upland streams and rivers with undercut banks and vegetation such as water willow, as well as boulders and submerged logs; it is found on the Andrew Pickens and Long Cane Ranger Districts	1
BROOK FLOATER Alasmidonta varicosa	Mussel	Sensitive	Small streams and rivers with gravel bottoms; known from Chattooga, Turkey, and Upper Stevens Creek watersheds on the Andrew Pickens and Long Cane Ranger Districts	1
FADED TRILLIUM Trillum discolor	Plant	Sensitive	Basic mesic hardwood forests restricted to the Savannah River drainage system	4
GEORGIA ASTER Symphyotrichum georgianus	Plant	Sensitive	Known from select open woodlands, including those associated with utility and roadside rights-of-way	4
LANCELEAF TRILLIUM Trillium lancifolium	Plant	Sensitive	Basic mesic hardwood and floodplain forests	3,8
MONARCH BUTTERFLY Danaus plexippus	Insect	Sensitive	Summer breeding habitat includes woodlands, roadsides, or utility rights-of-way containing nectaring plants throughout summer for the adults and abundant, healthy, larval plants (milkweeds)	3,4,5,7,8
OGLETHORPE OAK <i>Quercus oglethorpensis</i>	Plant	Sensitive	Streamside forests and depressional wetlands in the Carolina Slate belt	3,5,9
PIEDMONT PRAIRIE BURROWING CRAYFISH Distocambarus crockeri	Crustacean	Sensitive	This species is most abundant on a perched water table along ridge tops and negatively associated with aquatic habitats; found in forest canopy openings like roadside ditches usually with sedges present; it is present in Thurmond Lake – Savannah River, Upper Stevens Creek, Kiokee Creek – Savannah River, Turkey Creek – Stevens Creek, Bush River – Saluda River, and Little River – Savannah River watersheds that contain Forest Service land on the Long Cane Ranger District; on the Forest it has only been found in the Mountain Creek – Turkey Creek subwatershed	4,9

	SPECIES			HABITAT
SPECIES	GROUP	STATUS	HABITAT DESCRIPTION	GROUP¹
ROANOKE SLABSHELL	Mussel	Sensitive	In South Carolina, it is found in the Pee Dee River and in the	1
Elliptio roanokensis			Catawba, Congaree, and Savannah River basins, typically in	
			large rivers but can occasionally be found in small creeks; It	
			has the potential to be found in watersheds on the Long Cane	
			Ranger District that are in the Savannah River basin but no known records on the Forest exist	
ROBUST REDHORSE	Fish	Sensitive	In South Carolina it is found in the Savannah River and Pee	1
Moxostoma robustrum			Dee River basins; it was extirpated from the Santee River	
			basin but recent stocking has been completed in the Broad	
			and Wateree River systems to reestablish a population in the	
			Santee River basin; on the Forest it has the potential to be	
			found on the Enoree Ranger District within the Broad River	
			and lower parts of the Enoree Tyger, and Sandy River	
SHOAL'S SPIDER LILY	Plant	Sensitive	Rocky river shoals; known from Stevens Creek and	2
Hymenocallis coronaria			historically from the Broad River	
SWEET PINESAP	Plant	Sensitive	Shortleaf pine-oak heaths in the Southern Appalachians and	5
Monotropsis odorata			piedmont	
TRI-COLORED BAT	Mammal	Sensitive	Found in mines and caves in winter	2,3,4,5,6
Perimyotis subflavus				
WEBSTER'S SALAMANDER	Amphibian	Sensitive	Mesic hardwood slopes with rocky outcrops	7
Plethodon websteri				
YELLOW LAMPMUSSEL	Mussel	Sensitive	In South Carolina it is found in the Savannah, Wateree,	1
Lampsilis cariosa			Cogaree, and Pee Dee River Basins; on the Forest it is found	
			on the Long Cane Ranger District in the Lower Stephens	
			Creek and Turkey Creek – Stevens Creek watersheds; it also	
			has the potential to occur in the Upper Stevens Creek watershed	

¹Habitat Group: 1 =Aquatic habitats; 2 =Rock outcrops associated with streams; 3 =Riparian forests and native canebrakes; 4 = Woodlands, savannas, prairies, and openings; 5 = Upland oak and pine forests; 6 = Mines and caves; 7 = Mesic forests; 8 =Basic mesic forests and rich coves; 9 = Upland depression ponds, bogs, and seepage areas; 10 = Glades and mafic woodlands

4.6.3 POTENTIAL ADVERSE EFFECTS AND ISSUES

DESC prepared an RTE Species Whitepaper to provide baseline information on federal and statelisted RTE species within the FERC Project boundary and area of potential Project influence (Appendix H). The Whitepaper identified several federal-protected and Forest Service TES species that have been documented within the Project boundary or have the potential to occur within the Project boundary due to availability of suitable habitat. These species are listed below.

- Atlantic Spike
- Bald Eagle
- Bartram's Bass
- Brook Floater
- Carolina Heelsplitter
- Faded Trillium
- Miccosukee Gooseberry
- Monarch Butterfly
- Relict Trillium
- Roanoke Slabshell
- Robust Redhorse
- Shoals Spider Lily
- Tricolored Bat
- Webster's Salamander
- Wood Stork
- Yellow Lampmussel

Although several species occur or have the potential to occur within the Project boundary, continued Project operations are not expected to have any adverse effect on these species. DESC is not proposing any changes to Project operations and does not have any plans for significant logging or shoreline changes within the Project boundary. If the need arises for tree removal, construction, or other shoreline modifications in the future, DESC will consult with the USFWS, Forest Service, and the GADNR and/or SCDNR (as appropriate) prior to the commencement of these activities.

The proposed Mussel Study will determine the presence of any RTE mussel species and identify the potential for Project effects on these species. The results of this study, including potential adverse effects, will be included in the FLA.

4.6.4 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

At this time, DESC is not proposing any mitigation and enhancement measures related to RTE species. However, as mentioned, if tree removal, construction, or other shoreline modifications are planned in the future, DESC will consult with appropriate agencies prior to engaging in these activities.

4.6.5 **REFERENCES**

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4.7 RECREATION AND LAND USE [§ 5.6 (D)(3)(VIII)]

The Project is located within Edgefield and McCormick counties, South Carolina and Columbia County, Georgia, in the Piedmont ecoregion. The Project is located on approximately 104 acres of federal land in the Sumter National Forest.

4.7.1 EXISTING RECREATIONAL FACILITIES WITHIN THE PROJECT BOUNDARY

On February 5, 2014 and supplemented on September 11, 2014, DESC filed a revised Recreation Management Plan (RMP) pursuant to Article 413 of the existing license. On March 24, 2015, FERC issued an order Modifying and Approving the Revised Recreation Plan Pursuant to Article 413. Below is a summary of the existing Project recreation sites and each site's existing amenities.

Currently there are five recreation sites associated with the Project. These sites are listed below in Table 4-12, shown in Figure 4-20 and described in further detail in the following paragraphs.

RECREATION SITE NAME	RECREATION SITE NAME AS LISTED IN 2014 RECREATION PLAN	RECREATION SITE NAME AS LISTED IN 1995 PROJECT LICENSE/EXHIBIT G DRAWINGS
Stevens Creek Recreation	SC Recreation Site #1	Stevens Creek Recreation
Site		Site
Fury's Ferry Recreation Site	SC Recreation Site #2	Fury's Ferry Recreation Site
Mims Recreation Site	SC Recreation Site #3	Recreation Site #1
Chota Drive Recreation Site	SC Recreation Site #4	Recreation Site #2
Betty's Branch/Riverside	SC Recreation Site #5	GA Recreation Site
Park		

 TABLE 4-12
 EXISTING PROJECT RECREATION SITES AT THE STEVENS CREEK PROJECT

Source: SCE&G 2014



FIGURE 4-20 EXISTING PROJECT RECREATION SITES AT THE STEVENS CREEK PROJECT

4.7.1.1 STEVENS CREEK RECREATION SITE

The Stevens Creek Recreation Site is located on DESC-owned property on the Stevens Creek arm of the Project reservoir. This recreation site currently has the following amenities (SCE&G 2014):

- A single-lane concrete boat ramp;
- A paved turn-around area;
- Three picnic tables (one barrier free);
- A paved access road;
- One barrier-free restroom;
- A parking area for approximately eight trailers and two vehicles (one barrier-free parking space); and,
- A safety sign.

DESC maintains the recreation site by collecting litter and trash at the site; inspecting signs, handicapped facilities, and parking areas quarterly, with maintenance and repair as needed; and mowing and edging five times a year during the growing season (SCE&G 2014).

4.7.1.2 FURY'S FERRY RECREATION SITE

The Fury's Ferry Recreation Site is located on the Savannah River portion of the Project reservoir on U.S. Forest Service (Forest Service)-owned property. This recreation site currently has the following amenities (SCE&G 2014):

- A single-lane concrete boat ramp;
- Two picnic tables;
- An unpaved turn-around area;
- A gravel access road;
- Signage;
- An unpaved parking area for approximately 20 vehicles;
- A primitive (undeveloped) camping area; and
- A ten-acre hunting reserve.

The existing license originally required additional modifications to the Fury's Ferry Recreation Site. However, Forest Service-developed the Forks Area Trail System (FATS) in the vicinity of Fury's Ferry, which is not associated with the Project. This facility provides over 30 miles of trail system, parking areas, developed restroom facilities, and potable water. While the license recommended modifications to the Fury's Ferry site, the Forest Service requested that no improvements be made to the site due to their recreation realignment strategy. Therefore, no improvements were made. The site is maintained by the Forest Service in accordance with their normal maintenance processes, including monitoring use and maintenance of landscaping and roads (SCE&G 2014).

4.7.1.3 MIMS RECREATION SITE

This site originally existed as an informal access area, however, DESC proposed to formalize the site in the 2014 Recreation Plan. The Mims Recreation Site is located on Forest Service property and includes the following amenities (SCE&G 2014):

- A gravel access road;
- A gravel turn-around;
- A gravel parking area for two vehicles;
- An informal path to the boat launching area;
- A hand-carry boat launch; and
- Bank fishing access.

The existing license and the 2014 Recreation Plan required the following modifications to the Mims Recreation Site (SCE&G 2014):

- Reorient travel access road;
- Enlarge travel turn-around;
- Formalize path to 8-foot-wide gravel path;
- Improve access to bank fishing by minor clearing of underbrush;
- Expand parking to four vehicles with trailer and two vehicle spaces (one of each barrier-free); and
- Installation of signage.

On October 10, 2018, DESC met at the Mims Recreation Site with representatives from the Forest Service to discuss the proposed improvements per the 2014 Recreation Plan. The Forest Service indicated that this site is no longer supported by the current Forest Service Recreation Plan and is not consistent with the recent Forest Service Sustainable Recreation Strategy. The Forest Service

sent a letter to DESC on November 19, 2018 requesting that proposed modifications at the site be deferred until further discussions occur during the relicensing process. Based on discussions with Commission staff it was recommended that DESC consult with the appropriate agencies to remove this recreation site from the current Recreation Plan. In December of 2019, DESC filed a request to amend Article 413 and the Project Recreation Plan to remove the Mims from the Plan. As of the filing of this PAD, this request is currently pending with the Commission.

4.7.1.4 CHOTA RECREATION SITE

The Chota Recreation Site is located on Forest Service property and is on the Stevens Creek arm of the Project reservoir. This site has the following amenities (SCE&G 2014):

- A gravel access road;
- A gravel turn-around area;
- An undeveloped path;
- A canoe launching area; and,
- Bank fishing access.

Due to the location of the Chota Recreation Site, which is close to archaeological sites, the Forest Service requested that this site maintain its primitive existence and requested no improvements be made. This site is located on Forest Service property and is maintained by Forest Service in accordance with normal maintenance processes, including use monitoring and landscaping maintenance (SCE&G 2014).

4.7.1.5 BETTY'S BRANCH/RIVERSIDE PARK

As required by the license, DESC developed the Betty's Branch recreation site with representatives from Columbia County, Georgia (SCE&G 2014). Betty's Branch is primarily a fishing site with appurtenant facilities located on the Georgia side of the Savannah River and is part of the multiuse Riverside Park, developed by Columbia County, Georgia. Riverside Park includes facilities for baseball, softball, tennis, picnicking, and water-related activities such as fishing and boating. DESC dredged Betty's Branch to allow boat access through Little River to the Stevens Creek Reservoir. DESC provided funds to cover dredging costs and aided in the design of a boat ramp, dock and fishing platform. Existing amenities associated with the Project and located at the Betty's Branch site include:

- A boat ramp;
- A boat dock;
- A barrier-free fishing pier; and
- Safety signage.

The Riverside Park is owned and operated by Columbia County and maintained by Columbia County in accordance with their normal maintenance processes. According to the Memorandum of Agreement (MOA) Columbia County is responsible for the operation and maintenance of the following facilities: boat ramp; boat dock; barrier-free fishing pier; and safety signage. The MOA also states that DESC is responsible for the maintenance dredging of Betty's Branch, which allows for easier boat take-outs at the boat ramp. As stated in the MOA, DESC will inspect the dredged area every five years and maintain on an as-needed basis (SCE&G 2014).

4.7.2 RECREATIONAL USE OF PROJECT LANDS AND WATERS

According to the 2015 Form 80 for the Project, the Project received an estimated annual total of 12,210 recreation days. The peak weekend average for the Project, including daytime and nighttime visits, is approximately 732 recreation days. FERC defines a "recreation day" as a visit by a person to a development for recreational purposes during any portion of a 24-hour period. Peak weekends are defined by FERC as a weekend when recreational use is at its peak for the season, typically Memorial Day, Independence Day and Labor Day. A "peak weekend" includes the three-day period surrounding the mentioned holidays.

Capacity utilization estimates for Project recreation amenities located within the Project boundary are listed in Table 4-13.

RECREATION AMENITY Type	NUMBER OF FERC Approved Recreation Amenities	CAPACITY UTILIZATION*
Boat Launch Areas	3	30
Reservoir Fishing	1	30
Trails	1	20
Picnic Areas	2	30
Informal Use Areas	3	20

 TABLE 4-13
 CAPACITY UTILIZATION OF PROJECT RECREATION AMENITIES LOCATED

 WITHIN THE PROJECT BOUNDARY

Source: FERC 2015

* Reported in Percentage

4.7.3 EXISTING SHORELINE BUFFER ZONES WITHIN THE PROJECT BOUNDARY

Shoreline around the Project is largely undeveloped, as a large portion of the land is owned by the Forest Service. DESC owns approximately 95 acres of land within the Project boundary (approximately 5 percent) and maintains flowage rights on the remainder of the Project land. Public access is not allowed on lands surrounding Project structures (e.g. dam, powerhouse, transmission equipment, etc.), and, in accordance with license article 410, DESC maintains a buffer of trees along the shoreline of DESC-owned property. Other than through the Stevens Creek Recreation Site and Betty's Branch, access to the reservoir is mainly limited to gravel Forest Service roads, private roads, and other local unimproved roads (SCE&G 2014). DESC encourages reservoir landowners to also maintain a buffer of trees on private property within the Project boundary. This is consistent with the SCDNR's recommendations regarding riparian forest buffers. The SCDNR recommends a statewide minimum riparian forest buffer width of 35 feet of native vegetation on lands bordering waterways. Additionally, SCDNR recommends expanded buffer widths in non-forested or more developed areas, or areas that would benefit from additional protection measures. Forested riparian buffers promote the protection of water quality and provide numerous wildlife habitat benefits. SCDNR's policy promotes the use of education programs and best management practices to encourage buffer establishment (SCDNR 2000).

4.7.4 CURRENT AND FUTURE RECREATION NEEDS LISTED IN EXISTING STATE OR REGIONAL PLANS

Management plans that cover recreation resources within the Project vicinity include South Carolina's 2014 State Comprehensive Outdoor Recreation Plan (SC SCORP); Georgia's State Comprehensive Outdoor Recreation Plan 2017-2021 (GA SCORP); Columbia County's Comprehensive Plan; Edgefield County's Comprehensive Plan; McCormick County's Comprehensive Plan; and the City of Augusta's Comprehensive Plan.

4.7.4.1 SOUTH CAROLINA'S 2014 STATE COMPREHENSIVE OUTDOOR RECREATION PLAN

The SC SCORP serves as a recreation and natural resources planning and development guide for a variety of government and NGOs (SCPRT 2014). Specifically, the SC SCORP considers outdoor recreation issues as they relate to the needs of residents and visitors to South Carolina, examines recreational resources within the state, analyzes the demand for recreational opportunities, develops a plan for addressing recreation needs and issues, and identifies funding opportunities and issues of national importance (SCPRT 2014). The SC SCORP does not provide any recommendations regarding the Project, however the recreation goals outlined in the SC SCORP may be used by state, county, or municipal governments, including McCormick and Edgefield counties. The goals of the SC SCORP listed below may be relevant to the Project.

- Promote healthy lifestyles and communities through outdoor recreation, parks and associated amenities.
- Stewardship and conservation of South Carolina's natural and recreational resources.
- Sustaining economic benefits of outdoor recreation by utilizing and leveraging the State's outdoor recreation resources and attractions (SCPRT 2014).

4.7.4.2 GEORGIA STATE COMPREHENSIVE OUTDOOR RECREATION PLAN 2017-2021

The GA SCORP provides information on important issues and consideration facing the state's parks and guidance to the state's policy makers, practitioners and citizens for protecting key resources and addressing outdoor recreational needs of the state's citizens (GSP 2016). While the GA SCORP does not provide specific recommendations for recreation at the Project, it does provide three strategic action statements that broadly apply to the Project. These strategic action statements are listed below.

- Reinforce the connection between health, quality of life and outdoor recreation at all levels of government service.
- Support and maintain Georgia's outdoor recreation resources so that the state remains attractive to new business and industry, draws tourists across state borders and grows the state tax base.
- Continue to protect the natural landscapes which help to make recreating outdoors fun and exciting and to preserve critical land and water resources (GSP 2016).

4.7.4.3 EDGEFIELD COUNTY 2019 COMPREHENSIVE PLAN

The Edgefield County Comprehensive Plan considers nine elements for planning purposes, including population, economic development, natural resources, cultural resources, community facilities, housing, land use, transportation, and priority investments (Robert and Company 2019). A majority of these elements consider a recreation component. The county has a short-term plan regarding recreation that includes the following components: prepare a county recreation plan to support a range of parks and cultural resources and coordinate plans with town resources; create a 501(3)c entity to promote and enhance recreation facilities and activities (including staff and training); identify, develop and construct new recreation facilities in the Merriwether area; identify, develop and construct new recreational activities building in the Johnston-Edgefield-Trenton area; support "greenway" corridor along Ten Governors Trail and access to Forest Service facilities and resources; and partner with other entities to support cultural resources partnerships for the arts, senior citizen programs, and quality of life projects (Robert and Company 2019).

4.7.4.4 MCCORMICK COUNTY COMPREHENSIVE PLAN 2015

The McCormick County Comprehensive Plan considers several elements that focus on recreation components, including natural resources, cultural resources, community facilities and land use. The plan includes a goal of encouraging county and municipal governments to work with recreation groups to develop a plan for upgrading recreation facilities in the county, especially facilities for young children (McCormick County 2015).

4.7.4.5 COLUMBIA COUNTY COMPREHENSIVE PLAN, VISION 2035

The Columbia County Comprehensive Plan, Vision 2035, provides the community's primary goals for achieving its vision for growth and development over the next 20 years. The plan highlights the need to plan for activity centers and major corridors, green space, parks, economic development and public infrastructure as the fastest growing county in the region (Columbia County 2015). A goal of the of the plan's resource conservation theme is to permanently protect 20 percent of the county's land as greenspace consistent with the Columbia County Greenspace Program. A goal of the plan's social and economic development theme is to enhance recreation opportunities for residents, including updating the 2002 Recreation Master Plan (Columbia County 2015).

4.7.5 CURRENT SHORELINE MANAGEMENT PLAN OR POLICY

DESC owns limited land surrounding the reservoir and retains flowage easements on the reminder of Project boundary land. Moreover, all existing shoreline structures on the reservoir are permitted to shoreline property owners through the U.S. Army Corps of Engineers. Due to limited property ownership and the limited ability for DESC to manage property surrounding the reservoir or permit activities on Project shorelines, a formal Shoreline Management Plan is not pertinent for the Project.

It is DESC's policy to utilize the SCDHEC Stormwater Best Management Practices (BMPs) during any DESC-implemented construction activities. These BMPs help prevent excessive runoff and erosion resulting from land disturbing activities. General guidelines include fitting the activity to the topography and soils; minimizing erosion of the disturbed areas; stabilizing disturbed areas immediately; retaining or accommodating runoff; retaining sediment; and not encroaching upon water courses. Besides these BMPs, DESC does the following when managing the Stevens Creek shoreline:

- Plant alternative native species when possible, paying particular attention to any added benefits of providing food sources and wildlife habitat.
- Ensure materials will, to the extent possible, blend in with the natural environment and maintain Project aesthetics.
- Minimize destruction of the natural vegetation directly adjacent to the reservoir, and where possible, on the land inside the Project boundary.
- Minimize unauthorized use and vandalism at recreation sites.
- Blend the recreation development into the existing landscape character by selective vegetation removal and landscaping.
- Revegetate, stabilize and landscape new construction areas and slopes damaged by erosion.

In addition, DESC conducts annual shoreline inspections at the Stevens Creek reservoir. If specific areas of shoreline erosion are identified, DESC will consult with the Forest Service, GADNR and SCDNR, as appropriate, to address adverse effects such as unstable slopes or suspended sediments. Deficiencies of the shoreline are noted and repaired as necessary.

4.7.6 THE NATIONAL WILD AND SCENIC RIVER SYSTEM

The Project is not located on a designated wild and scenic river segment. No portion of the Savannah River is designated as wild and scenic.

4.7.7 PROJECT LAND BEING CONSIDERED FOR INCLUSION IN THE NATIONAL TRAILS SYSTEM OR AS A WILDERNESS AREA

No Project lands are being considered for inclusion in the National Trails System or as a Wilderness Area.

4.7.8 **REGIONALLY OR NATIONALLY IMPORTANT RECREATION AREAS IN THE PROJECT** VICINITY

There are several local, state, and federal recreation facilities located near or adjacent to the Project, including three state parks and three national forest park and recreation areas within 25 miles of the Project dam. An additional 12 state parks and nine national forest park and recreation areas are located within 50 miles of the Project dam. Immediately upstream of the Project are the USACE's J. Strom Thurmond Project, Richard B. Russel Project, and Hartwell Project. Each of these projects provide extensive recreation opportunities to the public (FERC 1995).

Adjacent to the north end of the Stevens Creek reservoir is the USACE's J. Strom Thurmond Recreation Area. On the South Carolina side of the recreation area, facilities include: a visitor's information center; a concrete boat ramp; a fishing pier; a fish cleaning station; picnic tables and grills; trash receptacles; and a parking area. On the Georgia side of the recreation area, facilities include: a concrete boat ramp; a bank fishing area; picnic tables and grills; and a parking area (FERC 1995).

In addition to the J. Strom Thurmond Recreation Area, the 70,000-acre J. Strom Thurmond reservoir provides eight other recreation areas, thirteen campgrounds, five state parks, three county parks, five private marinas, three Forest Service access points, and the U.S. Army's Fort Gordon Recreation Area (FERC 1995).

The Richard B. Russel reservoir is smaller than that of the downstream J. Strom Thurmond Project: however, it provides similar recreation facilities to the public. The Hartwell reservoir, the furthest upstream of the three USACE projects, is smaller than the J. Strom Thurmond reservoir, however, due to its close proximity to Atlanta, it receives significant use (FERC 1995).

The Sumter National Forest's Long Cane District is located adjacent to the Project and provides two campgrounds, picnic areas, hunt camps, boating sites, a swimming beach, and a rifle range. Hunting, camping, and site-seeing are the most popular recreation activities at the Sumter National Forest (FERC 1995).

Immediately southeast of the Project are two parks maintained by Richmond County, Georgia and the city of Augusta. These parks provide picnicking, game courts, and fishing opportunities for the public. Directly downstream of the Stevens Creek Dam, the one-mile long impoundment created by the Augusta Diversion Dam (FERC Project No. 11810) provides paddling opportunities associated with that FERC-licensed facility. In addition, the Augusta Canal is open to the public for non-motorized boating. Parking areas, canoe put-ins and an 8.5-mile bicycle trail are located along the canal (FERC 1995).

4.7.9 NON-RECREATIONAL LAND USE AND MANAGEMENT WITHIN THE PROJECT BOUNDARY

Project operations, maintenance, and recreation are the primary activities on Project lands. The land use types within the Project boundary consist mostly of privately-owned lands and rural residential developments (FERC 1995) (Figure 4-21). On the South Carolina side of the Project is the Sumter National Forest, which is managed for recreation and timber harvesting. Timber harvesting is the primary land use on both public and private lands at the Project. Agricultural use in the Project boundary is limited due to a large amount of wooded lands (FERC 1995). DESC manages timber on a small tract of land within the Project boundary on the South Carolina side of the Stevens Creek Reservoir, approximately 10 miles upstream of the Stevens Creek Dam. DESC manages timber in accordance with South Carolina BMPs.

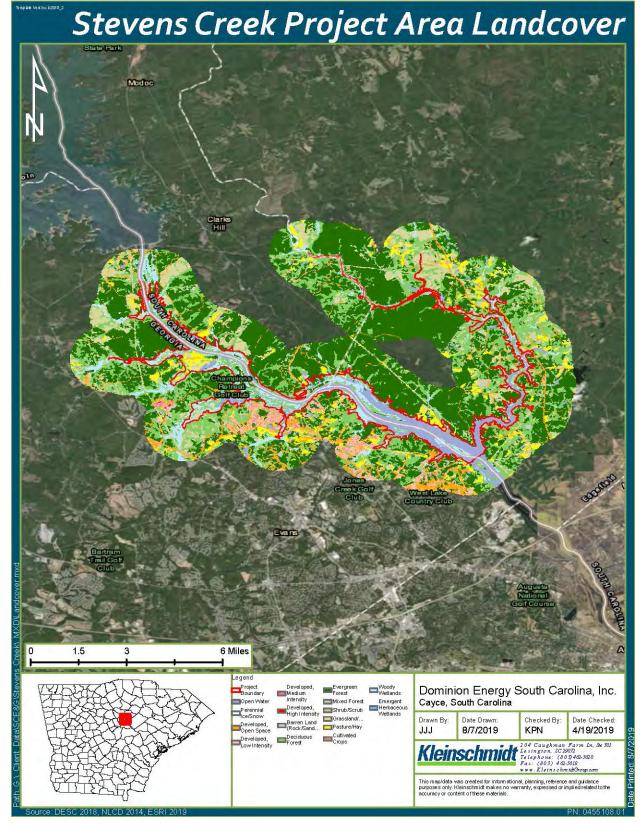


FIGURE 4-21 LAND USE MAP OF THE PROJECT

4.7.10 RECREATIONAL AND NON-RECREATIONAL LAND USE AND MANAGEMENT ADJACENT TO THE PROJECT BOUNDARY

The largest land use categories for lands adjacent to the Project are agricultural/forestry, residential, public and recreation. Land use classifications in Edgefield County, South Carolina and Columbia County, Georgia are included in Table 4-14 and Table 4-15. Land uses in McCormick County, South Carolina are described in the paragraph below.

LAND USE CLASSIFICATION	ACRES	% OF TOTAL
Rural/Agricultural and Vacant	278,110	85.6
Single-Family Residential	7,008	2.2
Multi-Family Residential	0	0.0
Commercial and Mixed Use	260	0.08
Industrial	360	0.11
Institutional and Public*	32,606	10.0
Towns and Cities	6,734	2.1

 TABLE 4-14
 LAND USE CLASSIFICATION IN EDGEFIELD COUNTY, SOUTH CAROLINA

Source: Robert and Company 2018

*This category includes Forest Service lands

ACRES	% OF
	TOTAL
88,985	50.1
10,449	5.9
55,200	31.1
704	0.4
377	0.2
3,003	1.7
2,498	1.4
10,034	5.6
932	0.5
	88,985 10,449 55,200 704 377 3,003 2,498 10,034

TABLE 4-15 LAND USE CLASSIFICATION IN COLUMBIA COUNTY, GEORGIA

Source: Columbia County 2015

Land uses in McCormick County, South Carolina fall in the following categories: residential/commercial; industrial; institutional; public lands; and agricultural (McCormick 2015). The largest land use in McCormick County is public lands, with more than 100,000 acres of public lands existing within the county, including 48,000 acres of Forest Service land. The second largest land use in McCormick County is agricultural lands with approximately 24,934 acres (McCormick 2015).

The closest city to the Project is the City of Augusta. Land uses within the City of Augusta are included in Table 4-16.

LAND USE CLASSIFICATION	ACRES	% OF TOTAL
Public Institutional	52,698	25.70
Low Density Residential	37,623	18.40
Agriculture	31,992	15.60
Forestry	23,065	11.30
Rural Residential	19,619	9.60
Industrial	15,592	7.60
Parks, Recreation and Conservation	11,131	5.40
Commercial	8,241	4.00
Transportation, Communication and Utility	2,507	1.20
High Density Residential	2,123	1.00
Office	257	0.10

 TABLE 4-16
 LAND USE CLASSIFICATIONS IN THE CITY OF AUGUSTA

Source: Augusta Georgia 2018

4.7.11 POTENTIAL ADVERSE EFFECTS AND ISSUES

During preliminary relicensing discussions, stakeholders identified several issues related to recreation at the project. First, stakeholders, agencies and DESC determined there was a need for a recreation study at the Project to provide updated recreation use information. DESC is proposing to perform an assessment of existing and future recreational use, opportunities and needs for the Project (Appendix I). The assessment is designed to provide information pertinent to the current and future availability and adequacy of DESC-owned and managed recreation sites, Forest Service owned and managed recreation sites, and Columbia County, Georgia owned and managed recreation sites. Results from the study will be used to develop a new RMP for the Project. Second, stakeholders and local residents expressed the interest to investigate the potential for DESC to manage the reservoir pool level higher than 183.0' minimum needed to re-regulate flows released from Thurmond Dam. Stakeholders indicated a higher minimum pool level would enhance boating opportunities in the Project area.

4.7.12 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

At this time, DESC is not proposing any mitigation or enhancement measures related to recreation resources. However, DESC will use the results of the Recreation Study, in addition to pre-filing

issues scoping regarding reservoir pool levels, to evaluate the need for mitigation and enhancement measures, which will be included in the FLA.

4.7.13 REFERENCES

- Augusta Georgia. 2018. Envision Augusta: 2035 Comprehensive Plan. Augusta-Richmond County
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4.8 AESTHETIC RESOURCES [§ 5.6 (D)(3)(IX)]

4.8.1 VISUAL CHARACTER OF THE PROJECT VICINITY

The Project facilities include a 2,000-foot spillway consisting of a cyclopean concrete gravity section with flashboards; a concrete gravity lock between the powerhouse and the spillway section; a reservoir with a surface area of 2,400 acres; a powerhouse integral with the dam that contains a reinforced concrete substructure, a steel-framed brick superstructure, and vertical shaft turbines and generators; a transmission system; and appurtenant facilities. Photo 4-1 through Photo 4-4 include a variety of views of the Project, including the powerhouse and upstream and downstream views.

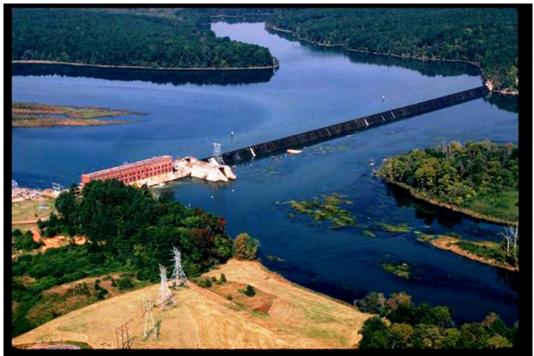


PHOTO 4-1 OVERVIEW OF PROJECT AREA

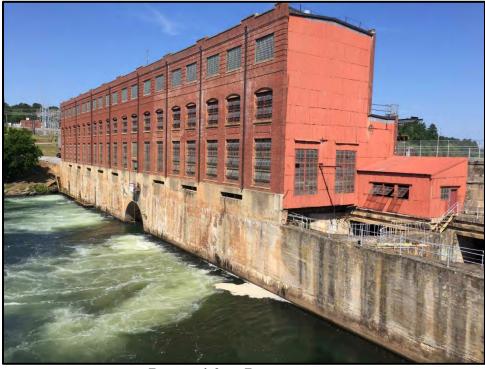


PHOTO 4-2 POWERHOUSE



PHOTO 4-3 NAVIGATION LOCK, VIEW LOOKING DOWNSTREAM



PHOTO 4-4 UPSTREAM OF DAM

4.8.2 NEARBY SCENIC ATTRACTIONS

The Sumter National Forest, which overlaps with the Project boundary, is a scenic attraction that brings hikers, boaters, and other visitors to the Project vicinity. It is home to many scenic waterfalls, including the popular Yellow Branch Waterfall. The Sumter National Forest is home to the Chattooga River, a nationally recognized Wild and Scenic River that contains scenic waterfalls and is renowned for its whitewater paddling opportunities (SC Tourism 2019; USDA 2019b).

The Francis Marion National Forest is also nearby, and together, the two national forests span a wide variety of environments, featuring forested areas, rivers, and swamps (USDA 2019a).

4.8.3 VISUAL CHARACTER OF PROJECT LANDS AND WATERS

In the Project area, views include generally forested rolling hills, rural residential areas, forested areas in various stages of regrowth, the Project dam and associated facilities, and the open water areas of the Savannah River and Stevens Creek. Most of the shoreline is forested, limiting views from the water to the water's edge. Due to the heavily forested shoreline, there are limited views of timber management areas adjacent to the reservoir that may be considered less aesthetically

pleasing. The Forest Service maintains a streamside buffer zone within Sumter National Forest by allowing no more than 50 percent of canopy cover to be cut within a 100-foot strip along the shoreline.

Key viewsheds are located at existing public access points at recreation areas, boat ramps, and bridges. This includes the bridge at Highway 28, Fury's Ferry recreation area, and Stevens Creek recreation area. These points provide generally scenic and unobstructed views of the Savannah River and Stevens Creek.

The hydroelectric facilities, including the powerhouse, lock, and dam, are eligible for the National Register of Historic Places (NRHP). The powerhouse is brick and has visually appealing architectural characteristics.

The area downstream of the existing dam and hydroelectric facilities has remained largely undeveloped. The downstream area represents a typical Piedmont riverine system with rocky shoals; mid-stream islands featuring sycamore, willow, and river birch; and forested river banks. Stallings Island is located directly downstream of the dam and remains in a relatively natural state. Stream banks remain forested down to the river, and instream flows below the dam have not negatively impacted the visual integrity of the river.

The Augusta Diversion Dam is located approximately one mile downstream of the Project and impounds water, thereby affecting the natural stream flow and visual conditions of the Savannah River between the Project and the diversion dam. The water released from the Stevens Creek Dam provides flowing water in the river segment immediately downstream of the dam.

4.8.4 POTENTIAL ADVERSE EFFECTS AND ISSUES

Adverse visual impacts associated with the Project are limited to the industrial quality of the substation and adjacent facilities, as well as the exposure of stream or reservoir bottom during water level fluctuation. These impacts are minimal because the area is not accessible to the public, cannot be seen from key public viewpoints, and can only be seen from the water. For safety reasons, recreational boaters are discouraged from getting too close to the area, thereby limiting their view.

The aesthetic quality of the reservoir shorelines varies daily due to exposure of the stream beds during water level fluctuations; however, this visual impact is minimal.

No adverse aesthetic impacts resulting from operation of the Project are evident downstream of the Project.

4.8.5 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

Since there is limited public viewing of the substation and immediate surroundings, DESC does not propose visual enhancement or mitigation measures.

The current license lists some aesthetic enhancement and mitigation measures, including:

- Develop a plan to control erosion, slope instability, and sedimentation during construction of the proposed recreation enhancements and any other land disturbing or land-clearing activities. DESC must inspect the reservoir shoreline annually for erosion and report its findings to FERC every three years.
- Maintain a buffer area of trees on DESC-owned land around the reservoir to minimize soil erosion and maintain aesthetic quality.
- Protect archaeologic and historic sites within the Project area by developing and implementing a cultural resources management plan.

DESC will continue to follow these measures.

4.8.6 **REFERENCES**

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4.9 CULTURAL RESOURCES [§ 5.6 (D)(3)(X)]

4.9.1 PREHISTORY AND HISTORY OF THE REGION

For 12,000 years, the Savannah River and Stevens Creek have served Native Americans and European colonists as a major route for transportation to and from the Atlantic Ocean. The waterways supplied basic needs such as drinking water and water for washing and cooking and attracted animals used for food (SCE&G NDA).

By the mid-1700s, the waterways were primarily used for manufacturing purposes. During the Colonial period, falling water was often used to operate machinery, particularly in areas where there were large rivers, high annual precipitation totals, and sharp drops in elevation over short distances. Industrial activity during this period mostly consisted of family-run small mills, such as grist or sawmills (SCE&G NDA).

In the 1820s, large-scale use of water to power industrial activities had begun, with independent companies using waterpower in a complex system of dams, canals and water wheels. Dams were used to store water, canals were used to direct the stored water and water wheels provided the energy to run machines. Water wheels were eventually replaced with impulse wheels and turbines, which allowed for an increase in the amount of power generated and set the groundwork for the hydroelectric industry (SCE&G NDA).

Hydroelectricity supported industrial development by delivering electric current to textile factories, railroads, wood pulp and paper processing factories, and mining operations. Eventually, hydroelectricity was used to run trolleys, illuminate street lights, and supply electricity to stores and homes. Hydroelectricity was the largest source of energy in the Southeast during the 1930s and by 1940 over one third of all electrical power in the United States was produced by hydroelectric facilities (SCE&G NDA).

Hydroelectric development of the Savannah River in the Project area was encouraged by the industrial expansion of the city of Augusta. The Stevens Creek Dam was constructed between 1909 and 1915 by the Georgia-Carolina Power Company. The dam was considered to be one of the most advanced engineering feats of its kind in the Southeast (SCE&G NDA). In the 1950s, Clark's Hill Dam and Reservoir was constructed approximately ten miles above the Project area, creating the largest lake in the south and sparking a local recreation industry. The electricity produced by these projects attracted large companies to the area including DuPont. Hydroelectric

development continued along the Savannah River Basin including the Hartwell Dam and Reservoir completed in 1962 and the Richard B. Russell Dam and Lake Project (originally known as Trotters Shoals Dam) completed in 1986. Today, the economy of the Upper Savannah region relies on pulpwood extraction, textile manufacturing and recreational activities associated with the hydroelectric project reservoirs (SCE&G NDA).

4.9.2 **PROJECT HISTORY**

The original Project facilities were constructed from 1912 through 1914 under the direction of the J.G. White Corporation and included a powerhouse, dam, navigation lock, and related hydroelectric plant (SCE&G 2004). By the mid-1920s, the Augusta area experienced enough industrial growth to warrant an increase in power production. The Stevens Creek powerhouse was expanded in 1925 to include three additional bays and three Westinghouse generators were added over the next two years to boost the plant's electric capacity. A substation was also built to tie the Project in with the Georgia Railway and Power Company (SCE&G 2004).

Since this time, no additional expansion of Stevens Creek facilities has occurred, however the original powerhouse's mullioned windows were replaced with multi-paned industrial sash and the "top-story" windows with glass blocks in the 1920s or 1930s (SCE&G 2004). In addition, the Project went through a series of alterations and/or replacements beginning approximately 40 years later. The navigation lock was refurbished in the 1970s and the powerhouse received a new trash rack support system, new trash racks, and a new trash rake in 1981. Significant maintenance activities occurred on the dam and powerhouse structures during the late 1970s and early 1980s, including replacement of the main plant headgate, exciter headgates, filler gates, gate seals, and the upstream lock gate. Over the course of the 1980s, the original wooden flashboards were eventually replaced by metal, automatic boards of comparable size and several pieces of equipment including the original direct current (DC) exciters, generators, and transformers were partially or completely removed and replaced by modern units. A new intake rake system was also installed during the existing license term (SCE&G 2004).

4.9.3 EXISTING DISCOVERY MEASURES

During the relicensing of the Project in the 1990s, the licensee commissioned several studies to identify historic properties that might be affected by Project operations or Project-related activities during the new license term (SCE&G 2004). Phase I and Phase II surveys were conducted from

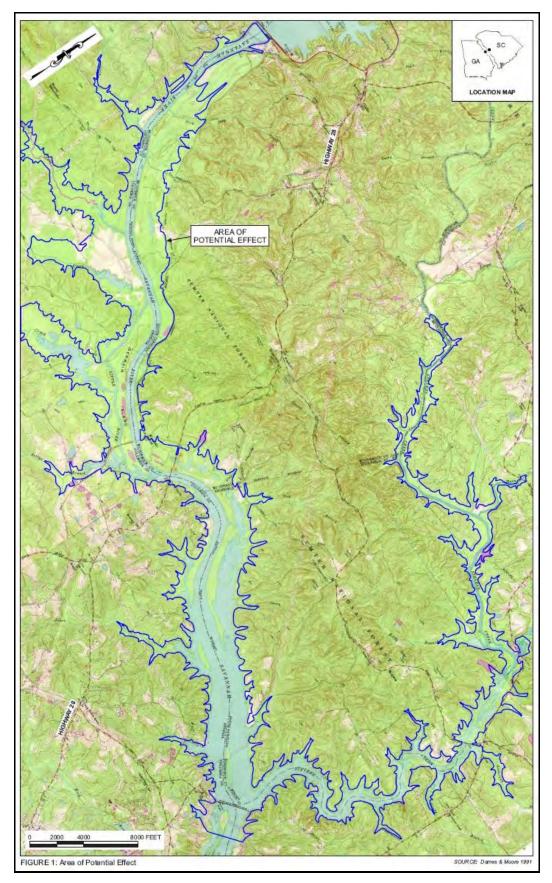
1991 to 1995 and included that portion of the APE from the Stevens Creek Dam up the Savannah River to the Route 28 bridge, and from the mouth of Stevens Creek upstream to the Woodlawn Road bridge. Besides these relicensing studies, other studies conducted by entities such as the Forest Service have identified additional archaeological sites within the APE (SCE&G 2004). A list of sites identified during these studies in included in Table 4-18.

FERC issued a new license for the continued operation of the Project on November 11, 1995. As a license condition, FERC required the preparation and implementation of a Historic Properties Management Plan (HPMP) for the Project in accordance with a Programmatic Agreement (PA) among FERC, the Advisory Council on Historic Preservation, and the South Carolina and Georgia State Historic Preservation Officers (SHPOs). The existing PA and HPMP were filed with FERC in November 1995 and November 2004, respectively.

4.9.4 IDENTIFICATION OF HISTORIC OR ARCHAEOLOGICAL SITES IN THE PROPOSED PROJECT VICINITY

The Project HPMP, filed with FERC in November 2004, defines the APE for the Project as the lands enclosed by the Project boundary as delineated in DESC's 1995 application for new license and any lands or properties outside the Project boundary where Project operation or Project-related actions may cause changes in the character or use of historic properties, if any exist. The Project extends approximately 13 miles up the Savannah River to the tailrace of the Thurmond Dam and 12 miles up Stevens Creek. The reservoir has a surface area of approximately 2,400 acres, with a full pool EL 187.5 feet NGVD. The Project boundary varies from 5 to 11 feet above full pool, between EL 192.5 feet and EL 198.5 feet. DESC owns 95 acres, or approximately five percent, of land within the Project boundary and holds flowage rights for the remaining Project boundary. The Project boundary encompasses approximately 104 acres of the Sumter National Forest in South Carolina, owned by the Forest Service. In Georgia, most of the land within the Project boundary is privately owned and contains scattered rural residential development (SCE&G 2004). Outside of the Project boundary, the APE encompasses both shorelines of the Savannah River downstream from the Stevens Creek Dam for a distance of approximately 2,000 feet, and includes Stallings Island, situated just below the dam (SCE&G 2004). The current Project APE, as defined in the 2004 HPMP, is depicted in Figure 4-22. DESC has begun informal early consultation with the Georgia and South Carolina SHPOs, the Advisory Council on Historic Properties (ACHP), the Catawba Indian Nation, and the Cherokee Nation. On October 15, 2019, DESC requested agency

and Tribal review of the 1996 Phase 1 and 2 studies, the Project APE, and the HPMP. Several recommendations were received to update the investigations to take into account properties that have since become historic, take into account revised/new guidance, and generally review previous site mapping. Both the Georgia Historic Preservation Division and the South Carolina Department of Archives and History concurred with the currently identified APE. Specific comments are further discussed below, in Section 4.9.5.





As mentioned, a variety of studies were completed in the 1990s identifying historic properties within the Project APE. Table 4-17 lists all historic properties in the APE as of 1996. Properties described as "potentially eligible" are those for which existing information is insufficient to determine National Register eligibility. According to the 2004 HPMP, DESC treats these resources as historic properties until such time as they are formally evaluated and found not eligible for the National Register.

SITE NUMBER/ DIMENSIONS AS AVAILABLE	DESCRIPTION	NATIONAL REGISTER STATUS	IMPACTS
38ED5	Prehistoric: Late Archaic shell midden	Potentially eligible; may be associated with Stallings Island	Minor erosion; extensive looting
38ED9 200 x 100 m	High density prehistoric lithic and ceramic scatter with Early Archaic through Late Woodland components; most significant component is extensive Late Archaic occupation, which includes a shell midden and human burials	Eligible	Minor erosion
38ED48 280 x 140m	Low to moderate density prehistoric resource extraction encampment with Late Paleoindian, Late Archaic, and Woodland components	Eligible	Moderate erosion
38ED118 210 x 80m	Moderate density prehistoric Early Archaic, Late Archaic, and Early Mississippian procurement camp	Eligible	Minor erosion
38ED119/283 130 x 80m	High density prehistoric resource procurement encampment with a Middle Archaic component and a possible Late Archaic, Woodland, or Mississippian component; low density historic domestic scatter from early to mid-nineteenth century	Prehistoric: Eligible Historic: Not eligible	None
38ED121	Unknown prehistoric	Potentially eligible	Upper level eroded
38ED282 75 x 50m	Unknown prehistoric	Potentially eligible	Lightly damaged from erosion and logging

TABLE 4-17STEVENS CREEK HYDROELECTRIC PROJECT: SUMMARY OF HISTORIC
PROPERTIES IN THE APE AS OF 1996

SITE NUMBER/	DESCRIPTION	NATIONAL	IMPACTS
DIMENSIONS AS AVAILABLE		R EGISTER Status	
38ED285 300 x 80m	High density prehistoric campsite or village; buried intact cultural deposits; presence of complicated ceramics suggests a Woodland-Mississippian component	Potentially eligible	Minor erosion
38ED290 40 x 20m	Unknown prehistoric	Potentially eligible	Minimal inundation
38ED291 60 x 40m	Extremely low density prehistoric lithic scatter representing a short-term resource procurement camp	Potentially eligible	Major erosion
38ED292 50 x 25m	A moderate density prehistoric lithic scatter representing a short term resource procurement camp; buried intact cultural deposit	Potentially eligible	Major erosion
38ED293	A moderate density prehistoric lithic scatter representing a short term resource procurement camp; buried intact cultural deposit	Potentially eligible	Major erosion
38ED388 21 x 5m	Underwater remains of steam-powered barge wrecked in the 1920s	Potentially eligible	Moderately damaged from erosion and inundation
38ED432 245 x 110m	Moderate-density short-term resource extraction encampment with terminal Middle Archaic and Woodland components	Potentially eligible	Minor erosion
38ED433 70 x 30m	Low-density short-term resource procurement encampment with Late Archaic and Woodland components	Potentially eligible	Minor erosion
38ED441 140 x 300m	High density prehistoric scatter; buried Middle Archaic component; presence of possible Early Woodland projectile point; presence of complicated stamped ceramics suggests a Woodland-Mississippian component	Eligible	Major erosion; inundation
38MC699	Unknown historic cemetery; unknown prehistoric	Potentially eligible	Moderate damage from logging and erosion
38MC811 230 x 140m	Moderate density prehistoric resource procurement encampment with a Middle Archaic component; presence of ceramics suggests a Woodland component	Eligible	Minor erosion

SITE NUMBER/ DIMENSIONS AS	DESCRIPTION	NATIONAL REGISTER	IMPACTS
AVAILABLE		STATUS	
38MC915	Prehistoric; Middle Archaic through Middle Woodland	Potentially eligible	Heavily damaged from erosion and construction
9CB1	Stallings Island Site	NRHP; National Historic Landmark	Erosion; vandalism
9CB2	Unknown prehistoric	Potentially eligible	Unknown
9CB7 80 x 100m	Prehistoric: Middle Archaic; possible Late Archaic	Potentially eligible	Cultivated
9CB13 100 x 100m	Prehistoric: Possible steatite quarry	Potentially eligible	Partially cultivated
9CB14	Prehistoric: Possible Late Archaic quarry/lithic reduction site with Woodland period component	Potentially eligible	Partially eroded; looting
9CB15 200 x 100m	Prehistoric: Late and Middle Archaic midden with possible Woodland period component	Potentially eligible	Heavily eroded and partially dug out by bulldozer for dam fill c. 1950
9CB20	Prehistoric: Early and Middle Archaic	Potentially eligible	Some surface shift erosion
9CB21	Unknown prehistoric	Potentially eligible	Intact
9CB24	No information available		
9CB25 1200 x 300m	Prehistoric: Late Archaic shell-midden	Potentially eligible	Erosion from dam water release; vandalism
9CB126/133 1000 x 30m	Unknown prehistoric	Potentially eligible	Cultivated
9CB127/134 500 x 50m	Unknown prehistoric	Potentially eligible	Unknown
9CB128/135 300 x 100m	Prehistoric: archaic, Early Woodland, Mississippian	Potentially eligible	Unknown
9CB130 50 x 15m	Historic: mid-/late 19 th century dam ruins	Potentially eligible	Slightly threatened from erosion related to release of water from dam
9CB131 100 x 50m	Prehistoric: Archaic (possibly part of 9CB15)	Potentially eligible	Unknown
9CB132 120 x 30m	High-density Early Archaic through Early Mississippian campsite, with a moderate-to high-density domestic refuse scatter, dating from the early	Prehistoric: eligible Historic: Not eligible	None

SITE NUMBER/ DIMENSIONS AS	DESCRIPTION	NATIONAL REGISTER	IMPACTS
AVAILABLE		STATUS	
	nineteenth to the early twentieth century: historic artifacts are confined primarily to the Ap-horizon and slopewash soils. Prehistoric artifacts retrieved from AP-, Bw-, and Bt- horizon soils		
9CB142	Prehistoric: Possible Late Archaic and	Potentially	Cultivated
100 x 100m	Woodland	eligible	
9CB197	High-density short-term resource	Eligible	Minor erosion
420 x 80m	procurement encampment with Middle		
	Archaic, Late Archaic, and Woodland		
	components; a high-density section of		
	the site is derived from intact deposits		
NA	Stevens Creek Hydroelectric facility	Eligible	None
825 x 60m	constructed 1913-1914. Contributing		
	elements are the dam, lock, headwall		
	and headgates, powerhouse, and		
	related powerhouse equipment:		
	turbine-generator units, exciters,		
	governors; disused control board,		
	transfer bus structure, and rheostats		

Source: SCE&G 2004

4.9.5 IDENTIFICATION OF INDIAN TRIBES THAT MAY ATTACH RELIGIOUS AND CULTURAL SIGNIFICANCE TO HISTORIC PROPERTIES

Original natives of the area that is now the state of Georgia include the Apalachee Indians; Cherokee Indians; Hitchiti, Oconee and Miccosukee Indians; Muskogee Creek Indians; Timucua Indians; and the Yamasee and Guale Indians (NLA 2016). In addition, the Shawnee Indians and the Yuchi Indians were driven into the state after Europeans arrived. Native American tribes were evicted from the state during the 19th century. Currently there are no federally recognized Indian tribes in the state of Georgia (NLA 2016). However, there are three tribes in Georgia that are recognized as descendants of these people. These include the Cherokee Indians of Georgia, the Georgia Tribe of Eastern Cherokee, and the Lower Muscogee Creek Tribe (NLA 2016).

Original inhabitants of the area that is now South Carolina include the tribes of Catawba; Cherokee; Creek; Yuchi; Cusabo, and Edisto; and the Carolina Siouan bands, which include the Chicora, Pee Dee, Waccamaw, and Santee (NLA 2016). In addition, the Chicasaw Tribe and the Shawnee Tribe moved into South Carolina after Europeans arrived. Currently the only federally recognized Indian tribe in South Carolina today is the Catawba Indian Nation (NLA 2016). Other Indian tribes, bands and communities remaining in South Carolina today include the Cherokee Indian Tribe of South Carolina; Chaloklowas Chickasaw Indian People; Chicora Indian Tribe of South Carolina; Edisto Indian Tribe (Natchez-Kusso); Pee Dee Indian Tribe; Santee Indian Tribe of South Carolina; the Waccamaw Indian People; and the Wassamasaw Indian Tribe of the Creek Nation (NLA 2016).

DESC will reach out to all federally recognized tribes and other state recognized tribes located within Georgia and South Carolina to determine if they have any interest in the Project regarding religious or culturally significant historic properties. DESC will complete formal consultation with all federally recognized tribes in Georgia and South Carolina.

4.9.6 POTENTIAL ADVERSE EFFECTS AND ISSUES

The continued management and operations of the Project may affect historic properties as a result of Project-induced shoreline and riverbank erosion, the construction of any new Project-related recreational facilities, and continuing development along the shoreline. Identified historic properties will be considered during the planning and permitting process, providing a beneficial effect to these resources. Any effects to cultural resources due to proposed changes in Project operation will be considered prior to implementation.

As previously noted, DESC has begun early cultural resources consultation with agencies and Tribes. In response to early scoping meetings, both the Catawba Indian Nation and the Cherokee Nation noted their interest in being involved in the relicensing process.

On October 15, 2019, DESC requested agency and Tribal review of the 1996 Phase 1 and 2 studies, the Project APE, and the HPMP.

By email dated November 1, 2019, Forest Service staff noted concurrence with the current delineation of the Project APE and noted their interest in being involved with a HPMP update. Forest Service further noted that part of the HPMP revision and update should include a review of the previous GIS site mapping to check for accuracy of site location, size, and shape.

In a letter dated November 6, 2019, the SCSHPO provided the following comments after reviewing the results of previous investigations, the HPMP, and the current delineated APE:

- SCSHPO recommends a site revisit to nineteen eligible and unevaluated sites to verify and map their delineation and locations to current methodology and standards.
- SCSHPO concurs with the delineation of the APE but recommends a reanalysis of the APE through the development of a GIS-based predictive model to determine if additional high and moderate probability areas, were not subjected to survey during the 1996 investigations.
- SCSHPO recommends consultation with the Maritime Research Division (MRD), regarding additional underwater archaeological sites since the 1996 investigations.

Additionally, by letter dated November 14, 2019, the Georgia Historic Preservation Division recommended updating cultural resources surveys to take into account properties that have since become historic, as well as verifying current determination in light of revised/new guidance that may have been published since that time. Additionally, the Historic Preservation Division noted their concurrence with the APE, as identified in the submitted information.

DESC plans to conduct a Historic and Archaeological Resources Study to address the comments issued by the above agencies.

4.9.7 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

The existing HPMP may be revised after consultation with the SC SHPO, the GA SHPO, the ACHP, the Catawba Indian Nation, the Cherokee Nation, and other interested tribes.

FERC developed a PA to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA). The PA defines certain stipulations for the management of historic properties affected by the Project. This PA may be revised during relicensing.

4.9.8 **REFERENCES**

- Federal Energy Regulatory Commission (FERC). 1995. Programmatic Agreement among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, the Georgia State Historic Preservation Officer, and the South Carolina State Historic Preservation Officer, for Managing Historic Properties that may be Affected by a License Issuing to South Carolina Electric & Gas Company for the Continued Operation of the Stevens Creek Hydroelectric Power Project in Georgia and South Carolina. October 1995.
- Native Languages of the Americas (NLA). 2016. Native Languages of the Americas: Preserving and promoting American Indian languages. [Online] URL: <u>http://www.native-languages.org/</u> Accessed February 12, 2019.

- South Carolina Electric and Gas (SCE&G). 2004. Historic Properties Management Plan: Stevens Creek Hydroelectric Project, FERC Project No. 2535. South Carolina and Georgia. November 2004.
- South Carolina Electric and Gas (SCE&G). NDA. Stevens Creek Hydroelectric Project: Significant Historic and Archaeological Resources. [Online] URL: <u>https://www.sceg.com/docs/librariesprovider5/default-document-library/stevens-creek-report.pdf</u>. Accessed February 12, 2019.

4.10 SOCIOECONOMIC RESOURCES [§ 5.6 (D)(3)(XI)]

4.10.1 GENERAL LAND USE PATTERNS

The Project area includes lands within Edgefield and McCormick counties, South Carolina and Columbia County, Georgia. Lands within the Project vicinity, both in Georgia and South Carolina, are primarily privately owned, with rural residential developments scattered throughout. A majority of the Project area is located within the Sumter National Forest. Land within the Sumter National Forest is managed for timber and also provides public recreation. There are also some residential areas within the Sumter National Forest that are in close proximity to the Project reservoir. The primary land use in the Project vicinity is timber harvesting. Agriculture is limited because the area is so heavily wooded.

The cities of Augusta, Georgia, and North Augusta, South Carolina, are located approximately six miles south of the Stevens Creek Dam. Suburban development associated with these cities extends north toward the Project area, especially on the Georgia side of the reservoir; however, the reservoir shoreline remains relatively undeveloped. The reservoir can be accessed by gravel Forest Service roads, private roads, other local rural roads, and Highway 28, which is the only roadway that crosses the reservoir. Upstream of the Project are three USACE dams and reservoirs, which all provide public recreation opportunities.

DESC owns approximately 95 acres of land within the Project boundary and public access is restricted. DESC owns flowage rights on the remainder of land within the Project area. DESC maintains a buffer of trees along the shoreline and encourages other reservoir landowners to do the same (FERC 1995).

4.10.2 POPULATION PATTERNS

As of the July 2017 census, 26,978 people were living in Edgefield County, South Carolina. This represents a 1.1 percent decrease from the population estimate at the April 2010 census (U.S. Census 2018b). The population of McCormick County, South Carolina was estimated to be 9,545 in the July 2017 census, representing a 6.7 percent decrease from the April 2010 population estimate (U.S. Census 2018d). The population of South Carolina increased by 8.6 percent during this period, from 4,625,364 in April 2010 to 5,024,369 in July 2017 (U.S. Census 2018e). Table 4-18 provides a summary of population patterns in Edgefield County and McCormick County as compared to those of the state of South Carolina.

	EDGEFIELD	MCCORMICK	South	
	COUNTY	COUNTY	CAROLINA	
Population				
Population (2010)	26,985	10,233	4,625,364	
Population (2017)	26,978	9,545	5,024,369	
Population Change	-1.1%	-6.7%	8.6%	
(2010 to 2017)				
Geography				
Land Area in square	500.41	359.13	30,060.70	
miles (sq mi) (2010)				
Population Density	53.0	28.5	153.9	
(people/sq mi) (2010)				
Gender				
Female	46.3%	46.0%	51.5%	
Male	53.7%	54.0%	48.5%	
Age	1	1	1	
Persons under 5 years	4.1%	3.0%	5.8%	
old				
Persons under 18	18.5%	12.1%	22.0%	
years old				
Persons 65 years old	18.1%	33.2%	17.2%	
and over				
Race	Γ	Γ		
Caucasian	61.5%	51.7%	68.5%	
Black	35.9%	46.4%	27.3%	
American Indian and	0.5%	0.1%	0.5%	
Alaska Native				
Asian	0.5%	0.5%	1.7%	
Native Hawaiian and	0.1%	0.1%	0.1%	
Other Pacific Islander				
Hispanic or Latino	5.9%	1.5%	5.7%	
Two or More Races	1.5%	1.2%	1.9%	

TABLE 4-18POPULATION PATTERNS IN EDGEFIELDAND MCCORMICK COUNTIES, SOUTH CAROLINA

Sources: U.S. Census 2018b; 2018d; 2018e

The population of Columbia County, Georgia was estimated at 151,579 at the July 2017 census, representing a 22.2 percent increase from the April 2010 population estimate (U.S. Census 2018a). The population of Georgia increased from approximately 9,687,653 in 2010 to 10,429,379 in 2017, or by 7.6 percent (U.S. Census 2018c). Table 4-19 provides a summary of population patterns in Columbia County as compared to those of the state of Georgia.

	COLUMBIA	GEORGIA		
	COUNTY			
Population				
Population (2010)	124,053	9,687,653		
Population (2017)	151,579	10,429,379		
Population Change (2010 to 2017)	22.2%	7.6%		
Geography				
Land Area in square miles (sq mi) (2010)	290.09	57,513.49		
Population Density (people/sq mi) (2010)	427.6	168.4		
Gender				
Female	51.1%	51.3%		
Male	48.9%	48.7%		
Age				
Persons under 5 years old	6.4%	6.3%		
Persons under 18 years old	25.6%	24.1%		
Persons 65 years old and over	13.0%	13.5%		
Race				
Caucasian	74.0%	60.8%		
Black	18.0%	32.2%		
American Indian and Alaska Native	0.4%	0.5%		
Asian	4.3%	4.2%		
Native Hawaiian and Other Pacific Islander	0.2%	0.1%		
Hispanic or Latino	6.7%	9.6%		
Two or More Races	3.2%	2.1%		

 TABLE 4-19
 POPULATION PATTERNS IN COLUMBIA COUNTY, GEORGIA

Sources: U.S. Census 2018a; 2018c

4.10.3 HOUSEHOLD/FAMILY DISTRIBUTION AND INCOME

The estimated number of households in Edgefield County was 9,054 for 2013 to 2017. These households had an average of 2.63 people. The median household income from 2013 to 2017, measured in 2017 dollars, was \$47,500 (U.S. Census 2018b). McCormick County had an estimated 4,077 households for that period, with an average of 2.07 persons per household and a median household income of \$40,622 (U.S. Census 2018d). South Carolina had an estimated 1,871,307 households with an average of 2.54 persons per household and a median household income of \$48,781 (2017 dollars) during that time (U.S. Census 2018e).

In Columbia County, the estimated number of households was 45,823 during 2013-2017; the average persons per household was 3.13 and the median household income was estimated at \$74,162 (in 2017 dollars) (U.S. Census 2018a). Georgia had an estimated 3,663,104 households

during this period. The average number of persons per household was 2.71 and the median household income was \$52,977 (in 2017 dollars) (U.S. Census 2018c).

4.10.4 PROJECT VICINITY EMPLOYMENT SOURCES

Edgefield County's economy includes sectors that DataUSA (n.d.b.) classifies as agriculture, forestry, fishing, and hunting; utilities; and manufacturing. These sectors employ respectively 4.53, 2.18, and 1.71 times more people than is typical of a county of its size. The largest industries in the county are manufacturing, healthcare and social assistance, and retail (DataUSA n.d.b).

McCormick County's economy includes manufacturing, utilities, and public administration, which have 2.1, 1.76, and 1.73 times more employees than is typical for a county of its size. The county's largest industries are manufacturing, healthcare and social assistance, and public administration (DataUSA n.d.d).

Columbia County's economy includes utilities, public administration, and healthcare and social assistance, which each employ 2.7, 1.68, and 1.24 times more employees than would be expected in this size county. The largest industries in the county are healthcare and social assistance, retail, and manufacturing (DataUSA n.d.a).

4.10.5 THE REGIONAL ECONOMY

The state of South Carolina's economy includes a variety of industries, including tire manufacturing, fabric mills, textile and fabric finishing and coating mills. However, the state's largest industries are classified as restaurants and food services, elementary and secondary schools, and construction (DataUSA, n.d.e.).

Georgia shares many of the same industries as South Carolina and includes many other specialties such as carpet and rug mills; fiber, yarn and thread mills; and fabric mills. Similar to South Carolina, the state of Georgia's largest industries are restaurants and food services, elementary and secondary schools, and construction (DataUSA n.d.c).

4.10.6 POTENTIAL ADVERSE EFFECTS AND ISSUES

Continued Project operation may not significantly affect the local economy regarding job creation; however, the Project provides renewable, low-cost energy, which benefits the public.

DESC believes that sufficient socioeconomic data are available for the areas surrounding the Project and therefore does not propose studies or protection, mitigation, or enhancement measures regarding this resource area.

4.10.7 REFERENCES

- DataUSA. n.d.a. "Columbia County, GA." Online URL: <u>https://datausa.io/profile/geo/columbia-county-ga/#economy.</u> Accessed January 7, 2019.
- DataUSA. n.d.b. "Edgefield County, SC." [Online] URL: <u>https://datausa.io/profile/geo/edgefield-county-sc/.</u> Accessed January 7, 2019.
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- United States Census Bureau (U.S. Census.) 2018c. "QuickFacts: Georgia." Online URL: <u>https://www.census.gov/quickfacts/ga.</u> Accessed January 7, 2019
- United States Census Bureau (U.S. Census). 2018d. "QuickFacts: McCormick County, South Carolina." [Online] URL: <u>https://www.census.gov/quickfacts/fact/table/mccormickcountysouthcarolina/POP060210</u> Accessed January 7, 2019.
- United States Census Bureau (U.S. Census). 2018e. "QuickFacts: South Carolina." [Online] URL: <u>https://www.census.gov/quickfacts/sc.</u> Accessed January 7, 2019.

4.11 TRIBAL RESOURCES [§ 5.6 (D)(3)(XII)]

DESC is not proposing any new construction at the Project, and is not proposing any changes to Project operations, at this time. Existing Project construction and operation is not known to affect any Tribal cultural or economic interests. Formal management activities specific to Tribal resources are included in the existing Project HPMP. The HPMP stipulates that DESC must consult with appropriate Tribes prior to initiating any proposed action. In addition, if at any time during the course of Project operations or the implementation of Project-related action, DESC encounters human remains within the Project's APE, DESC must stop work immediately and contact the Tribes to develop a plan for handling the remains.

Although DESC has already begun preliminary consultation activities, DESC will initiate formal Section 106 consultation with the South Carolina SHPO, the Georgia SHPO and the THPOs after FERC authorization in accordance with CFR § 5.5(e).

4.12 RIVER BASIN DESCRIPTION [§ 5.6 (D)(3)(XIII)]

The Savannah River is one of the largest rivers in the southeastern United States, with a drainage area of more than 10,000 square miles (Entrix 2002). The Savannah River begins at the confluence of the Seneca and Tugaloo rivers in northern Georgia, flowing 300 miles southeasterly through the Piedmont and Coastal Plain physiographic provinces before entering the Atlantic Ocean near Savannah, Georgia. The headwaters of the Savannah River Basin originate in the Blue Ridge Mountains. The Project is within the Middle Savannah River Valley, near the upper end of the Fall Line, a 20-mile-wide geologic boundary that divides the Piedmont and Coastal Plain physiographic provinces; the Fall Line in Georgia is the first location inland from the Atlantic Ocean where sets of rock rapids occur in the Savannah River. The Project is approximately eight RMs upstream of Augusta, Georgia, and 209 RMs from the Atlantic Ocean. The Savannah River forms most of the border between Georgia and South Carolina (Figure 4-23).

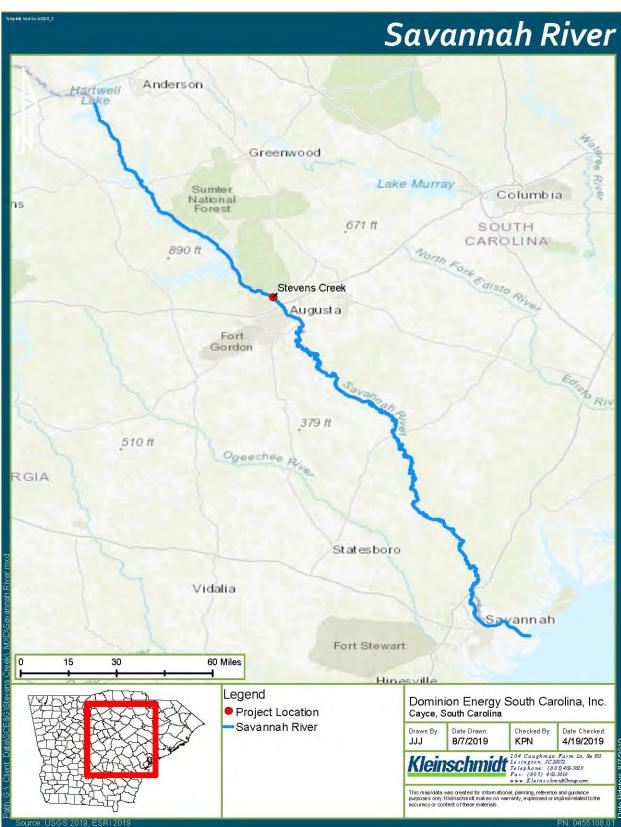


FIGURE 4-23 PROJECT LOCATION ON THE SAVANNAH RIVER

4.12.1 AREA OF RIVER BASIN AND SUB-BASIN AND LENGTH OF STREAM REACHES

The Project extends upstream about 13 miles along the Savannah River to the tailrace of the Thurmond Dam, and 12 miles upstream into Stevens Creek (FERC 1995). The drainage area at the Project is approximately 7,173 square miles (FERC 1995).

4.12.2 MAJOR LAND AND WATER USE IN THE PROJECT AREA

4.12.2.1 LAND USE

The Savannah River Basin is predominantly rural with widely spaced population centersAugusta, Georgia, with a population of approximately 200,000, is the main urban center near the Project. The Project area includes public and private lands, such as national forest, private timber lands, rural residential developments, and some agriculture lands (FERC 1995) (see Figure 4-16 in Section 4.7). Land on the Georgia side of the Project area is privately owned with intermittent rural residential development. Most of the land in South Carolina in associated with the Sumter National Forest, which is managed for recreation and timber. Agricultural use of the land is limited due to the amount of forested uplands that persist. DESC owns approximately 95 acres of land within the Project boundary. DESC retains flowage easements for the remainder of land within the Project boundary.

4.12.2.2 WATER USE

DESC operates the Project to generate hydropower and re-regulate flows from USACE dams to downstream water users. The USACE is authorized by Congress to manage the Hartwell, Richard B. Russel, and J. Strom Thurmond Hydroelectric projects for water supply, water quality, hydropower production, flood risk management (originally called flood control), downstream navigation, recreation, and fish and wildlife management.

The Augusta Canal, a 13-mile-long historic and functional canal, is fed by the Savannah River and was designed to harness water power at the fall line to drive mills, provide transportation of goods, and provide a municipal water supply. It is the only canal in the United States in continuous use for its original purposes of providing power, transport, and municipal water. Today, the Augusta Canal provides drinking water to the city of Augusta, recreational and tourism opportunities (e.g., guided tours), and hydropower. Average annual river flow diverted to the Augusta Canal ranges from 2,000 to 3,000 cfs (USGS 2018).

Municipalities and industries have water withdrawals and discharge treated waste water into the Savannah River in compliance with state permitting requirements. Entities near the Project withdrawing from or discharging to the Savannah River include the cities of Augusta and North Augusta, Columbia Water and Sewer, and Edgefield Water and Sewer. Large industries that use the river include Kimberly-Clark in Beach Island, South Carolina, the Vogtle nuclear power plant near Waynesboro, Georgia, and the U.S. Department of Energy's Savannah River Site in Aiken, South Carolina. The Columbia County Water System, Georgia, is currently permitted to withdrawal 45.90 million gallons/day from the Stevens Creek Reservoir (GAEPD 2017).

4.12.3 DAMS AND DIVERSION STRUCTURES IN THE BASIN

The USACE operates three hydropower projects upstream of the Project: Hartwell, Richard B. Russel, and J. Strom Thurmond (Figure 4-24). The three reservoirs form a chain along the Georgia-South Carolina border for a length of 120 miles. Thurmond Dam, located at RM 220.9, is the most downstream of these projects and is operated primarily for peaking hydroelectric production and flood control. The Thurmond Dam is approximately 13 RMs upstream of the Project. There are also two dams and smaller reservoirs downstream of the Project: the Augusta Diversion Dam and the NSBLD. The Augusta Diversion Dam is one-mile downstream of the Project and the NSBLD is approximately 20 RMs downstream of the Project (Figure 4-24). The upper portion of the Savannah River is highly regulated by the three USACE hydropower projects.

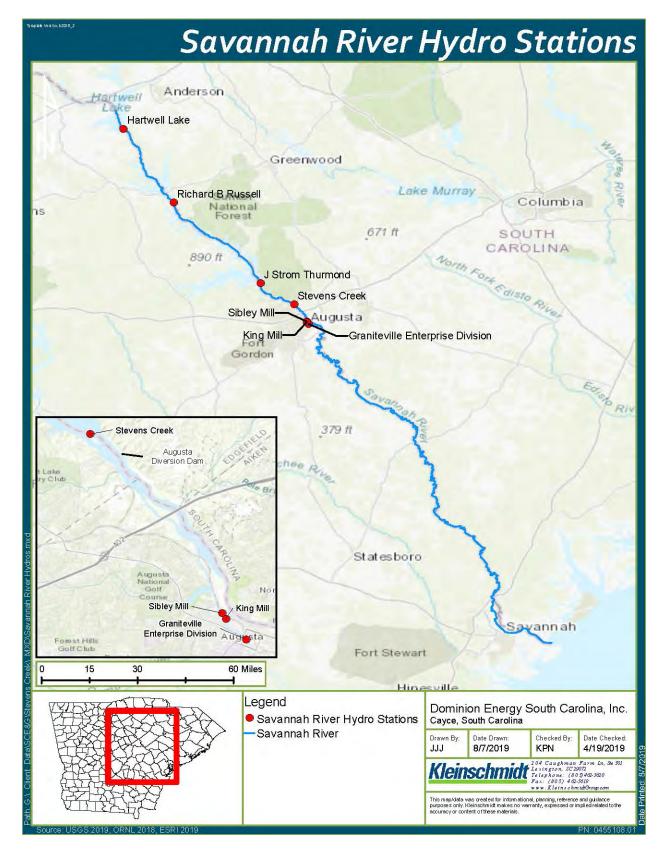


FIGURE 4-24 HYDROELECTRIC PROJECTS ON THE SAVANNAH RIVER

4.12.4 TRIBUTARY RIVERS AND STREAMS

Stevens Creek is the only major tributary of the Savannah River that is within the Project boundary. Stevens Creek discharges into the Savannah River just upstream of the Stevens Creek Dam. The Project boundary encompasses the lowermost 12 RMs of Stevens Creek. Other smaller, feeder tributaries may occur in the Project area.

4.12.5 REFERENCES

- Entrix. 2002. Resource Study Report Savannah River Instream Flow Study. Augusta Canal Hydropower Project (FERC No. 11810). Prepared for the City of Augusta, Georgia.
- Federal Energy Regulatory Commission (FERC). 1995. Final environmental assessment for hydropower license. Stevens Creek Hydroelectric Project. FERC Project 2535.
- Georgia Environmental Protection Division (GAEPD). 2017. List of Georgia EPD Non-Farm Surface Water Withdrawal Permits. Revised January 2017.
- U.S. Geological Service (USGS. 2018. USGS Surface-Water Annual Statistics for the Nation. USGS 2196485 Augusta Canal Near Augusta Georgia. Available Online: <u>https://nwis.waterdata.usgs.gov/nwis/inventory/?site_no=02196485</u>. Accessed November 30, 2018.

5.0 PRELIMINARY ISSUES AND STUDIES LIST FOR EACH RESOURCE AREA [§ 5.6 (d)(4)]

DESC worked closely with state, federal, and local resource agencies, Tribes and NGOs to obtain existing information about resources at the Project and/or in the vicinity of the Project which is included in this PAD. Existing information was also used to identify data-gaps or issues that needed further study. Resource Conservation Groups (RCGs) were formed to proactively engage interested stakeholders prior to the start of relicensing and provide a forum for discussion of resource issues. DESC hosted several meetings with the RCGs to identify potential Project related issues and develop proposed study plans to address these potential issues and data-gaps. Meeting notes are included in Appendix A. The issues identified and study plans prepared with stakeholders are discussed below.

5.1 ISSUES PERTAINING TO THE IDENTIFIED RESOURCES

5.1.1 GEOLOGY AND SOILS

Fluctuations of Stevens Creek Reservoir caused by operations of Thurmond Dam could contribute to shoreline erosion at the reservoir. DESC monitors the shorelines annually for signs of erosion. Shoreline erosion is currently not a significant issue at Stevens Creek Reservoir.

Sedimentation within the Project reservoir was identified as a concern during public scoping meetings. Sedimentation can occur specifically around the confluence of Stevens Creek and the Savannah River. Individuals indicated that navigation can be difficult in this area due to high sediment deposits, causing boaters to enter the buoy lines upstream of the dam to access the main river channel. Although a navigation concern, the sedimentation has not caused any issues with Project operations. High sediment load in the Project waters is attributed to heavy rains and high flows in the Project area. Sediment deposits appear to change depending on these factors.

5.1.2 WATER RESOURCES

At this time, no adverse effects or issues related to water resources have been identified. Operation of the Project will continue to moderate flow releases from upstream dams and re-oxygenate water that has low DO levels.

5.1.3 FISH AND AQUATIC RESOURCES

During the previous relicensing of the Project, DESC studied entrainment of fishes through the turbines. Because of the study findings, FERC required DESC to develop an enhancement plan related to fish entrainment mortality. The fisheries enhancements plan was developed instead of implementing extremely expensive and marginally effective fish protection measures (e.g., screens, bar racks, louvers) (FERC 1995). The most recent 10-year plan, covering the period 2016 to 2025 was approved by FERC on February 25, 2016. Fish entrainment is expected to continue due to Project operations.

Daily and weekly fluctuations of the Stevens Creek reservoir within a 4.5-foot band to accommodate flow releases from Thurmond Dam result in routine changes to the water surface elevation, microhabitat characteristics (e.g., water depth and water velocity), and change water levels along shoreline habitats. Fisheries sampling in Project waters demonstrates good reproductive success, regardless of the reservoir fluctuations (FERC 1995).

5.1.4 WILDLIFE AND BOTANICAL RESOURCES

No issues related to terrestrial wildlife and botanical resources were identified during preliminary relicensing stakeholder consultation.

5.1.5 RARE, THREATENED AND ENDANGERED RESOURCES

DESC prepared an RTE Species Whitepaper to provide baseline information on federal and statelisted RTE species within the FERC Project boundary and area of potential Project influence (Appendix H). The Whitepaper identified several federal-protected and Forest Service TES species that have been documented within the Project boundary or have the potential to occur within the Project boundary due to availability of suitable habitat. Although several species occur or have the potential to occur within the Project boundary, continued Project operations are not expected to have any adverse effect on these species. DESC is not proposing any changes to Project operations and does not have any plans for significant logging or shoreline changes within the Project boundary. If the need arises for tree removal, construction, or other shoreline modifications in the future, DESC will consult with the USFWS, Forest Service, and the GADNR and/or SCDNR (as appropriate) prior to the commencement of these activities.

5.1.6 FLOODPLAINS, WETLANDS, RIPARIAN AND LITTORAL HABITAT RESOURCES

Reservoir fluctuations because of operations at Thurmond Dam could impact littoral and riparian areas within the Project boundary. Reservoir fluctuations could contribute to erosion (although no significant areas of erosion have been documented) or loss of aquatic habitat. Moreover, nuisance aquatic vegetation was noted as a stakeholder concern during initial issues scoping.

5.1.7 RECREATION AND LAND USE

During preliminary issues scoping, stakeholders and local residents expressed the interest to investigate the potential for DESC to manage the reservoir pool level higher than 183.0' minimum needed to re-regulate flows released from Thurmond Dam. Stakeholders indicated a higher minimum pool level would enhance recreational boating opportunities in the Project area.

5.1.8 AESTHETIC RESOURCES

Adverse visual impacts associated with the Project are limited to the industrial quality of the substation and adjacent facilities, as well as the exposure of stream or reservoir bottom during water level fluctuation. These impacts are minimal because the area is not accessible to the public, cannot be seen from key public viewpoints, and can only be seen from the water. For safety reasons, recreational boaters are discouraged from getting too close to the area, thereby limiting their view.

The aesthetic quality of the reservoir shorelines varies daily due to exposure of the stream beds during water level fluctuations; however, this visual impact is minimal.

5.1.9 CULTURAL AND TRIBAL RESOURCES

The continued management and operations of the Project may affect historic properties as a result of Project-induced shoreline and riverbank erosion, the construction of any new Project-related recreational facilities, and continuing development along the shoreline. Identified historic properties will be considered during the planning and permitting process, providing a beneficial effect to these resources. Any effects to cultural resources due to proposed changes in Project operation will be considered prior to implementation.

5.1.10 SOCIOECONOMIC RESOURCES

The Project has limited socioeconomic influence over the immediate Project area and does not significantly contribute to business or industry in the area. Although the Project does not provide a large source of jobs, it does provide a source of renewable, low-cost energy, which benefits energy users. No adverse impacts associated with socioeconomics in the Project area were identified or are expected with continued Project operation.

5.2 POTENTIAL STUDIES AND INFORMATION GATHERING REQUIREMENTS ASSOCIATED WITH THE IDENTIFIED ISSUES

5.2.1 GEOLOGY AND SOILS

DESC believes adequate information exists to assess the effects of Project operations on geology and soils in the Project vicinity. No studies associated with geology and soils are proposed at this time. DESC will continue to monitor the Stevens Creek reservoir shoreline annually for erosion.

5.2.2 WATER RESOURCES

Currently there are no known water quality issues at the Project. However, during pre-scoping meetings, stakeholders determined there was a need for supplemental water quality data at the Project. The GADNR requested additional information on water quality in upstream areas of Stevens Creek to determine suitability for fish habitat. The NMFS requested the collection of continuous downstream water quality data to supplement existing baseline water quality data presented in this PAD. DESC proposes to fulfill these requests per the Water Quality Study Plan included in Appendix I.

DESC also plans to collect water quality data as part of the Mussel Study (Appendix I). Basic water quality parameters, including DO, temperature, and conductivity, will be collected near the mussel sample locations. Level loggers will also be deployed to collect information on Project influence and potential backwatering in the upstream areas of Stevens Creek.

5.2.3 FISH AND AQUATIC RESOURCES

During preliminary relicensing discussions, the USFWS requested a mussel study be completed at the Project, particularly in the Stevens Creek arm of the Project reservoir (see Mussel Study Plan in Appendix I). This study will gather quantitative and qualitative data on the diversity, spatial distribution and relative abundance of the mussel fauna in Stevens Creek.

In addition, DESC will be preparing an Aquatic Habitat Whitepaper that will serve to describe aquatic habitat in the Stevens Creek reservoir. Information collected during the proposed studies will be included in this whitepaper, which will be filed with the FLA. An outline for the whitepaper is included in Appendix I.

5.2.4 WILDLIFE AND BOTANICAL RESOURCES

At this time, there are no studies proposed regarding wildlife and botanical resources.

5.2.5 RARE, THREATENED AND ENDANGERED RESOURCES

The proposed Mussel Study will determine the presence of any RTE mussel species and identify the potential for Project effects on these species. The results of this study, including potential adverse effects, will be included in the FLA.

5.2.6 FLOODPLAINS, WETLANDS, LITTORAL AND RIPARIAN RESOURCES

The Aquatic Habitat Whitepaper proposed by DESC (Appendix I) will aim to inform DESC and stakeholders of the potential for any issues related to floodplains, wetlands, littoral and riparian areas.

5.2.7 RECREATION AND LAND USE

During preliminary relicensing discussions, stakeholders determined there was a need for a recreation study at the Project. DESC is proposing to perform an assessment of existing and future recreational use, opportunities and needs for the Project (Appendix I). The assessment is designed to provide information pertinent to the current and future availability and adequacy of DESC-owned and managed recreation sites, Forest Service owned and managed recreation sites, and Columbia County, Georgia owned and managed recreation sites. Results from the study will be used to develop a new RMP for the Project. Additionally, DESC will review Project operations and reservoir levels during the relicensing process to investigate whether reservoir pool levels can be managed differently to provide benefits to recreational boating.

5.2.8 AESTHETIC RESOURCES

DESC believes adequate information exists to assess the aesthetic effects of Project operations. No studies of Project's aesthetic resources are proposed at this time.

5.2.9 CULTURAL AND TRIBAL RESOURCES

DESC plans to conduct a Historic and Archaeological Resources Study to address the comments issued by Forest Service, Georgia SHPO and SC SHPO in comments received in November, 2019. The recommendations include site revisit to several eligible and unevaluated historic sites, reanalysis of the APE in GIS, and consultation with the Maritime Research Division.

5.2.10 SOCIOECONOMIC RESOURCES

DESC believes that adequate information exists to assess the socioeconomic effects of the Project. No studies related to socioeconomics are proposed at this time.

5.3 RELEVANT QUALIFYING FEDERAL AND STATE OR TRIBAL COMPREHENSIVE WATERWAY PLANS

Section 10(a) of the Federal Power Act (FPA), 16 U.S.C. \$803(a)(2)(A), requires FERC to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the Project. On April 27, 1988, FERC issued Order No. 481 – A, revising Order No. 481, issued on October 26, 1987, establishing that FERC will accord FPA Section 10(a)(2)(A) comprehensive plan status to any Federal or state plan that:

- Is a comprehensive study of one or more of the beneficial uses of a waterway or waterways;
- Specifies the standards, the data, and the methodology used; and
- is filed with the Secretary of the Commission.

FERC currently lists comprehensive plans for the State of South Carolina, the State of Georgia, and US resources. Of these listed plans, 36 are potentially relevant to the Project, as listed below in Table 5-1. These plans may be useful in the relicensing proceedings for characterizing desired conditions.

TABLE 5-1LIST OF QUALIFYING FEDERAL AND STATE COMPREHENSIVE WATERWAY
PLANS POTENTIALLY RELEVANT TO THE PROJECT

RESOURCE	COMPREHENSIVE PLAN
Fisheries Resources	Atlantic States Marine Fisheries Commission. 1996. Interstate fishery
	management plan for weakfish. (Report No. 27). May 1996.
Fisheries Resources	Atlantic States Marine Fisheries Commission. 1998. Amendment
	1 to the Interstate Fishery Management Plan for Atlantic sturgeon
	(Acipenser oxyrhynchus oxyrhynchus). (Report No. 31). July 1998
Fisheries Resources	Atlantic States Marine Fisheries Commission. 1998. Interstate
	fishery management plan for Atlantic striped bass. (Report No.
	34). January 1998
Fisheries Resources	Atlantic States Marine Fisheries Commission. 1999. Amendment
	1 to the Interstate Fishery Management Plan for shad and river
	herring. (Report No. 35). April 1999.
Fisheries Resources	Atlantic States Marine Fisheries Commission. 2000. Interstate
	Fishery Management Plan for American eel (<i>Anguilla rostrata</i>).
	(Report No. 36). April 2000.
Fisheries Resources	Atlantic States Marine Fisheries Commission. 2000. Technical
	Addendum 1 to Amendment 1 of the Interstate Fishery
	Management Plan for shad and river herring. February 9, 2000
Fisheries Resources	Atlantic States Marine Fisheries Commission. 2008. Amendment
risheries Resources	
	2 to the Interstate Fishery Management Plan for American eel.
Fisheries Resources	Arlington, Virginia. October 2008 Atlantic States Marine Fisheries Commission. 2009. Amendment
risheries Resources	
	2 to the Interstate Fishery Management Plan for shad and river
Fisheries Resources	herring, Arlington, Virginia. May 2009
Fisheries Resources	Atlantic States Marine Fisheries Commission. 2010. Amendment
	3 to the Interstate Fishery Management Plan for shad and river
F' 1 ' D	herring, Arlington, Virginia. February 2010
Fisheries Resources	Atlantic States Marine Fisheries Commission. 2013. Amendment
	3 to the Interstate Fishery Management Plan for American eel.
F' 1 ' P	Arlington, Virginia. August 2013
Fisheries Resources	Atlantic States Marine Fisheries Commission. 2014. Amendment
	4 to the Interstate Fishery Management Plan for American eel.
	Arlington, Virginia. October 2014
Water Resources	Department of the Army, Corps of Engineers. Savannah District.
	1983. Northeast Georgia region water resources management
	study. Savannah, Georgia. September 1983
Water Resources	Department of the Army, Corps of Engineers. Savannah District.
	1985. South metropolitan Atlanta region: Georgia water resources
	management study. Savannah, Georgia. January 1985
Water Resources	Department of the Army, Corps of Engineers. Savannah District.
	1985. Water resources development by the U.S. Army Corps of
	Engineers in Georgia. Savannah, Georgia. January 1985.

RESOURCE	COMPREHENSIVE PLAN
Recreation/Land Use Resources	Forest Service. 2004. Sumter National Forest revised land and resource management plan. Department of Agriculture, Columbia,
	South Carolina. January 2004
Water Resources	Georgia Department of Natural Resources. 1986. Water
	availability and use - Savannah River Basin. Atlanta, Georgia
Recreation/Land	Georgia Department of Natural Resources. 2008. Georgia
Use Resources	Statewide Comprehensive Outdoor Recreation Plan (SCORP): 2008-2013.
Water Resources	Metropolitan North Georgia Water Planning District. 2003.
	District-wide watershed management plan. Atlanta, Georgia. September 2003
Water Resources	Metropolitan North Georgia Water Planning District. 2003. Long-
	term wastewater management plan. Atlanta, Georgia. September 2003
Water Resources	Metropolitan North Georgia Water Planning District. 2003. Water
	supply and water conservation management plan. Atlanta,
Fisheries Resources	Georgia. September 2003
Fisheries Resources	National Marine Fisheries Service. 1998. Final Recovery Plan for the shorthage sturgeon (Asia anger busylingstrum). Propaged by the
	the shortnose sturgeon (<i>Acipenser brevirostrum</i>). Prepared by the Shortnose Sturgeon Recovery Team for the National Marine
	Fisheries Service, Silver Spring, Maryland. December 1998
Fisheries Resources	National Marine Fisheries Service, North Carolina Wildlife
	Resources Commission, South Carolina Department of Natural
	Resources, and U.S. Fish and Wildlife Service. 2017. Santee Basin
	Diadromous Fish Passage Restoration Plan. 2017.
Recreation/Land	National Park Service. The Nationwide Rivers Inventory.
Use Resources	Department of the Interior, Washington, D.C. 1993
Water Resources	South Carolina Department of Health and Environmental Control.
	1989. Non-point source management program for the State of
	South Carolina. Columbia, South Carolina. April 1989.
Recreation/Land	South Carolina Department of Parks, Recreation, & Tourism.
Use Resources	2008. South Carolina State Comprehensive Outdoor Recreation
Descretion /Land	Plan (SCORP). Columbia, South Carolina. April 2008
Recreation/Land Use Resources	South Carolina Department of Parks, Recreation, & Tourism.
	2002. The South Carolina State Trails Plan. Columbia, South Carolina. 2002
Fisheries Resources	South Carolina Department of Natural Resources. 2014. South
Wildlife Resources	Carolina's State Wildlife Action Plan 2015. Columbia, South
	Carolina. October 2014
Water Resources	South Carolina Department of Natural Resources. 2004. South
	Carolina Water Plan-Second Edition. Columbia, South Carolina.
	January 2004.

RESOURCE	COMPREHENSIVE PLAN
Water Resources	South Carolina Water Resources Commission. 1985. Instream
	flow study - Phase I: identification and priority listing of streams
	in South Carolina for which minimum flow levels need to be
	established. Report No. 149. Columbia, South Carolina. June 1985
Water Resources	South Carolina Water Resources Commission. 1988. Instream
	flow study - Phase II: determination of minimum flow standards to
	protect instream uses in priority stream segments. Report No. 163.
	Columbia, South Carolina. May 1988.
Recreation/Land	South Carolina Water Resources Commission. National Park
Use Resources	Service. 1988. South Carolina rivers assessment. Columbia, South
	Carolina. September 1988
Water Resources	State of Georgia. Office of the Governor. 1987. Water resources
	management strategy-summary document. Atlanta, Georgia.
	January 12, 1987
Fisheries Resources	U.S. Fish and Wildlife Service. n.d. Fisheries USA: the
	recreational fisheries policy of the U.S. Fish and Wildlife Service.
	Washington, D.C.
Fisheries Resources	U.S. Fish and Wildlife Service. 1994. Elements of consensus on
	American shad management in the stretch of the Savannah River
	between Strom Thurmond (Clarks Hill) Dam and Augusta.
	Department of the Interior, Charleston, South Carolina. October
	1994.
Fisheries Resources	U.S. Fish and Wildlife Service and National Marine Fisheries
	Service. 2005. Diadromous fish restoration plan for the Middle
	Savannah River: strategy and implementation schedule.
	Charleston, South Carolina. August 2005
Wildlife Resources	U.S. Fish and Wildlife Service. Canadian Wildlife Service. 1986.
	North American waterfowl management plan. Department of the
	Interior. Environment Canada. May 1986

5.3.1 **References**

- Federal Energy Regulatory Commission (FERC). 1995. Final Environmental Assessment for Hydropower License. Stevens Creek Hydroelectric Project. FERC Project No. 2535-South Carolina, Georgia. Filed November 7, 1995.
- FERC. 2019. List of Comprehensive Plans. December 2019. [Online] URL: <u>https://www.ferc.gov/industries/hydropower/gen-info/licensing/complan.pdf</u>. Accessed March 31, 2020.

6.0 SUMMARY OF CONTACTS [§ 5.6 (d)(5)]

DESC has exercised a significant amount of due diligence in scoping resource issues, developing study plans, and compiling the relevant resource information necessary to prepare this PAD. Appendix A: Stakeholder Consultation Record includes a copy of the distribution list, along with a comprehensive record of contacts made with agencies and other organizations to obtain relevant baseline information. Appendix A also includes meeting notes documenting the extensive preliminary issue scoping efforts performed by DESC, to date. DESC is distributing this PAD and accompanying NOI simultaneously to FERC, federal and state resource agencies, local governments, Native American Tribes, NGOs and other potentially interested stakeholders.

7.0 PURPA BENEFITS [§ 5.6 (e)]

The Applicant is not seeking benefits under section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA).

APPENDIX A

STAKEHOLDER CONSULTATION RECORD

MEETING NOTES

SOUTH CAROLINA ELECTRIC & GAS COMPANY STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Relicensing Kick-Off Meeting with the U.S. Forest Service July 25, 2018

Final ACJ 8-03-18

ATTENDEES:

Bill Argentieri (SCE&G) Amy Bresnahan (SCE&G) Alison Jakupca (Kleinschmidt) Jordan Johnson (Kleinschmidt) Kelly Kirven (Kleinschmidt) Henry Mealing (Kleinschmidt) Derrick Miller (USFS) Jason Moak (Kleinschmidt)

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.

<u>Meeting Purpose</u>: The purpose of the meeting was to begin relicensing discussions with the U.S. Forest Service; to discuss the Project, operations, process and potential resource issues.

Housekeeping Items:

The meeting opened and the Stevens Creek Hydroelectric Project (Project) relicensing team began introductions. Derrick Miller, USFS Special Uses Program Manager, noted that he should be the primary point of contact at the USFS for the Project relicensing. Amy Bresnahan, Alison Jakupca and Kelly Kirven should be included on the SCE&G and Kleinschmidt side. When sharing privileged cultural resource information, Jim Bates with the USFS should be the primary point of contact. The team will check with Derrick first, before directly sending privileged cultural correspondence to Jim.

The group reviewed through a general relicensing presentation (attached) and began open discussions. Major discussions points are included in the sections below, although not necessarily in the order discussed.

Relicensing Timeframe:

The group discussed that the relicensing process would stretch for a period of at least 7 years, with the anticipation of a new license being issued by the FERC in 2025. At Derrick's request, Alison noted that she would send Derrick the relicensing timeline, with dates of potential USFS interest highlighted. Alison noted that, at this time, some dates are still flexible. It was also noted that SCE&G would be seeking approval from FERC to use FERC's Traditional Licensing Process (TLP), as was done at Saluda and Parr. Derrick noted that the USFS was amenable to the use of the TLP at Stevens Creek.

Rare, Threatened, Endangered and Special Status Species (RT&E):

Derrick explained that the USFS has discovered Northern long-eared bat and red cockaded woodpecker in the area surrounding the Project. Therefore, these species would be of interest to the USFS. He continued to explain that the U.S. Fish and Wildlife Service (USFWS) would be responsible for setting any survey protocol for these species, if surveys were necessary. The group discussed that, as no modifications to the Project are being proposed, there should likely not be any impacts to these species. Moreover, if any enhancements were proposed at Project recreation sites, keeping within the existing development footprint should minimize or avoid affects to RT&E species. Nevertheless, potential impacts to these species, along with the necessity of species surveys, would be determined in consultation with the USFS and USFWS through the relicensing. Additionally, Derrick noted that USFS personnel would examine the USFS GIS system to see if there were any USFS sensitive species in the Project Area (within the FERC Project boundary) or Project Vicinity. If there are, Derrick will provide this information for inclusion in the Pre-Application Document and/or other licensing documents.

Cultural Resources:

Derrick explained that Jim Bates would be handling cultural resource reviews for the USFS. Jim Bates currently reviews annual cultural resources and shoreline erosion reports. His review includes consideration of reservoir fluctuations and whether fluctuations may be causing the loss of shoreline/cultural artifacts. The heavily vegetated shorelines aid in protecting the banks against erosion. The group discussed the extensive cultural resource studies performed at the Project in the mid-1990s. Studies included Phase II archeological surveys of the Project Area. Cultural resources were found near the Mims Recreation Site, which has enhancements proposed through the current Project Recreation Plan. Derrick noted that he would discuss this issue with Jim Bates.

Recreational Resources:

The group discussed Project recreation sites and the USFS's goal of "sustainable recreation"; defined as providing recreation opportunities that are "ecologically, economically, and socially sustainable for present and future generations." Given this, the group discussed the potential re-evaluation of recreational enhancements at the Mims Recreation Site through the Project relicensing. Alison noted that recreation data would be compiled and analyzed during the relicensing process, with a goal of showing existing use and future needs. If recreation enhancements at Mims Recreation Site were determined to be placed on hold until after relicensing recreation evaluations were performed, then SCE&G would need an email or letter from the USFS stating this by December 31, 2018. Derrick noted that he would investigate this internally and discuss further with Bill and Amy.

4(e) and Special Use Permits:

Derrick noted that under the One Federal Decision, the USFS had stricter timeframes for the development of 4(e) conditions; thus, early consultation was beneficial. Derrick explained that he envisioned the Stevens Creek 4(e) conditions being similar to the 4(e) conditions recently developed for the Parr relicensing, with a strong emphasis on ADA/Barrier Free accessibility. The group discussed the long USFS roads (located outside of the Project boundary) used to access various recreational facilities on the Stevens Creek reservoir. Derrick noted that since these roads are

outside the Project boundary, and if SCE&G does not use them for the maintenance of Project facilities, then a 4(e) road maintenance agreement will likely not be required.

Derrick also noted that a Special Use Permit does not currently exist for the hydroelectric project license and that in discussions with Jim Twaroski, they determined that a Special Use Permit would not be needed.

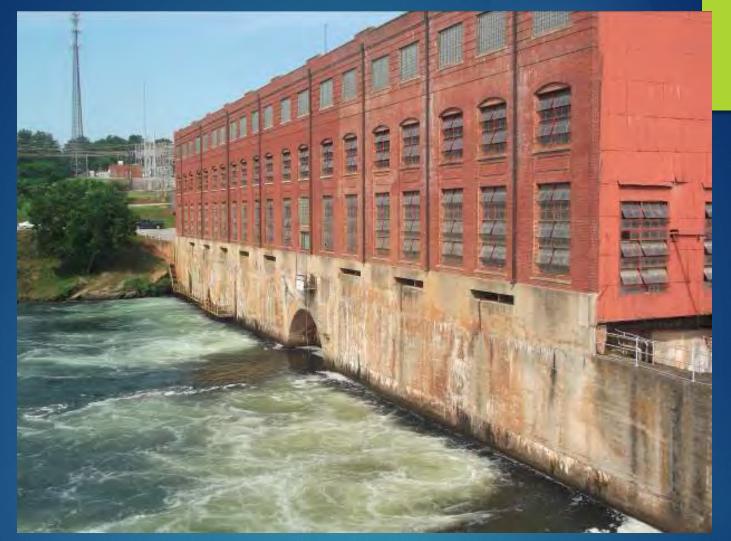
Project Site Visit:

The group discussed setting up a Project site visit with USFS personnel in the October 2018 timeframe. Alison noted that she would provide potential date options through a doodle poll.

The group adjourned and action items from this meeting are included below.

ACTION ITEMS:

- Derrick/USFS will review the USFS GIS system to see if there were any USFS sensitive species in the Project Area (within the FERC Project boundary) or Project Vicinity and provide that information to SCE&G for inclusion in the licensing documents.
- Derrick will discuss with Jim Bates if they have concerns regarding a cultural resource site at the currently designated Mims Recreation Site.
- Derrick will discuss the current need for recreational improvements at Mims Recreation Site, and their potential re-evaluation during relicensing. A letter/email from USFS is required by December 31, 2018.
- Alison will provide the relicensing timeline to Derrick.
- Alison will set up an October 2018 Project site visit.



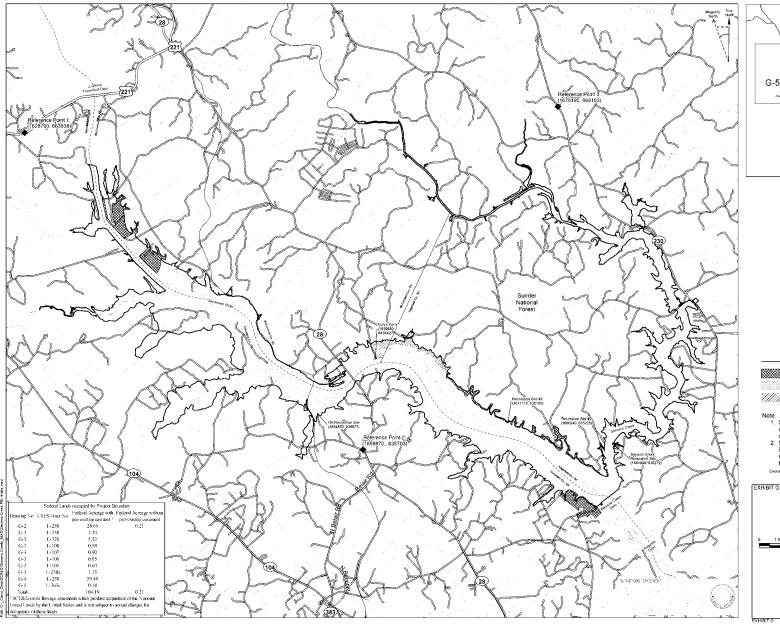
Stevens Creek Project Relicensing U.S. FOREST SERVICE KICK-OFF MEETING JULY 25, 2018

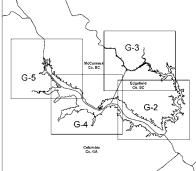
Meeting Agenda

- Relicensing Process
- Project Overview
- Review of USFS Lands within Project Boundary and Recreation Sites
- Discussion of Recreation Site Improvements
- Discussion of 4(e) and Special Use Permits
- Other Items



General Map of Project Area





- Project Boundary Line

Report with the second second

USFS Land within PBL (without pre-existing easement)

/////, USFS Land Within PBL (with pre-existing easement)

- SCE&G owns flowage easements which predate acquisition of the National Forest Lands by the United States and is not subject to annual charges for occupancy of these lands.
- 2. SCE&G's property rights within the Stevens Creek Project Boundary consist only of flowage rights except for the project structures and the properties designated as being owned in

fee by SCE&G.

Coordinate System: NAD 1983 NSR S2007 StatePlane South Carolina FIPS 3990 Ft Intl All elevations are in NAV88. Exhibit G-1 General Map of Project Area South Carolina Electric & Gas Company Stevens Creek Hydroelectric Project FERC Project No. 2535 1 " = 2,370 '

Surrounding Facilities

Upstream Facilities

- Thurmond USACE
- Richard B. Russell USACE
- Hartwell USACE

Downstream Facilities

- Augusta Diversion Dam City of Augusta
- New Savannah Bluff Lock and Dam USACE



General Project Data

- FERC Project Number 2535
- Location: Edgefield and McCormick Counties, SC/Columbia County, GA
- Constructed 1912; Began operation 1914
- FERC license issued in 1995; expires 10/31/25
- 8 Generating Units
- 29-ft Gross Head
- 9,000 cfs max hydraulic capacity
- Authorized Installed Capacity: 17.3 MW
- Reservoir: 2,220 ac / extends approx. 12 miles upstream to USACE Thurmond Dam
- Drainage Area: 7,180 sq. mi
- Approx. 104 acres of USFS lands in the PBL
- No transmission lines in the Project Boundary



FERC Relicensing Process

- Proposing to use FERC's Traditional Licensing Process (TLP) with Enhanced Stakeholder Involvement
- TLP = 3 Stage Process
- First Stage (late 2018 through mid-2020)
 - Preliminary Issues Scoping
 - Issuance of Pre-Application Document (PAD)
 - Joint Agency Meeting and Site Visit
 - Written PAD comments and study requests due from agencies



Traditional Licensing Process

- Second Stage (Late 2020- mid 2023)
 - SCE&G performs resource studies
 - SCE&G provides Draft License Application (DLA) for agency review
 - Written DLA comments due
- Third Stage (Mid 2023-2025)
 - SCE&G files Final License Application with FERC and sends copies to agencies and tribes
 - Early 2025 Final 4(e) conditions due for Project



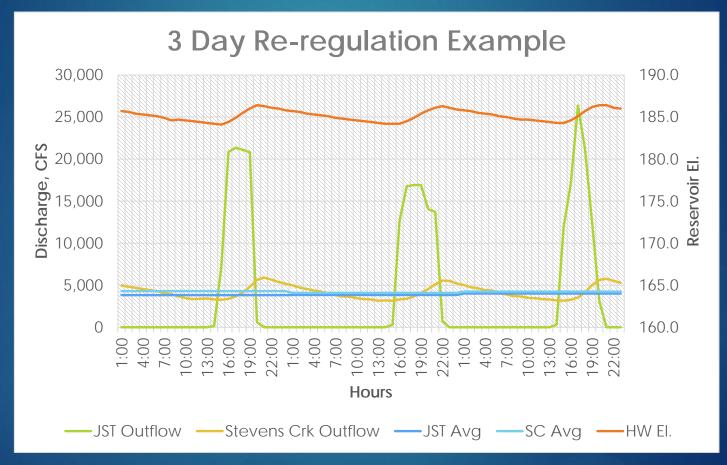
Project Operations

Operates as a reregulating facility -

- Minimize pool fluctuations
- SCE&G maintains reservoir between 183.0 and 187.5 NGVD
- Operating Plan:
 - Identifies minimum flow
 - Contains procedures for adjusting minimum flows based on inflow conditions



What does "Reregulation" Mean?





Environmental Resources

SCE&G has existing license articles that protect natural resources surrounding Project

- Water quality monitoring in the Project Boundary
- Funding of Mitigation Trust Fund
- Fisheries Resource Enhancement Plan



Environmental Resources

Federal Rare, Threatened and Endangered Species

- Relict Trillium (end.)
- Miccosukee Gooseberry (threat.)
- Carolina Heelsplitter (end.)
- RC Woodpecker (end.)
- Wood Stork (threat.)



Environmental Resources

Cultural Resource Studies





Project Recreation Facilities

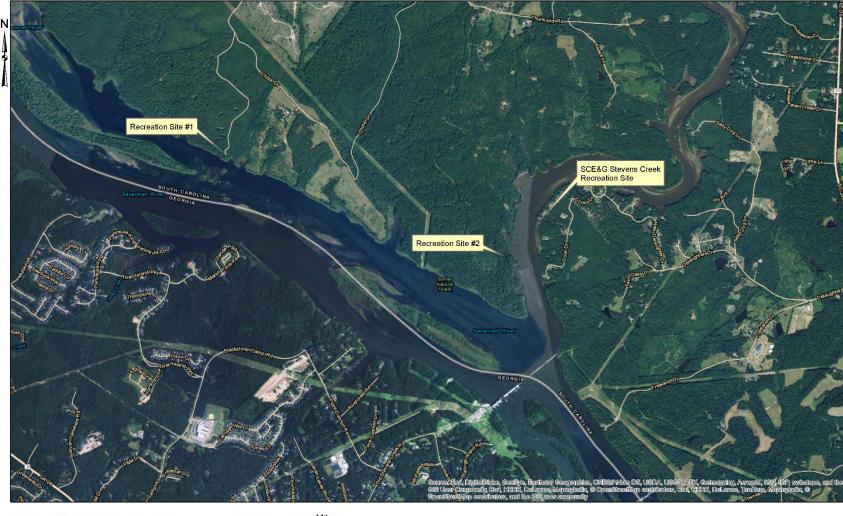
Existing Facilities

- Betty's Branch (Riverside Park) – Columbia County
- Mims (Rec Site #1) -USFS
- Fury's Ferry USFS
- Stevens Creek Park
- Chota Drive (Rec Site #2) USFS





Stevens Creek Recreation Sites - Map 1



0 0.25 0.5 1 1.5 2



Stevens Creek Recreation Sites - Map 2



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 2



Recreation Site Improvements

Fury's Ferry Recreation Site

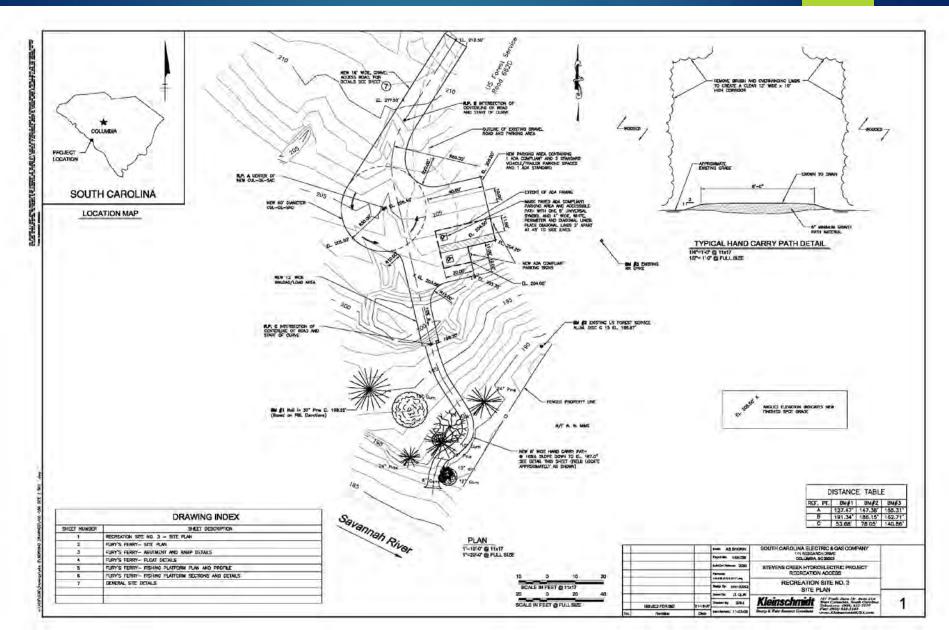
Chota Drive Recreation Site

Mims Recreation Site

NEPA/SHPO consultation by Dec. 31, 2018



Mims Recreation Site



Stevens Creek 4(e) Conditions

No 4(e) conditions in current license

Special Use Permit



USFS Concerns and Goals



Other Items

Parr draft 4(e) conditions







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

SOUTH CAROLINA ELECTRIC & GAS COMPANY Agency and NGO Outreach Meeting

January 10, 2019

Final KMK 2-1-19

ATTENDEES:

Amy Bresnahan (SCE&G)IBill Argentieri (SCE&G)ICaleb Gaston (SCANA)IPaula Marcinek (GADNR – WRD)IMadeline Banyas (GADNR – EPD)IDelaine Scott (GADNR – EPD)IEd Bettross (GADNR – Fisheries)IChris Thomason (SCDNR)IElizabeth Miller (SCDNR)IBill Marshall (SCDNR)IRon Ahle (SCDNR)IElizabeth Johnson (SC SHPO)Stacy Rieke (GADNR – HPD) – via conf. callDebbie Wallsmith (GADNR – HPD) – via conf. call

James Sykes (USACE) Elena Richards (Savannah Riverkeeper) Tonya Bonitatibus (Savannah Riverkeeper) Tony Hicks (private individual) Tom Proctor (land owner) Bill Stringer (SC Native Plant Society) Alison Jakupca (Kleinschmidt) Kelly Kirven (Kleinschmidt) Jason Moak (Kleinschmidt) Henry Mealing (Kleinschmidt)

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 this meeting was to discuss the Stevens Creek Hydroelectric Project and its operations, the upcoming relicensing process and potential resource issues at the Project. The PowerPoint presentation from the meeting is attached to the end of these notes and is available on the Project website at <u>www.stevenscreekrelicense.com</u>.

Alison opened the meeting with introductions and then gave a brief overview of the relicensing process and the public meetings held in November 2018. Amy provided a brief overview of Project operations and explained that the Stevens Creek Project re-regulates flows released from the upstream U.S. Army Corps of Engineers (USACE) Thurmond Dam. Amy said that each day the USACE provides SCE&G with a daily average flow and SCE&G then releases flows from Stevens Creek Dam continuously to meet that daily average.

Alison told the group that the Pre-Application Document (PAD) is due to be filed with FERC in 2020. She said that SCE&G will distribute a draft PAD to the agencies to review prior to filing with FERC. In the meantime, SCE&G is requesting that agencies provide them with any existing information they may have on the Project that can be incorporated into the PAD. Kleinschmidt will



distribute a PAD Information Questionnaire to agencies and NGOs within the next few weeks requesting information. SCE&G also wants to scope out potential studies and submit study plans to FERC with the PAD. Meetings will be held throughout 2019 and early 2020 to develop these study plans.

Alison asked the agency personnel if the public had expressed any concerns to them regarding the Project and existing recreation sites. No concerns were expressed. Ed asked if there was any potential for recreation below the dam. Alison explained that FERC prefers for recreation sites to be within the Project boundary. If stakeholders and licensees agreed to develop a recreation site outside of the Project boundary, FERC either won't agree to this, or will require the licensee to expand the Project boundary to include the recreation site. Bill A. said that in the Project's current license, stakeholders and SCE&G agreed to develop a fishing pier downstream of the dam. However, there was an archaeological site in the area that required protection. In this case, FERC required SCE&G to develop a recreation area inside the Project boundary on the Georgia side which was part of Columbia County's Riverside Park. Elena asked if the Mims recreation site had any potential for further development and established amenities. Bill A. said that this site is in the Project's existing Recreation Plan, however it is located on U.S. Forest Service (USFS) land and the USFS hasn't prioritized development at the site. Bill A. said that SCE&G needs to talk to FERC about this and determine if further development is needed during the current license term. A recreation study is likely to occur during relicensing to determine utilization of existing sites and the potential need for new site development and/or upgrades at existing sites.

The group discussed soils and geology at the Project. Alison said that SCE&G performs annual shoreline erosion surveys at the Project and this information will be included in the PAD. Tom said that the Modoc fault line is located close to the dam. Amy said she wasn't aware of that fault line, however it hasn't appeared to cause any issues at the Project. Bill M. asked if there was any concern about sediment in the reservoir. Amy said that sedimentation was mentioned as a potential issue during the public meetings in November 2018, particularly in Stevens Creek. Amy said that sedimentation can be an issue at the confluence of Stevens Creek and the Savannah River but does not currently affect project operations. Members of the public mentioned that they often had to navigate inside of the buoy lines upstream of the dam in order to access the main river channel. Bill M. asked if there were any operational requirements regarding sediment management. Amy said that there aren't any in the current license. She also mentioned that flows have been particularly high for the last two months, which may result in a change in sediment load and sediment deposits in the Project area.

The group discussed water quality and quantity associated with the Project. SCE&G has a large amount of existing data since they complete annual reports for the Project using USGS data. Water quality at Stevens Creek has been improving due to water quality improvement efforts upstream at Thurmond. Bill S. asked if SCE&G was aware of a wastewater discharge on Plum Branch. Bill A. said this was outside of the Project boundary but it could affect water quality at the Project. Alison said that SCE&G will apply for a new 401 water quality certificate from Georgia. She said that typically the application is submitted after the Final License Application is filed. Madeline and Delaine asked if there were any requirements in the existing license for monitoring or improving dissolved oxygen downstream of the Project. Amy said that SCE&G monitors water quality immediately downstream of the dam.



The group discussed fish and aquatics at the Project. SCDNR is currently completing fish studies on Stevens Creek and will have reports available soon. Ron said that SCDNR recently hired a new malacologist, Morgan Kern, who is focusing on the Carolina heelsplitter, a mussel that has potential to occur within the Project boundary. A question was asked about the Project boundary and why it doesn't extend any downstream of the dam. Henry explained that the City of Augusta's Diversion Dam is located within a mile downstream of Stevens Creek Dam and so there isn't any riverine influence.

Tonya provided a list of questions and concerns she had regarding the Project. She asked if there was any opportunity for SCE&G to work with USACE to lessen the flow fluctuations from Thurmond Dam. She also said that fish passage at Stevens Creek will eventually happen and suggested that SCE&G be proactive about addressing fish passage rather than wait for passage to be installed downstream. Tonya said that fish passage installations could be used as an educational tool. She is also working to have the water quality standards for this section of the Savannah River reclassified from "fishing" to "recreation". She indicated that this stretch of the river is a popular active recreation area and that SCE&G should consider constructing a recreation site downstream of the Project. Tonya also said that she would like to see canoes and kayaks be able to move through the locks at the Project or through a rock weir. She also mentioned rocky shoals spider lilies (RSSL) in Stevens Creek, a few small dams in Stevens Creek in poor condition, and silt/sedimentation out of Stevens Creek as issues that need to be considered during relicensing. Bill S. said that Dr. Donna Ware and Dr. Judy Gordon have been studying local RSSL populations for 20 years and could be a resource for information. He also mentioned a small concrete dam that the SC Native Plant Society owns that might be eligible for removal.

Alison said that the public mentioned concerns over aquatic vegetation in the Project reservoir. Amy said that this aquatic vegetation has caused operational issues for SCE&G. SCE&G has never sprayed the vegetation. Tonya suggested dropping the water level during freezing temperatures as a natural way to kill off the plants. Henry said he has seen approximately 9 or 10 different species of aquatic vegetation in the reservoir. Since the reservoir shoreline is heavily vegetated, there isn't much shoreline erosion.

The group discussed reservoir and downstream fluctuations. Ron mentioned the development of a plan to consider fluctuations during fish spawning seasons. Tonya said she would like to see flows tweaked in an effort to hold the reservoir more stable. Amy said that there are some scheduled maintenance and repairs that will occur in the near future that should make the plant more efficient, including replacing flashboards. Bill M. said that he sees the Stevens Creek Project as one that provides a service to the river downstream by providing more stable downstream flows due to reregulation of flows from Thurmond. The existing license requires Stevens Creek to re-regulate flows from Thurmond. Henry said that simple modeling could show how the downstream is affected from varying fluctuations.

The group discussed rare, threatened and endangered species at the Project. Carolina heelsplitter, RSSL, robust redhorse, redeye bass, trillium, bats and vultures at Stallings Island were all mentioned as species to consider.

Other issues mentioned during the meeting are listed below.



- Chris asked about the buffer zone at Stevens Creek and whether it was maintained in a natural state. Bill A. said SCE&G doesn't do anything in the buffer zone. SCE&G doesn't own most of the land and only has flowage rights in most areas.
- The group discussed whether there was a need for a Shoreline Management Plan and that currently the USACE permits docks on Stevens Creek reservoir. Elizabeth M. asked if SCE&G has a general permit for the Project area. Bill A. said he didn't think they did.
- The group reiterated the need for a recreation study. Tonya will provide a list of vendors that use the area and will provide data she has on special events that take place in the area.
- A cultural study was completed in the 1990s and likely doesn't need to be repeated. An HPMP and PA were developed in 2004 and may need to be updated if operational changes occur as a result of relicensing. Also, the documents may need to be updated regarding Stallings Island including how to protect the resource and increase awareness.
- SCE&G mentioned they will contact local tribes separately and address any issues they may have.
- After the meeting, Tom submitted an additional issue he would like addressed through relicensing. He said there are hundreds of stumps in Stevens Creek that provide navigation issues. He would like to see the stumps either removed or cut, or a navigation channel marked.

The next meeting will likely occur in the spring of 2019. During this meeting, the group will develop Resource Conservation Groups and begin developing study plans. Action items from this meeting are listed below.

ACTION ITEMS:

- Kleinschmidt will distribute a PAD Information Questionnaire to stakeholders. Stakeholders are encouraged to fill out the questionnaire and provide any existing data they have relevant to the Project to Kleinschmidt and SCE&G for inclusion in the PAD.
- Tonya will provide a list of vendors that use the Project area for recreation and any data she has on special events that occur in the Project area.
- SCE&G will contact local tribes as part of the cultural resource component of relicensing.



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

SOUTH CAROLINA ELECTRIC & GAS COMPANY Agency and NGO Outreach Meeting

March 27, 2019

Final KMK 4-29-19

ATTENDEES:

Amy Bresnahan (SCE&G) Bill Argentieri (SCE&G) Randy Mahan (SCANA) Pace Wilber (NOAA Fisheries) Twyla Cheatwood (NOAA Fisheries) Andy Herndon (NOAA Fisheries) Melanie Olds (USFWS) Derrick Miller (USFS) Alison Jakupca (Kleinschmidt) Henry Mealing (Kleinschmidt Kelly Kirven (Kleinschmidt)

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 this meeting was to discuss the Stevens Creek Hydroelectric Project and its operations, the upcoming relicensing process and potential resource issues at the Project. SCE&G hosted an agency/NGO outreach meeting on January 10, 2019, however several federal agency representatives were not able to attend due to the government shutdown. SCE&G convened a conference call to accommodate those representatives not able to attend the January meeting. The PowerPoint presentation from the meeting is attached to the end of these notes and is available on the Project website at <u>www.stevenscreekrelicense.com</u>.

Alison opened the meeting with introductions and then gave a brief overview of the relicensing process, the public meetings held in November 2018, and the agency/NGO outreach meeting in January 2019. Amy provided a brief overview of Project operations and explained that the Stevens Creek Project re-regulates flows released from the upstream U.S. Army Corps of Engineers (USACE) Thurmond Dam. Amy said that each day the USACE provides SCE&G with daily average flow targets and SCE&G then releases flows from Stevens Creek Dam continuously to meet that daily average.

Amy said that there is a large amount of existing water quality data for the Project, including forebay and tailrace data from the upstream Thurmond Project. SCE&G has to assemble and file with FERC an annual water quality report that primarily summarizes temperature and dissolved oxygen (DO) data. Dissolved oxygen enhancements installed at the Thurmond Project seem to have improved water quality in the area. Pace said that after review, it appears that the last 5-10 years of water quality reports didn't seem to show an instance of DO below 5 mg/L in the tailrace. He asked if SCE&G has ever considered installing a data sonde to collect continuous water quality data. Amy said that hadn't been considered at this time, but it can be considered during relicensing.



The group discussed land and shoreline management at the Project. Amy said that SCE&G doesn't own a significant amount of land around the river but have flowage easements instead. SCE&G may need to discuss dock and other permitting with the US Army Corps of Engineers. Derrick mentioned that the USFS doesn't allow the public to put docks on USFS land and they won't sell any land for private development.

Alison told the group that the Pre-Application Document (PAD) is due to be filed with FERC in 2020. She said that SCE&G will distribute a draft PAD to the agencies to review prior to filing with FERC. In the meantime, SCE&G is requesting that agencies provide them with any existing information they may have on the Project that can be incorporated into the PAD. Alison noted that Kleinschmidt received a great response to the PAD Questionnaires that were distributed to stakeholders in January. SCE&G also wants to scope out potential studies and submit study plans to FERC with the PAD. Meetings will be held throughout 2019 and early 2020 to develop these study plans.

The group discussed existing information on the various resource areas. The group discussed the potential for continuous data collection through a data sonde in more detail. Pace noted that visitors of the Stevens Creek and Thurmond Project areas have a perception of low DO in that stretch of river, however the data collected and presented in the annual reports doesn't support this. He said that the more data that exists, the easier SCE&G can combat this negative public perception. High amounts of siltation and run-off from farms located along Stevens Creek may be contributing to low DOs in the Project area. Henry said that data gaps will be identified in the PAD, and these data gaps will be used to determine what type of studies may need to be completed during relicensing. Bill A. also said that stakeholders can try to identify areas where they would like to see continuous data monitoring, through the installation of a data sonde, and SCE&G can consider contracting with USGS to get these monitors installed. This continuous data collection may also eliminate the need for an annual report with FERC.

Melanie mentioned the Lower Savannah River Watershed Initiative Longleaf Alliance and said the program overlaps with the Project boundary and USFS land. She said that the purpose of this alliance is to improve water quality within the watershed and they may be able to provide additional water quality information. Derrick said he would check within USFS to determine input on the water quality issue.

Henry mentioned that the Stevens Creek Project does a lot to soften the peak flow release from upstream at Thurmond. This is seen as a Project benefit by SCE&G and the USACE, however, some members of the public would rather see the Stevens Creek reservoir held stable and the Stevens Creek Project send the peak flow downstream. Pace said it might be good to show how unnatural Thurmond's peak flow would make the river downstream if the Stevens Creek Project didn't re-regulate. Pace asked that the PAD be very clear about the physical constraints regarding water manipulation at the Stevens Creek Project due to the Thurmond Project upstream. Alison said that USACE has developed a flow model for the Savannah River system and that SCE&G will hopefully utilize this model during relicensing.

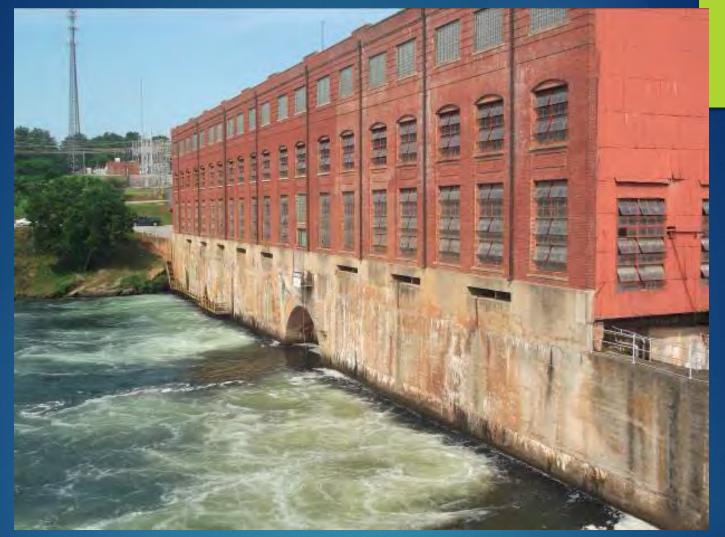
The next meeting will likely occur in the spring of 2019. During this meeting, the group will develop Resource Conservation Groups and begin developing study plans. A site visit to the Stevens Creek Project is scheduled for May 15, 2019. Action items from this meeting are listed below.



ACTION ITEMS:

• Kleinschmidt will schedule a meeting to develop Resource Conservation Groups and begin discussion of the PAD and study plans.





Stevens Creek Project Relicensing FEDERAL AGENCY OUTREACH MEETING



MARCH 2019



Meeting Agenda

Introductions

Relicensing Goals and Agency Goals

- Project Overview
- Relicensing Process and Timeline
- Review Environmental Resource Areas and Potential Issues
- Discuss Relicensing Working Groups and Agency Personnel Interest and Involvement



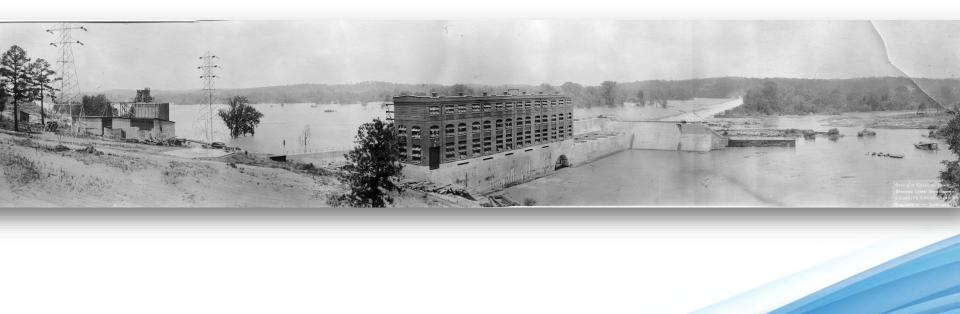
SCE&G Relicensing Goals

- Enhanced agency and stakeholder engagement through use of the TLP
- Establish and/or enhance positive working relationships with resource agencies and NGOs
- Develop licensing documents that satisfy regulatory requirements and hold up to FERC scrutiny
- Progression towards a Comprehensive Relicensing Settlement Agreement (CRSA)

Retain operational flexibility in order to reregulate USACE flows

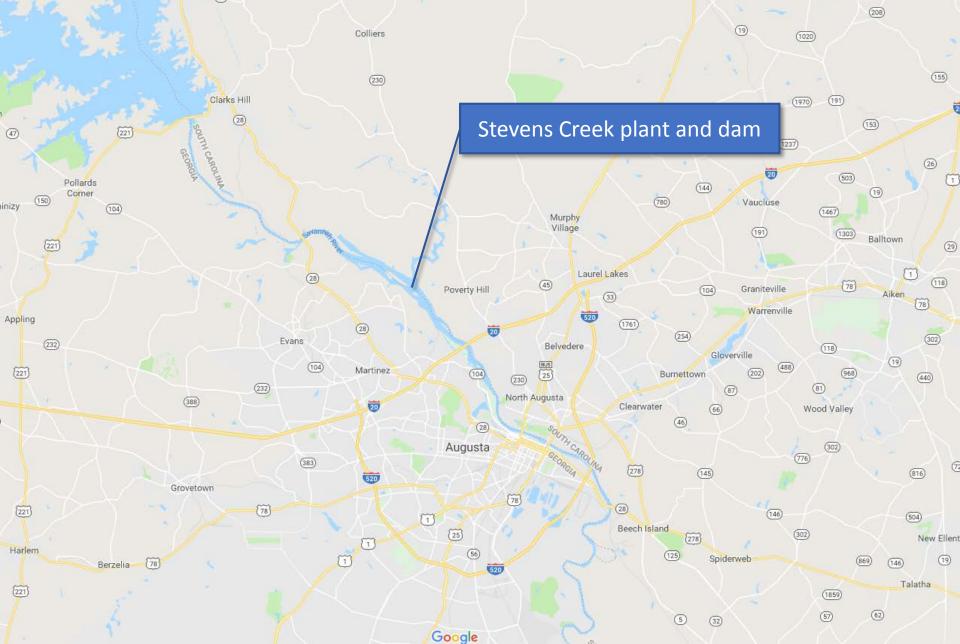


Stevens Creek Hydroelectric Project FERC Project No. 2535 – GA,SC

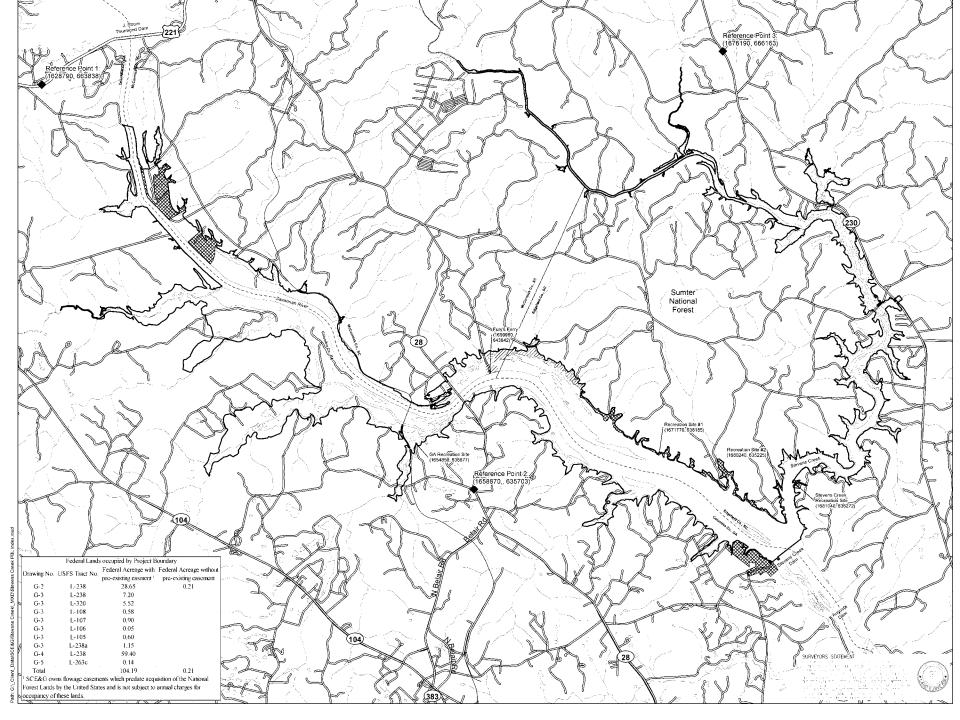


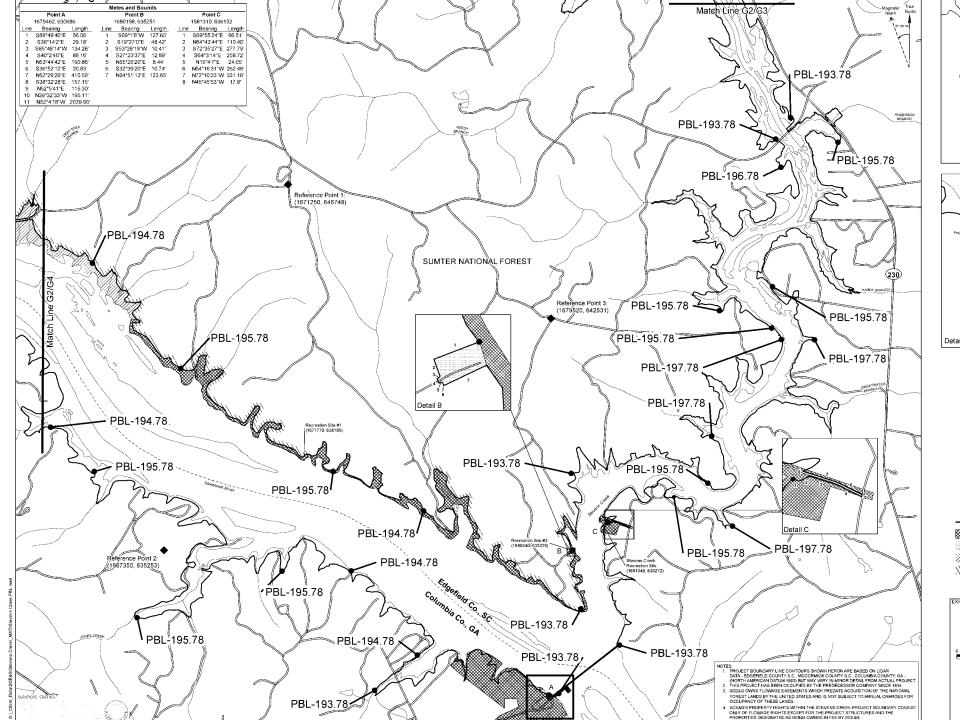


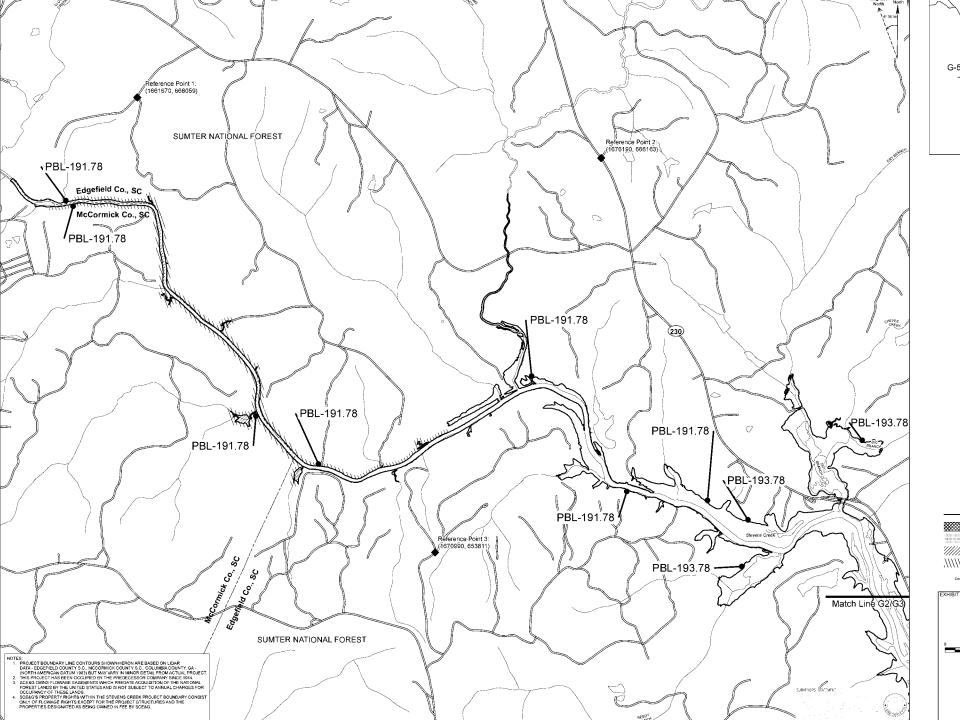
Stevens Creek Project location

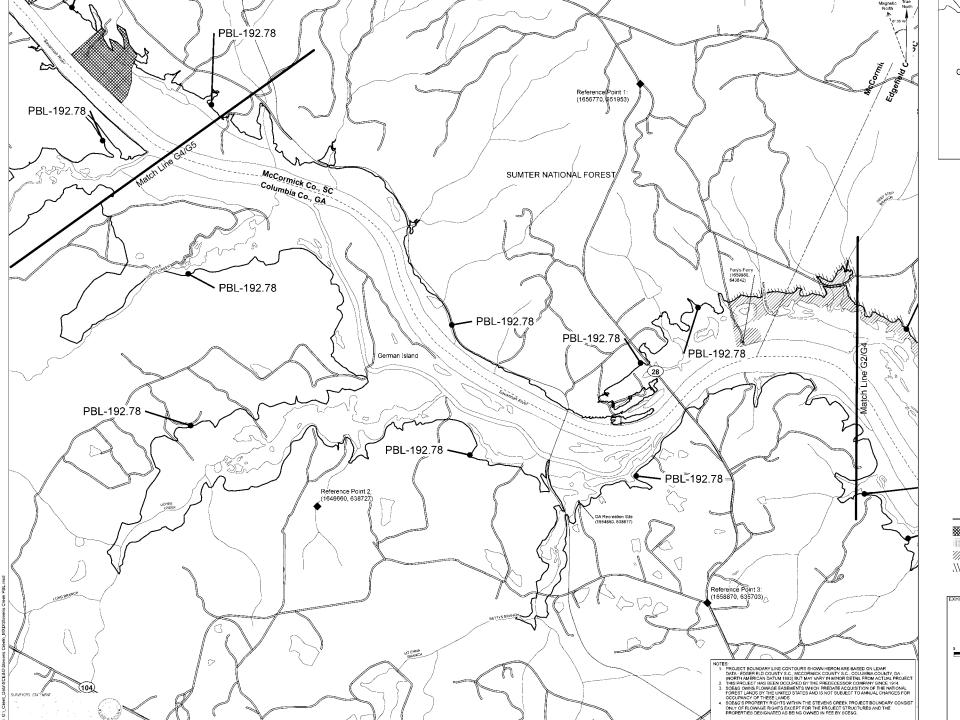


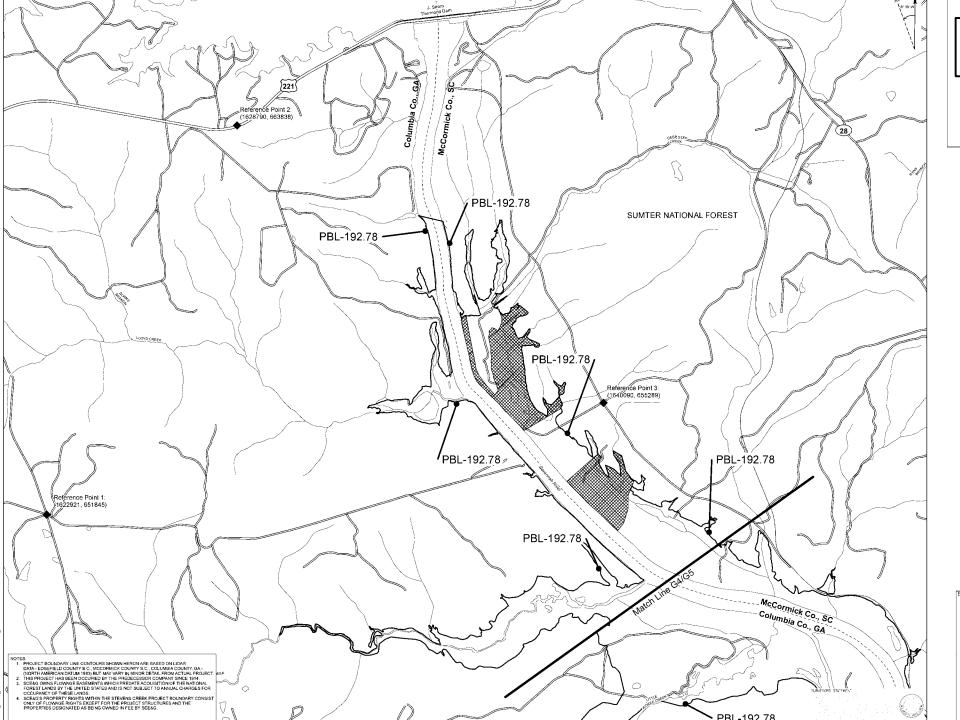












Operations

The current license states:

- Reregulate releases from Thurmond Dam
- Minimize pool fluctuations
- Maintain reservoir between 183.0 and 187.5 NGVD

Operating Plan developed to:

- Identify minimum flow
- Procedures for conditions when minimum flow may not be provided



Operations

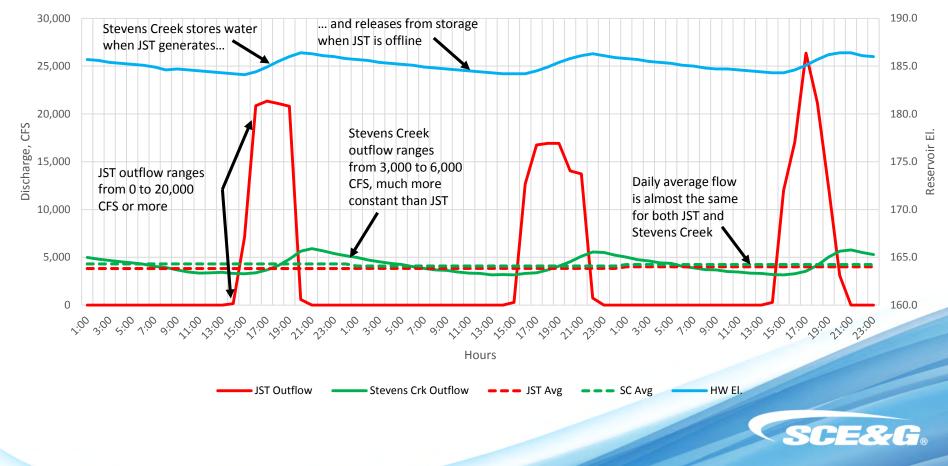
- Gross storage capacity, ~23,600 acre-feet
- Usable storage at full pool, ~7,800 acre-feet with 4.5 foot drawdown
- Re-regulate river flows below 8,300 cfs
- 8 vertical turbine generators





What does "reregulation" mean?

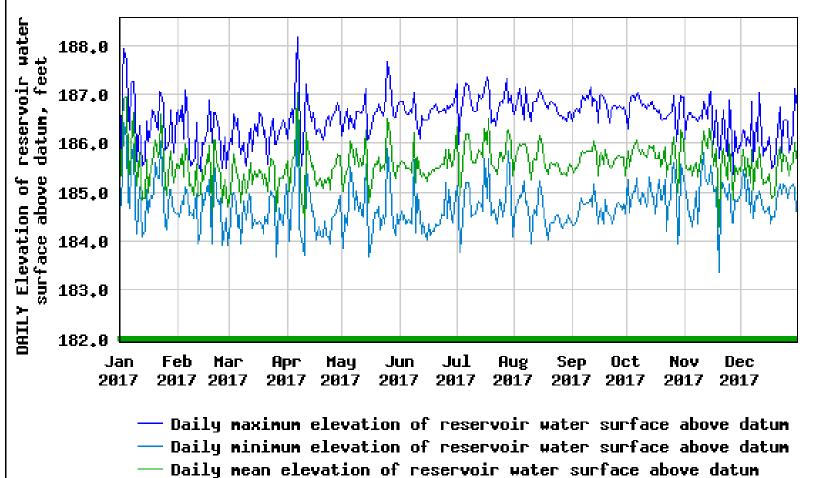
3 Day Re-regulation Example



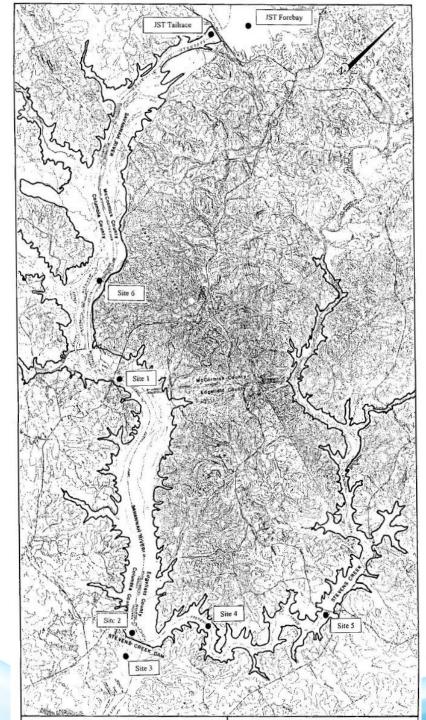
Stevens Creek reservoir

≊USGS

USGS 02196483 SAVANNAH RVR AT STEVENS CREEK DAM NR MORGANA, SC



Period of approved data



Water Quality

<u>Schedule:</u> Once a month on 2 consecutive days, once daily for Nov – May;

Twice a month on 2 consecutive days, twice daily for June - Oct

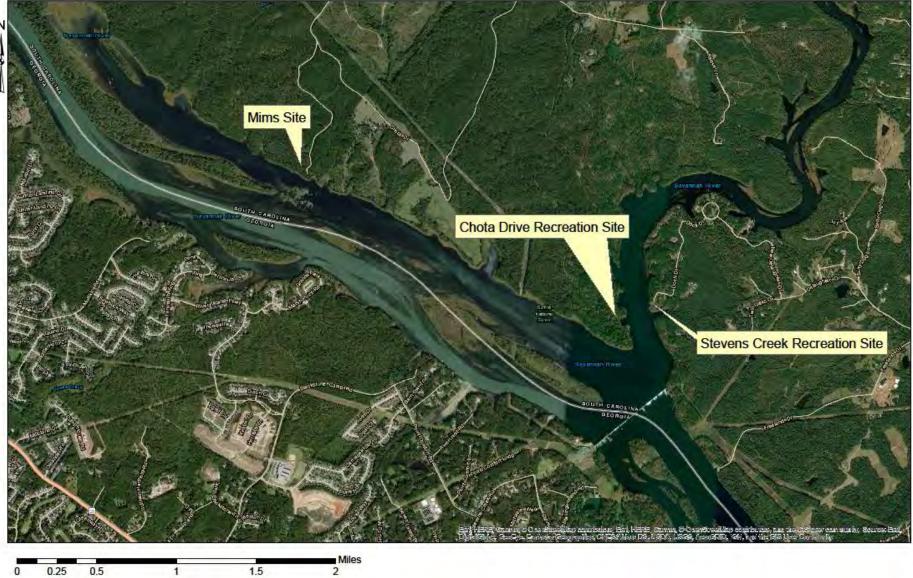


Recreation

- Stevens Creek Site parking area, boat ramp, picnic tables, restroom
- Chota Drive Site parking area, paths with bank fishing access, canoe launch area
- Mims Site currently undeveloped (not supported by USFS Recreation Plan of the Long Cane Ranger District or the Forest Service Sustainable Recreation Strategy)
- Fury's Ferry Site parking area, boat ramp, picnic tables, primitive camping area
- Riverside Park on Betty's Branch, parking area fishing pier, boat ramp and dock

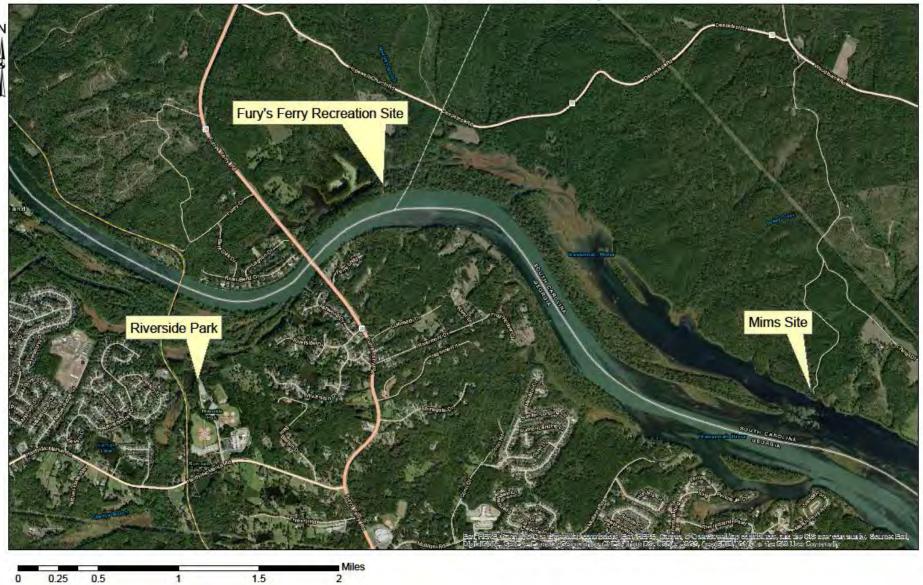


Stevens Creek Recreation Sites - Map 1

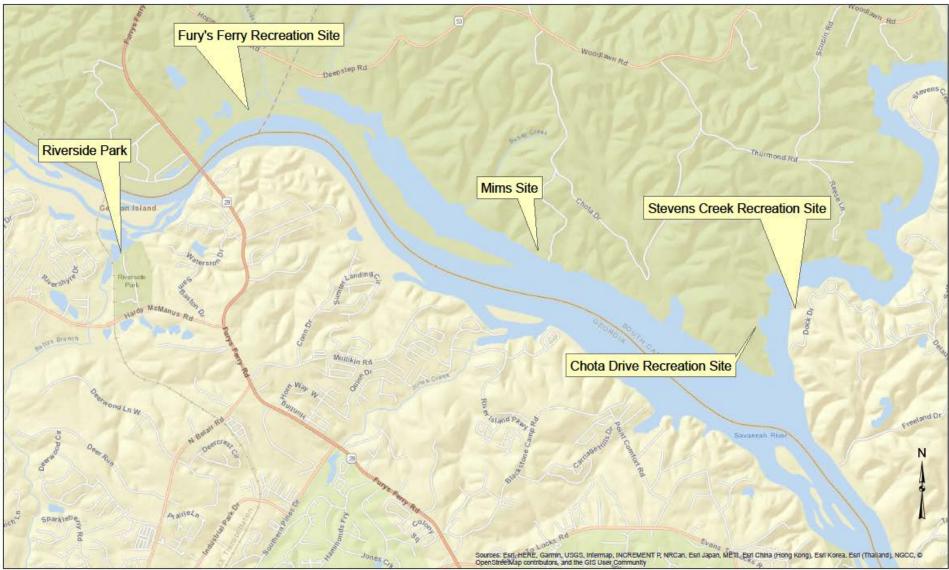


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Stevens Creek Recreation Sites - Map 2



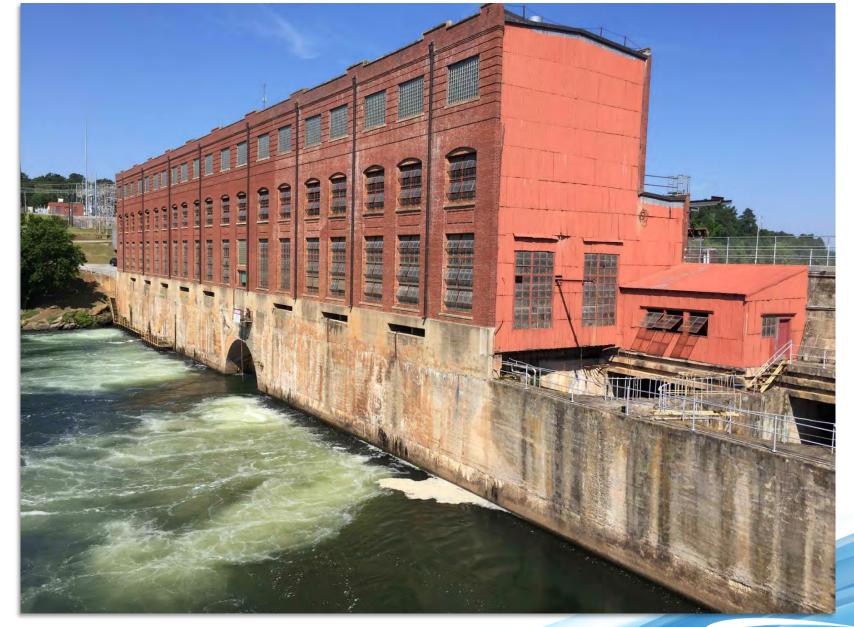
Stevens Creek Recreation Sites



Shoreline management

 US Army Corps of Engineers permits docks and shoreline maintenance between Thurmond dam and Stevens Creek dam.







Relicensing Process and Milestones

Existing FERC license issued in 1995; expires 10/31/2025

Required to start relicensing at least 5 years before existing license expires.

Complete an enhanced Traditional Licensing Process (TLP) that encourages cooperative resolution of the issues.

Develop a Comprehensive Relicensing Settlement Agreement



Big Picture – Relicensing Timeline

- May-October 2020 File NOI and PAD with FERC, request approval of TLP
- <u>Between 30 to 60 days after FERC approval of TLP</u>
 hold Joint Agency Meeting
- Late 2020-2021 First Year Studies
- <u>2022</u> Second Year Studies (if necessary)
- November 2022 Issue DLA
- October 2023 File FLA and Settlement Agreement with FERC



Agency and Stakeholder List

Federal/Tribal: NMFS, USACE, USFWS, USFS, Cherokee Nation

NGO: American Whitewater, Savannah Riverkeeper, Ducks Unlimited

South Carolina

- SC Dept. of Health and Environmental Control
- SC DNR
- Edgefield County Water & Sewer Auth.
- Edgefield Planning Commission
- SC Dept. Of Archives and History
- SC Parks, Rec, Tourism

<u>Georgia</u>

- Georgia DNR –
 Environmental
 Protection Division (401)
- Georgia DNR
- City of Augusta
- Georgia Forestry Commission
- Georgia Geologic
 Survey
- Georgia Historic
 Preservation Division

Environmental Resource Areas

- Soils and Geology
- Water Quality and Quantity
- Fish and Aquatic Resources
- Terrestrial Resources and Wetlands
- Rare, Threatened and Endangered Species
- Land Use, Aesthetics, and Socioeconomic Resources
- Recreation Resources
- Cultural/Tribal



Soils and Geology

Existing Available Information

- Soil surveys
- FERC Environmental Inspections
- SCE&G Erosion Surveys



Water Quality and Quantity

Existing Available Information

- USACE Survey Reports, Water Control Manual, Savannah River Drought Management Plan
- Phinizy Center Basin Reports
- DO and Temp Monitoring by SCE&G
- GDNR 401 Reports



Fish and Aquatic Resources

Existing Available Information

- SCDNR and GDNR habitat plans for Atlantic and shortnose sturgeon, shad and river herring
- Georgia Bass Club creel data
- Sunfish stocking evaluations at Stevens Creek impoundment
- Previous entrainment studies at Project
- Freshwater mussel surveys contracted by USFWS
- SNSA macro sampling data
- Fishery resource reports prepared for other relicensings (ADD, King Mill, Sibley Mill)
- Diadromous Fish Restoration Plan for Middle Savannah River (NMFS and USFWS)
- 2016-2018 Report of Robust Redhorse Conservation Committee
- ASMFC's Atlantic Sturgeon Stock Assessment Report
- SCDNR Fisheries Study in Stevens Creek Reservoir final report due spring 2019
- Other Available Information/Resource Discussion Points ?



Terrestrial and Wetland Resources

Existing Available Information

- USFWS National Wetlands Inventory data
- USFS Forest Plan EIS
- General species info available from SC/GA DNRs



RT&E Resources

Existing Available Information

- USFWS IPAC Data
- USFS Forest Plan EIS
- General species info available from SC/GA DNRs



Land Use, Aesthetics,& Socioeconomic Resources

Existing Available Information

- USFS Forest Plan EIS
- SCORPs
- County data
- GIS data and aerial photography



Recreation Resources

Existing Available Information

- Existing Form 80 data
- USFS data
- Columbia County use data



Cultural/Tribal Resources

Existing Available Information

- Extensive survey performed at the Project in 1990's
- Existing Programmatic Agreement and HPMP
- Annual monitoring of known sites

Other Available Information/Resource Discussion Points ?



Resource Conservation Groups

Fish, Wildlife and Water Quality

Lake, Land and Recreation Management

Project Operations

*Cultural resources will be evaluated under consultation guidelines as defined by Section 106 of the Historic Preservation Act



Summary of Concerns Noted at November Public Meeting

Vegetation management

- Potential scheduled drawdown below el. 183'
- Sedimentation
- USACE operations
- Stevens Creek Recreation Site improvements
- Communications regarding reservoir operations
- Noise from trash rake operation

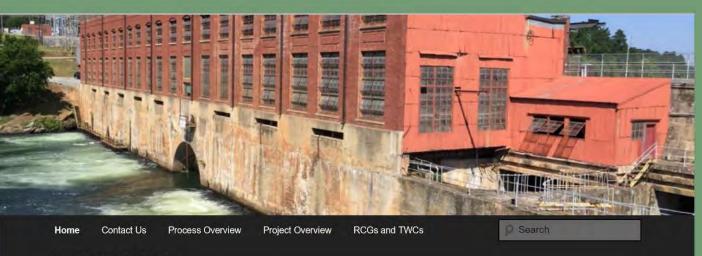


Summary of Issues Identified on PAD Questionnaire

Resource Area	Issue
RTE Species	Carolina Heelsplitter (Endangered) – occurs within the Steven's Creek watershed
RTE Species	Brook Floater(ARS) – occurs in medium tributary in Steven's Creek
RTE Species	Relict Trillium (Endangered) – can occur on bluffs near large rivers
Water Resources	Low Flow requirements at Thurmond Dam
Fish & Aquatic	Sedimentation, Water elevation fluctuations, Vegetation, Water Quality (DO in Stevens Creek)
Fish & Aquatic	Robust redhorse, sturgeon, shad, striped bass, native mollusks – spawning migrations, pulsing effects including quantity and timing, water quality, habitat quality, fish passage
Recreation	Portage options



www.stevenscreekrelicense.com



Relicensing Events Calendar

Welcome to the Stevens Creek Relicensing Website

South Carolina Electric & Gas Company (SCE&G) has started their multi-year relicensing process for the Stevens Creek Hydroelectric Project (Project). This is a federally mandated process that is governed by the Federal Energy Regulatory Commission (FERC) and has the ultimate goal of obtaining a new operating license for the Project. This new license will dictate Project operations and associated Project resource management for the next 40 to 50 years.

EEPC requires SCE&C to collaborate and consult with stakeholders, including feder



PROJECT UPDATES

October 11, 2018 – Stevens Creek Public Outreach Meetings: 2:00 p.m. & 6:00 p.m., Savannah Rapids Pavilion







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

Dominion Energy South Carolina, Inc. Stakeholder Site Visit

May 15, 2019

Final KMK 6-20-19

ATTENDEES:

Amy Bresnahan (DESC) Bill Argentieri (DESC) Randy Mahan (DESC) Brandon Stutts (DESC) Caleb Gaston (DESC) Alison Jakupca (Kleinschmidt) Kelly Kirven (Kleinschmidt) Jason Moak (Kleinschmidt) Jordan Johnson (Kleinschmidt) Henry Mealing (Kleinschmidt) Thom Litts (GDNR) Paula Marcinek (GDNR) Ed Betross (GDNR) Elizabeth Miller (SCDNR) Ron Ahle (SCDNR) Chris Thomasson (SCDNR)

Melanie Olds (USFWS) Pace Wilber (NMFS) Twyla Cheatwood (NMFS) Andy Herndon (NMFS) Scott Hyatt (USACE) Tonya Bonitatibus (SRK) Rachel Freeman (SRK) Tony Hicks (SRNL retiree) Andy Colbert (Outdoor Augusta) Rob Pavey (individual) Bill Smith (individual) Bill Smith (individual) Cory Eubanks (individual) Ronald Davis (individual) Tom Proctor (individual) John Harris (individual)

On May 15, 2019, Dominion Energy South Carolina, Inc. (DESC) hosted a stakeholder site visit at the Stevens Creek Hydroelectric Project. The purpose of the site visit was to allow stakeholders an opportunity to view the Project area from several of the DESC-managed Project recreation sites and the Project dam and powerhouse prior to the official start of relicensing. DESC believes this site visit will provide important perspective of the Project that stakeholders can refer to during study scoping and throughout the entire relicensing. A second site visit will be held as part of the Joint Agency Meeting (JAM) after the Pre-Application Document (PAD) is filed with the Federal Energy Regulatory Commission (FERC).

DESC representatives and stakeholders met at the Betty's Branch Recreation Site, part of the larger Riverside Park located in Columbia County, GA. The group viewed the boat launch area and then loaded into vehicles and traveled to the Fury's Ferry Recreation Site (Edgefield County, SC). The group viewed the Fury's Ferry site including the boat launch and the Project area visible from the recreation site. The group then traveled to the Stevens Creek Park Site (Edgefield County, SC), viewed the site, boat launch, and Project area visible from the recreation site. The group then traveled to the Stevens Creek Park Site (Edgefield County, SC), viewed the site, boat launch, and Project area visible from the recreation site. The group then traveled to the Stevens Creek Project powerhouse (Columbia County, GA). The group viewed the inside of the powerhouse through the open roll up door and walked along the upstream side of the powerhouse and lock area. On the lock area, the stakeholders were able to view upstream and

downstream portions of the Savannah River, the trash rake, the lock, and the spillway. Finally, the group traveled back to the Betty's Branch Recreation Site to have lunch and follow-up discussions. Stakeholders listed the following items as issues for concern or follow-up during relicensing.

- Stakeholders requested that trash receptacles be installed at the recreation sites.
- Stakeholders noted security concerns at Fury's Ferry.
- Caleb noted that the Fury's Ferry ramp sign is only visible from one direction on the paved road. It appeared that an additional sign was originally located on the other side of the post but is now missing.
- Several stakeholders indicated that the stumps in the river near the Stevens Creek Park site make it difficult to launch a boat and navigate the river. In addition, stakeholders noted that there was a substantial drop-off at the end of the ramp, along with a stump close to the end of the ramp at the left side.
- Reservoir fluctuation was again mentioned as a primary issue of stakeholder concern and DESC personnel provided an explanation of the re-regulation function of the Project. The group additionally discussed means of predicting reservoir fluctuation using USGS gages and calling the USACE to understand their generation schedule for Strom Thurmond Dam and means to track flood events using USGS gages.
- Several stakeholders again mentioned the proliferation of aquatic vegetation on the mainstem of the river and in the Stevens Creek arm.
- While at the dam, federal agencies discussed the appropriateness of the lock as a fish passage option, as well as alternative fish passage measures, if fish passage is deemed necessary.
- Tonya inquired about having a USGS gage on Stevens Creek closer to where it joins the Savannah River. The current gage on Stevens Creek is about 20 miles upstream near Modoc.

These items will be considered and addressed during relicensing, specifically through review of existing data or studies that may be conducted.

ACTION ITEMS:

• Kleinschmidt and DESC will schedule a meeting to develop Resource Conservation Groups and begin discussion of the PAD and study plans.



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

Dominion Energy South Carolina, Inc. Joint RCG Meeting

August 22, 2019

Final KMK 9-20-19

ATTENDEES:

Amy Bresnahan (DESC) Bill Argentieri (DESC) Ray Ammarell (DESC) Randy Mahan (DESC) Caleb Gaston (DESC) Mike Mosley (DESC) Alison Jakupca (Kleinschmidt) Kelly Kirven (Kleinschmidt) Henry Mealing (Kleinschmidt) Paula Marcinek (GDNR) Ed Betross (GDNR) Jeffrey Williams (GDNR) Elizabeth Miller (SCDNR) Ron Ahle (SCDNR) Rusty Wenerick (SCDHEC) Melanie Olds (USFWS) via conf. call Twyla Cheatwood (NMFS) Kathryn Feingold (USACE) Stan Simpson (USACE) Derrick Miller (USFS) Elizabeth Toombs (CN) via conf. call Tonya Bonitatibus (SRK) Tony Hicks (individual) John Harris (individual)

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 Pre-Application Document (PAD) and discuss any potential information or study needs. Alison reminded the group that the final PAD is not due until May 2020 at the earliest, so there is plenty of time for revisions if needed. She told the group that at the time of PAD issuance, DESC will also request the use of the Traditional Licensing Process (TLP) to complete relicensing. Alison gave the group a short review of the steps involved in a TLP. Twyla said that if the Project isn't expected to be controversial, NOAA generally supports the use of the TLP.

Operations

Amy gave an update on the flashboard replacements. She said that the replacement of the four-foot flashboards is complete, but they are still working on replacing the five-foot flashboards. She said they plan to be finished by the end of September, but they have received approval from the agencies to keep the reservoir drawn down through October if needed. Amy said that the plant should operate much more efficiently after these upgrades are complete. John Harris asked if it would be possible for the reservoir operating range to be modified so that the minimum reservoir level is higher than the current requirement of 183.0 NGVD. Ray explained that the reservoir fluctuation range is used to accomplish the re-regulation function of the Project. He said that sometimes the entire fluctuation range is necessary to re-regulate the flows released by the upstream Thurmond Dam. However, the new flashboards should help keep the pool elevation more stable. Bill A. said that if they raise the lower level of the range, it pushes the upper level over the top of the



flashboards; tripping the flashboards more frequently and would create a maintenance issue. Resetting the flashboards also requires the reservoir to be lowered. Bill A. asked John if there is a time of the year when he would like to see the reservoir level higher. He said that he would like to see the reservoir higher all year, but especially so in the spring and summer. Ray said they could speak with plant management about what impact this would have on the Project. Alison said that this will be a good point to discuss further in the Operations Resource Conservation Group (RCG). John also asked if there is a correlation between the height of USGS Gage 02195520 Savannah River near Evans, GA and the elevation of USGS Gage 02196483 Savannah River at Stevens Creek Dam near Morgana, SC. DESC will look into this and determine if a correlation exists. If so, they will provide a document showing the comparison. Ron asked that Table 3-2 on page 3-8 be revised to show megawatts converted to cubic feet per second.

Fish Passage

Tonya said that it is very important to her organization that fish passage is addressed in the PAD. Alison assured her that fish passage will be addressed during the relicensing process and discussion of fish passage requirements under the existing license and relicensing consultation needs will be included in the PAD. Twyla stated that sturgeon are not being considered for passage at Stevens Creek.

<u>Tribal</u>

Elizabeth T. asked that Section 4.9.3 (page 4-90) be revised to state that the Cherokee Nation will be consulted anytime the State Historic Preservation Offices (SHPOs) are consulted. She also noted that formal consultation only occurs with federally-recognized tribes, such as the Cherokee Nation. State-recognized tribes can participate in the relicensing process as interested parties.

Land Management

Derrick asked if there was a Shoreline Management Plan (SMP) for the Project. Alison said that there is not since docks are currently permitted through the USACE and since DESC doesn't own large tracts of land around the reservoir. She said that the Final License Application will summarize DESC's land management practices. Ron said that since there isn't an SMP, it is important from a resource management perspective that Environmentally Sensitive Areas (ESAs) are identified and protected. He would like to see ESAs identified during this relicensing and protected from development.

Water Resources

The group discussed water quality in the Project area. Paula noted that there was additional, potentially more up-to-date information available from the EPA via their National Rivers and Streams assessment. Ed suggested collecting data further upstream Stevens Creek to characterize fish habitat in this area (specifically above Woodlawn Road, or the current Site 5 location). He said this is increasingly important considering the implementation of fish passage in the coming years. At a previous meeting, Pace Wilber (NMFS) said there is interest in collecting water quality data in the Project tailrace, such as continuous sampling for temperature and dissolved oxygen. Kleinschmidt will develop a water quality study plan strawman for discussion with the Water Quality RCG. Tonya will send information on the low head dams that exist on Stevens Creek. She also mentioned that a USGS gage around the bridge at Woodlawn Road would be helpful.



Fisheries

The group discussed fisheries in the Project area. A fisheries report completed by Jason Bettinger (SCDNR) became available after the draft PAD was prepared. The PAD will be updated with information from this report. Ed will provide additional fisheries information and Paula will provide updated robust redhorse information. Melanie said she will let us know if any additional information is needed regarding mussels.

Wildlife

Ron mentioned that additional information on ducks and local birds in the area is needed in the PAD. He suggested Phinizy Center as a potential source.

<u>RTE</u>

Alison suggested that DESC/Kleinschmidt develop an RTE whitepaper to identify potential RTE species in the Project area and to help guide ESA discussions. Melanie agreed that this would be helpful. Derrick said that he could get the forest biologist to review the whitepaper and provide comments. Twyla said that sturgeon should not be an issue at Stevens Creek. Tonya said that wood stork and swallow-tailed kite should be considered. Paula suggested creating one table in the PAD that lists all species and identify which are state or federally-protected.

Recreation

Alison said that a recreation study is likely needed at the Project. The group agreed. Derrick gave the group some background on the Mims site and explained that this site does not need to be included in the recreation study because it is no longer supported by USFS. USFS is requesting that DESC remove this site from their current license recreation plan and that no additional time or effort should be invested in this site. Bill A. said that DESC is going to send an email to stakeholders about removing Mims from their current license. There are no plans for a replacement recreation site because the site would be on USFS land and the USFS is unable to financially support additional recreation sites at this time, as it is not in-line with their Sustainable Recreation Strategy. Instead, the USFS will focus on improving the Fury's Ferry site. The group discussed the poor condition of the boat ramp at Betty's Branch. DESC has a MOA with Columbia County that states the county is responsible for maintenance. This will be clarified in the PAD. Georgia DNR stated that they would like to see opportunities for recreational development explored further upstream in Stevens Creek. Kleinschmidt will develop a draft recreation use and needs study plan to discuss with the Recreation RCG. Survey instruments will be developed in consultation with stakeholders. The recreation site inventory will account for ADA/barrier-free amenities. Informal recreation areas will be documented and land ownership will be identified. The recreation study will also include analysis on bank fishing. Tonya suggested looking into how to make the recreation sites part of the Blueway Trail so that they are advertised to the public. Tonya will send information on the Blueway Trail.

Geology/Soils

Tonya asked if sedimentation in the reservoir can be addressed during relicensing. She suggested focusing on the sedimentation issue at Betty's Branch. Henry suggested looking at Google Maps history to see how sediment may have filled in the reservoir. Erosion studies are completed annually around the reservoir by DESC. Bill A asked if they knew where the sediment was coming from. John H noted it was from new neighborhood developments and the lack of county enforcing their sediment control measures.



Action items from the meeting are listed below.

ACTION ITEMS:

- Kleinschmidt will make edits to the PAD as discussed in the meeting.
- Kleinschmidt/DESC will develop the following draft study plans/whitepapers and distribute to stakeholders for review:

o Water Quality Study

o Recreation Use and Needs Study

o Environmentally Sensitive Areas Study

o RTE Whitepaper

- DESC will look into the possibility of raising the reservoir range minimums.
- DESC/Kleinschmidt will determine if there is a correlation between the two USGS gages, and if so, will provide a document for the stakeholders.
- Kleinschmidt will distribute the Jason Bettinger fisheries report to stakeholders.
- Tonya will provide information on low head dams on Stevens Creek.
- Tonya will provide information on the Blueway Trail.
- Ed will provide fisheries data and Paula will provide Robust Redhorse information.
- Melanie will let the group know if additional information is needed for mussels.

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

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.



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

October 2019

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:



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October 2019

STEVENS CREEK HYDROELECTRIC PROJECT (FERC NO. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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October 2019

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 <u>RMs-miles</u> 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.

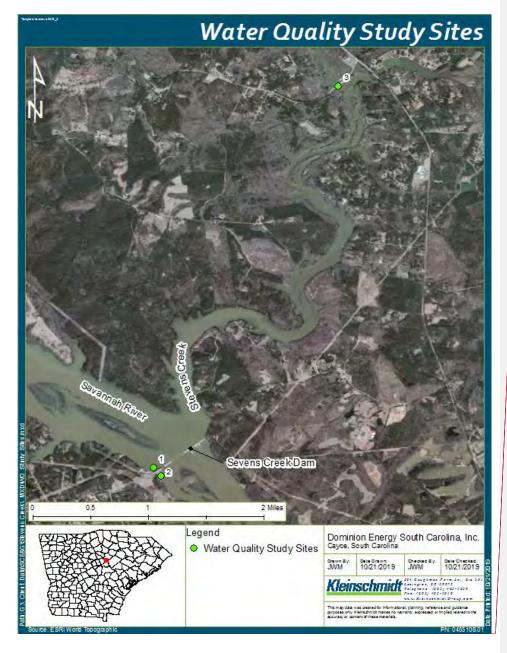
2.0 STUDY OBJECTIVE

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.



1

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.

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

Dominion Energy South Carolina, Inc. Recreation and Lake and Land Management RCG Meeting

November 13, 2019

Final KMK 1-8-2020

ATTENDEES:

Amy Bresnahan (DESC) Ray Ammarell (DESC) Randy Mahan (DESC) Caleb Gaston (DESC) Alison Jakupca (Kleinschmidt) Kelly Kirven (Kleinschmidt) Henry Mealing (Kleinschmidt) Jason Moak (Kleinschmidt) Jordan Johnson (Kleinschmidt) Elizabeth Miller (SCDNR) Chris Thomason (SCDNR) Jason Bettinger (SCDNR) Paula Marcinek (GDNR) Ed Betross (GDNR) Keith Whalen (US Forest Service) Derrick Miller (US Forest Service) Tonya Bonitatibus (SRK) Tony Hicks (homeowner)

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 Recreation Study Plan and discuss any additional study needs. The draft Recreation Study Plan was distributed to stakeholders prior to the meeting and is attached to the end of these notes.

Alison provided a brief overview of the draft Recreation Study Plan. The objectives of the study are to characterize existing use of the Project recreation sites and identify additional recreation needs at the Project. Recreation sites included in the study are Betty's Branch, Chota Drive, Fury's Ferry and Stevens Creek Recreation Site. Data collection measures will include site inventories, spot counts, traffic counters and recreation user surveys. The study season will start September 1, 2020 and end September 6, 2021 (Labor Day).

A summary of the major discussion points from the meeting are listed below.

- Derrick said that the Forest Service collected recreation use data on Forest Service lands. He will provide that data to Kelly.
- Tonya suggested modifying the spot count form to differentiate between vehicles with boat trailers and vehicles with kayak trailers/roof racks.
- Tonya noted that recreators are accessing the Savannah River at the Savannah Rapids Pavilion and paddling upstream to the Stevens Creek Project tailrace. She would like to see a trail camera installed at the Columbia County operated Savannah Rapids Park site to estimate this use.



- The Forest Service wants to focus on data collection at Fury's Ferry versus Chota Drive, since Fury's Ferry is identified in their Sustainable Recreation Strategy as a priority site. Spot counts and surveys will be collected periodically at Chota Drive. In addition, trail cameras will be installed at both Fury's Ferry and Chota Drive to get an idea of the type of use at these sites and to capture use during waterfowl hunting season at Fury's Ferry.
- The sampling window will be extended to occur from 7:00 AM to 8:00 PM to catch bank fisherman in the evenings.
- The Recreation User Survey will be modified to ask for a primary language, if the respondent does not speak English.
- A question will be added to the Recreation User Survey to identify target species for fishing/hunting.
- Additional activities will be added to the table in Question 3 of the Recreation User Survey, including Jet-Skiing, diving/scuba, bow-fishing/spear-fishing.
- Questions referencing recreation on islands on the Recreation User Survey will be modified to say "on or near" the islands.
- A map of the Project vicinity will be included for reference regarding Question 8 of the Recreation User Survey.
- Kleinschmidt will develop a draft sampling plan and distribute to the RCG for review.

Action items from the meeting are listed below.

ACTION ITEMS:

- Kleinschmidt will incorporate edits to the draft Recreation Study Plan, Recreation User Survey, and Spot Count form and send back to RCG for review and comment.
- Kleinschmidt will develop a draft sampling plan and distribute to the RCG for review.
- Derrick will send Forest Service recreation data to Kelly.



STEVENS CREEK HYDROELECTRIC PROJECT (FERC NO. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt

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October 2019

Stevens Creek Hydroelectric Project (FERC No. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:



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October 2019

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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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 J. Strom Thurmond Dam. The Project occupies approximately 104 acres of federal lands within the Sumter National Forest, with three existing Project recreation sites located on federal land and managed through agreement with the U.S. Forest Service (Forest Service).

2.0 PURPOSE OF THE STUDY

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 Recreation and Land Management Resource Conservation Group (RCG), with interested stakeholders to address Project issues related to recreation and land management. The RCG determined there was a need for a recreation study at the Project.

DESC is proposing to perform an assessment of existing and future recreational use, opportunities, and needs for the Project. The assessment is designed to provide information pertinent to the current and future availability and adequacy of DESC-owned and managed

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recreation sites, Forest Service owned and managed recreation sites, and Columbia County, Georgia owned and managed recreation sites at the Project. The overall study plan objective is to identify current and potential recreation opportunities, use, and needs at the Project by addressing the specific goals and objectives listed below. Results from the study will be used to develop a new Recreation Management Plan (RMP) for the Project.

<u>Goal 1</u>: Characterize the existing use of recreation sites at the Project. This will be accomplished by meeting the following objectives:

- i. Identify recreation sites; inventory the services and facilities offered; and assess the general condition of each site (including whether the site provides barrier free access).
- ii. Identify patterns of use at each site (type, volume, and daily patterns of use).
- iii. Assess existing recreation sites located on federal land for consistency with Forest Service Sustainable Recreation Strategy.

<u>Goal 2</u>: Identify future needs relating to public recreation sites at the Project. This will be accomplished by meeting the following objectives:

- i. Identify existing user needs and preferences, including perceptions of crowding at recreation sites.
- ii. Estimate future recreation use of existing recreation sites.
- iii. Identify future needs for new recreation sites and facilities.

3.0 STUDY AREA

Recreation sites at the Project that will be included in this study are listed in Table 3-1 and shown in Figure 3-1.

RECREATION SITE NAME	RECREATION SITE NAME AS LISTED IN 2014 RECREATION PLAN	RECREATION SITE NAME AS LISTED IN 1995 PROJECT LICENSE/EXHIBIT G DRAWINGS	RECREATION SITE OWNER/ MANAGER
Stevens Creek	SC Recreation Site #1	Stevens Creek Recreation Site	DESC
Recreation Site			
Fury's Ferry	SC Recreation Site #2	Fury's Ferry Recreation Site	Forest Service
Recreation Site			
Chota Drive	SC Recreation Site #4	Recreation Site #2	Forest Service
Recreation Site			
Betty's Branch/	SC Recreation Site #5	GA Recreation Site	Columbia
Riverside Park			County, GA

 TABLE 3-1
 EXISTING PROJECT RECREATION SITES AT THE STEVENS CREEK PROJECT¹

Source: SCE&G 2014

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¹ The 2014 Recreation Management Plan (RMP) includes an additional recreation site – Stevens Creek Recreation Site #3 (also known as Recreation Site #1 or the Mims Recreation Site). This site is located on Forest Service property and is maintained by the Forest Service. The Forest Service has decided that this recreation site is not in line with their Sustainable Recreation Strategy and will no longer be supported by the Forest Service. The Forest Service has asked that this site be removed from the RMP and therefore not be studied during relicensing.



FIGURE 3-1 STEVENS CREEK PROJECT RECREATION SITES

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4.0 STUDY SEASON

Generally, the study season will last for one year, beginning on September 1, 2020 and ending on September 6 (Labor Day), 2021. During this time, traffic counters will be deployed at all four recreation sites, collecting continuous data for one full year. Within this general study season, recreation user surveys and spot counts will be collected during the peak recreation season, from April 1, 2021 through Labor Day weekend or September 6, 2021.

5.0 DATA COLLECTION METHODS

A variety of data collection techniques will be used to obtain the information necessary to meet the study objectives and goals listed in Section 2.0. Both primary and secondary data will be collected. Primary data will entail site inventories, spot counts, traffic counter data, and recreation user surveys. Primary data will be collected at each site as shown in Table 5-1.

	DATA COLLECTION METHOD			
RECREATION	SITE	SPOT COUNT	TRAFFIC	RECREATION
SITE	INVENTORY		COUNTER DATA	USER SURVEYS
Stevens Creek	*	*	*	*
Recreation Site				
Fury's Ferry	*	*	*	Denie die?
Recreation Site				Periodic ²
Chota Drive	*	$D \rightarrow t$	*	
Recreation Site		<u>Periodic</u>	···	Periodic
Betty's Branch/	*	*	*	*
Riverside Park	*	*	Ť	*

 TABLE 5-1
 DATA COLLECTION METHODS AT STEVENS CREEK RECREATION SITES

Commented [AJ1]: Game camera at chota; game camera at

Formatted: Font: Italic

Secondary data will include U.S. Bureau of Census data, the South Carolina Statewide Comprehensive Outdoor Recreation Plan (SCORP), SC Recreation Participation & Preference Study, and other relevant, readily available literature. Additional input will be solicited from the RCG, Columbia County, and Forest Service. Table 5-2 summarizes the study objectives,

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² Recreation user surveys will be administered at Fury's Ferry and Chota Drive if recreation users are present during spot counts and/or traffic counter data download events.

information needed to meet these objectives, and sources for information. Sections 5.1 through 5.4 summarize the primary data collection methods.

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TABLE 5-2 RECREATION USE AND NEEDS STUDY PLAN OBJECTIVES AND EFFORTS

OBJECTIVES	INFORMATION NEEDED	SOURCE		
Goal 1: Characterize existing recreational use of Project recreation sites				
Goal 1a: Identify formal recreation sites, inventory the services and facilities offered at each, and assess the general condition and ADA compliance of each site	 Physical inventory of all facilities at each recreation site General assessment of site condition to include maintenance, basic rehabilitation needs, etc. Visitors' assessment of site conditions Identification of activities that occur at each site Barrier free/ADA compliance assessment 	 Recreation Site Inventory Recreation User Surveys 		
Goal lb: Identify the patterns of use at each site (type, volume, and daily patterns of use)	 Utilize vehicle counts as an estimation of people Estimate of # people/vehicle Estimate of # vehicles/site Parking capacity 	 Traffic Counter Data Spot Count Data Recreation User Surveys - # of people per vehicle and length of visit Recreation Site Inventory - # of parking spaces Columbia County/USFS data, if available 		
Goal 1c: Assess existing recreation sites located on federal land for consistency with Forest Service Sustainable Recreation Strategy.	Results from Goal 1a and Goal 1b for recreation sites located on federal land	 Forest Service input Forest Service Sustainable Recreation Strategy 		

OBJECTIVES	INFORMATION NEEDED	SOURCE		
Goal 2: Identify future recreational needs at the Project				
Goal 2a: Identify existing user needs and preferences, including perceptions of crowding at Project recreation sites	 User preferences and opinions of needs and crowding at sites Condition assessment 	Recreation User SurveysRecreation Site Inventory		
Goal 2b: Estimate future recreation use of existing Project recreation sites	 Inventory and use data Population projections for the project area Recreational use trends 	 Results of Goal 1 U.S. Bureau of Census Data SC Division of Research & Statistics (Budget and Control Board) 		

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		SCORP, SC Recreation Participation & Preference Study, or other readily available literature
Goal 2c: Identify future needs for new recreation sites and/or facilities	 Estimate of future recreation use at the Project Parking capacity at recreation sites vs. existing and projected use density Condition/perception assessment 	 Results of Goal 1a, 1b, 2a, 2b, Columbia County, USFS, and RCG input on future needs

5.1 RECREATION SITE INVENTORY

Prior to completion of a recreation site inventory, GPS points and land area of each recreation site will be collected and recorded. Then a recreation site inventory will be completed for each recreation site included in Table 3-1. A site visit will be made to collect data on the type, number, and size of facilities (restrooms, parking areas, boat ramps, picnic shelters and tables, etc.) located at each site. The general condition of all recreation facilities will be noted during the inventory. In addition, any facilities that qualify as barrier free will be identified as such. A copy of the inventory form is provided in Appendix A.

Upon completion of the inventory, all data will be uploaded into an Excel database. The database will be structured so that it can be used in a variety of formats (brochure, maps, web pages, etc.) and can be updated as recreation sites are modified, added, or changed in any way.

5.2 TRAFFIC COUNTS

Traffic counters will be installed at all recreation sites included in Table 3-1 to record the number of vehicles that enter and exit the public recreation areas. Traffic count data will be collected for one year in order to capture use during the various seasons. Traffic counter data will be downloaded from the counter at a minimum of twice per month to ensure the counter is working properly and to minimize the potential for lost data.

5.3 RECREATION USER SURVEYS

The preferences and perceptions of people using Project recreation sites weigh heavily into the determination of need for recreation site improvements and/or new recreation sites. Information from recreation site users will be collected through on-site surveys. Surveys will be conducted at recreation sites as shown in Table 5-1. Surveys may be collected at Chota Drive Recreation Site and Fury's Ferry Recreation Site when spot counts are completed and traffic counter data is downloaded. However, a recreation clerk will not be stationed at these sites.

Surveys will be administered to recreation site users at the close of their recreation day³. Data collected will include user demographics, group size, the type of land-based and water-based recreation activities individuals are participating in, length of stay, and perceptions of crowdedness and condition of recreation facilities at the Project. The data collected will be used to identify recreation use patterns and use estimates at the recreation sites. The data will also characterize user perceptions on crowdedness, which will be considered during the future needs analysis.

The survey will be pre-tested in the field prior to implementation and revisions will be incorporated, as necessary. If any significant revisions to the survey or study protocol are deemed necessary following field pre-testing, the RCG will be notified. A copy of the survey is provided in Appendix B.

Surveys will be administered during the peak recreation season from April 1 through Labor Day weekend, 2021. Each recreation site will be sampled according to a sampling plan that will be prepared in consultation with the RCG. Sampling days will include weekdays, weekends and peak use weekends⁴. The sampling plan will be developed using a stratified random sampling method, with weekends being sampled at a greater rate than weekdays to account for the heavier use that typically occurs on these days. During each sampling day, survey clerks will be on-site for a four-hour shift, collecting as many complete surveys as possible. The shifts will occur randomly throughout the day within the window of 7:00 AM to 78:00 PM. Shift start times will be listed in the sampling plan.

All survey clerks will be trained thoroughly as a means of quality control. Survey clerks will be provided with detailed information on the study schedule, appropriate materials to aid in data collection, and direction on appropriate interviewing techniques and attire. Interviewers will also be provided with an incentive for survey respondents to complete the survey.

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Commented [AJ2]: Change the shift to 8:00. Bank fisherman may be better captured during the week.

³ FERC defines a recreation day as a visit by a person to a development for recreational purposes during any portion of a 24-hour period.

⁴ FERC defined peak use weekends as weekends when recreation use is at its peak for the season (typically Memorial Day, Independence Day and Labor Day). All three days in a holiday weekend should be included.

5.4 SPOT COUNTS

Spot counts will be conducted at the recreation sites listed in Table 3-1 once per sampling day, prior to the start of survey collection. Spot counts will document the number of vehicles present at a recreation site at one moment in time. Information recorded during spot counts will include: date, time, and weather; number of vehicles and vehicles with trailer at recreation site; type of activities observed at the site; and state license plate data. Spot count data will be used in parallel with traffic counter data.

6.0 ANALYSIS

The following sections provide a description of the approach for estimating existing and future recreational use, recreation site capacity and use density percentages, and future recreation needs.

6.1 CURRENT RECREATION USE ESTIMATES

The reported estimates of recreation will be presented in "recreation days". The FERC defines a recreation day as one visit by a person to a development for purposes of recreation during any 24-hour period. The weekday, weekend, and peak weekend average recreation days will be calculated for each recreation site utilizing the traffic counters and recreation site survey data. The average number of people at each site within the morning and afternoon periods will be estimated within each day type and converted to a daily estimate. Daily estimates for each day type will be expanded to represent the study period and summed for a total estimate for each recreation site.

6.2 FUTURE RECREATION USE ESTIMATES

Estimated projections of future recreation use at the Project will be developed using the average annual increase in population growth over the past 10 years, as reported by the Census Bureau or the State Division of Research and Statistics, for Edgefield and McCormick counties, SC and Columbia County, GA. The estimates will be augmented with discussion of trends reported in the SCORP (2014) and the SC Recreation Participation & Preference Study (2005). Estimated

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projections will be provided in 5-year intervals for the anticipated term of the license up to 50 years into the future (through year 2075).

While it is acknowledged that future changes in the supply of recreation resources, either in their quantity, accessibility, and/or quality may influence future demand and use, the demand analysis undertaken for this study does not attempt to predict what these future changes might consist of or how they might specifically affect levels of use at Project facilities. Therefore, the demand analysis results should be viewed as a general guide of potential future recreation pressure developed for planning purposes only.

6.3 RECREATION SITE CAPACITY

For purposes of this study, the carrying capacity for a recreation site is defined as the number of vehicles and boat trailers that can be parked at a recreation site at one time, based on the number of available parking spaces associated with each site. For paved parking areas, this will be achieved by counting the number of designated parking spaces available at the recreation site. For gravel parking areas, the number of available parking spaces for each recreation site will be estimated by measuring the area (sq ft) available for parking and estimating the number of vehicles that could be parked at the location, if optimal space were utilized. These estimates will be based on parking capacity standards for vehicle length, width, and available turn around space.

6.4 RECREATION SITE USE DENSITY

The use density of recreation sites will be estimated by comparing the average observed number of vehicles at the sites on sampled weekday, weekend, and peak weekend days with the available parking capacity for each recreation site. The average observed number of vehicles divided by the parking capacity will provide an estimated use density for each site. The average number of vehicles at the site will be determined using spot count and traffic counter data.

6.5 RECREATION NEEDS ASSESSMENT

The need for recreation and site development or modification of existing recreation resources will be assessed based on the inventory, condition assessment results, parking capacity and use density assessment results, user survey results, and Forest Service consultation. The needs

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assessment will focus on the existing condition and user opinions of recreation sites, the presence of "barrier free" facilities at recreation sites, and the ability of sites to meet current and anticipated future recreation demand. Consideration will also be given to site opportunities and constraints, as well as support facilities such as signage and maintenance. The need for new recreation sites and/or facilities will be determined through assessment of the information collected and the input of stakeholders through the RCG and the Forest Service.

7.0 SCHEDULE

The proposed schedule for completion of the Recreation Use and Needs Study is as follows:

TASK	DATE
Installation of Traffic Counters	September 1, 2020
Mobilization for field work (includes field clerk hiring, training, etc.)	March 2021
User survey pre-testing	March 2021
User survey collection	April 1 - September 6, 2021
Data entry, cleaning, and processing	October 2021
Conduct analyses	November – December 2021
Submit draft report	January 2022
Determine if additional data collection is needed	February 2022 ⁵
Finalize report	March 2022

8.0 **REFERENCES**

- Federal Energy Regulatory Commission (FERC). 2018. 18 CFR Parts 8 and 141: Elimination of Form 80 and Revision of Regulations on Recreational Opportunities and Development at Licensed Hydropower Projects. Issued December 20, 2018.
- South Carolina Electric & Gas Company (SCE&G). 2014. Revised Recreation Plan: Stevens Creek Hydroelectric Project, FERC Project No. 2535. January 2014.

⁵ If additional data collection is required, data collection methods, results and analyses will be developed and assessed in cooperation with the RCG and will be provided in an addendum to the report.

APPENDIX A

SITE INVENTORY FORM

APPENDIX B

RECREATION USER SURVEY

APPENDIX C

SPOT COUNT FORM

	Steve		ecreation User Surv ydroelectric Projec			
Clerk:	5	Site:	Date:	Time:	am/pm	
Weather: RESPONDE	Sunny ENT GENDER:	Partly Clo Male		□ Light Rain ENT REFUSED INTER	☐ Heavy Rain VIEW: □	
NUMBER O	OF PEOPLE IN VE	EHICLE:	RESPOND	ENT DOES NOT SPEA		Commented [AJ1]: Ask for primary language -
	IAS A BOAT TRA			ENT IS NOT 18 YEARS		Commenced port. Ask for printary tanguage
RESPONDE	ENT HAS BEEN I	NTERVIEWED	AT THIS SITE PREVIO			
THE	E FIRST FEW	QUESTIONS	S ASK ABOUT YOU	R EXPERIENCE HI	ERE TODAY	Commented [AJ2]: Add a question regarding target
1. Incl		how mony	people are in your pa	arty today? (Fill in h	lonk)	species that they are fishing/hunting for.
	adding yourself	, now many people in			iani.,	
			purty			
. Wh	nat time did you	arrive at thi	s recreation site toda	y? (Fill in blank.)		
		am	/ pm			
site <i>coli</i> Wh	e? (Please read lumn.)	d the list to re ies did you p	a activity that you par espondents. Check o participate in today at	only one main activ	ity in the first	
app	Check only	Check all				
	one main	other				
	activity	activities				
			Types of Activities			
			Types of Activities FISHING:			
			FISHING: boat fishing			
			FISHING: boat fishing pier/dock fishing			
			FISHING: boat fishing pier/dock fishing bank fishing			
			FISHING: boat fishing pier/dock fishing bank fishing BOATING:			Commented [AJ3]: Add Jet ski, diving/scuba, bow
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating			Commented [AJ3]: Add Jet ski, diving/scuba, bow fishing/spear fishing
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo			
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin			
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding			
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER:			
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling	9		
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca	9		
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca horseback riding	g		
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca horseback riding walking/hiking/ba	g		
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca horseback riding walking/hiking/ba	g		
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca horseback riding walking/hiking/ba sightseeing hunting	g mping ckpacking		
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca horseback riding walking/hiking/ba sightseeing hunting nature study/wild	g mping ckpacking	graphy	
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca horseback riding walking/hiking/ba sightseeing hunting nature study/wild swimming	g mping ckpacking	graphy	
			FISHING: boat fishing pier/dock fishing bank fishing BOATING: motor boating pontoon/party bo canoeing/kayakin paddle-boarding OTHER: bicycling tent or vehicle ca horseback riding walking/hiking/ba sightseeing hunting nature study/wild	g mping ckpacking	graphy	

Check only	Check all	
<u>one</u> main	other	
activity	activities	Types of Activities
		other:
		None

4. Did you spend any time on the water today? (Check one box.)

- □ YES
 □ NO (If no, skip to Question 6.)
- 5A. Did you recreate on or near any of the islands today?

YES NO (If no, skip to Question 6.)

5B. What activities did you participate in **while on/<u>near</u> the island(s)**? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

		-
walking/hiking		sightseeing
swimming		picnicking
)	
 	0 0	

6. On a scale from 1 to 5, with 1 being light, 3 being moderate, and 5 being heavy, how would you rate the crowdedness *at this recreation site* today? (*Circle one number.*)

Light		Moderate			
1	2	3	4	5	

7A. On a scale from 1 to 5, with 1 being poor and 5 being excellent, how would you rate the overall condition **of this recreation site** today? (*Circle one number.*)

Poor				Exce	llent
1	2	3	4	5	

7B. Are there any additional facilities needed at this recreation site? (Check one box.)

YES	
NO	(If no, skip to Question 8.)

7C. What do you recommend? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

	□ access road	bank fishing area	boat dock	
	boat launch	□ camping area	□ fish cleaning station	
	□ fishing pier/dock	□ lighting	parking lot	
	D picnic tables/shelter		□ signs & information	
	□ swimming area	□ trails	□ trash cans	
	□ RV camping	□ tent camping	bilingual signs & information	
	□ other (please specify	<u>.</u>)	
7D. 7E.	□ YES □ NO	ements that you would recom (If no, skip to Question 8.) a recommend? (Fill in the bla		
8.	What other lakes do you re	create at? (Fill in blank.)		Commented [AJ4]: May want to edit this question. Or include a map of the area where people pinpoint the spots that they use.
9.	What is your zip code?			
10.	In what year were you born	?		
11.	Do you have any additional site? (<i>Please fill in blank a</i>	comments about the recreat	ion <mark>facilities</mark> at this recreation)	Commented [AJ5]: Or lack thereof

THANK YOU FOR YOUR HELP! WE APPRECIATE YOUR TIME TODAY!

4

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

Dominion Energy South Carolina, Inc. Operations RCG Meeting

December 4, 2019

Final KMK 1-8-2020

ATTENDEES:

Amy Bresnahan (DESC) Ray Ammarell (DESC) Randy Mahan (DESC) Caleb Gaston (DESC) Trey Brock (DESC) Alison Jakupca (Kleinschmidt) Kelly Kirven (Kleinschmidt) Henry Mealing (Kleinschmidt) Bret Hoffman (Kleinschmidt) Jay Payne (GDNR) Paula Marcinek (GDNR) via conf. call Elizabeth Miller (SCDNR) Rusty Wenerick (SCDHEC) Melanie Olds (USFWS) via conf. call Twyla Cheatwood (NMFS) via conf. call Andy Herndon (NMFS) via conf. call Stan Simpson (USACE) Kat Feingold (USACE) Derrick Miller (USFS) via conf. call Tonya Bonitatibus (SRK) via conf. call Tony Hicks (individual)

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.

Kat Feingold and Stan Simpson prepared a presentation for the Operations RCG detailing water management within the USACE Savannah District. The presentation is attached to the end of these notes. Following the presentation, Kat and Stan answered questions from the RCG. This discussion is summarized in the following paragraphs.

Tonya asked if the USGS gages available in the Stevens Creek area provide enough information for USACE, or do they need additional gages. Stan said that there are several gages that they currently use, including the USGS 02196000 Stevens Creek near Modoc, SC gage. He said that additional gages would be great, but they come with an associated cost. Amy added that there was a USGS gage right below the Stevens Creek powerhouse, but USGS couldn't get a confident rating curve so they removed it. Tonya added that she would like an additional gage installed on Stevens Creek below the Modoc gage to inform people recreating in the area about flows. It was mentioned that there is a new gage, USGS 021963601 Stevens Creek near Murphy Village SC, which is near the Hwy 53 (Woodlawn Road) Bridge. This gage is much closer than the Modoc gage.

Henry said that he has heard people ask if it's possible for USACE to change their operations. Stan said that theoretically they can run on a minimum flow, then operate solely for flood control and not to produce hydropower. USACE would also need to complete an Environmental Assessment prior to any operations changes. Stan said they would also continue to follow the drought plan. However, changes in operations would be outside of FERC control since the USACE is a separate federal agency. In addition, Stan stated that the process for changing operations would likely take

years and would need to be based on some valid environmental impacts and benefits that would be analyzed against the need for power.

Following discussion of USACE water management, Bret provided information on two USGS gages in the Stevens Creek Project area. At a previous meeting, a stakeholder asked how the readings at the USGS 02195520 Savannah River near Evans, GA gage and the USGS 02196483 Savannah River at Stevens Creek Dam near Morgana, SC gage relate. Bret said that the difference between the two gages is that the Evans gage provide gage height (in feet) and the Stevens Creek Dam gage provides elevation of reservoir water surface (in feet). The Evans gage is generally reflective of what's going on at the dam but with a time delay. In order to convert the gage height information at the Evans gage to elevation, 170 feet must be added to the gage height readings.

Prior to the close of the meeting, Stan and Kat said that they are open to hosting a site visit to Thurmond Dam for the Operations RCG. A doodle poll will be sent out in the next couple of months to help schedule the site visit for the spring of 2020.

Action items from the meeting are listed below.

ACTION ITEMS:

• Kleinschmidt will send out a doodle poll to schedule the Thurmond Dam site visit in spring 2020.



USACE SAVANNAH DISTRICT WATER MANAGEMENT 101

Savannah Water Managers

Stan Simpson

Kat Feingold



US Army Corps of Engineers BUILDING STRONG®

Savannah

DISTRICT

AGENDA

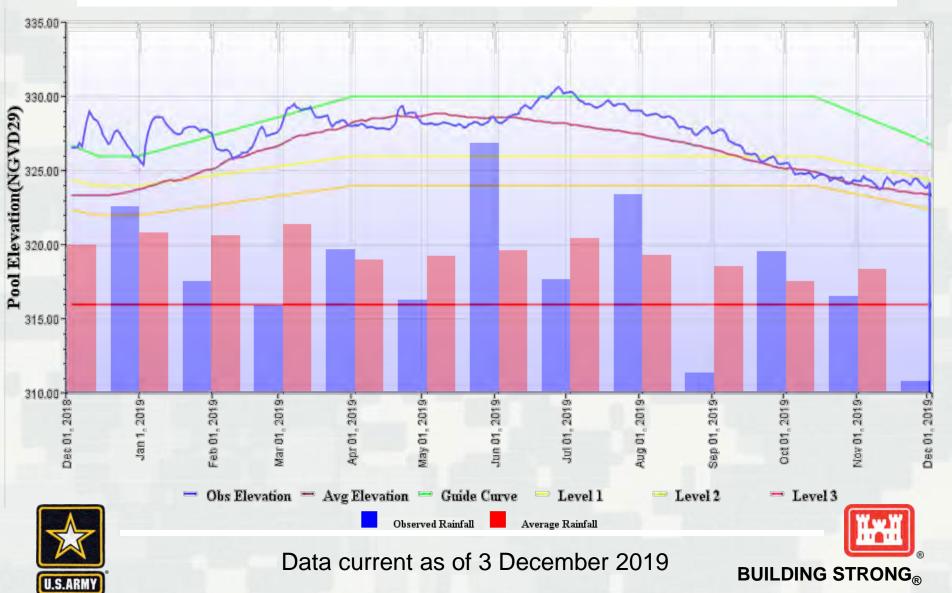
- Current Basin Status
- Water Management Overview
- Questions

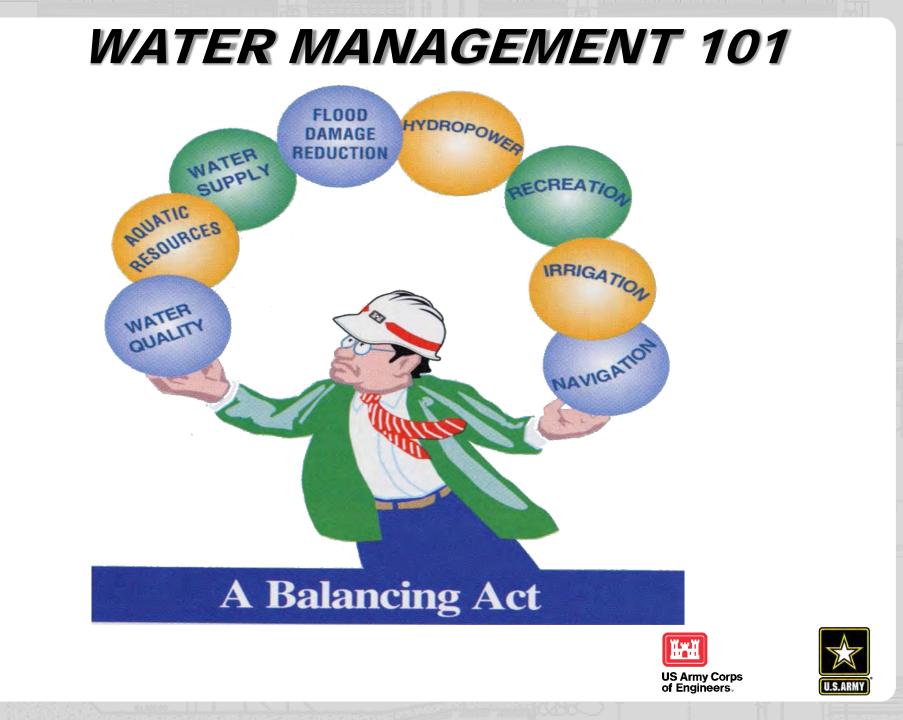




Past Year's Rainfall and Levels

Thurmond Reservoir Current Pool Elevation 323.95





J. STROM THURMOND PROJECT

- Completed in 1952
- 8th most-visited Corps project 5.0M Visitors/yr
- 71,100 acre water surface (330 ft-msl)
- Seven turbines capable of generating 364 MW
- 1,200 miles of shoreline
- 76 recreation sites







HARTWELL PROJECT

- Constructed in 1962
- 3rd most-visited Corps project 9.3 M Visitors/yr
- 56,000 acre water surface (660 ft-msl) 962-mile shoreline
- 5 Turbines with a 422 MW Generating capacity
- Largest shoreline management program in the Corps with 47,523 permitted activities







RICHARD B. RUSSELL PROJECT

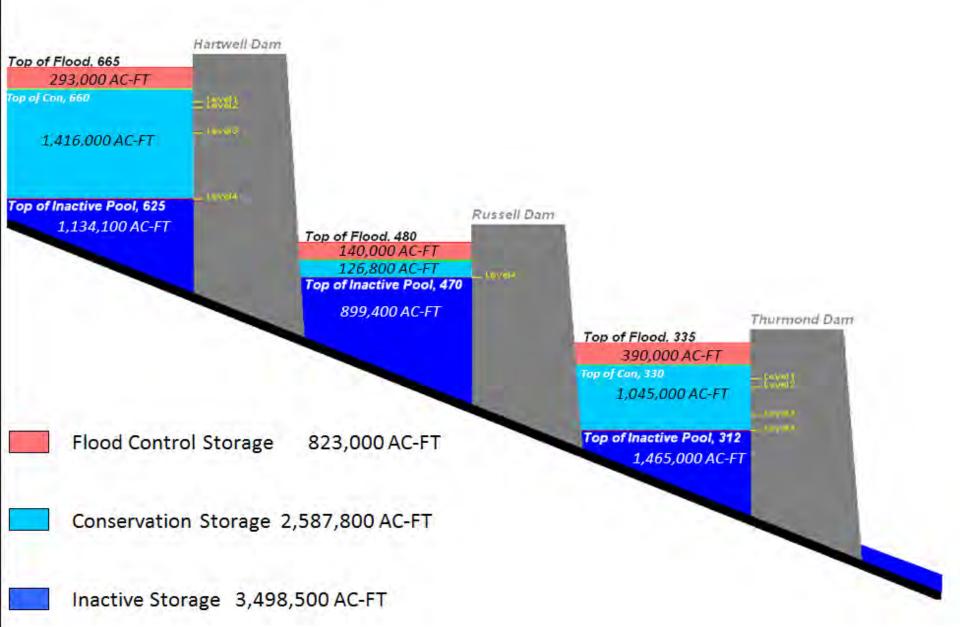
- Completed in 1984
- Largest Corps power plant east of Mississippi River
- 26,653 acre water surface (475 ft-msl) 540-mile shoreline
- Four conventional turbines 328 MW Generating Capacity
- Four pump turbines 320 MW Generating Capacity
- 27 recreation sites
- 4 state parks







POOL SCHEMATIC



DRAINAGE BASINS

25)

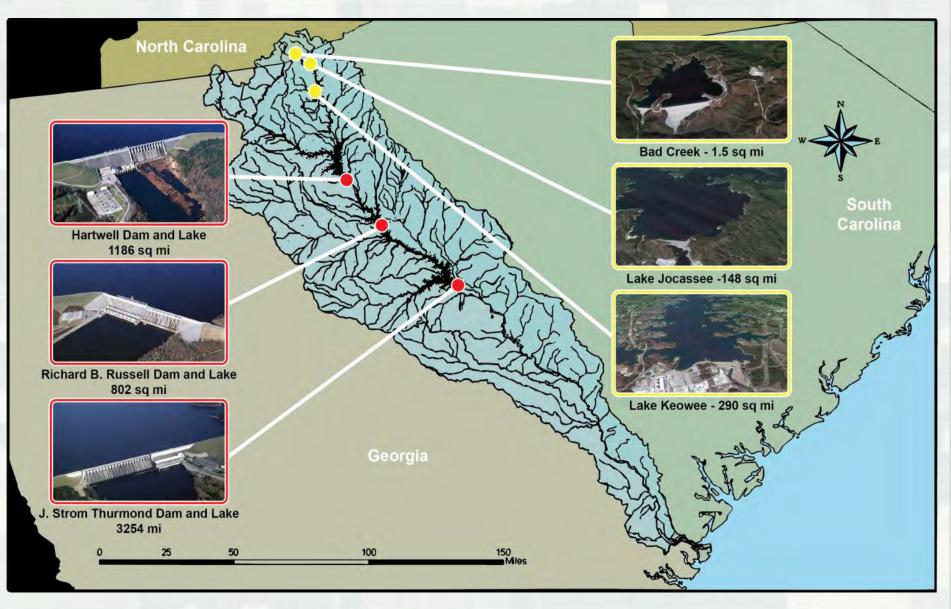
Athel

Hartwell = 1294 Square Miles (Local Basin)
1 in. Runoff = 34,799 cfs-days = 1.2 ft. @ 660.0
Russell = 802 Square Miles (Local Basin)
1 in. Runoff = 21,566 cfs-days = 1.5 ft. @ 475.0
Thurmond = 2890 Square Miles (Local Basin)
1 in. Runoff = 87,502 cfs-days = 2.2 ft. @ 330.0





MANAGED AS SYSTEM OF PROJECTS



Total Drainage Basin Area -10,580 sq miles

WATER MANAGEMENT OBJECTIVES

- Minimize Flood Damages and Loss of Life
- Provide Maximum Benefit to the Public

Flood Risk Management

Recreation

Hydro-Production

Fish and Wildlife Management

Water Supply

Water Quality

Navigation

- Balance Drought impacts to Project Purposes
- Follow USACE Environmental Operating Principles
- Adaptively Manage within Corps Authorities
- Educate the Public





WHAT IS ???

Induced Surcharge Storage (7-9 feet per project) (Last used Dec 2015)

 Additional flood storage that can be gained when gates are lifted above their closed position.

Flood Storage (5 feet per project)

- Used to temporarily store inflows from flood events

Conservation Storage (625 - 660) (470-475) (312-330)

- Water Supply
- Recreation
- Hydropower
- Navigation
- Water Quality
- Fish and Wildlife

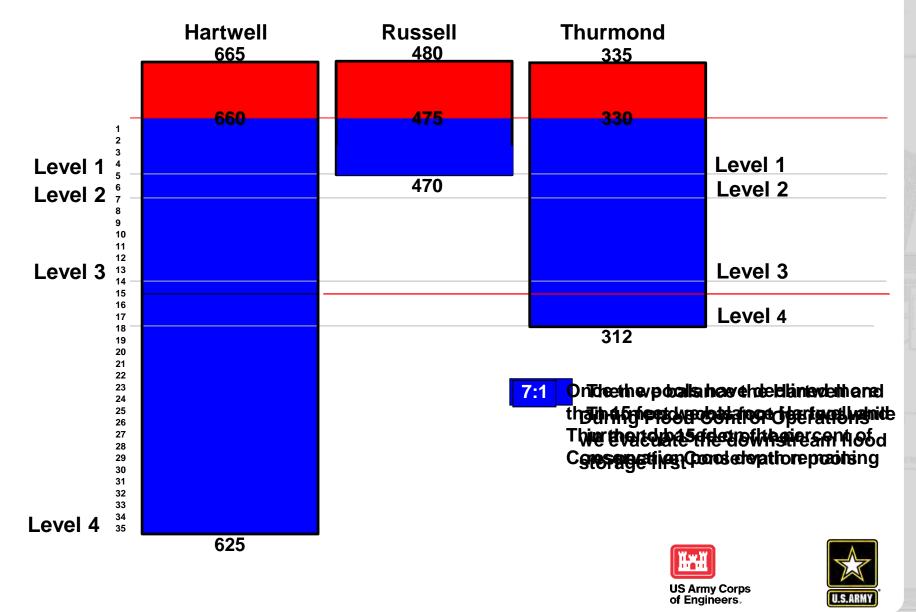
Inactive Storage (Bottom of Conservation Storage to streambed)

- All projects require some storage for the storage of sediment



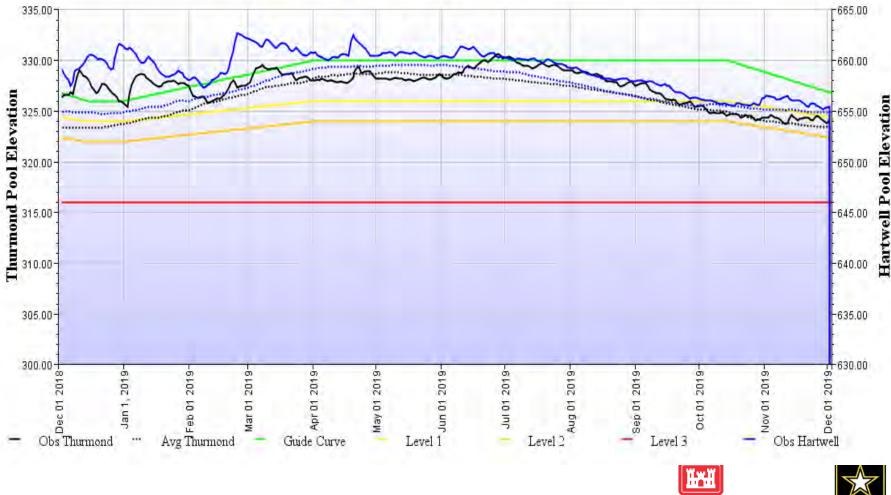


POOL BALANCING PROCEDURE



POOL BALANCING HARTWELL VS THURMOND

Elevation Comparison FT-MSL

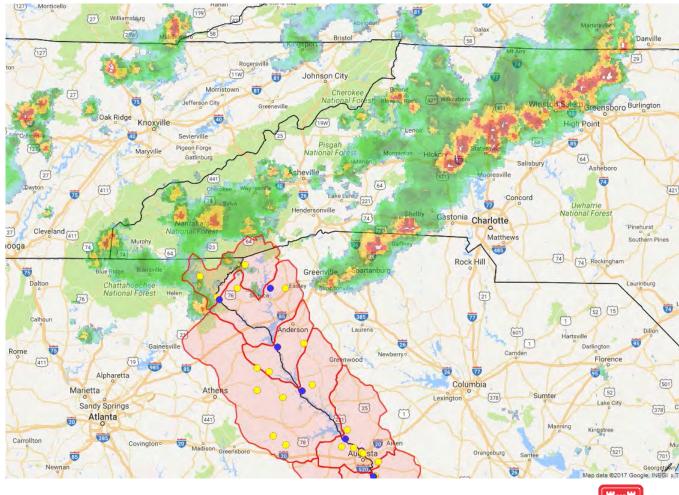


Data current as of 3 December 2019

US Army Corps of Engineers.

U.S.ARMY

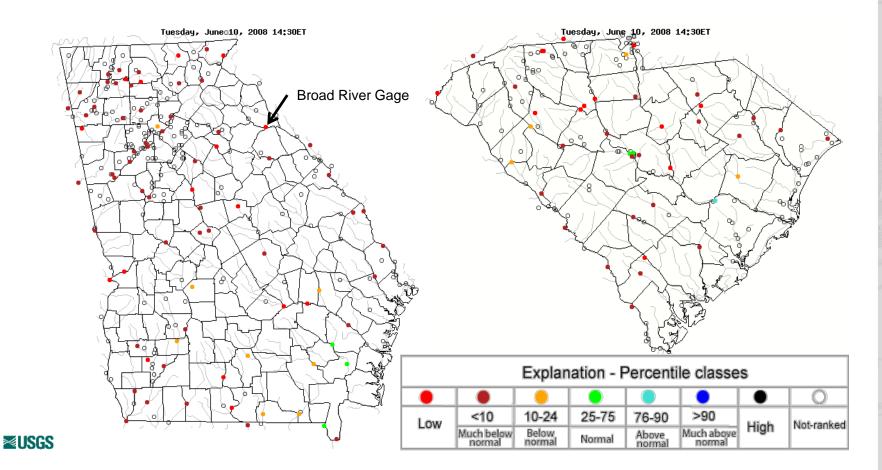
Data used to make our decisions







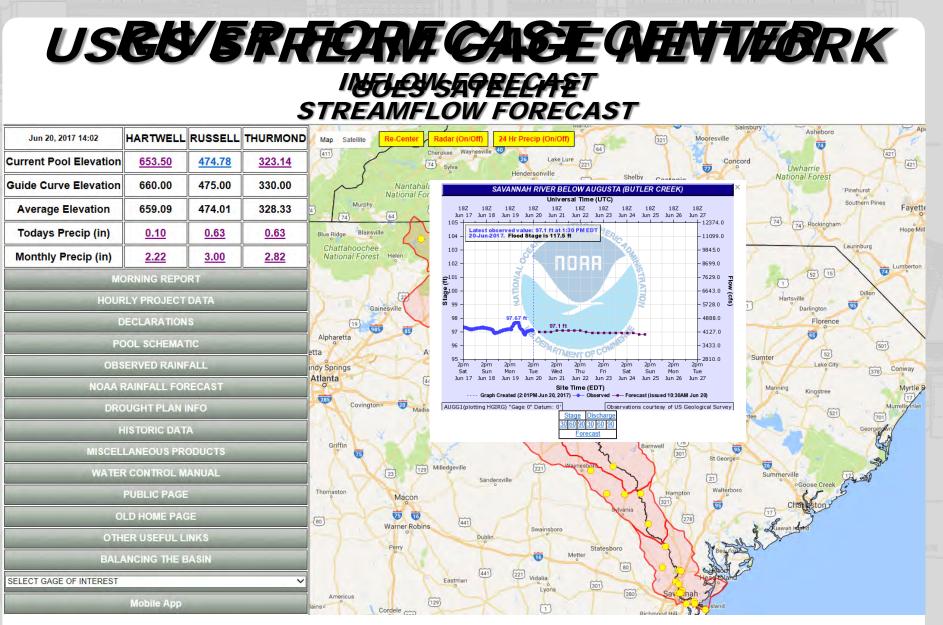
Stream Gage Networks





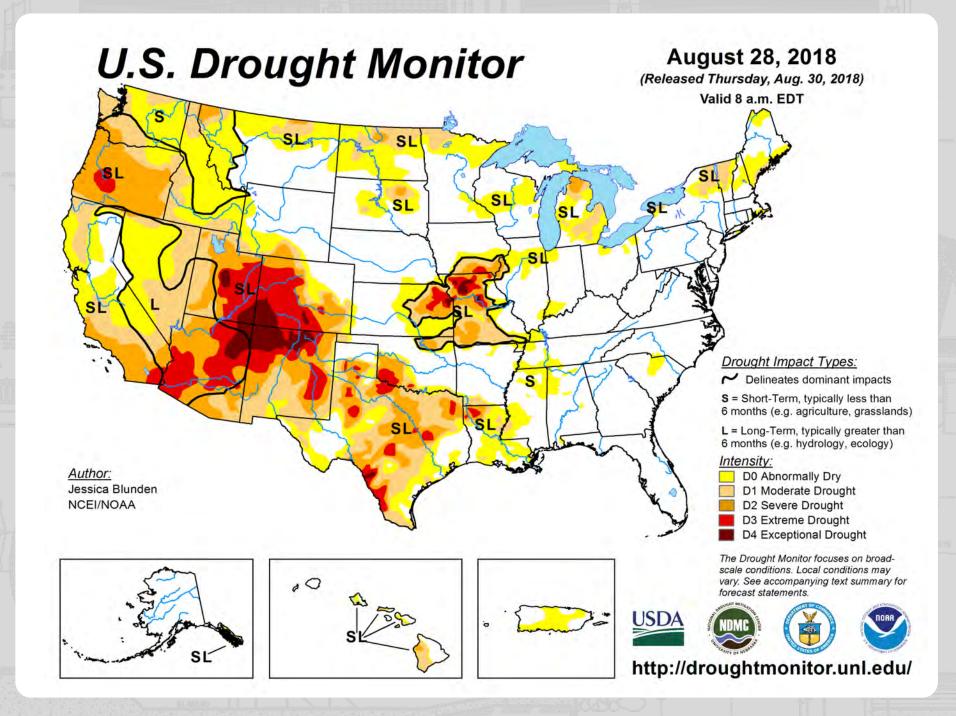


of Engineers.











Sty Collaborating AGENCIES









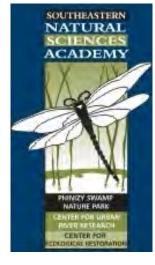


Protecting nature. Preserving life."





















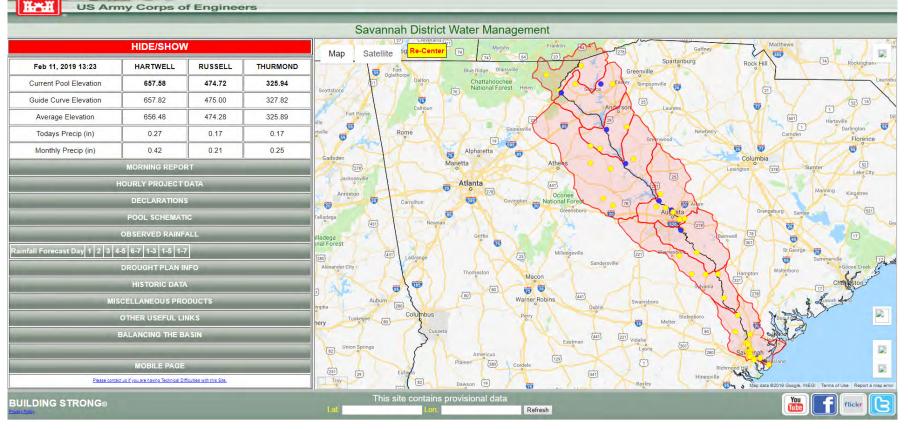


WATER MANAGEMENT WEB PAGE

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US Army Corps of Engineers





http://water.sas.usace.army.mil





MOBILE APPLICATION

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Contact Us

Feeds

USACE SAVANNAH

\leq			FORECAST
Lake Levels	Outflows	Rainfall	Rainfall Forecast
كى ا	كى ا	~	FORECAST
Hartwell Data	Russell Data	Thurmond Data	Streamflow Forecast
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Hartwell Projection	Russell Projection	Thurmond Projection	Savannah Gages

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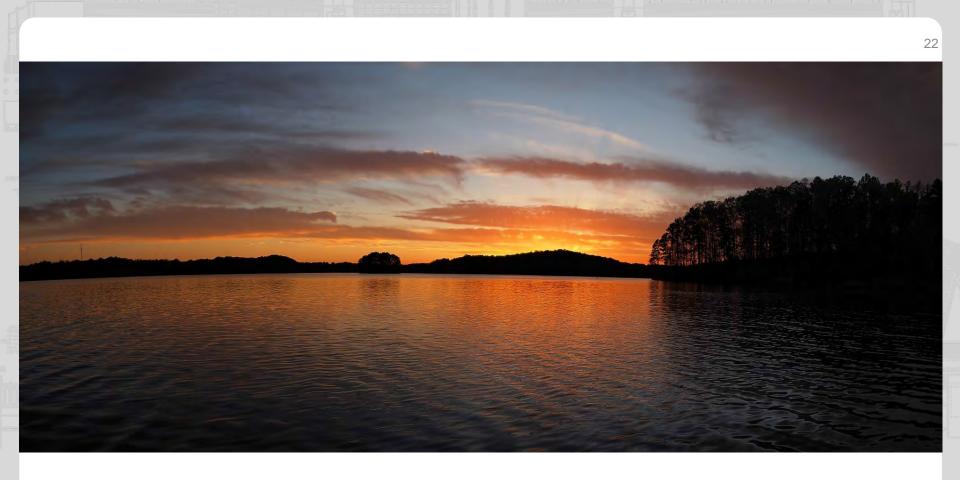
Facebook



http://water.sas.usace.army.mil/smart



of Engineers.



Questions?





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

Dominion Energy South Carolina, Inc. Joint RCG Meeting

February 18, 2020

Final KMK 3-25-20

ATTENDEES:

Amy Bresnahan (DESC) Ray Ammarell (DESC) Caleb Gaston (DESC) Randy Mahan (DESC) Alison Jakupca (Kleinschmidt) Kelly Kirven (Kleinschmidt) Henry Mealing (Kleinschmidt) Jason Moak (Kleinschmidt) Jordan Johnson (Kleinschmidt) Jay Payne (GWRD) Jeffrey Williams (GEPD) Cameron Henderson (SCDHEC) Elizabeth Miller (SCDNR) Jason Bettinger (SCDNR) Morgan Kern (SCDNR) Melanie Olds (USFWS) via conf. call Martha Zapata (USFWS) via conf. call Scott Glassmeyer (USFWS) via conf. call Derrick Miller (USFS) Keith Whalen (USFS) Andy Herndon (NMFS) via conf. call Twyla Cheatwood (NMFS) via conf. call Rachel Freeman (SRK) Tony Hicks (individual)

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 revised Water Quality Study Plan, draft Mussel Study Plan, Draft Rare, Threatened and Endangered Species Whitepaper, Aquatic Habitat Outline, and revised Recreation Study Plan. The draft documents discussed during the meeting are attached to the end of the notes. A summary of the discussion on each document is included below.

Revised Water Quality Study Plan

Alison provided a review of the revisions made to the Water Quality Study Plan stemming from discussion in the 11/13/2019 meeting.

- Two additional monitoring sites were added at the east end of the dam
- The study period was extended to last from January through December 2021
- Added continuous monitoring (15-minute intervals) for parameters including pH, conductivity, turbidity and monthly nutrient samples

Alison added that Kleinschmidt and DESC will go into the field prior to the start of the study to scope out the best locations for monitor installation. Jason M. said that since the reservoir fluctuates, the monitors will be attached to buoys and will be located at least 1 meter below the water surface, or mid-depth if possible. Sites will be recorded by GPS once selected.



Amy added that the USGS does monthly profiles and collects DO, temperature, pH and specific conductivity. This information will continue to be collected during the study season.

Jason B. asked if an additional site could be added in the Savannah River portion of the Stevens Creek reservoir, specifically in an area where the powerline crosses the reservoir. This area has a lot of vegetation and not much water flow. He would like to see DO and maybe pH collected during summer months for 24-48 hours on a twice-per-month or monthly basis (one sample in mid-June, 2 samples each in July and August spaced two weeks apart, and one sample in mid-October). This request will be considered and Kleinschmidt will confirm the location with Jason after the meeting.

Mussel Study Plan

A strawman for the Mussel Study Plan was distributed prior to the meeting. USFWS identified a general area that they would like to see mussel surveys completed. This area starts at the upstream extent of the Stevens Creek arm of the Project reservoir down to the Stevens Creek confluence with Horn Creek. USFWS believes this area may have the highest potential for mussels within the Project boundary. Keith said the Forest Service contracted a malacologist to complete mussel surveys in the upper Horn Creek area. He will send that information over to Kleinschmidt and DESC. Morgan asked that the approximately 1.5 miles of Horn Creek that are within the Project boundary be added to the study area in the study plan. Keith also suggested adding to the study area portions of Dry Branch and Cheves Creek that occur in the Project boundary. He said that these areas could potentially be accessed through Forest Service roads. These areas will be checked for suitable habitat in the transition zones but may not be added to the study if such habitat does not exist in the Project boundary.

Morgan said that SCDNR generally conducts a qualitative assessment first to determine if any mussels are present in an area and then conducts a quantitative assessment within a defined boundary to determine relative abundance. Morgan will share any SCDNR standard methods used to collect data.

Melanie asked about the potential for mussels downstream of the Stevens Creek Dam and if a study in this area is necessary. Henry said this area received full river flow so it is pretty scoured and a majority of the water that flows through is cold hypolimnetic water released from Thurmond Dam. He said this may not be good habitat for mussels. In addition, this area is actually the headpond for the Augusta Diversion Project and is outside of the Project boundary so priority should be placed on studying the identified areas within the Project boundary.

Keith asked if any tributaries on the Georgia side of the Savannah River provide any habitat for mussels. Henry said there is likely a lower chance for mussels on the Georgia side of the Stevens Creek reservoir because there is more residential build-up in this area, which has significantly affected the tributaries.

Jason M. suggested adding several level loggers in various portions of the mussel study area, especially in areas where mussels are detected. He said this will provide information on project influence and potential backwatering in this area.



Alison said that the study plan strawman will be revised with a new map of the study area and sent back to stakeholders for additional review in the next few days. She requested that comments be submitted by mid-March.

Rare, Threatened and Endangered (RTE) Species Whitepaper

Alison explained that the whitepaper includes a list of federal, Forest Service, and state (Georgia and South Carolina) RTE species that occur in the Project vicinity. The federal and Forest Service species were analyzed to determine if their habitat exists within the Project boundary and potentially affected by continued Project operations. Currently, the state species that were provided by the SCDNR and GDNR are only listed in the report. However, the DNRs can request that any of these species that may have cultural significance be analyzed. Ultimately, FERC will make a determination on Project effects and ask for concurrence with the USFWS.

Elizabeth asked that the conservation status for state-listed species be added to the whitepaper (highest, high and moderate priority levels).

The group was in general agreement that the RTE Whitepaper will be beneficial for analyzing various species of concern. Alison asked that comments from the stakeholders be submitted by mid-March.

Aquatic Habitat Outline

Alison said that there was discussion of preparing an aquatic habitat whitepaper/study at the 11/13/2019 meeting. Over the next few years, data will be collected during a variety of studies that will help describe aquatic habitat (substrates, water quality, species distributions, etc.) in the Stevens Creek reservoir. The data collected in each proposed study will be rolled into a comprehensive report that will be filed with the Final License Application (FLA). Kleinschmidt and DESC have put together an outline for this report that will be filed with the Pre-Application Document (PAD). This outline will be filled in with data as it becomes available during relicensing.

The group reviewed the outline and suggested the following additions:

- Additional discussion on effects of fluctuation zones
- USACE Thurmond Dam operations
- Updated USACE Drought Contingency Plan
- Stevens Creek Project operations information
- Environmentally Sensitive Areas identified during relicensing

Henry said that this document should be helpful during Section 7 -RTE consultation and Section 18 - fish passage consultation as needed. Elizabeth asked if this document will be used to develop a Shoreline Management Plan (SMP). Alison said that an SMP isn't well-suited to this Project because DESC owns very little shoreline around the reservoir and USACE controls dock permitting. The recreation areas and Project operations lands will be described in the FLA, but there isn't a need for a separate SMP. In addition, DESC doesn't have the opportunity to establish a buffer zone around the reservoir since they don't own much land, however, this Aquatic Habitat whitepaper can help inform those that might have control over a buffer zone (i.e. USACE or Forest



Service). A land ownership map is also under development and will be shared with stakeholders when complete.

Recreation Study Plan

The revised Recreation Study Plan was distributed to stakeholders for review prior to the meeting. The use of trail cameras for activity monitoring at the Fury's Ferry and Chota Drive recreation sites was discussed at a previous meeting and added into the study plan. However, Derrick said that since that time, an incident was brought to the Forest Service's attention that caused the Service to be wary of trail camera use. Keith and Derrick said that they can find out if trail camera placement further down the access road may be possible. If trail cameras can't be used at these sites, spot counts will be conducted by two people throughout the study season.

Keith also noted that there was discussion of adding questions to the surveys regarding use at Fury's Ferry and Chota Drive, since surveys would not be conducted at these sites during the study. Kelly said that these questions would be added to the survey form.

Alison said that the next meeting would be conducted via conference call to discuss the updates to the PAD. Alison said that the official start of relicensing occurs when the Notice of Intent (NOI) and PAD are filed with FERC, which will occur around May 2020. At this time, DESC will also request the use of the Traditional Licensing Process (TLP). DESC requested that stakeholders send in letters to FERC supporting the use of the TLP. FERC will decide on the TLP request by June 2020. The Joint Agency Meeting (JAM) and site visit will occur around August 2020.

Action items from this meeting are listed below. Comments on the study plans/whitepapers are requested by March 17, 2020.

ACTION ITEMS:

- Kleinschmidt will revise the Water Quality Study Plan, Mussel Study Plan, RTE Whitepaper, Aquatic Habitat Outline and Recreation Study Plan and send back out to stakeholders for review.
- Morgan will send information on SCDNR standard measures and procedures for mussel surveys.
- Keith will send information on Forest Service mussel studies near Horn Creek.
- Derrick will explore the Forest Service's position on using trail cameras on FS properties.



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

February 2020

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February 2020

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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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 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 four 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 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 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 January 1, 2021 and extend through December 31, 2021.

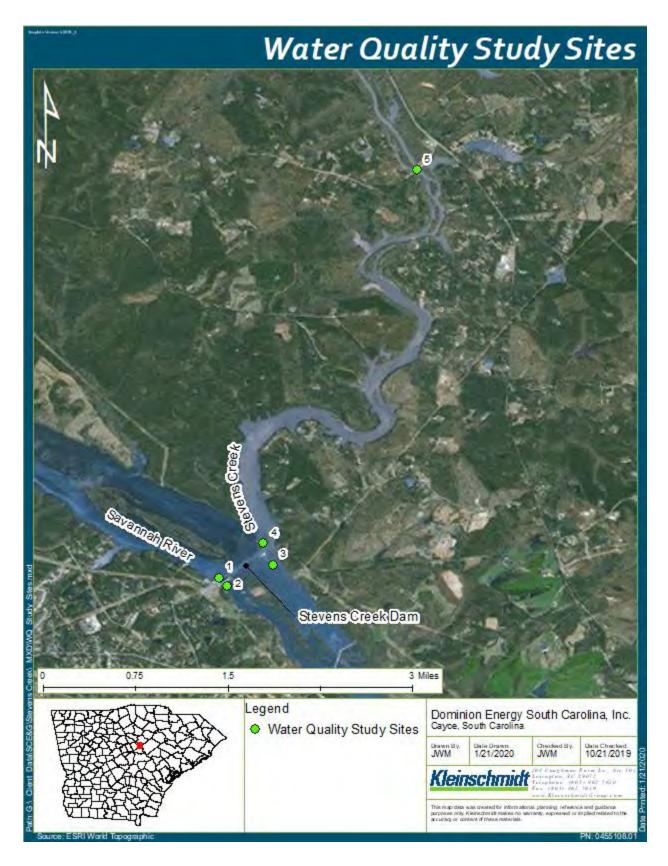


FIGURE 1 STEVENS CREEK HYDROELECTRIC PROJECT WATER QUALITY STUDY SITES

4.0 DATA COLLECTION METHODS AND ANALYSIS

4.1 CONTINUOUS MONITORING

Water quality will be monitored at the five monitoring sites shown in Figure 1 for temperature, dissolved oxygen, pH, conductivity, and turbidity and 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 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.

4.2 NUTRIENT SAMPLING

Water samples will be collected monthly at Sites 2, 3, and 5 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.

4.3 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 water quality monitoring instruments will be deployed at each monitoring site 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. Nutrient samples will be collected monthly during the same time period 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 as an information resource during the discussion of resource issues with relicensing stakeholders.

DRAFT MUSSEL 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.KleinschmidtGroup.com

January 2020

DRAFT Mussel Study Plan

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:



Lexington, South Carolina www.KleinschmidtGroup.com

January 2020

DRAFT Mussel Study Plan

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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DRAFT Mussel Study Plan

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

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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. During an RCG meeting on November 13, 2019, the USFWS formally requested a mussel study at the Project, particularly in the Stevens Creek arm of the Project reservoir. This study plan was developed in consultation with the USFWS and the RCG.

2.0 STUDY OBJECTIVE

The purpose of this study is to gather quantitative and qualitative data on the diversity, spatial distribution and relative abundance (density) of the mussel fauna inhabiting the portion of Stevens Creek included within the Stevens Creek Project boundary.

3.0 GEOGRAPHIC AND TEMPORAL SCOPE

Hypolimnetic releases from J.S. Thurmond Reservoir are both low in oxygen and much colder than southeastern river typical temperatures. Therefore, mussel surveys will focus on selected habitats within Stevens Creek that are more likely to support populations of native freshwater mussels. Due to the accumulation of silt in the lower portions of Stevens Creek, a majority of the surveys will take place in the upper portion of Stevens Creek within the Project boundary. USFWS requested that the reach between the upstream extent of the Stevens Creek reservoir to the confluence with Horn Creek be surveyed (Figure 3-1). Specific survey points will be identified in the field by the lead malacologist performing the study. Surveys will be conducted in the summer and early fall months in 2021 when water clarity and temperatures are sufficiently high to support wading, snorkeling, and other in-water survey methods. We do not anticipate that scuba will be needed to perform surveys in the identified areas.

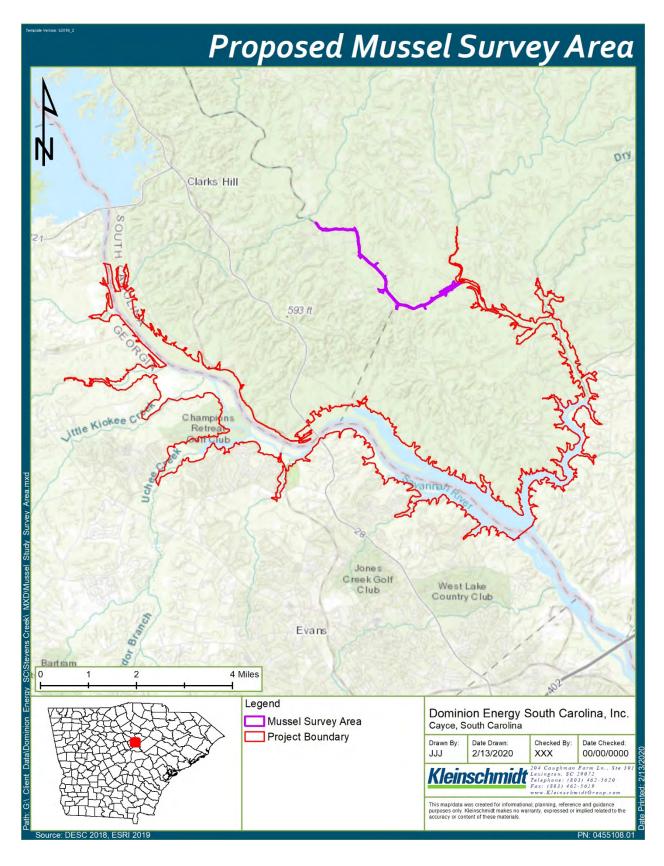


FIGURE 3-1 MUSSEL STUDY AREA

4.0 DATA COLLECTION METHODS

Freshwater mussel surveys in Stevens Creek will involve timed visual and/or tactile inspections of suitable habitat for presence of live freshwater mussels and/or shell material and will be conducted by a qualified malacologist with expertise in Savannah River fauna. Although the number and specific location of qualitative survey points will likely be refined in the field based on professional judgement of the lead malacologist, it is expected that a range of 5 to 10 representative sites will be distributed along the creek. Particular attention will be placed upon the examination of potential Carolina heelsplitter (*Lasmigona decorata*) (federal-endangered species and South Carolina state-endangered species) habitat within areas of Stevens Creek.

Exact methods for conducting visual and tactile searches will vary depending on water depth. Daily and weekly fluctuations of the Stevens Creek reservoir within a 4.5-foot band to accommodate flow releases from Thurmond Dam result in routine changes to the water surface elevation, microhabitat characteristics (e.g., water depth and water velocity), and change water levels along shoreline habitats. The maximum reservoir drawdown of 4.5-feet exposes approximately 575 acres of littoral zone habitat (FERC 1995). Because of this, mussel surveys will focus primarily on those areas below the 4.5-foot depth contour where mussels are likely to become established. Depending on water depths, wading, batiscope, or snorkeling will be used to conducted timed surveys at each of the selected sites:

- Wading Where water is relatively shallow, clear, and flat (no disturbances by wind), a biologist walks over an area to conduct a visual and/or tactile survey for live mussels and shells. This method is typically focused upon examinations of exposed near-shore habitats.
- Batiscope or snorkeling In clear to slightly turbid waters up to 2 meters deep, or in waters with wind-disturbed surfaces, a batiscope or snorkeling will be used to conduct a visual and/or tactile survey for live mussels and shells.

Live and fresh dead mussels collected during the survey will be identified to species, enumerated and returned to their habitat, although some shell material and/or live specimens may be preserved and returned to the laboratory for taxonomic confirmation. All sampling stations, as well as any significant mussel beds found during sampling, will be documented using a GPS receiver. Mussel habitat and substrate surveyed at each sample location, as well as the species collected during the survey, will also be noted and photo documented. Basic water quality parameters (temperature, dissolved oxygen and conductivity) will be collected near the substrate at representative sample areas.

5.0 SCHEDULE

Field surveys will be conducted during the summer or fall of 2021 over 2-3 days. Study methodology, timing and duration may be adjusted based on consultation with resource agencies and interested stakeholders. A final report will be issued to the RCG within four months of the completion of field work.

6.0 **REFERENCES**

Federal Energy Regulatory Commission (FERC). 1995. Final Environmental Assessment for Hydropower License. Filed November 7, 1995.

STEVENS CREEK HYDROELECTRIC PROJECT

FERC No. 2535

RARE, THREATENED AND ENDANGERED SPECIES WHITEPAPER

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt

Lexington, South Carolina www.KleinschmidtGroup.com

February 2020

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Lexington, South Carolina www.KleinschmidtGroup.com

February 2020

STEVENS CREEK HYDROELECTRIC PROJECT FERC No. 2535

RARE, THREATENED AND ENDANGERED SPECIES WHITEPAPER DOMINION ENERGY SOUTH CAROLINA, INC.

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STEVENS CREEK HYDROELECTRIC PROJECT FERC No. 2535

RARE, THREATENED AND ENDANGERED SPECIES WHITEPAPER 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 J. Strom Thurmond Dam. The Project occupies approximately 104 acres of federal lands within the Sumter National Forest. A project location map is included in Figure 3-1.

On November 22, 1995, FERC issued a 30-year license for the Project 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 undergoing 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. During early stakeholder meetings, DESC and stakeholders identified the need for a Rare, Threatened and Endangered (RTE) Species Whitepaper to provide baseline information on federal and state-listed RTE species within the FERC project boundary¹ and the area of potential Project influence (project area)². The information included in this whitepaper will be used during the development of the Draft License Application (DLA) and Final License Application (FLA) and identify potential Project effects on RTE species within the project area.

¹ The FERC-delineated boundary surrounding those lands and waters necessary for operation of a federally-licensed hydroelectric project.

² For the purposes of this whitepaper the "project area" is considered those lands and waters in the vicinity of the Project that may be influenced by operation and maintenance of the Project. The Project area may include lands and water adjacent to, but outside of, the FERC Project boundary.

2.0 CONSULTATION HISTORY

When developing the Pre-Application Document (PAD), DESC reached out to the Georgia Department of Natural Resources (GDNR), South Carolina Department of Natural Resources (SCDNR), United States Forest Service (Forest Service), and the United States Fish and Wildlife Service (USFWS) to compile a comprehensive list of federal and state-listed RTE species and Forest Service species of conservation concern. Consultation records are included in Appendix A.

3.0 METHODOLOGY

The Project area for the purpose of this study includes the main stem of the Savannah River from the Thurmond Dam downstream to the Stevens Creek Dam (approximately 13 River Miles [RMs]), the main stem of Stevens Creek, from the Stevens Creek Dam upstream to the top of the Project boundary (approximately 12 RMs), and associated shoreline habitats (Figure 3-1).

As an initial step, a comprehensive list was developed that includes federal-protected and Forest Service Threatened, Endangered and Sensitive (TES) species that may occur in the Project boundary (Table 3-1). In order to identify federal-protected species in the Project area, the USFWS's Information for Planning and Consultation (IPaC) online system was reviewed. Results from the IPaC review are included in Table 3-1 and Appendix A. Forest Service TES species that may occur in the Project area were also identified. The Forest Service provided a list of their Threatened, Endangered and Sensitive (TES) Species for the Long Cane Ranger District of the Sumter National Forest on January 15, 2020. These species are also in Table 3-1 and Appendix A.

After identification of federal-protected and Forest Service TES species, habitat requirements for each species were reviewed to determine the likelihood of each species to occur within the Project boundary. Species that were deemed likely to occur within the Project boundary were then analyzed to determine if continued Project operations would have any adverse effect on the species.

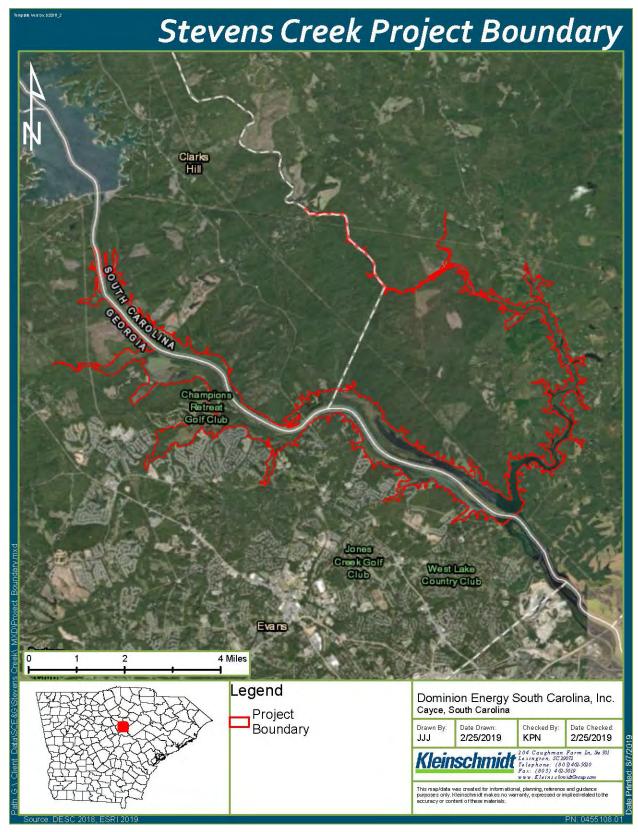


FIGURE 3-1 STEVENS CREEK RARE, THREATENED, AND ENDANGERED SPECIES STUDY AREA

TABLE 3-1 FEDERAL-PROTECTED AND FOREST SERVICE TES SPECIES IN THE STEVENS CREEK PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	FEDERAL PROTECTION	FOREST SERVICE TES SPECIES - SNF
	ANIMALS		
Atlantic Spike	Elliptio producta		Sensitive
Bachman's Sparrow	Peucaea aestivalis		Sensitive
Bald Eagle	Haliaeetus leucocephalus	*	
Bartam's Bass	Micropterus coosae		Sensitive
Brook Floater	Alasmidonta varicosa		Sensitive
Carolina Heelsplitter	Lasmigona decorata	Endangered	Endangered
Monarch Butterfly	Danaus plexippus		Sensitive
Piedmont Prairie Burrowing Crayfish	Distocambarus crockeri		Sensitive
Red-Cockaded Woodpecker	Dryobates borealis	Endangered	Endangered
Roanoke Slabshell	Elliptio roanokensis		Sensitive
Robust Redhorse	Moxostoma robustrum		Sensitive
Tricolored Bat	Perimyotis subflavus		Sensitive
Webster's Salamander	Plethodon websteri		Sensitive
Wood Stork	Mycteria americana	Threatened	Endangered
Yellow Lampmussel	Lampsilis cariosa		Sensitive
	PLANTS		
Faded Trillium	Trillium discolor		Sensitive
Georgia Aster	Symphyotrichum georgianus		Sensitive
Lanceleaf Trillium	Trillium lancifolium		Sensitive
Miccosukee Gooseberry	Ribes echinellum	Threatened	Threatened
Oglethorpe Oak	Quercus oglethorpensis		Sensitive
Relict Trillium	Trillium reliquum	Endangered	Endangered
Shoals Spider Lily	Hymenocallis coronaria		Sensitive
Sweet Pinesap	Monotropsis odorata		Sensitive

* This species is protected under the Bald and Golden Eagle Protection Act of 1940.

In addition to federal-protected and Forest Service TES species, this report identifies stateprotected species that may occur in the Project area. On February 4, 2019, the Georgia Department of Natural Resources (Georgia DNR) provided a letter summarizing Georgia's State Wildlife Action Plan priority species that may occur in the Project area. On November 4, 2019, the South Carolina Department of Natural Resources (South Carolina DNR) provided information on the South Carolina State Wildlife Action Plan priority species that may occur in the Project area. These species are also included in Table 3-2 and Appendix A. Although these species were not analyzed for likelihood of existence within the Project boundary and potential Project operations effects, they are included in this report for informational purposes.

COMMON NAME	GEORGIA SWAP SPECIES	SOUTH CAROLINA SWAP SPECIES
ANIMALS		
American Eel		*
Atlantic Pigtoe	*	
Atlantic Spike		*
Atlantic Sturgeon	*	
Bald Eagle		*
Baltimore Oriole		*
Bartram's Bass		*
Brother Spike	*	
Carolina Slabshell	*	
Christmas Darter		*
Delicate Spike	*	
Dwarf Waterdog	*	
Eastern Creekshell		*
Eastern Elliptio		*
Flat Bullhead		*
Florida Pondhorn		*
Highfin Shiner		*
Ironcolor Shiner	*	
Notchlip Redhorse		*
Roanoke Slabshell	*	
Rosyface Chub		*
Robust Redhorse	*	*
Savannah Elimia	*	
Savannah Lilliput	*	
Shortnose Sturgeon	*	
Snail Bullhead		*
Spotted Turtle	*	
Tiger Salamander		*
Turquoise Darter		*
Webster's Salamander		*
Yellow Lampmussel	*	*
	PLANTS	
Aethusa-like		
Trepocarpus		*

 TABLE 3-2
 GEORGIA AND SOUTH CAROLINA STATE-PROTECTED SPECIES IN THE PROJECT AREA

COMMON NAME	GEORGIA SWAP SPECIES	SOUTH CAROLINA SWAP SPECIES
American Barberry	*	
American Ginseng		*
Carolina Larkspur		*
Carolina Trefoil	*	
Curly-Heads	*	
Dixie Mountain		
Breadroot	*	
Dutchman's Breeches		*
Eared Goldenrod		*
Faded Trillium		*
False-Rue Anemone	*	*
Georgia Aster		*
Georgia Plume	*	
James' Sedge		*
Lanceleaf Wakerobin		*
Log Fern	*	
Lowland Bladderfern		*
Miccosukee Gooseberry		*
Ocmulgee Skullcap	*	*
One-Flowered		
Broomrape		*
Pale Yellow Trillium	*	
Pineland Barbara Buttons	*	
Relict Trillium	*	*
Shoals Spider Lily	*	*
Side-Oats Grama	*	
Slender Sedge		*
smooth indigobush		*
Southern Nodding		
Trillium		*
Streambank Mock		
Orange		*
Tall Bellflower		*
Tuberous Gromwell		*
Virginia Spiderwort		*
Weak Nettle		*
Whiteleaf Sunflower		*
Wingpod Purslane	*	
Yellow Nailwort	*	

4.0 PROPOSED ACTION, SPECIES DESCRIPTIONS AND ANALYSIS

4.1 **PROPOSED ACTION**

For the purpose of this analysis, we have assumed that the Project will continue operating as a reregulating facility for flows released from the upstream U.S. Army Corps of Engineers' J. Strom Thurmond Dam. Stevens Creek reservoir fluctuations and downstream releases are anticipated to continue under the new license in the same form and capacity as they have over the past 30 years. Moreover, much of the land in the Project area is easement/Forest Service lands, not owned by DESC. Therefore, DESC does not actively manage or maintain these lands, and they are generally left in a natural state. If the proposed action changes prior to submittal of the Final License Application, species discussions will be updated accordingly.

4.2 FEDERAL-PROTECTED SPECIES

Table 4-1 lists the federal-protected species that may occur in the Project area. Habitat descriptions of each species along with an analysis of likelihood to exist in the Project boundary and potential for adverse effects from continued Project operations are included below.

COMMON NAME	SCIENTIFIC NAME	FEDERAL PROTECTION STATUS
Bald Eagle	Haliaeetus leucocephalus	*
Carolina Heelsplitter	Lasmigona decorata	Endangered
Miccosukee Gooseberry	Ribes echinellum	Threatened
Red-Cockaded Woodpecker	Dryobates borealis	Endangered
Relict Trillium	Trillium reliquum	Endangered
Wood Stork	Mycteria americana	Threatened

 TABLE 4-1
 FEDERAL-PROTECTED SPECIES IN THE PROJECT AREA

* This species is protected under the Bald and Golden Eagle Protection Act of 1940.

4.2.1 BALD EAGLE

The bald eagle was removed from the federal list of threatened species in 2007 (USFWS 2007) but remains protected under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act (16 U.S.C. 668-668d) (72 FR 37345-37372). Bald eagles are found throughout North American, typically around water bodies, where they feed on fish and carrion. Studies have shown that foraging bald eagles are particularly attracted to reservoirs associated with

hydroelectric facilities (Brown 1996). Bald eagles nest in large trees near water and typically use the same nest for several years (Degraaf and Rudis 1986).

Status in the Project Boundary and Effects of Continued Project Operations

The USACE monitors eagles on an annual basis on Lake Thurmond and in the immediate tailrace. During the 2020 survey, approximately 37 bald eagles were documented. In addition, SCDNR tracks bald eagle nests around the state. One nest is documented very close to the Project, however outside the Project boundary. It is likely that bald eagles reside and forage within the Project boundary, although no nests have been documented. Since much of the land surrounding the Project reservoir is maintained in a natural state, continued operation of the Project is not likely to result in negative effects on eagle foraging or nesting.

4.2.2 CAROLINA HEELSPLITTER

The Carolina heelsplitter is found in cool, well-oxygenated reaches of rivers and streams. The current range of this species is limited as compared to its historic range. These declines and loss of populations are associated with factors including pollutants from municipal and industrial wastewater releases. The species is sensitive to silt and is generally found in silt-free areas with banks that are stabilized and shaded by trees and shrubs (USFWS 2011). One of the eight surviving populations of Carolina heelsplitter is found in Turkey Creek and its tributaries. These creeks are part of the Savannah River drainage, located in Edgefield County, SC (NRC 2020).

Status in the Project Boundary and Effects of Continued Project Operations

As mentioned, the Carolina heelsplitter is known to occur in the Savannah River drainage in Edgefield County, SC. DESC is conducting a mussel study as part of the relicensing process, with special focus on identification of this species. Effects of continued Project operations will be determined as part of that study in the event this species is found within the project area of influence.

4.2.3 MICCOSUKEE GOOSEBERRY

The Miccosukee gooseberry is a bushy shrub that flowers in late February to early April and produces spiny green berries. The Miccosukee gooseberry is associated with a deciduous, mixed hardwood forest with an overstory canopy dominated by oak and hickory trees. Specifically, the

species is known to occur in three locations, including the shores of Lake Miccosukee in Jefferson County, Florida; and along Stevens Creek and a site on the Sumter National Forest in McCormick and Edgefield counties, South Carolina (NatureServe 2019).

Status in the Project Boundary and Effects of Continued Project Operations

This species is known to occur on north-facing hardwood slopes in the Stevens Creek drainage and at a site in the Long Cane Ranger District of the Sumter National Forest in McCormick and Edgefield counties. It is likely a portion of this population occurs within the Project boundary. Continued Project effects are unlikely to adversely affect this species, as the population in the Sumter National Forest appears stable and no modifications to Project operations are proposed.

4.2.4 RED-COCKADED WOODPECKER

The red-cockaded woodpecker is found in open, mature, and old growth pine ecosystems in the southeastern portion of the United States (USFWS 2003). Suitable nesting habitat includes open pine forests and savannahs with large, older pines and minimal hardwood midstory or overstory. Older living trees that are easily excavated due to susceptibility to red-heart disease are preferred nesting trees for the species. Suitable foraging habitat includes open-canopy, mature pine forests with low densities of small pines, little midstory vegetation, limited hardwood overstory, and abundance bunchgrass and forb groundcover (USFWS 2003).

Status in the Project Boundary and Effects of Continued Project Operations

Although the species is known to occur in Edgefield County (Forest Service 2020), it is unlikely the species occurs in the Project boundary, since there is limited suitable woodland habitat within the Project boundary. If the species did nest or forage in trees within the Project, they would remain unaffected as no logging or construction is proposed to occur as part of continued Project operations.

4.2.5 RELICT TRILLIUM

Relict trillium is typically found in mesic hardwood forests that can be on slopes or on bottomlands and floodplains. Soils and subsoils include rocky clays to alluvial sands all with high organic matter content. The largest populations are found in the drainages of the Savannah and Chattahoochee Rivers. The species is not indicated to occur in areas that have ever been disturbed by fire. The species is known to occur in Aiken County in proximity to the Sumter National Forest (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

This species is known to occur in Edgefield County and likely occurs within the Project boundary. This species is most often threatened by residential and urban development. The potential of Project effects to this species are minimal and would likely only occur during any development activities proposed through the new license. Consideration of the potential occurrence of this species should take place prior to the development or expansion of recreation facilities proposed under the new license.

4.2.6 WOOD STORK

The wood stork, a large colonial wading bird, is the only stork species that breeds in the United States (USFWS 1996). The wood stork uses a variety of wetlands for nesting, feeding, and roosting. Wood storks require periods of flooding, during which fish populations increase, alternating with dryer periods, during which receding water levels trap fish, leaving higher densities for easier foraging (USFWS 2020b). Nesting habitat includes primarily cypress swamps with nests located in the upper branches of large black gum or cypress trees. Nesting in the United States is currently thought to be limited to the coastal plain of South Carolina, North Carolina, Georgia and Florida (Murphy and Hand 2013).

Status in the Project Boundary and Effects of Continued Project Operations

Although the wood stork is not likely to nest within the Project boundary, it may forage periodically in the freshwater wetlands associated with the Stevens Creek reservoir. Project operations are expected to result in no adverse effects on wood storks or their foraging habitat.

4.3 U.S. FOREST SERVICE THREATENED, ENDANGERED AND SENSITIVE SPECIES

Table 4-2 lists the Forest Service TES species that may occur in the Project area. Habitat descriptions of each species along with an analysis of likelihood to exist in the Project boundary and potential for adverse effects from continued Project operations are included below. See Section 4.1 for the habitat descriptions and analysis of species that are also federal-protected species, as indicated in Table 4-2 with an asterisk (*).

TABLE 4-2 FOREST SERVICE TES SPECIES FOR THE LONG CANE DISTRICT OF SUMTER NATIONAL FOREST

		FOREST SERVICE TES			
COMMON NAME	SCIENTIFIC NAME ANIMALS	SPECIES			
Atlantic Spike Elliptio producta Sensitive					
Bachman's Sparrow	Peucaea aestivalis	Sensitive			
Bartam's Bass	Micropterus coosae	Sensitive			
Brook Floater	Alasmidonta varicosa	Sensitive			
Carolina Heelsplitter*	Lasmigona decorata	Endangered			
Monarch Butterfly	Danaus plexippus	Sensitive			
Piedmont Prairie Burrowing Crayfish	Distocambarus crockeri	Sensitive			
Red-Cockaded Woodpecker*	Dryobates borealis	Endangered			
Roanoke Slabshell	Elliptio roanokensis	Sensitive			
Robust Redhorse	Moxostoma robustrum	Sensitive			
Tricolored Bat	Perimyotis subflavus	Sensitive			
Webster's Salamander	Plethodon websteri	Sensitive			
Wood Stork*	Mycteria americana	Endangered			
Yellow Lampmussel	Lampsilis cariosa	Sensitive			
	PLANTS				
Faded Trillium	Trillium discolor	Sensitive			
Georgia Aster	Symphyotrichum georgianus	Sensitive			
Lanceleaf Trillium	Trillium lancifolium	Sensitive			
Miccosukee Gooseberry*	Ribes echinellum	Threatened			
Oglethorpe Oak	Quercus oglethorpensis	Sensitive			
Relict Trillium*	Trillium reliquum	Endangered			
Shoals Spider Lily	Hymenocallis coronaria	Sensitive			
Sweet Pinesap	Monotropsis odorata	Sensitive			

4.3.1 ATLANTIC SPIKE

The Atlantic spike is found throughout South Carolina (Bogan and Alderman 2008) and prefers streams or rivers with sandy, rocky, and/or muddy bottoms in sections where the current is not too rapid (Forest Service 2020). This species is found throughout Maryland, Pennsylvania, North Carolina, Virginia, and South Carolina, although it has been extirpated from some reaches where it was previously found, possibly due to environmental factors including decreased water quality associated with sedimentation and pollution. The host fish for this species is not known (NatureServe 2020a).

This species is found throughout the Savannah River Basin (NatureServe 2020a) and is found in the Long Cane Ranger District of the Sumter National Forest (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

As mentioned, this mussel is found throughout the Savannah River Basin and may occur within the Project boundary. DESC is conducting a mussel survey as part of the relicensing process and will document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.2 BACHMAN'S SPARROW

Bachman's sparrow, known by its "buffy" brownish-gray under plumage tinged with reddish streaks, typically yields two broods each breeding season (USFWS 2015). The female sparrow builds nests of grasses at or just above ground level. The species historically preferred mature pine forests, however since most of these areas have been logged, today the sparrow is typically found in pine forests with a more open understory and herbaceous understories. The sparrow is known to span the Coastal Plains and Piedmont regions of the southeastern United States.

Status in the Project Boundary and Effects of Continued Project Operations

Bachman's sparrow is found in the Piedmont region of the southeastern United States and within the Long Cane Ranger District of the Sumter National Forest. This species is unlikely to occur in the Project boundary area as it has not been documented in the counties in which the Project is located. Continued Project operations are not expected to affect this species.

4.3.3 BARTRAM'S BASS

The Bartram's Bass is a small to medium sized black bass species that occurs in the Savannah River drainage above the fall line and has been introduced in the Saluda River drainage (Forest Service 2020). This species utilizes shoal habitats in small to moderate size upland streams, particularly upland reaches with cool water temperatures. Specifically, it is generally found in areas with boulders, submerged logs, and undercut banks with vegetation such as water willow (Forest Service 2020). It can also be found in some lentic habitats over rocky substrates. The diet consists of terrestrial insects, crayfish, small fish, salamanders, and aquatic insects. Threats to the species include hybridization with Spotted Bass and Smallmouth Bass. Spotted Bass have spread throughout the upper Savannah River system, and hybridization between the two species has eliminated Bartram's Bass from several reaches. Additional threats include increased water temperatures and increased turbidity from loss of riparian vegetation along stream banks (SCDNR 2020).

Status in the Project Boundary and Effects of Continued Project Operations

Bartram's Bass have been collected from the mainstem of the Savannah River and in upstream reaches of Stevens Creek well upstream of the Project Boundary (SCDNR 2020, Freeman et al. 2015). Bartram's Bass inhabiting reaches of Stevens Creek upstream of the Project Boundary would not be affected by Project operations. Bartram's Bass inhabiting the Savannah River downstream of the Project would likely benefit from flow reregulation resulting habitat stability in the Augusta Shoals.

4.3.4 BROOK FLOATER

The brook floater is a freshwater mussel species that is usually found in high gradient, consistently flowing reaches of rivers and streams. Preferred substrates are characterized by sand and gravel, often with adjacent boulders (PNHP 2020; USFWS 2019). This species is sensitive to habitat degradation, including excessive silt and nutrient inputs, and is also sensitive to hypoxia (PNHP 2020; USFWS 2019). Potential host fish include blacknose dace, longnose dace, golden shiner, pumpkinseed, slimy sculpin, yellow perch, and margined madtom (PNHP 2020). This species is known to occur in Edgefield and McCormick counties in SC. Specifically, it has been documented in several streams in the Steven's Creek basin (USFWS 2019).

Status in the Project Boundary and Effects of Continued Project Operations

The brook floater is known to occur in the Upper Stevens Creek watershed on the Long Cane Ranger District in the Sumter National Forest. DESC is conducting a mussel survey as part of the relicensing process and will document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.5 MONARCH BUTTERFLY

The monarch butterfly is a migratory insect that passes through South Carolina and Georgia on a seasonal basis. The species has declined 80 percent during the last 20 years, in large part due to habitat loss at overwintering sites in Mexico and breeding sites in the American Midwest. The

monarch butterfly population in Eastern North America overwinters in central Mexico, with northern migrations to the United States and Canada occurring during March, and southward migrations occurring between August and September. Adult female monarch butterflies lay their eggs on milkweed plants and utilize a variety of other plant species as nectar sources throughout their migrations (USFWS 2020). Summer breeding habitat includes woodlands, roadsides, or utility rights-of-way containing nectaring plants (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

As mentioned, the monarch butterfly passes through South Carolina and Georgia on a seasonal basis. Summer breeding may occur within the Project boundary in woodlands, roadsides, or utility rights-of-way. Continued Project operations are not expected to affect the species as significant disturbance of these potential breeding areas is not expected to occur as a result of Project operation or maintenance activities.

4.3.6 PIEDMONT PRAIRIE BURROWING CRAYFISH

The Piedmont prairie burrowing crayfish is a semi-terrestrial species that utilizes the eastern watershed of the South Carolina Piedmont. Habitats can include intermittently flooded low lying areas and agricultural land. Specifically, it is found in terrestrial habitats around intermittent streams and colluvial valleys with treeless, prairie-like characteristics. Non-hydric well drained soils with seasonally perched water tables are necessary for the species' life history needs, as compared to species that require more aquatic and semi-aquatic habitats (Eversole and Welch 2013; NatureServe 2020b). Piedmont prairie burrowing crayfish spend much of the year in burrows, often below layers of leaf litter and organic matter, and are most likely to venture from burrows during wet periods in search of food or breeding opportunity. (Eversole and Welch 2013).

Status in the Project Boundary and Effects of Continued Project Operations

This species is present in Thurmond Lake – Savannah River, Upper Stevens Creek, Kiokee Creek – Savannah River, Turkey Creek – Stevens Creek, Bush River – Saluda River, and Little River – Savannah River watersheds that contain Forest Service land on the Long Cane Ranger District (Forest Service 2020). It is not likely that this species occurs within the Project boundary as it is most often found on a perched water table along ridge tops and not in aquatic habitats (Forest Service 2020). Continued Project operations are not expected to affect this species.

4.3.7 ROANOKE SLABSHELL

The Roanoke slabshell is typically found in large rivers and occasionally in small creeks. The mussel tolerates large variations in flow levels and higher water temperatures, making it able to survive in some locations near dams and hydroelectric plants (Price 2006). In South Carolina, the mussel is found in the Pee Dee River and the Catawba, Congaree and Savannah River basins. Although it has the potential to be found in watersheds on the Long Cane Ranger District in the Savannah River basin, no known records in the Sumter National Forest exist (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

In 2006, the Catena Group inventoried freshwater mussels in the Savannah River from the Augusta Shoals area (near RM 203) downstream to RM 23. The Roanoke slabshell was identified during this inventory. DESC is conducting a mussel survey as part of the relicensing process and will document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.8 ROBUST REDHORSE

Once presumed extinct, the Robust Redhorse, a large, heavy-bodied sucker, was rediscovered in the Oconee River below Georgia Power's Sinclair Hydroelectric Project (FERC No. 1951) in the early 1990s. This rediscovery sparked the formation of the Robust Redhorse Conservation Committee (RRCC) in 1995 to guide recovery efforts for the species. While little is still known about habitat preferences of juvenile Robust Redhorse, adults typically inhabit areas of the river where the current is moderately swift. Preferred habitat includes riffle areas or in/near outside bends, where depths are greater, and accumulations of logs and other woody debris are present (Evans 1997). Spawning occurs between April and June over gravel substrate in deep and shallow waters (Hendricks 1998). In South Carolina, it is found in the Savannah River and Pee Dee River basins (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

The Robust Redhorse is known to occur in the Savannah River and the Georgia DNR documented the species in the shoals below the Augusta Diversion Dam in 2005. Continued Project operations are not expected to adversely affect the species since the Project reregulates

large pulses from Thurmond Dam, providing increased flow and associated habitat stability in the Augusta Shoals and further downstream.

4.3.9 TRICOLORED BAT

The tricolored bat is a small bat weighing 0.2 to 0.3 ounces, that roosts in trees in the summertime and hibernates in caves, mines and rock crevices during the winter (USFWS 2019b). The species is found statewide in South Carolina, but populations have declined recently due to the white-nose-syndrome (USFWS 2019b).

Status in the Project Boundary and Effects of Continued Project Operations

The tricolored bat may roost in trees around the Project reservoir in the summertime but is unlikely to hibernate in the area due to a lack of hibernacula. Continued Project operations are unlikely to have any effect on the species as DESC does not plan to significantly change the Project shoreline or remove trees used for roosting.

4.3.10 WEBSTER'S SALAMANDER

The Webster's salamander is a woodland species that is often found on hardwood-forested hillsides underneath cover including rocks, logs, and leaf litter. The species breeds in early winter and lays eggs during the summer months. With the exception of June and July breeding activity, adults are mostly active between October and May, likely to avoid the high heat of the summer months. Unlike some other salamander species, there is no aquatic larval lifestage, and hatchlings emerge during August and September. The range of the species is fragmented, with isolated populations occurring across Louisiana, Mississippi, Alabama, Georgia, and South Carolina (Rogers 2020). In South Carolina, it has been documented in both Edgefield and McCormick counties (NatureServe 2020c).

Status in the Project Boundary and Effects of Continued Project Operations

This species may occur in the forested habitat surrounding the Project boundary. Nevertheless, much of the land surrounding the Project has been left in its natural state, and there are no Project-related disturbance activities proposed under the new license. Therefore, continued Project operations are unlikely to affect populations occurring in the Project boundary.

4.3.11 YELLOW LAMPMUSSEL

The yellow lampmussel is a freshwater mussel species found primarily in medium to large rivers and streams with a variety of substrates including silt or sand, gravel bars and bedrock cracks (Price 2006b). Distribution in South Carolina spans the Savannah, Broad, Wateree, Congaree, and Pee Dee River basins. The species is found in the Long Cane Ranger District in the Lower Stevens Creek and Turkey Creek-Stevens Creek watersheds with the potential to also occur in the Upper Stevens Creek watershed (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

The yellow lampmussel may occur within the Project boundary, as it is found throughout the Savannah River basin, including Stevens Creek watersheds. DESC is conducting a mussel survey as part of the relicensing process and will document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.12 FADED TRILLIUM

The faded trillium (or pale yellow trillium) is a perennial herb characterized by three whorled leaves and a pale yellow or cream-colored flower. The faded trillium sends up leaves and flowers in early spring before the forest canopy has fully leafed out. The above ground plant is not present during the fall and winter, persisting as an underground rhizome. Mature faded trillium are long lived, as the rhizomes continue to persist and produce shoots as other portions decay (Chafin 2007). Habitat types for the species include wooded slopes, rich cove forests, oak-pine woods, and cane breaks. They are often found in areas that are sheltered with dense forest canopies (NatureServe 2020d).

This species is only found in the Savannah River Basin across Georgia, North Carolina, and South Carolina (Chafin 2007), and has been documented in Columbia County, GA and Edgefield and McCormick counties, SC (NatureServe 2020d).

Status in the Project Boundary and Effects of Continued Project Operations

Although the faded trillium has not been documented within the Project boundary, it may occur in wooded areas around the shoreline. As no changes to Project operation or maintenance activities are proposed, continued Project operations are unlikely to affect this species.

4.3.13 GEORGIA ASTER

Georgia aster is a flowering plant that prefers a habitat of open woodlands, savannas and prairies, including open woodlands associated with utility and roadside rights-of-way (Forest Service 2020). It is thought to be a relict species of the post oak-savannah communities that existed in the southeast prior to fire suppression.

Status in the Project Boundary and Effects of Continued Project Operations

Georgia aster is known to occur in the Long Cane Ranger District of the Sumter National Forest and in McCormick and Edgefield counties, SC. Habitat for Georgia aster may exist within the Project boundary, however potential occurrences would be limited to terrestrial sites, which should not be affected by continued operation of the Project.

4.3.14 LANCELEAF TRILLIUM

The lanceleaf trillium occurs in a variety of habitat types, including floodplains, rocky upland woodlands, brushy thickets, canebrakes, and shaded or open woods. It is most commonly associated with alluvial soils. This regional endemic species is relatively small compared to other southeastern trilliums, with narrow leaves, a flower comprised of 3 maroon petals, and an ovoid pulpy fruit that contains several seeds (NatureServe 2020i).

Known populations of this species exist in Edgefield and McCormick Counties, SC (NatureServe 2020i).

Status in the Project Boundary and Effects of Continued Project Operations

Lanceleaf trillium is known to occur in the Long Cane Ranger District of the Sumter National Forest and in McCormick and Edgefield counties, SC. Habitat for this species may exist within the Project boundary, however potential occurrences would be limited to terrestrial sites, which should not be affected by continued operation of the Project.

4.3.15 OGLETHORPE OAK

The Oglethorpe oak is a "white oak" species that is associated with wet clay soils and is found in disjunct populations throughout Georgia, Alabama, Mississippi, Louisiana, and South Carolina. The species can grow up to 80 ft. tall and is characterized by reddish-gray bark that covers the tree in loose plates. It is generally found in seepage swamps, stream edges, and moist areas of hardwood forests adjacent to these types of habitats. Like other oak species, the Oglethorpe oak is wind-pollinated, and must be cross pollinated in order to produce acorns. Habitat fragmentation can isolate individuals, decreasing pollination and associated acorn production (Chafin 2008).

Oglethorpe oak has been documented in McCormick and Edgefield counties in SC (NatureServe 2020f).

Status in the Project Boundary and Effects of Continued Project Operations

The Oglethorpe oak is known to occur in the Long Cane Ranger District of the Sumter National Forest and in McCormick and Edgefield counties, SC. Habitat for this species within the Long Cane Ranger District is limited to streamside forests and depressional wetlands in the Carolina Slate belt, located north and outside of the Project boundary (Forest Service 2020). It is unlikely this species exists within the Project boundary and therefore, continued Project operations should have no effect on this species.

4.3.16 SHOALS SPIDER LILY

The shoals spider lily occurs mostly above the fall line in Alabama, Georgia, and South Carolina. This flowering plant is often found in bedrock outcroppings or in large cobble and boulder substrates where the plants' roots and bulbs can anchor into the substrate. Habitat requirements for the species include direct sunlight, constantly flowing water, and low sediment loads (Kleinschmidt 2015).

Status in the Project Boundary and Effects of Continued Project Operations

Shoals spider lilies are currently found at multiple locations in Edgefield and McCormick counites, SC and Columbia County, GA, with populations known in Stevens Creek (NatureServe

2020h). Since no changes to Project operations are proposed, no adverse effects to this species are expected.

4.3.17 SWEET PINESAP

The sweet pinesap is an herbaceous perennial wildflower characterized by a fleshy stalk, scalelike leaves, and pink or yellowish flowers that produce a strong odor of violets. The flowers are present in mid to late spring. The sweet pinesap is generally found in mature, moist hardwood forests under areas that are well shaded by the canopy (Forest Service 2020b). Specifically, the species is known to occur in shortleaf pine-oak heaths in the Southern Appalachians and Piedmont (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

The sweet pinesap is not expected to occur within the Project boundary due to a lack of habitat. Continued Project operations should not have any effect on this species.

4.4 STATE-PROTECTED SPECIES

On February 4, 2019, the Georgia DNR provided a list of Natural Heritage Database occurrences within 3 miles of the Project site for terrestrial species and within the local HUC10 watershed for aquatic species. These species are listed below in Table 4-3. For more information on the locations of these species, see Appendix A.

COMMON NAME	SCIENTIFIC NAME
American Barberry	Ververis canadensis
Atlantic Pigtoe	Fusconaia masoni
Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus
Brother Spike	Elliptio fraterna
Carolina Slabshell	Elliptio congaraea
Carolina Trefoil	Acmispon helleri
Curly-Heads	Clematis ochroleuca
Delicate Spike	Elliptio arctata
Dixie Mountain Breadroot	Pediomelum piedmontanum
Dwarf Waterdog	Necturus punctatus
False-Rue Anemone	Enemion biternatum
Georgia Plume	Elliottia racemosa
Ironcolor Shiner	Notropis chalybaeus

TABLE 4-3 GEORGIA STATE-PROTECTED SPECIES WITHIN 3 MILES OF THE PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	
Log Fern	Dryopteris celsa	
Ocmulgee Skullcap	Scutellaria ocmulgee	
Pale Yellow Trillium	Trillium discolor	
Pineland Barbra Buttons	Marshallia ramosa	
Relict Trillium	Trillium reliquum	
Roanoke Slabshell	Elliptio roanokensis	
Robust Redhorse	Moxostoma robustum	
Savannah Elimia	Elimia caelatura	
Savannah Lilliput	Toxolasma pullus	
Shoals Spiderlily	Hymenocallis coronaria	
Shortnose Sturgeon	Acipenser vrevirostrum	
Spotted Turtle	Clemmys guttata	
Wingpod Purslane	Portulaca umbraticola ssp.coronata	
Yellow Lampmussel	Lampsilis cariosa	
Yellow Nailwort	Paronychia virginica	

Source: GDNR, Letter dated February 4, 2019

On November 4, 2019, the South Carolina DNR provided a list of species having conservation priority through the South Carolina State Wildlife Action Plan (SWAP) that are located within the Project boundary and within 3 miles of the Project boundary. These species are listed below in Table 4-4. Additional details on these species are included in Appendix A.

COMMON NAME	SCIENTIFIC NAME
Aethusa-like Trepocarpus	Trepocarpus aethusae
American Eel	Anguilla rostrate
American Ginseng	Panax quinquefolius
Atlantic Spike	Elliptio producta
Bald Eagle	Haliaeetus leucocephalus
Baltimore Oriole	Icterus galbula
Bartram's Bass	Micropterus
Carolina Larkspur	Delphinium carolinianum
Christmas Darter	Etheostoma hopkinsi
Dutchman's Breeches	Dicentra cucullaria
Eared Goldenrod	Solidago auriculate
Eastern Creekshell	Villosa delumbis
Eastern Elliptio	Elliptio complanate
Faded Trillium	Trillium discolor
False-Rue Anemone	Enemion biternatum
Flat Bullhead	Ameiurus platycephalus

 TABLE 4-4
 SOUTH CAROLINA STATE-PROTECTED SPECIES IN THE PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	
Florida Pondhorn	Uniomerus caroliniana	
Georgia Aster	Symphyotrichum georgianum	
Highfin Shiner	Notropis altipinnis	
James' Sedge	Carex jamesii	
Lanceleaf Wakerobin	Trillium lancifolium	
Lowland Bladderfern	Cystopteris protrusa	
Miccosukee Gooseberry	Ribes echinellum	
Notchlip Redhorse	Moxostoma collapsum	
Ocmulgee Skullcap	Scutellaria ocmulgee	
One-Flowered Broomrape	Orobanche uniflora	
Relict Trillium	Trillium reliquum	
Robust Redhorse	Moxostoma robustum	
Rosyface Chub	Hybopsis rubrifrons	
Shoals Spider Lily	Hymenocallis coronaria	
Slender Sedge	Carex gracilescens	
Smooth Indigobush	Amorpha glabra	
Snail Bullhead	Ameiurus brunneus	
Southern Nodding Trillium	Trillium rugelii	
Streambank Mock Orange	Philadelphus hirsutus	
Tall Bellflower	Campanulastrum americanum	
Tiger Salamander	Ambystoma tigrinum	
Tuberous Gromwell	Lithospermum tuberosum	
Turquoise Darter	Etheostoma inscriptum	
Virginia Spiderwort	Tradescantia virginiana	
Weak Nettle	Urtica chamaedryoides	
Webster's Salamander	Plethodon webster	
Whiteleaf Sunflower	Helianthus glaucophyllus	
Yellow Lampmussel	Lampsilis cariosa	

5.0 SUMMARY

There are several federal-protected and Forest Service TES species that have either been documented within the Project boundary or have potential to occur within the Project boundary due to availability of suitable habitat. These species are listed below.

- Atlantic Spike
- Bald Eagle
- Bartram's Bass
- Brook Floater
- Carolina Heelsplitter
- Faded Trillium
- Miccosukee Gooseberry
- Monarch Butterfly
- Relict Trillium
- Roanoke Slabshell
- Robust Redhorse
- Shoals Spider Lily
- Tricolored Bat
- Webster's Salamander
- Wood Stork
- Yellow Lampmussel

Although these species occur or have the potential to occur within the Project boundary, continued Project operations are not expected to have any adverse effect on these species. DESC is not proposing any changes to Project operations and does not have any plans for significant logging or shoreline changes within the Project boundary. If the need arises for tree removal, construction, or other shoreline modifications in the future, DESC will consult with the USFWS, Forest Service, and the Georgia DNR and/or South Carolina DNR (as appropriate) prior to the commencement of these activities.

In addition, DESC is conducting a mussel survey within the Project boundary with methodology developed in consultation with federal and state agencies. The results of this study will determine the presence of any mussel species listed in this report within the Project boundary and will identify the potential for Project effects on these species. The results of this study will be included in the Project's Final License Application.

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APPENDIX A

CONSULTATION RECORD

STEVENS CREEK HYDROELECTRIC PROJECT

FERC No. 2535

AQUATIC HABITAT WHITEPAPER

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt

Lexington, South Carolina www.KleinschmidtGroup.com

February 2020

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February 2020

STEVENS CREEK HYDROELECTRIC PROJECT FERC No. 2535

AQUATIC HABITAT WHITEPAPER DOMINION ENERGY SOUTH CAROLINA, INC.

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5.0 WATER QUANTITY AND QUALITY AT THE STEVENS CREEK PROJECT

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CONSULTATION RECORD

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

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STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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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 J. Strom Thurmond Dam. The Project occupies approximately 104 acres of federal lands within the Sumter National Forest, with three existing Project recreation sites located on federal land and managed through agreement with the U.S. Forest Service (Forest Service).

2.0 PURPOSE OF THE STUDY

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 Recreation and Land Management Resource Conservation Group (RCG), with interested stakeholders to address Project issues related to recreation and land management. The RCG determined there was a need for a recreation study at the Project.

DESC is proposing to perform an assessment of existing and future recreational use, opportunities, and needs for the Project. The assessment is designed to provide information pertinent to the current and future availability and adequacy of DESC-owned and managed recreation sites, Forest Service owned and managed recreation sites, and Columbia County, Georgia owned and managed recreation sites at the Project. The overall study plan objective is to identify current and potential recreation opportunities, use, and needs at the Project by addressing the specific goals and objectives listed below. Results from the study will be used to develop a new Recreation Management Plan (RMP) for the Project.

<u>Goal 1</u>: Characterize the existing use of recreation sites at the Project. This will be accomplished by meeting the following objectives:

- i. Identify recreation sites; inventory the services and facilities offered; and assess the general condition of each site (including whether the site provides barrier free access).
- ii. Identify patterns of use at each site (type, volume, and daily patterns of use).
- iii. Assess existing recreation sites located on federal land for consistency with Forest Service Sustainable Recreation Strategy.

<u>Goal 2</u>: Identify future needs relating to public recreation sites at the Project. This will be accomplished by meeting the following objectives:

- i. Identify existing user needs and preferences, including perceptions of crowding at recreation sites.
- ii. Estimate future recreation use of existing recreation sites.
- iii. Identify future needs for new recreation sites and facilities.

3.0 STUDY AREA

Recreation sites at the Project that will be included in this study are listed in Table 3-1 and shown in Figure 3-1.

RECREATION SITE NAME	RECREATION SITE NAME AS LISTED IN 2014 RECREATION PLAN	RECREATION SITE NAME AS LISTED IN 1995 PROJECT LICENSE/EXHIBIT G DRAWINGS	RECREATION SITE OWNER/ MANAGER
Stevens Creek	SC Recreation Site #1	Stevens Creek Recreation Site	DESC
Recreation Site			
Fury's Ferry	SC Recreation Site #2	Fury's Ferry Recreation Site	Forest Service
Recreation Site			
Chota Drive	SC Recreation Site #4	Recreation Site #2	Forest Service
Recreation Site			
Betty's Branch/	SC Recreation Site #5	GA Recreation Site	Columbia
Riverside Park			County, GA

 TABLE 3-1
 EXISTING PROJECT RECREATION SITES AT THE STEVENS CREEK PROJECT¹

Source: SCE&G 2014

¹ The 2014 Recreation Management Plan (RMP) includes an additional recreation site – Stevens Creek Recreation Site #3 (also known as Recreation Site #1 or the Mims Recreation Site). This site is located on Forest Service property and is maintained by the Forest Service. The Forest Service has decided that this recreation site is not in line with their Sustainable Recreation Strategy and will no longer be supported by the Forest Service. The Forest Service has asked that this site be removed from the RMP and therefore not be studied during relicensing.



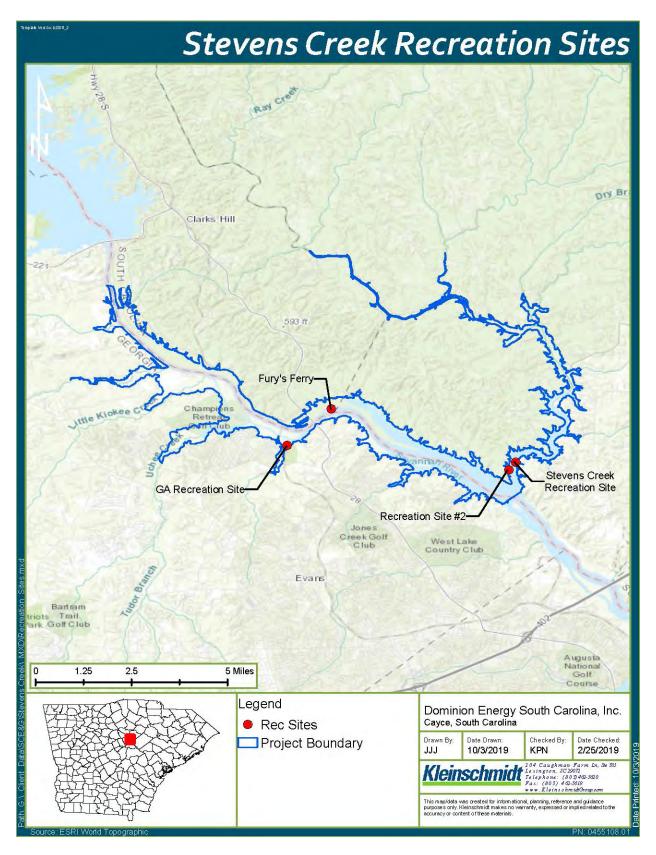


FIGURE 3-1 STEVENS CREEK PROJECT RECREATION SITES

4.0 STUDY SEASON

Generally, the study season will last for one year, beginning on April 1, 2021 and ending on March 31, 2022. During this time, traffic counters will be deployed at all four recreation sites, collecting continuous data for one full year. Within this general study season, recreation user surveys and spot counts will be collected during the peak recreation season, from April 1, 2021 through Labor Day weekend or September 6, 2021.

5.0 DATA COLLECTION METHODS

A variety of data collection techniques will be used to obtain the information necessary to meet the study objectives and goals listed in Section 2.0. Both primary and secondary data will be collected. Primary data will entail site inventories, spot counts, traffic counter data, trail camera data, and recreation user surveys. Primary data will be collected at each site as shown in Table 5-1.

	DATA COLLECTION METHOD				
R ECREATION SITE	SITE Inventory	SPOT COUNT ²	TRAFFIC Counter Data	RECREATION USER SURVEYS ³	TRAIL CAMERA DATA
Stevens Creek Recreation Site	*	*	*	*	
Fury's Ferry Recreation Site	*	Periodic	*	Periodic	*
Chota Drive Recreation Site	*	Periodic	*	Periodic	*
Betty's Branch/ Riverside Park	*	*	*	*	

 TABLE 5-1
 DATA COLLECTION METHODS AT STEVENS CREEK RECREATION SITES

Kleinschmidt

² Spot counts will be administered at Fury's Ferry and Chota Drive during traffic counter/trail camera data download events.

³ Recreation user surveys will be administered at Fury's Ferry and Chota Drive if recreation users are present during traffic counter/trail camera data download events.

Secondary data will include U.S. Bureau of Census data, the South Carolina Statewide Comprehensive Outdoor Recreation Plan (SCORP), SC Recreation Participation & Preference Study, and other relevant, readily available literature. Additional input will be solicited from the RCG, Columbia County, and Forest Service. Table 5-2 summarizes the study objectives, information needed to meet these objectives, and sources for information. Sections 5.1 through 5.4 summarize the primary data collection methods.

OBJECTIVES	INFORMATION NEEDED	SOURCE		
Goal 1: Characterize existing recreational use of Project recreation sites				
Goal 1a: Identify formal recreation sites, inventory the services and facilities offered at each, and assess the general condition and ADA compliance of each site Goal 1b: Identify the patterns of use at each site (type, volume, and daily patterns of use)	 Physical inventory of all facilities at each recreation site General assessment of site condition to include maintenance, basic rehabilitation needs, etc. Visitors' assessment of site conditions Identification of activities that occur at each site Barrier free/ADA compliance assessment Utilize vehicle counts as an estimation of people Estimate of # people/vehicle Estimate of # vehicles/site Parking capacity 	 Recreation Site Inventory Recreation User Surveys Traffic Counter Data, Trail Camera Data Spot Count Data Recreation User Surveys - # of people per vehicle and length of visit Recreation Site Inventory - # of parking spaces Columbia County/Forest Service data, if available 		
Goal 1c: Assess existing recreation sites located on federal land for consistency with Forest Service Sustainable Recreation Strategy.	• Results from Goal 1a and Goal 1b for recreation sites located on federal land	 Forest Service input Forest Service Sustainable Recreation Strategy 		

TABLE 5-2 Recreation Use and Needs Study Plan Objectives and Efforts

OBJECTIVES	INFORMATION NEEDED	SOURCE
Goal 2: Identify future recreational needs at the Project		
Goal 2a: Identify existing user needs and preferences, including perceptions of crowding at Project recreation sites	 User preferences and opinions of needs and crowding at sites Condition assessment 	Recreation User SurveysRecreation Site Inventory

OBJECTIVES	INFORMATION NEEDED	SOURCE
Goal 2b: Estimate future recreation use of existing Project recreation sites	 Inventory and use data Population projections for the project area Recreational use trends 	 Results of Goal 1 U.S. Bureau of Census Data SC Division of Research & Statistics (Budget and Control Board) SCORP, SC Recreation Participation & Preference Study, or other readily available literature
Goal 2c: Identify future needs for new recreation sites and/or facilities	 Estimate of future recreation use at the Project Parking capacity at recreation sites vs. existing and projected use density Condition/perception assessment 	 Results of Goal 1a, 1b, 2a, 2b, Columbia County, USFS, and RCG input on future needs

5.1 RECREATION SITE INVENTORY

Prior to completion of a recreation site inventory, GPS points and land area of each recreation site will be collected and recorded. Then a recreation site inventory will be completed for each recreation site included in Table 3-1. A site visit will be made to collect data on the type, number, and size of facilities (restrooms, parking areas, boat ramps, picnic shelters and tables, etc.) located at each site. The general condition of all recreation facilities will be noted during the inventory. In addition, any facilities that qualify as barrier free will be identified as such. A copy of the inventory form is provided in Appendix A.

Upon completion of the inventory, all data will be uploaded into an Excel database. The database will be structured so that it can be used in a variety of formats (brochure, maps, web pages, etc.) and can be updated as recreation sites are modified, added, or changed in any way.

5.2 TRAFFIC COUNTS

Traffic counters will be installed at all recreation sites included in Table 3-1 to record the number of vehicles that enter and exit the public recreation areas. Traffic count data will be collected for one year in order to capture use during the various seasons. Counters will be installed by April 1, 2021 and will collect data through March 31, 2022. Traffic counter data will be downloaded from the counter at a minimum of twice per month to ensure the counter is working properly and to minimize the potential for lost data.

5.3 TRAIL CAMERA DATA

Trail cameras will be installed at Fury's Ferry and Chota Drive recreation sites to capture the number of recreators and types of activities in which recreators partake at the recreation sites. Trail camera data will be collected during the peak recreation season, from April 1, 2021 through September 6, 2021 at Chota Drive and from April 1, 2021 through March 31, 2022 at Fury's Ferry. The trail camera will be installed at Fury's Ferry for a full year to capture the waterfowl hunting season. Trail camera data will be used in addition to periodic spot counts and recreation use and recreation activity types.

5.4 **RECREATION USER SURVEYS**

The preferences and perceptions of people using Project recreation sites weigh heavily into the determination of need for recreation site improvements and/or new recreation sites. Information from recreation site users will be collected through on-site surveys. Surveys will be conducted at recreation sites as shown in Table 5-1. Surveys may be collected at Chota Drive Recreation Site and Fury's Ferry Recreation Site when traffic counter/trail camera data is downloaded. However, a recreation clerk will not be stationed at these sites.

Surveys will be administered to recreation site users at the close of their recreation day⁴. Data collected will include user demographics, group size, the type of land-based and water-based recreation activities individuals are participating in, length of stay, and perceptions of crowdedness and condition of recreation facilities at the Project. The data collected will be used to identify recreation use patterns and use estimates at the recreation sites. The data will also characterize user perceptions on crowdedness, which will be considered during the future needs analysis.

The survey will be pre-tested in the field prior to implementation and revisions will be incorporated, as necessary. If any significant revisions to the survey or study protocol are deemed necessary following field pre-testing, the RCG will be notified. A copy of the survey is provided in Appendix B.

Surveys will be administered during the peak recreation season from April 1 through Labor Day weekend, 2021. Each recreation site will be sampled according to a sampling plan that will be prepared in consultation with the RCG. Sampling days will include weekdays, weekends and peak use weekends⁵. The sampling plan will be developed using a stratified random sampling method, with weekends being sampled at a greater rate than weekdays to account for the heavier use that typically occurs on these days. During each sampling day, survey clerks will be on-site for a four-hour shift, collecting as many complete surveys as possible. The shifts will occur

⁴ FERC defines a recreation day as a visit by a person to a development for recreational purposes during any portion of a 24-hour period.

⁵ FERC defined peak use weekends as weekends when recreation use is at its peak for the season (typically Memorial Day, Independence Day and Labor Day). All three days in a holiday weekend should be included.

randomly throughout the day within the window of 7:00 AM to 8:00 PM. Shift start times will be listed in the sampling plan.

All survey clerks will be trained thoroughly as a means of quality control. Survey clerks will be provided with detailed information on the study schedule, appropriate materials to aid in data collection, and direction on appropriate interviewing techniques and attire. Interviewers will also be provided with an incentive for survey respondents to complete the survey.

5.5 SPOT COUNTS

Spot counts will be conducted at the recreation sites listed in Table 3-1 once per sampling day, prior to the start of survey collection. Spot counts will document the number of vehicles present at a recreation site at one moment in time. Information recorded during spot counts will include: date, time, and weather; number of vehicles and vehicles with trailer at recreation site; type of activities observed at the site; and state license plate data. Spot count data will be used in parallel with traffic counter data. Spot counts will only be collected at Chota Drive Recreation Site and Fury's Ferry Recreation Site when traffic counter/trail camera data is downloaded. However, a recreation clerk will not be stationed at these sites.

6.0 ANALYSIS

The following sections provide a description of the approach for estimating existing and future recreational use, recreation site capacity and use density percentages, and future recreation needs.

6.1 CURRENT RECREATION USE ESTIMATES

The reported estimates of recreation will be presented in "recreation days". The FERC defines a recreation day as one visit by a person to a development for purposes of recreation during any 24-hour period. The weekday, weekend, and peak weekend average recreation days will be calculated for each recreation site utilizing the traffic counters and recreation site survey data. The average number of people at each site within the morning and afternoon periods will be estimated within each day type and converted to a daily estimate. Daily estimates for each day



type will be expanded to represent the study period and summed for a total estimate for each recreation site.

6.2 FUTURE RECREATION USE ESTIMATES

Estimated projections of future recreation use at the Project will be developed using the average annual increase in population growth over the past 10 years, as reported by the Census Bureau or the State Division of Research and Statistics, for Edgefield and McCormick counties, SC and Columbia County, GA. The estimates will be augmented with discussion of trends reported in the SCORP (2014) and the SC Recreation Participation & Preference Study (2005). Estimated projections will be provided in 5-year intervals for the anticipated term of the license up to 50 years into the future (through year 2075).

While it is acknowledged that future changes in the supply of recreation resources, either in their quantity, accessibility, and/or quality may influence future demand and use, the demand analysis undertaken for this study does not attempt to predict what these future changes might consist of or how they might specifically affect levels of use at Project facilities. Therefore, the demand analysis results should be viewed as a general guide of potential future recreation pressure developed for planning purposes only.

6.3 RECREATION SITE CAPACITY

For purposes of this study, the carrying capacity for a recreation site is defined as the number of vehicles and boat trailers that can be parked at a recreation site at one time, based on the number of available parking spaces associated with each site. For paved parking areas, this will be achieved by counting the number of designated parking spaces available at the recreation site. For gravel parking areas, the number of available parking spaces for each recreation site will be estimated by measuring the area (sq ft) available for parking and estimating the number of vehicles that could be parked at the location, if optimal space were utilized. These estimates will be based on parking capacity standards for vehicle length, width, and available turn around space.

6.4 **RECREATION SITE USE DENSITY**

The use density of recreation sites will be estimated by comparing the average observed number of vehicles at the sites on sampled weekday, weekend, and peak weekend days with the available parking capacity for each recreation site. The average observed number of vehicles divided by the parking capacity will provide an estimated use density for each site. The average number of vehicles at the site will be determined using spot count and traffic counter data.

6.5 RECREATION NEEDS ASSESSMENT

The need for recreation and site development or modification of existing recreation resources will be assessed based on the inventory, condition assessment results, parking capacity and use density assessment results, user survey results, and Forest Service consultation. The needs assessment will focus on the existing condition and user opinions of recreation sites, the presence of "barrier free" facilities at recreation sites, and the ability of sites to meet current and anticipated future recreation demand. Consideration will also be given to site opportunities and constraints, as well as support facilities such as signage and maintenance. The need for new recreation sites and/or facilities will be determined through assessment of the information collected and the input of stakeholders through the RCG and the Forest Service.

7.0 SCHEDULE

The proposed schedule for completion of the Recreation Use and Needs Study is as follows:

TASK	DATE
Mobilization for field work (includes field clerk hiring, training, etc.)	March 2021
User survey pre-testing	March 2021
Installation of traffic counters/trail cameras	April 1, 2021
Traffic counter data collection	April 1, 2021 – March 31, 2022
User survey collection	April 1 - September 6, 2021
Preliminary data entry, cleaning, and processing	October 2021
Conduct analyses	April-May 2022
Submit draft report	July 2022
Determine if additional data collection is needed	July 2022 ⁶
Finalize report	August 2022

8.0 **REFERENCES**

- Federal Energy Regulatory Commission (FERC). 2018. 18 CFR Parts 8 and 141: Elimination of Form 80 and Revision of Regulations on Recreational Opportunities and Development at Licensed Hydropower Projects. Issued December 20, 2018.
- South Carolina Electric & Gas Company (SCE&G). 2014. Revised Recreation Plan: Stevens Creek Hydroelectric Project, FERC Project No. 2535. January 2014.

⁶ If additional data collection is required, data collection methods, results and analyses will be developed and assessed in cooperation with the RCG and will be provided in an addendum to the report.

APPENDIX A

SITE INVENTORY FORM

DOMINION ENERGY SOUTH CAROLINA, INC.

RECREATION STUDY

STEVENS CREEK HYDROELECTRIC PROJECT

(FERC NO. 2535)

Recreation Site Inventory Form

Inspector:	 	
City:		

Road Access:

	Paved	Unpaved/Gravel
Road Access		

Parking:

	Paved	Unpaved/Gravel
Vehicle Spaces		
Vehicle with Trailer Spaces		
ADA/Barrier Free Spaces		

Restrooms:

	Flush Toilets	Vault Toilets	Portable Toilets	ADA/Barrier Free
Women				
Men				
Unisex				

Boat Launches (# of lanes):

	Hard Surface (concrete/paved)	Gravel	Informal
Trailer Launch			
Carry-In			

Docks:

	# of Docks	ADA/Barrier Free
Courtesy Dock		
Fishing Dock/Pier		

Camping:

	# of Sites	ADA/Barrier Free
RV Sites		
Cabins		
Tent Sites		
Primitive Sites		

Operations (circle the one that applies):

Manning	Manned	Unmanned
Availability	Seasonal	Year Round
Fees	Yes	No

Amenities:

	Yes	No	Additional Information
Marina			
Whitewater Boating			
Portage			
Tailwater Fishing			
Reservoir Fishing			
Swim Area			
Trails			
Active Recreation Area			
Picnic Area			
Overlook/Vista			

	Yes	No	Additional Information
Interpretive Display			
(Signage/Kiosk/Billboard)			
Hunting Area			
Trash Cans			
Other			

APPENDIX B

RECREATION USER SURVEY

Recreation User Survey Stevens Creek Hydroelectric Project (FERC No. 2535)

Clerk:	Site:	Date:	Time:	am/pm	
Weather: 🛛 Sunny	Partly Cloudy	□ Cloudy	🗆 Light Rain	🗆 Heavy Rain	
RESPONDENT GENDER:	🗆 Male 🛛 Female	RESPONDEN	REFUSED INTERVI	EW: 🗆	
NUMBER OF PEOPLE IN	RESPONDEN	T DOES NOT SPEAK			
			I'S PRIMARY LANG	•	
VEHICLE HAS A BOAT T	RESPONDEN	T IS NOT 18 YEARS (OR OLDER: 🗆		
RESPONDENT HAS BEEN INTERVIEWED AT THIS SITE PREVIOUSLY:					

THE FIRST FEW QUESTIONS ASK ABOUT YOUR EXPERIENCE HERE TODAY

1. Including yourself, how many people are in your party today? (Fill in blank.)

_____ people in party

2. What time did you arrive at this recreation site today? (Fill in blank.)

_____ am / pm

3. What is the primary recreation activity that you participated in today at this recreation site? (*Please read the list to respondents. Check only one main activity in the first column.*)

What other activities did you participate in today at this recreation site? (Check all that apply in the second column.)

Check only one main	Check all other	
activity	activities	Types of Activities
		FISHING:
		boat fishing
		pier/dock fishing
		bank fishing
		bow fishing/spear fishing
		BOATING:
		motor boating
		pontoon/party boating
		canoeing/kayaking
		paddle-boarding
		Jet-skiing
		OTHER:
		bicycling
		diving/SCUBA
		tent or vehicle camping
		horseback riding
		walking/hiking/backpacking
		sightseeing

Check only	Check all	
<u>one</u> main	other	
activity	activities	Types of Activities
		hunting
		nature study/wildlife viewing/photography
		swimming
		picnicking
		sunbathing
		other:
		None

- 4. If you are hunting or fishing today, what is/are your target species? (List all that are stated.)
- 5. Did you spend any time on the water today? (Check one box.)

YES	
NO	(If no, skip to Question 7.)

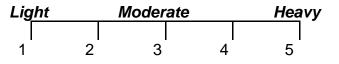
6A. Did you recreate on or near any of the islands today?

YES	
NO	(If no, skip to Question 7.)

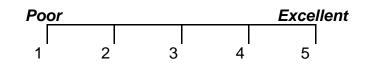
6B. What activities did you participate in **while on/near the island(s)**? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

□ sunbathing	bank fishing		hunting
	walking/hiking		sightseeing
nature study/wildlife viewing/photography	swimming		picnicking
□ other (please specify:)	

7. On a scale from 1 to 5, with 1 being light, 3 being moderate, and 5 being heavy, how would you rate the crowdedness *at this recreation site* today? (*Circle one number.*)



8A. On a scale from 1 to 5, with 1 being poor and 5 being excellent, how would you rate the overall condition *of this recreation site* today? (*Circle one number.*)



- 8B. Are there any additional facilities/improvements needed **at this recreation site**? (Check one box.)
 - □ YES
 □ NO (If no, skip to Question 9.)
- 8C. What do you recommend? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

access road	bank fishing area		boat dock
boat launch	camping area		fish cleaning station
fishing pier/dock	lighting		parking lot
picnic tables/shelter	restrooms		signs & information
swimming area	trails		trash cans
RV camping	tent camping	□ infor	bilingual signs & mation
other (please specify:)	

8D. Are there any other improvements that you would recommend for this site?

□ YES □ NO

NO (If no, skip to Question 9.)

8E. What improvements do you recommend? (Fill in the blank.)

9. What other lakes do you recreate at? (Fill in blank.)

10. What is your zip code? _____

- 11. In what year were you born?
- 12. Do you have any additional comments about this recreation site, including comments on existing or needed recreation facilities? (*Please fill in blank and be as specific as possible.*)

THANK YOU FOR YOUR HELP! WE APPRECIATE YOUR TIME TODAY!

APPENDIX C

SPOT COUNT FORM

Spot Count Form Dominion Energy South Carolina, Inc. Stevens Creek Hydroelectric Project							
MONITOR:						Day Type: 1 weekday 2 weekend 3 holiday	
WEATHER AT START (PLEASE CIRCLE AS MANY DESCRIPTORS AS APPLY)	 SUNNY PARTLY SU CLOUDY LIGHT SHO HEAVY RA WINDY 	WERS					
SPOT COUNT							
RECREATION SITE	TIME		TOTAL VEHICLES W/O TRAILERS	TOTAL VEHIC TRAILERS	LES W BOAT	TOTAL VEHICLES W KAYAK/CANOE TRAILERS	
		AM/PM					
					T		
Types of Activities		Check all	STATE LICENS	SE PLATES	# F	ROM EACH STATE	
FISHING			South Carolina				
Boat Fishing			Georgia				
Pier/dock Fishing			North Carolina				
Bank Fishing			Other:				
BOATING							
Motor Boating							
Pontoon/party Boating							
Sailing							
Canoeing/Kayaking							
Windsurfing							
Paddle-boarding							
OTHER							
Bicycling							
Tent or Vehicle Campin	-						
Walking/Hiking/Backpa	acking						
Sightseeing							
Hunting							
Nature Study/Wildlife							
Swimming							
Picnicking							
Sunbathing							
Other:							
TOTAL:							

Initial consultation was sent to the following tribes in August 2019;

Ms. Devon Frazier, THPO Absentee Shawnee Tribe of Oklahoma Tribal Historic Preservation Office 2025 S. Gordon Cooper Shawnee, OK 74801

Dr. Wenonah G. Haire Catawba Indian Nation Tribal Historic Preservation Office 1536 Tom Steven Road Rock Hill, SC 29730

Mr. Bill John Baker, Principal Chief Cherokee Nation Tribal Historic Preservation Office PO Box 948 Tahlequah, OK 74465

Ms. Elizabeth Toombs, Special Projects Officer Cherokee Nation Tribal Historic Preservation Office P.O. Box 948 Tahlequah, OK 74465

Mr. Bill Anoatubby, Governor Chickasaw Nation Tribal Historic Preservation Office PO Box 1548 Ada, OK 74821

Mr. Russell Townsend, THPO Eastern Band of Cherokee Indians Tribal Historic Preservation Office PO Box 455 Cherokee, NC 28719

Mr. Brett Barnes, THPO Eastern Shawnee Tribe of Oklahoma Tribal Historic Preservation Office 12705 E. 705 Road Wyandotte, OK 74370 Ms. Corain Lowe-Zepeda, THPO Muscogee Creek Nation Tribal Historic Preservation Office PO Box 580 Okmulgee, OK 74447

Mr. Larry Haikey, THPO Poarch Band of Creek Indians Tribal Historic Preservation Office 5811 Jack Springs Road Atmore, AL 36502

Mr. Duane Whipple, THPO Santee Sioux Nation Tribal Historic Preservation Office 425 Frazier Ave. N. #2 Niobara, NE 68760

Mr. Duane Whipple, THPO Santee Sioux Nation Tribal Historic Preservation Office 425 Frazier Ave. N. #2 Niobara, NE 68760

DESC received responses from the following tribes to be included in consultation;

From: Caitlin Rogers <caitlinh@ccppcrafts.com> Sent: Thursday, September 5, 2019 9:06 AM To: BRESNAHAN, AMY (SCE&G - 8) <Amy.Bresnahan@scana.com> Subject: Stevens Creek Hydroelectric Project

Ms. Bresnahan,

The Catawba wish to be involved in additional consultation on this project. Thanks

Caitlin Rogers Catawba Indian Nation Tribal Historic Preservation Office 1536 Tom Steven Road Rock Hill, SC 29730 803-328-2427 ext. 226 <u>Caitlinh@ccppcrafts.com</u> The Cherokee Nation previously requested inclusion after our initial outreach meeting for relicensing.

From: Elizabeth Toombs [mailto:elizabeth-toombs@cherokee.org]
Sent: Friday, February 01, 2019 3:47 PM
To: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>
Subject: RE: Final Stevens Creek Meeting Notes - 1/10/19

Dear Kelly Kirven:

Many thanks for the meeting notes. In reviewing the details, I noted that cultural resources for this project were conducted previously? This note is to request copies of the previous cultural resource survey reports.

Thank you for your time and any details. Please contact me if there are any questions or concerns.

Wado, Elizabeth Toombs, Tribal Historic Preservation Officer Cherokee Nation Tribal Historic Preservation Office PO Box 948 Tahlequah, OK 74465-0948 918.453.5389

From: BRESNAHAN, AMY (SCE&G - 8)

Sent: Tuesday, October 15, 2019 3:14 PM To: 'Caitlinh@ccppcrafts.com' <Caitlinh@ccppcrafts.com>; 'Rooks, Whitney' <Whitney.Rooks@dnr.ga.gov>; Johnson, Elizabeth <EJohnson@scdah.sc.gov>; 'elizabethtoombs@cherokee.org' <elizabeth-toombs@cherokee.org> Cc: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>; Alison Jakupca <Alison.Jakupca@KleinschmidtGroup.com>; AMMARELL, RAYMOND R (SCE&G - 8) <RAMMARELL@scana.com> Subject: Stevens Creek Project (P-2535) relicensing consultation

To all,

Dominion Energy South Carolina, Inc. (DESC), licensee of the Stevens Creek Hydroelectric Project, (FERC Project No. 2535) is initiating consultation pursuant to Section 106 of the National Historic Preservation Act for the relicensing of the Stevens Creek Hydroelectric Project.

During the previous relicensing a Phase I and II Cultural Resources investigation was completed in 1996. A Historic Properties Management Plan (HPMP) was approved by the FERC in March 2004. Since a comprehensive investigation has been done in the past at the Stevens Creek Project, DESC requests that the agencies and tribes review the existing investigations and HPMP to determine if any additional investigation needs to be undertaken for this relicensing. Also, any updates recommended for the HPMP will be discussed during this process to develop the new Historic Management Properties Plan.

Please note that the Project Boundary ends at the Stevens Creek dam but the area of potential effects (APE) for cultural resources scope of this Project encompasses area not only within the project boundary but an area outside as well. Outside of the project boundary the APE encompasses both shorelines of the Savannah River downstream from the Stevens Creek dam for approximately 2, 000 feet below the dam which includes Stallings Island (see Figure 1 of the HPMP). DESC would like confirmation as to whether you are in agreement with the current delineated APE.

Please respond to me within 30 days as to whether your agency or tribe requests additional cultural resource investigations and whether you agree with using the current APE for this relicensing process.

Due to the large file sizes of the documents, you may access them for download via Sharefile site hosted by Kleinschmidt, a consulting firm assisting in the relicensing process. Click on the following link to download; <u>https://kleinschmidt.sharefile.com/d-scff04f3c2534e958</u>

If you have any questions please contact me. I look forward to working with you during this relicensing.

Amy Bresnahan, P.E.

Dominion Energy South Carolina, Inc. Fossil/Hydro Civil Engineering MC A221 220 Operation Way Cayce, SC 29033-3701 Office: (803) 217-9965 Cell: (803)206-4667 amy.bresnahan@scana.com

Note that the USFS and the Advisory Council on Historic Preservation (ACHP) were forwarded the above email. No response was received from ACHP.

From: Bates, Jim -FS <jim.bates@usda.gov>
Sent: Friday, November 1, 2019 1:27 PM
To: BRESNAHAN, AMY (SCE&G - 8) <Amy.Bresnahan@scana.com>
Cc: Morgan, Robert T -FS <robert.t.morgan@usda.gov>; Bates, Jim -FS <jim.bates@usda.gov>;
Keely Lewis <Klewis@scdah.sc.gov> <KLewis@scdah.sc.gov>; Nadler, Peggy -FS <peggy.nadler@usda.gov>
Subject: RE: Stevens Creek Project (P-2535) relicensing consultation

Ms. Bresnahan,

The Forest Service agrees with the current delineation of the area of potential effects for the Stevens Creek Project and wishes to be part of the revision of the Historic Properties Management Plan. Part of the revision and updating should be a review of the previous site mapping, and checking for accuracy of site location, size, and shape of archeological sites in state and federal GIS archaeological site layers. For instance, the original site information was digitized from paper maps when put in ArchSite, the South Carolina GIS site mapping record. This should be checked for accuracy. A full resurvey of the project area is probably not needed.

James F Bates Archeologist

Forest Service Long Cane RD, Sumter NF

p: 803-637-5396 x0250 c: 803-351-5159 f: 803-637-5247 jim.bates@usda.gov

810 Buncombe Street Edgefield, SC 29824 www.fs.fed.us

Agency Consultation for Stevens Creek Project Cultural Resources

From: Schroer, Keely <KSchroer@scdah.sc.gov>
Sent: Wednesday, November 6, 2019 4:32 PM
To: BRESNAHAN, AMY (SCE&G - 8) <Amy.Bresnahan@scana.com>
Cc: Caitlinh@ccppcrafts.com; Whitney.Rooks@dnr.ga.gov; Johnson, Elizabeth
<EJohnson@scdah.sc.gov>; elizabeth-toombs@cherokee.org; Kelly.Kirven@KleinschmidtGroup.com;
Alison.Jakupca@KleinschmidtGroup.com; AMMARELL, RAYMOND R (SCE&G - 8)
<RAMMARELL@scana.com>; Bates, Jim -FS <jim.bates@usda.gov>; Morgan, Robert T -FS
<robert.t.morgan@usda.gov>; SPIREK, JIM <SPIREKJ@mailbox.sc.edu>; BRADLEY, RYAN
<RBRADLEY@sc.edu>
Subject: RE: Stevens Creek Project (P-2535) Relicensing Consultation

From: South Carolina State Historic Preservation Office

Please find attached our comments letter on the subject referenced project. A hard copy can be provided upon request.

Please contact us if you have any questions regarding our comments.



Keely Lewis-Schroer Archaeologist State Historic Preservation Office SC Department of Archives & History 8301 Parklane Road Columbia, SC 29223 Ph: 803.896.6181 Fax: 803.896.6167 <u>https://scdah.sc.gov/historic-preservation</u> <u>kschroer@scdah.sc.gov</u>



November 6, 2019

Amy Bresnahan Dominion Energy South Carolina, Inc. Fossil/Hydro Civil Engineering MC A221 220 Operation Way Cayce, SC 29033-3701

Re: Stevens Creek Project (P-2535) Relicensing Edgefield and McCormick Counties, South Carolina SHPO Project No. 18-EJ0115

Dear Amy Bresnahan:

Thank you for your email of October 15, 2019 regarding the subject-referenced undertaking. We also received the Pre-Application Document (PAD), the January 10, 2019 Agency and NGO Outreach Meeting Notes, the Historic Properties Management Plan (HPMP) and the final report, *Phase I and II Cultural Resource Investigations Stevens Creek Hydroelectric Project* (Kratzer et al. 1996), as supporting documentation for this undertaking. The State Historic Preservation Office (SHPO) is providing comments to the Federal Energy Regulatory Commission (FERC) pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes, local governments, or the public.

As noted in your email and the documentation provided, Dominion Energy South Carolina, Inc. (DESC) is filing a Notice of Intent (NOI) and a PAD with the FERC to relicense the Stevens Creek Hydroelectric Project. DESC has requested a review of the previous cultural resource investigations and the HPMP to determine if any additional investigations need to be undertaken for this relicensing. DESC additionally notes that any recommended updates for the HPMP will be discussed during this process. DESC also seeks confirmation as to our office's agreement with the current delineated Area of Potential Effect (APE) for the undertaking.

Our office has reviewed the results of the previous investigations, the HPMP and the current delineated APE. We recommend the following prior to the relicensing:

A site revisit to the nineteen eligible and unevaluated (i.e. potentially eligible) archaeological sites (38ED0005, 38ED009, 38ED0048, 38ED0118, 38ED0119/0283, 38ED0121, 38ED0282, 38ED0285, 38ED0290, 38ED0291, 38ED0292, 38ED0293, 38ED0388, 38ED0432, 38ED0433, 38ED0441, 38MC0699, 38MC0811, and 38MC0915). We recommend a revisit to these sites to verify and map their delineation and locations to current methodology and standards. Our office

notes that corrections have been made to several site locations following the 1996 investigations and that, during a site visit by Louis Berger & Associates, Inc. in 1999, it was noted that is was not possible to do a detailed check of the size, configuration and boundary definition of the eligible and unevaluated sites.

- Our office concurs with the delineation of the APE. We recommend a reanalysis of the APE through the development of a GIS-based predictive model in order to determine if additional high and moderate probability areas, as determined by current data and modeling, were not subjected to survey during the 1996 investigations. Our office requests that we be provided with the results of this modeling for review in order to make recommendations regarding the need for additional identification efforts within the APE.
- Consultation with the Maritime Research Division (MRD), under the direction of the State Underwater Archaeologist, regarding if additional underwater archaeological sites have been recorded within the APE following the 1996 investigations. Our office defers to the expertise of the MRD regarding submerged resources and recommends that they be consulted for recommendations regarding site 38ED0388. Please contact Ryan Bradley at 803-576-6565 or rbradley@sc.edu or Jim Spirek at 803-576-6566 or spirek@sc.edu if you have any questions or require additional information about this recommendation.

Please refer to SHPO Project Number 18-EJ0115 in any future correspondence regarding this project. If you have any questions, please contact me at (803) 896-6181 or <u>KLewis@scdah.sc.gov</u>.

Sincerely, Keely Lewis-Schroer

Keely Lewis-Schroer Archaeologist State Historic Preservation Office

cc: Elizabeth Johnson, SHPO Jim Bates, Forest Service Robert Morgan, Forest Service Jim Spirek, MRD Ryan Bradley, MRD



HISTORIC PRESERVATION DIVISION

Mark Williams Commissioner DR. DAVID CRASS DIVISION DIRECTOR

November 14, 2019

Amy Bresnahan Project Engineer Dominion Energy South Carolina, Inc. 220 Operation Way Cayce, South Carolina 29033

RE: FERC 2535: Relicensing and Historic Properties Management Plan, Stevens Creek Columbia County, Georgia HP-930928-001

Dear Ms. Bresnahan:

The Historic Preservation Division (HPD) has reviewed the initial information received concerning the above-referenced project. Our comments are offered to assist the Federal Energy Regulatory Commission and its applicants in complying with the provisions of Section 106 of the National Historic Preservation Act (NHPA).

Thank you for notifying our office of this proposed project. We look forward to receiving Section 106 compliance documentation when it becomes available. Based on the initial information provided and due to the age of previous surveys, HPD recommends updating cultural resources surveys to take into account properties that have since become historic, as well as verifying current determinations in light of revised/new guidance that may have been published since that time. Additionally, HPD concurs with the area of potential effect (APE) as identified in the submitted information.

HPD looks forward to working with you as this project progresses. Please refer to project number **HP-930928-001** in any future correspondence concerning this project. If we may be of further assistance, please do not hesitate to contact Whitney Rooks, Environmental Review Historian, at (770) 389-7855 or whitney.rooks@dnr.ga.gov.

Sincerely,

al Rt

Jennifer Dixon, MHP, LEED Green Associate Program Manager Environmental Review & Preservation Planning

JAD/wmr

Cc: Anne Floyd, Central Savannah River Area Regional Commission

JEWETT CENTER FOR HISTORIC PRESERVATION 2610 GA HWY 155, SW | STOCKBRIDGE, GA 30281 770.389.7844 | FAX 770.389.7878 | WWW.GEORGIASHPO.ORG Appendix A-3

Stakeholder Consultation - Emails

Good Morning Kelly,

I hope all is well. HPD reviewed the Draft Water Quality Study Plan, Recreation Study Plan, Draft Mussel Study Plan, and RTE Species Plan. Thank you for sending us these documents. At this time HPD has no comment, as there are no cultural resources within the APE of the study areas.

We look forward to receiving the meeting minutes and final study plans.

Thanks!

Whitney Rooks, MHP Environmental Review Historian Historic Preservation Division (770) 389-7855 | F: (770) 389-7878 2610 Ga Hwy 155, SW Stockbridge, GA 30281 Facebook • Twitter • Instagram

From:	HPD106-DoNotReply
То:	Kelly Kirven
Cc:	Anne Floyd
Subject:	FERC: Stevens Creek Hydro Relicensing, #2535, Columbia Co, HP 930928-001
Date:	Friday, September 6, 2019 6:05:32 PM
Attachments:	Columbia HP-930928-001 Sept 6 2019.pdf

From: Historic Preservation Division

Attached is our letter on the subject undertaking (in Adobe Acrobat PDF format)

Do not respond to this e-mail.

If you have any questions concerning our letter, please contact: Whitney Rooks at <u>whitney.rooks@dnr.ga.gov</u>

A free copy of Adobe Acrobat Reader can be downloaded from: <u>www.adobe.com</u>

From:	Kelly Kirven
To:	Alison Jakupca; AMY BRESNAHAN (Amy.Bresnahan@dominionenergy.com); Ashley Holmes; Bill Marshall
	(marshallb@dnr.sc.gov); caitlinh@ccppcrafts.com; Caleb Gaston (caleb.gaston@scana.com); Chris Howard
	(chris@linksolar.net); Chris Nelson (chris.nelson@dnr.ga.gov); Debbie Wallsmith (debbie.wallsmith@dnr.ga.gov);
	<u>Derrick Miller (derrickmiller@fs.fed.us); Elena Richards (elena@savannahriverkeeper.org); Elizabeth Johnson</u>
	(emjohnson@scdah.state.sc.us); Elizabeth Miller (MillerE@dnr.sc.gov); Elizabeth Toombs (elizabeth-
	toombs@cherokee.org); Henderson, Cameron T.; Henry Mealing; Jaime Loichinger (iloichinger@achp.gov);
	Jamie Rader (jrader@ducks.org); Jamie Sykes (James.A.Sykes@usace.army.mil); jason.payne@dnr.ga.gov; Jeff
	<u>Darley (jeff.darley@dnr.ga.gov); Jennifer Welte (jennifer.welte@dnr.ga.gov); John Eddins (jeddins@achp.gov);</u>
	Jon Ambrose (jon.ambrose@dnr.ga.gov); Jordan Johnson; Kathryn Feingold
	(Kathryn.A.Feingold@usace.army.mil); Kelly Kirven; Madeline Banyas (madeline.banyas@dnr.ga.gov); Melanie
	Olds (melanie_olds@fws.gov); Mike Mosley (MMosley@scana.com); Outdoor Augusta; Paula Marcinek
	(paula.marcinek@dnr.ga.gov); R. A. (Tony) Hicks (barneybimmer@gmail.com); rachel@savannahriverkeeper.org;
	randy mahan (rmahan@sc.rr.com); RAYMOND AMMARELL; Rob Pavey (rpavey1@comcast.net); Robert Phillips
	(rphillips@gwf.org); Robin Goodloe (robin_goodloe@fws.gov); Robinson, Scott; Rooks, Whitney; Scott Hyatt (scott.m.hyatt2@usace.army.mil); Smith, Leland A.; Stan Simpson (Stanley.L.Simpson@usace.army.mil); Steve
	Schleiger (steve.schleiger@dnr.ga.gov); Thom Litts (thom.litts@dnr.ga.gov); Tonya Bonitatibus
	(riverkeeper@savannahriverkeeper.org); Wenonah G. Haire (wenonahh@ccppcrafts.com); Whalen, James -FS;
	William Jabour (William.E.Jabour@usace.army.mil); Andy Herndon (Andrew.Herndon@noaa.gov); Chris
	Thomason (thomasonc@dnr.sc.gov): David Eargle (eargleda@dhec.sc.gov): Don Imm (donald imm@fws.gov):
	Fritz Rohde (Fritz.Rohde@noaa.gov); Greg Mixon (mixong@dnr.sc.gov); Jason Bettinger (bettingerj@dnr.sc.gov);
	Jason Moak; Jeffery Williams (jeffery williams@dnr.ga.gov); Morgan Kern (KernM@dnr.sc.gov); Pace Wilber
	(Pace.Wilber@noaa.gov); Ron Ahle; Rusty Wenerick (weneriwr@dhec.sc.gov); Scott Glassmeyer; Tony
	Hornbuckle (thornbuckle61@gmail.com); Twyla Cheatwood (twyla.cheatwood@noaa.gov); Zapata, Martha; Bret
	Hoffman; Susan Barrett (sdbarrit@gmail.com)
Subject:	Final Stevens Creek Joint RCG Meeting Notes - 2/18/20
Date:	Wednesday, March 25, 2020 1:58:01 PM
Attachments:	final 02182020 JointRCG notes .pdf

Good afternoon all,

Attached are the final notes from the Stevens Creek Joint RCG meeting, held on February 18th. The notes are also available on the project website, <u>www.stevenscreekrelicense.com</u>.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt

Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

From:	Alison Jakupca
То:	AMY BRESNAHAN; RAYMOND AMMARELL; Henry Mealing; CALEB GASTON; Jason Moak; Kelly Kirven
Subject:	FW: SCDNR Freshwater Mussel SOP
Date:	Friday, March 13, 2020 3:07:00 PM
Attachments:	SCDNR Freshwater Mussel Survey SOP.pdf

As sent by SCDNR today. Have a wonderful weekend, Alison

Alison Jakupca Senior Regulatory Coordinator Office: 803 462 5628 Mobile: 864 906 4119 www.KleinschmidtGroup.com

Providing practical solutions for complex problems affecting energy, water, and the environment

From: Elizabeth Miller <MillerE@dnr.sc.gov>
Sent: Friday, March 13, 2020 2:57 PM
To: Alison Jakupca <Alison.Jakupca@KleinschmidtGroup.com>
Cc: Morgan Kern <KernM@dnr.sc.gov>
Subject: SCDNR Freshwater Mussel SOP

Hi Alison,

I've attached the SCDNR Freshwater Mussel SOP that we discussed providing Dominion Energy and Kleinschmidt for the mussel survey. Please let me know if you have any questions. Morgan is also available for any technical advice. Thank you and have a great weekend. Elizabeth

Elizabeth C. Miller FERC Coordinator Office of Environmental Programs South Carolina Department of Natural Resources 217 Fort Johnson Road P.O. Box 12559 Charleston, SC 29412 Office: (843) 953-3881 Cell: (843) 729-4636

From:	BRESNAHAN, AMY
To:	Miller, Derrick L -FS; "Bates, Jim -FS"; Morgan, Robert T -FS; Toney, Elizabeth M -FS
Cc:	AMMARELL, RAYMOND R (SCE&G - 8); Alison Jakupca; Kelly Kirven
Subject:	FW: Stevens Creek Project (P-2535) relicensing consultation
Date:	Thursday, October 17, 2019 9:45:24 AM
Cc: Subject:	AMMARELL, RAYMOND R (SCE&G - 8); Alison Jakupca; Kelly Kirven FW: Stevens Creek Project (P-2535) relicensing consultation

Forwarding this to you as I left the USFS off the initial email. Please contact me if you have questions.

Amy

From: BRESNAHAN, AMY (SCE&G - 8)
Sent: Tuesday, October 15, 2019 3:14 PM
To: 'Caitlinh@ccppcrafts.com' <Caitlinh@ccppcrafts.com>; 'Rooks, Whitney'
<Whitney.Rooks@dnr.ga.gov>; Johnson, Elizabeth <EJohnson@scdah.sc.gov>; 'elizabethtoombs@cherokee.org' <elizabeth-toombs@cherokee.org>
Cc: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>; Alison Jakupca
<Alison.Jakupca@KleinschmidtGroup.com>; AMMARELL, RAYMOND R (SCE&G - 8)
<RAMMARELL@scana.com>
Subject: Stevens Creek Project (P-2535) relicensing consultation

To all,

Dominion Energy South Carolina, Inc. (DESC), licensee of the Stevens Creek Hydroelectric Project, (FERC Project No. 2535) is initiating consultation pursuant to Section 106 of the National Historic Preservation Act for the relicensing of the Stevens Creek Hydroelectric Project.

During the previous relicensing a Phase I and II Cultural Resources investigation was completed in 1996. A Historic Properties Management Plan (HPMP) was approved by the FERC in March 2004. Since a comprehensive investigation has been done in the past at the Stevens Creek Project, DESC requests that the agencies and tribes review the existing investigations and HPMP to determine if any additional investigation needs to be undertaken for this relicensing. Also, any updates recommended for the HPMP will be discussed during this process to develop the new Historic Management Properties Plan.

Please note that the Project Boundary ends at the Stevens Creek dam but the area of potential effects (APE) for cultural resources scope of this Project encompasses area not only within the project boundary but an area outside as well. Outside of the project boundary the APE encompasses both shorelines of the Savannah River downstream from the Stevens Creek dam for approximately 2, 000 feet below the dam which includes Stallings Island (see Figure 1 of the HPMP). DESC would like confirmation as to whether you are in agreement with the current delineated APE.

Please respond to me within 30 days as to whether your agency or tribe requests additional cultural resource investigations and whether you agree with using the current APE for this relicensing process.

Due to the large file sizes of the documents, you may access them for download via Sharefile site hosted by Kleinschmidt, a consulting firm assisting in the relicensing process. Click on the following

link to download; https://kleinschmidt.sharefile.com/d-scff04f3c2534e958

If you have any questions please contact me. I look forward to working with you during this relicensing.

Amy Bresnahan, P.E.

Dominion Energy South Carolina, Inc. Fossil/Hydro Civil Engineering MC A221 220 Operation Way Cayce, SC 29033-3701 Office: (803) 217-9965 Cell: (803)206-4667 amy.bresnahan@scana.com



Actions Speak Louder"

From:	Kelly Kirven
То:	Alison Jakupca; Andy Herndon (Andrew.Herndon@noaa.gov); ARGENTIERI, WILLIAM R; Ashley Holmes; Bill
	Marshall (marshallb@dnr.sc.gov); Bill Smith (BISMITH44@comcast.net); Bill Stringer (catboyz@nctv.com);
	BRESNAHAN, AMY; Caleb Gaston (caleb.gaston@scana.com); Chad Altman (altmankc@dhec.sc.gov); Charlene
	Coleman (cheetahtrk@yahoo.com); Charles Whisenant (chaswhis1988@aol.com); CHASTAIN, WILLIAM K JR;
	Chris Howard (chris@linksolar.net); Chris Nelson (chris.nelson@dnr.ga.gov); Chris Thomason
	(thomasonc@dnr.sc.gov); Chuck Hightower (hightocw@dhec.sc.gov); Cory Eubanks (JCE1440@yahoo.com); Dan
	Rankin (rankind@dnr.sc.gov); David Bernhart (david.bernhart@noaa.gov); David Eargle (eargleda@dhec.sc.gov);
	<u>Debbie Wallsmith (debbie.wallsmith@dnr.ga.gov);</u> Derrick Miller (derrickmiller@fs.fed.us); Don Imm
	(donald_imm@fws.gov); Ed Bettross (Ed.Bettross@dnr.ga.gov); Elena Richards
	(elena@savannahriverkeeper.org); Elizabeth Johnson (emjohnson@scdah.state.sc.us); Elizabeth Miller
	(<u>MillerE@dnr.sc.gov)</u> ; <u>Elizabeth Toombs (elizabeth-toombs@cherokee.org)</u> ; <u>Fritz Rohde (Fritz.Rohde@noaa.gov)</u> ;
	<u>George and Diane Sleister (gwsleister@att.net); Greg Mixon (mixong@dnr.sc.gov); Henry Mealing; Jaime</u>
	Loichinger (jloichinger@achp.gov); Jamie Rader (jrader@ducks.org); Jamie Sykes
	(James.A.Sykes@usace.army.mil); Jason Bettinger (bettingerj@dnr.sc.gov); Jason Moak; Jeff Darley
	(jeff.darley@dnr.ga.gov); Jennifer Welte (jennifer.welte@dnr.ga.gov); John Boland (jkboland59@me.com); John
	Eddins (jeddins@achp.gov); John Harris (john.harris@gfii.com); Jon Ambrose (jon.ambrose@dnr.ga.gov); Jordan
	Johnson; Josh Williford (joshua.paul.williford@gmail.com); Kathryn Feingold
	(Kathryn.A.Feingold@usace.army.mil); Kelly Kirven; Ley, Amanda; Lorianne Riggin (RigginL@dnr.sc.gov); Lynn
	Arnett (LynnArnett325@gmail.com); Madeline Banyas (madeline.banyas@dnr.ga.gov); Mark Caldwell
	(mark_caldwell@fws.gov); Mark Davis; Matt Thomas (matt.thomas@dnr.ga.gov); Melanie Olds
	(melanie_olds@fws.gov); Merrill McGregor (merrillm@scccl.org); Mike Mosley (MMosley@scana.com); Morgan
	Kern (KernM@dnr.sc.gov); Outdoor Augusta; Pace Wilber (Pace.Wilber@noaa.gov); Pat and Dallas Simon
	(patsimon@wctel.net); Paula Marcinek (paula.marcinek@dnr.ga.gov); Phil Gaines (pgaines@scprt.com); R. A.
	(Tony) Hicks (barneybimmer@gmail.com); rammarell@scana.com; Randy Mahan (randolph.mahan@scana.com);
	randy mahan (rmahan@sc.rr.com); Rob Pavey (rpavey1@comcast.net); Robert Phillips (rphillips@gwf.org);
	Robin Goodloe (robin goodloe@fws.gov); Ron Ahle; Ron Davis (bigron.davis00@gmail.com); Rooks, Whitney;
	Rusty Wenerick (weneriwr@dhec.sc.gov); Scott Hyatt (scott.m.hyatt2@usace.army.mil); Sica Collins
	(Sica@savannahriverkeeper.org); Smith, Leland A.; Stan Simpson (Stanley, L.Simpson@usace.army.mil); Steve
	<u>Schleiger (steve.schleiger@dnr.ga.gov);</u> Susan Barrett (sdbarrit@gmail.com); <u>Thom Litts</u> (thom.litts@dnr.ga.gov); Tom McCoy (thomas mccoy@fws.gov); Tom Proctor (proctor351@aol.com); Tony
	Hornbuckle (thornbuckle61@gmail.com); Tonya Bonitatibus (riverkeeper@savannahriverkeeper.org); Twyla
	Cheatwood (twyla.cheatwood@noaa.gov); Wenonah G. Haire (wenonahh@ccppcrafts.com); William Jabour
	<u>Cheatwood (twyla.cheatwood@noa.gov); wenonan G. Haile (wenonann@ccppciatts.com); winiam Jabour</u> (William.E.Jabour@usace.armv.mil)
Subject	
Subject:	FW: Stevens Creek Relicensing Meeting - August 22, 2019
Date:	Tuesday, August 20, 2019 1:33:37 PM

Good afternoon all,

This is a reminder that if you have any comments on the draft Stevens Creek Pre-Application Document, please try to send those to me by mid-day tomorrow, so that we can address them adequately at the meeting on Thursday.

Also, several of you have asked for an address/directions to the Misty Lake Clubhouse. The address is 1280 Ascauga Lake Road, North Augusta, SC 29841. But that actually puts you at a different place on the correct road. If you go to Google Maps, near that address you will see the GVW Volunteer Fire Dept. Station No. 3. The entrance to Misty Lake is just east of that. I hope this helps!!

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

Sent: Tuesday, July 30, 2019 2:46 PM

To: Alison Jakupca < Alison. Jakupca@KleinschmidtGroup.com>; Andy Herndon (Andrew.Herndon@noaa.gov) <Andrew.Herndon@noaa.gov>; ARGENTIERI, WILLIAM R <BARGENTIERI@scana.com>; Ashley Holmes <ashley@savannahriverkeeper.org>; Bill Marshall (marshallb@dnr.sc.gov) <marshallb@dnr.sc.gov>; Bill Smith (BISMITH44@comcast.net) <BISMITH44@comcast.net>; Bill Stringer (catboyz@nctv.com) <catboyz@nctv.com>; BRESNAHAN, AMY <Amy.Bresnahan@scana.com>; Caleb Gaston (caleb.gaston@scana.com) <caleb.gaston@scana.com>; Chad Altman (altmankc@dhec.sc.gov) <altmankc@dhec.sc.gov>; Charlene Coleman (cheetahtrk@yahoo.com) <cheetahtrk@yahoo.com>; Charles Whisenant (chaswhis1988@aol.com) < chaswhis1988@aol.com>; CHASTAIN, WILLIAM K JR <WKCHASTAIN@scana.com>; Chris Howard (chris@linksolar.net) <chris@linksolar.net>; Chris Nelson (chris.nelson@dnr.ga.gov) <chris.nelson@dnr.ga.gov>; Chris Thomason (thomasonc@dnr.sc.gov) <thomasonc@dnr.sc.gov>; Chuck Hightower (hightocw@dhec.sc.gov) <hightocw@dhec.sc.gov>; Cory Eubanks (JCE1440@yahoo.com) <JCE1440@yahoo.com>; Dan Rankin (rankind@dnr.sc.gov) <rankind@dnr.sc.gov>; David Bernhart (david.bernhart@noaa.gov) <david.bernhart@noaa.gov>; David Eargle (eargleda@dhec.sc.gov) <eargleda@dhec.sc.gov>; Debbie Wallsmith (debbie.wallsmith@dnr.ga.gov) <debbie.wallsmith@dnr.ga.gov>; Derrick Miller (derrickmiller@fs.fed.us) <derrickmiller@fs.fed.us>; Don Imm (donald imm@fws.gov) <donald imm@fws.gov>; Ed Bettross (Ed.Bettross@dnr.ga.gov) <Ed.Bettross@dnr.ga.gov>; Elena Richards (elena@savannahriverkeeper.org) <elena@savannahriverkeeper.org>; Elizabeth Johnson (emjohnson@scdah.state.sc.us) <emjohnson@scdah.state.sc.us>; Elizabeth Miller (MillerE@dnr.sc.gov) < MillerE@dnr.sc.gov>; Elizabeth Toombs (elizabeth-toombs@cherokee.org) <elizabeth-toombs@cherokee.org>; Fritz Rohde (Fritz.Rohde@noaa.gov) <Fritz.Rohde@noaa.gov>; George and Diane Sleister (gwsleister@att.net) < gwsleister@att.net>; Greg Mixon (mixong@dnr.sc.gov) <mixong@dnr.sc.gov>; Henry Mealing <Henry.Mealing@KleinschmidtGroup.com>; Jaime Loichinger (jloichinger@achp.gov) <jloichinger@achp.gov>; Jamie Rader (jrader@ducks.org) <jrader@ducks.org>; Jamie Sykes (James.A.Sykes@usace.army.mil) <James.A.Sykes@usace.army.mil>; Jason Bettinger (bettingerj@dnr.sc.gov) <bettingerj@dnr.sc.gov>; Jason Moak <Jason.Moak@Kleinschmidtgroup.com>; Jeff Darley (jeff.darley@dnr.ga.gov) <jeff.darley@dnr.ga.gov>; Jennifer Welte (jennifer.welte@dnr.ga.gov) <jennifer.welte@dnr.ga.gov>; John Boland (jkboland59@me.com) <jkboland59@me.com>; John Eddins (jeddins@achp.gov) <jeddins@achp.gov>; John Harris (john.harris@gfii.com) <john.harris@gfii.com>; Jon Ambrose (jon.ambrose@dnr.ga.gov) < jon.ambrose@dnr.ga.gov>; Jordan Johnson <Jordan.Johnson@KleinschmidtGroup.com>; Josh Williford (joshua.paul.williford@gmail.com) <joshua.paul.williford@gmail.com>; Kathryn Feingold (Kathryn.A.Feingold@usace.army.mil) <Kathryn.A.Feingold@usace.army.mil>; Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>; Ley, Amanda <leyah@dhec.sc.gov>; Lorianne Riggin (RigginL@dnr.sc.gov) <RigginL@dnr.sc.gov>; Lynn Arnett (LynnArnett325@gmail.com) <LynnArnett325@gmail.com>; Madeline Banyas (madeline.banyas@dnr.ga.gov) <madeline.banyas@dnr.ga.gov>; Mark Caldwell (mark_caldwell@fws.gov) <mark_caldwell@fws.gov>; Mark Davis <mddavis629@gmail.com>; Matt Thomas (matt.thomas@dnr.ga.gov) <matt.thomas@dnr.ga.gov>; Melanie Olds (melanie olds@fws.gov) <melanie_olds@fws.gov>; Merrill McGregor (merrillm@scccl.org) <merrillm@scccl.org>; Mike Mosley (MMosley@scana.com) <MMosley@scana.com>; Morgan Kern (KernM@dnr.sc.gov) <KernM@dnr.sc.gov>; Outdoor Augusta <outdooraugusta@gmail.com>; Pace

Wilber (Pace.Wilber@noaa.gov) <Pace.Wilber@noaa.gov>; Pat and Dallas Simon (patsimon@wctel.net) <patsimon@wctel.net>; Paula Marcinek (paula.marcinek@dnr.ga.gov) <paula.marcinek@dnr.ga.gov>; Phil Gaines (pgaines@scprt.com) <pgaines@scprt.com>; R. A. (Tony) Hicks (barneybimmer@gmail.com) <barneybimmer@gmail.com>; rammarell@scana.com; Randy Mahan (randolph.mahan@scana.com) <randolph.mahan@scana.com>; randy mahan (rmahan@sc.rr.com) <rmahan@sc.rr.com>; Rob Pavey (rpavey1@comcast.net) <rpavey1@comcast.net>; Robert Phillips (rphillips@gwf.org) <rphillips@gwf.org>; Robin Goodloe (robin goodloe@fws.gov) <robin goodloe@fws.gov>; Ron Ahle <AhleR@dnr.sc.gov>; Ron Davis (bigron.davis00@gmail.com) < bigron.davis00@gmail.com>; Rooks, Whitney <Whitney.Rooks@dnr.ga.gov>; Rusty Wenerick (weneriwr@dhec.sc.gov) <weneriwr@dhec.sc.gov>; Scott Hyatt (scott.m.hyatt2@usace.army.mil) <scott.m.hyatt2@usace.army.mil>; Sica Collins (Sica@savannahriverkeeper.org) <Sica@savannahriverkeeper.org>; Smith, Leland A. <smithla@cdmsmith.com>; Stan Simpson (Stanley.L.Simpson@usace.army.mil) <Stanley.L.Simpson@usace.army.mil>; Steve Schleiger (steve.schleiger@dnr.ga.gov) <steve.schleiger@dnr.ga.gov>; Susan Barrett (sdbarrit@gmail.com) <sdbarrit@gmail.com>; Thom Litts (thom.litts@dnr.ga.gov) <thom.litts@dnr.ga.gov>; Tom McCoy (thomas_mccoy@fws.gov) <thomas_mccoy@fws.gov>; Tom Proctor (proctor351@aol.com) ctor351@aol.com>; Tony Hornbuckle (thornbuckle61@gmail.com) <thornbuckle61@gmail.com>; Tonya Bonitatibus (riverkeeper@savannahriverkeeper.org) <riverkeeper@savannahriverkeeper.org>; Twyla Cheatwood (twyla.cheatwood@noaa.gov) <twyla.cheatwood@noaa.gov>; Wenonah G. Haire (wenonahh@ccppcrafts.com) <wenonahh@ccppcrafts.com>; William Jabour (William.E.Jabour@usace.army.mil) < William.E.Jabour@usace.army.mil> Subject: Stevens Creek Relicensing Meeting - August 22, 2019

Good afternoon all,

A Stevens Creek Relicensing Meeting is scheduled for August 22, 2019 from 9:30 AM – 4:00 PM at the Misty Lake Clubhouse. A detailed agenda is forthcoming, however at this meeting, our primary focus will be to review the draft Pre-Application Document (PAD). The draft PAD is available for download at http://stevenscreekrelicense.com/index.php/milestone-documents/. Please review this document, and if possible, provide any comments or questions to me prior to the meeting so that we can come prepared to answer them.

If you will need to join this meeting via teleconference, please let me know so that I can provide you with the call-in information.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660

www.KleinschmidtGroup.com

Good Afternoon Kelly

I hope all is well. HPD has reviewed the draft Recreation Study Plan for the Stevens Creek Hydroelectric Project in Columbia County, Georgia (and South Carolina). At this time, our office has no comments regarding the draft study plan. We look forward to receiving any Section 106 consultation information related to Stevens Creek as projects become available.

Thanks!

Whitney Rooks, MHP Environmental Review Historian Historic Preservation Division (770) 389-7855 | F: (770) 389-7878 2610 Ga Hwy 155, SW Stockbridge, GA 30281 Facebook • Twitter • Instagram

From:	<u>Olds, Melanie</u>
To:	Kelly Kirven
Subject:	Re: [EXTERNAL] Stevens Creek PAD - mussels
Date:	Wednesday, September 25, 2019 10:18:47 AM

Hi Kelly,

I've discussed the mussel section and the T&E section with our mussel biologist. The freshwater mussel section only discusses surveys that were completed within the Savannah River down stream of the project. We are not aware of surveys that have been conducted in lower Stevens Creek but surveys there are of high priority and are within the project boundary. I would include a sentence or two the states that surveys up Stevens Creek have not been conducted. For the T&E section related to Carolina Heelsplitter - The Turkey Creek population includes 7 streams with known occurrences, it's not just Turkey Creek. That area is considered a heelsplitter hotspot and the entire watershed is important for the species and its recovery. Again there have been no surveys for the species conducted in the lower Stevens Creek but a quick look at the aerial imagery within the project boundary within Steven's Creek indicates that habitat may exist for the species and them being there can not be ruled out.

Let me know if you have any other questions,

Melanie

Melanie Olds | Fish & Wildlife Biologist/FERC Coordinator U.S. Fish and Wildlife Service South Carolina Ecological Services Field Office 176 Croghan Spur Road, Suite 200 Charleston, SC 29407 843-727-4707 ext. 205 843-727-4218 fax

NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

On Thu, Sep 19, 2019 at 11:09 AM Kelly Kirven <<u>Kelly.Kirven@kleinschmidtgroup.com</u>> wrote:

Hi Melanie!

At the August 22nd Stevens Creek meeting, you said you would review the PAD to determine if there was any need for additional mussels data. I just wanted to follow up with you to see if you had a chance to review yet. No rush – just checking in!

Thanks,

Kelly

Kelly Kirven

Project Licensing Coordinator

Kleinschmidt

Office: 803.462.5633

Cell: 423.747.2660

www.KleinschmidtGroup.com

From:	Sykes, James A Jr CIV USARMY CESAS (US)
To:	AMY BRESNAHAN
Cc:	Kelly Kirven; Brashier, Evan G CIV USARMY USACE (USA)
Subject:	RE: Bald eagles
Date:	Tuesday, February 11, 2020 2:42:49 PM
Attachments:	Mid Winter Waterfowl Eagle Surveys.xlsx

Amy,

We conduct an annual eagle and waterfowl survey that includes all of the lake and the immediate tailrace.

I have attached an annual summary of the survey data back to 2004.

If you have any questions about the survey data please ask Evan Brashier, Conservation Biologist at JST. He is copied above.

Thanks. Jamie

-----Original Message-----From: AMY BRESNAHAN [mailto:amy.bresnahan@dominionenergy.com] Sent: Tuesday, February 11, 2020 2:07 PM To: Sykes, James A Jr CIV USARMY CESAS (US) <James.A.Sykes@usace.army.mil> Cc: 'Kelly Kirven' <Kelly.Kirven@KleinschmidtGroup.com> Subject: [Non-DoD Source] Bald eagles

Jamie,

Does the USACE track bald eagles in the vicinity of JST dam and down river? Drafting the RTE paper and at two of our hydro facilities we do track eagles but not at Stevens Creek hydro. If so, could you share that information so that we may document it in the RTE paper?

Thanks,

Amy Bresnahan, P.E.

Dominion Energy South Carolina, Inc.

Fossil/Hydro Civil Engineering

MC A221

220 Operation Way

Cayce, SC 29033-3701

Office: (803) 217-9965

Cell: (803)206-4667

amy.bresnahan@dominionenergy.com <mailto:amy.bresnahan@dominionenergy.com>

From:	Joe Lemeris
To:	Kelly Kirven
Subject:	RE: Revised species review, Stevens Creek Hydro Project
Date:	Friday, March 27, 2020 1:03:21 PM
Attachments:	image003.png image001.png

Unfortunately right now it does not, since it was not reviewed/tracked at the time of the 2015 SWAP. It will almost certainly be included in the upcoming revision of the SWAP, in which I'd imagine it will receive a high or highest status, but as it stands it is not on our list. It is definitely one of our tracked species for sure!

Cheers, Joe

Joseph Lemeris, Jr.

GIS/Data Manager, Natural Heritage Program | o: 803-734-1396 | m: 843-729-0679 | e: LemerisJ@dnr.sc.gov South Carolina Dept. of Natural Resources | 1000 Assembly St, Columbia, SC 29201 | www.dnr.sc.gov



From: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Sent: Friday, March 27, 2020 12:40 PM
To: Joe Lemeris <LemerisJ@dnr.sc.gov>
Subject: RE: Revised species review, Stevens Creek Hydro Project

Hi Joe,

One follow-up question. Does the Ocmulgee skullcap have a state priority status (highest, high, or moderate) or is it a tracked species?

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Office: 803.462.5633 www.KleinschmidtGroup.com

From: Joe Lemeris <LemerisJ@dnr.sc.gov>
Sent: Friday, March 27, 2020 11:37 AM
To: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Cc: Elizabeth Miller <MillerE@dnr.sc.gov>; speciesreview <speciesreview@dnr.sc.gov>
Subject: Revised species review, Stevens Creek Hydro Project

Good morning Ms. Kirven,

I was forwarded your request for more information from Elizabeth Miller about the species list included in our response to the Stevens Creek Hydro Project. Unfortunately one of our previous staff members had made some errors listing the status of several species in this list, therefore please find a revised copy which reflects accurate status. Note that species listed as 'Tracked Species' are species within our natural heritage database deemed to be vulnerable or imperiled within the state, but may be more secure in other parts of its range.

Please let me know if you have any other questions!!!

Cheers, Joe

Joseph Lemeris, Jr.

GIS/Data Manager, Natural Heritage Program | o: 803-734-1396 | m: 843-729-0679 | e: <u>LemerisJ@dnr.sc.gov</u> South Carolina Dept. of Natural Resources | 1000 Assembly St, Columbia, SC 29201 | <u>www.heritagetrust.dnr.sc.gov</u>



EXTERNAL EMAIL: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

From:	Magniez, Jeff -FS
To:	Kelly Kirven
Subject:	RE: Stevens Creek - Forest Service Species of Conservation Concern
Date:	Thursday, January 30, 2020 2:40:11 PM
Attachments:	image002.png

Oops...one more example of a species that is listed...this time on the LC...but has never been found on national forest land: relict trillium. It's known from Aiken County...so because of its close proximity to the Long Cane District, we do include it when we do botanical surveys.

From: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Sent: Thursday, January 30, 2020 2:37 PM
To: Magniez, Jeff -FS <jeff.magniez@usda.gov>
Cc: Miller, Derrick L -FS <derrick.miller@usda.gov>
Subject: RE: Stevens Creek - Forest Service Species of Conservation Concern

So if a district is not listed for a particular species, then that species it not known or likely to occur in that district?

Kelly Kirven Project Licensing Coordinator Office: 803.462.5633 www.KleinschmidtGroup.com

From: Magniez, Jeff -FS <jeff.magniez@usda.gov>
Sent: Thursday, January 30, 2020 2:35 PM
To: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>
Cc: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>>
Subject: RE: Stevens Creek - Forest Service Species of Conservation Concern

Hey, Kelly. For the most part, yes. Districts listed are those in which the species is known to occur...or is likely to occur. For example, the Andrew Pickens District is listed for persistent trillium...even thought the species has never been confirmed on national forest land...it's only known in the vicinity. I think that's the only exception to the rule.

From: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>
Sent: Thursday, January 30, 2020 2:27 PM
To: Magniez, Jeff -FS <<u>jeff.magniez@usda.gov</u>>
Cc: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>>
Subject: RE: Stevens Creek - Forest Service Species of Conservation Concern

Jeff,

Thank you so much for this information! I do have an additional question, if you don't mind indulging me. I am trying to understand the list of Threatened, Endangered, and Sensitive species that you sent over to me originally. In the column titled "District," are the districts listed those in

which the species is know to occur?

Thanks!

Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

From: Magniez, Jeff -FS <jeff.magniez@usda.gov
Sent: Wednesday, January 22, 2020 5:40 PM
To: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>
Cc: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>
Subject: RE: Stevens Creek - Forest Service Species of Conservation Concern

Hello, Kelly. Not a dumb question at all! No, the list of PETS species is not the same as the list of MIS.

The Sumter National Forest MIS are: hooded warbler, scarlet tanager, pine warbler, Acadian flycatcher, brown-headed nuthatch, prairie warbler, Swainson's warbler, field sparrow, American woodcock, pileated woodpecker, bobwhite quail, eastern wild turkey, and black bear.

From: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>
Sent: Wednesday, January 22, 2020 1:30 PM
To: Magniez, Jeff -FS <<u>jeff.magniez@usda.gov</u>>
Cc: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>>
Subject: RE: Stevens Creek - Forest Service Species of Conservation Concern

Jeff and Derrick,

This might be a dumb question, but is this list the same as the management indicator species for the Sumter National Forest?

Thanks! Kelly

Kelly Kirven Project Licensing Coordinator Office: 803.462.5633 www.KleinschmidtGroup.com

From: Magniez, Jeff -FS <jeff.magniez@usda.gov>

Sent: Wednesday, January 15, 2020 1:17 PM
To: Kelly Kirven kelly.Kirven@KleinschmidtGroup.com
Cc: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>
Subject: RE: Stevens Creek - Forest Service Species of Conservation Concern

Attached please find the Sumter National Forest list of threatened, endangered, and Forest Service sensitive species.

From: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>>
Sent: Wednesday, January 15, 2020 12:52 PM
To: Magniez, Jeff -FS <<u>jeff.magniez@usda.gov</u>>
Cc: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>
Subject: FW: Stevens Creek - Forest Service Species of Conservation Concern

Jeff

Can you respond to Kelly for me.



Derrick L. Miller, Forester Special Uses Program Manager

President NFFE, Local 466 National Federation of Federal Employees Francis Marion & Sumter National Forest

p: 803-561-4056 f: 803-561-4004 <u>derrick.miller@usda.gov</u>

4931 Broad River Road Columbia, SC 29212 http://www.nffe-fsc.org

From: Kelly Kirven [mailto:Kelly.Kirven@KleinschmidtGroup.com]
Sent: Wednesday, January 15, 2020 12:43 PM
To: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>>
Subject: Stevens Creek - Forest Service Species of Conservation Concern

Hi Derrick,

I hope you are doing well and had a great Christmas and New Year's! I wanted to reach out to you to see if you could provide a list of the Forest Service Species of Conservation Concern that may exist on Forest Service lands within the Stevens Creek project area. We are beginning to pull together our Rare, Threatened, and Endangered Species Whitepaper and would like to list the species that are important to the Forest Service.

Thanks so much!

Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

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From:	Alison Jakupca
To:	Kelly Kirven; Ashley Holmes; Bill Marshall (marshallb@dnr.sc.gov); BRESNAHAN, AMY; caitlinh@ccppcrafts.com;
	Caleb Gaston (caleb.gaston@scana.com); Chris Howard (chris@linksolar.net); Chris Nelson
	<u>(chris.nelson@dnr.ga.gov);</u>
	(derrickmiller@fs.fed.us);
	(elena@savannahriverkeeper.org); Elizabeth Johnson (emjohnson@scdah.state.sc.us); Elizabeth Miller
	(MillerE@dnr.sc.gov); Elizabeth Toombs (elizabeth-toombs@cherokee.org); Henry Mealing; Jaime Loichinger
	(iloichinger@achp.gov); Jamie Rader (irader@ducks.org); Jamie Sykes (James.A.Sykes@usace.army.mil); Jeff
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	(wenonahh@ccppcrafts.com); Whalen, James -FS; William Jabour (William.E.Jabour@usace.army.mil)
Cubicat	
Subject:	RE: Stevens Creek Draft Recreation Use and Needs Study Plan
Date:	Tuesday, November 12, 2019 3:10:34 PM
Attachments:	Stevens Creek Recreation User Survey 10-9.docx
	Stevens Creek Spot Count Form.docx
	Stevens Creek Recreation Inventory Form.docx

Good Afternoon,

On behalf of Kelly Kirven, please find attached the draft Recreation Use and Needs Survey appendices for discussion at tomorrow's Stevens Creek Resource Conservation Group meetings. If you are not able to attend tomorrow's meeting, please feel free to forward any comments that you may have on these appendices, or the Recreation Study Plan itself to Kelly or me. Many thanks, Alison

Alison Jakupca Senior Regulatory Coordinator Office: 803 462 5628 Mobile: 864 906 4119 www.KleinschmidtGroup.com

Providing practical solutions for complex problems affecting energy, water, and the environment

From: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>

Sent: Friday, November 1, 2019 3:36 PM

To: Alison Jakupca <Alison.Jakupca@KleinschmidtGroup.com>; Ashley Holmes <ashley@savannahriverkeeper.org>; Bill Marshall (marshallb@dnr.sc.gov) <marshallb@dnr.sc.gov>; BRESNAHAN, AMY <Amy.Bresnahan@scana.com>; caitlinh@ccppcrafts.com; Caleb Gaston (caleb.gaston@scana.com) <caleb.gaston@scana.com>; Chris Howard (chris@linksolar.net) <chris@linksolar.net>; Chris Nelson (chris.nelson@dnr.ga.gov) <chris.nelson@dnr.ga.gov>; Debbie Wallsmith (debbie.wallsmith@dnr.ga.gov) <debbie.wallsmith@dnr.ga.gov>; Derrick Miller (derrickmiller@fs.fed.us) <derrickmiller@fs.fed.us>; Ed Bettross (Ed.Bettross@dnr.ga.gov) <Ed.Bettross@dnr.ga.gov>; Elena Richards (elena@savannahriverkeeper.org) <elena@savannahriverkeeper.org>; Elizabeth Johnson (emjohnson@scdah.state.sc.us) <emjohnson@scdah.state.sc.us>; Elizabeth Miller (MillerE@dnr.sc.gov) <MillerE@dnr.sc.gov>; Elizabeth Toombs (elizabeth-toombs@cherokee.org) <elizabeth-toombs@cherokee.org>; Henry Mealing <Henry.Mealing@KleinschmidtGroup.com>; Jaime Loichinger (jloichinger@achp.gov) <jloichinger@achp.gov>; Jamie Rader (jrader@ducks.org) <jrader@ducks.org>; Jamie Sykes (James.A.Sykes@usace.army.mil) < James.A.Sykes@usace.army.mil>; Jeff Darley (jeff.darley@dnr.ga.gov) <jeff.darley@dnr.ga.gov>; Jennifer Welte (jennifer.welte@dnr.ga.gov) <jennifer.welte@dnr.ga.gov>; John Eddins (jeddins@achp.gov) <jeddins@achp.gov>; Jon Ambrose (jon.ambrose@dnr.ga.gov) < jon.ambrose@dnr.ga.gov>; Jordan Johnson <Jordan.Johnson@KleinschmidtGroup.com>; Kathryn Feingold (Kathryn.A.Feingold@usace.army.mil) <Kathryn.A.Feingold@usace.army.mil>; Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>; Madeline Banyas (madeline.banyas@dnr.ga.gov) <madeline.banyas@dnr.ga.gov>; Matt Thomas (matt.thomas@dnr.ga.gov) <matt.thomas@dnr.ga.gov>; Melanie Olds (melanie olds@fws.gov) <melanie_olds@fws.gov>; Mike Mosley (MMosley@scana.com) <MMosley@scana.com>; Outdoor Augusta <outdooraugusta@gmail.com>; Paula Marcinek (paula.marcinek@dnr.ga.gov) <paula.marcinek@dnr.ga.gov>; rammarell@scana.com; randy mahan (rmahan@sc.rr.com) <rmahan@sc.rr.com>; Rob Pavey (rpavey1@comcast.net) <rpavey1@comcast.net>; Robert Phillips (rphillips@gwf.org) <rphillips@gwf.org>; Robin Goodloe (robin_goodloe@fws.gov) <robin goodloe@fws.gov>; Rooks, Whitney <Whitney.Rooks@dnr.ga.gov>; Scott Hyatt (scott.m.hyatt2@usace.army.mil) < scott.m.hyatt2@usace.army.mil>; Stan Simpson (Stanley.L.Simpson@usace.army.mil) <Stanley.L.Simpson@usace.army.mil>; Steve Schleiger (steve.schleiger@dnr.ga.gov) <steve.schleiger@dnr.ga.gov>; Thom Litts (thom.litts@dnr.ga.gov) <thom.litts@dnr.ga.gov>; Tonya Bonitatibus (riverkeeper@savannahriverkeeper.org) <riverkeeper@savannahriverkeeper.org>; Wenonah G. Haire (wenonahh@ccppcrafts.com) <wenonahh@ccppcrafts.com>; Whalen, James -FS <james.whalen@usda.gov>; William Jabour (William.E.Jabour@usace.army.mil) <William.E.Jabour@usace.army.mil> Subject: Stevens Creek Draft Recreation Use and Needs Study Plan

Good afternoon all,

Attached is the draft Recreation Use and Needs Study Plan for the Stevens Creek relicensing. Please review and be prepared to discuss at the upcoming Stevens Creek Land Mgt/Recreation RCG meeting on November 13th.

Thanks, Kelly

Good afternoon,

A representative from GA EPD Wetlands Unit will not be attending the meeting on August 22nd. After attending the Stevens Creek Agency/NGO outreach meeting in January and reviewing the draft Stevens Creek PAD, I do not have any concerns or comments relating to water quality issues at this stage in the Stevens Creek relicensing process. The draft Stevens Creek PAD has provided sufficient information/data on water quality monitoring and annual reports for the project that meet Georgia water quality standards and shows that project operations will continue to moderate flow releases and re-oxygenate water. Thank you for reaching out. If there is any additional information you need, please let me know.

Sincerely, Madeline Banyas Environmental Compliance Specialist - Wetlands Unit Georgia Environmental Protection Division 7 Martin Luther King Jr. Drive, Suite 450, Atlanta, GA 30334 (404) 651-8463 madeline.banyas@dnr.ga.gov

From: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Sent: Friday, August 16, 2019 12:36:35 PM
To: Scott, Delaine <Delaine.Scott@dnr.ga.gov>; Banyas, Madeline <madeline.banyas@dnr.ga.gov>
Subject: Stevens Creek Hydroelectric Project Relicensing Meeting

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

Dominion Energy South Carolina, Inc. (DESC) is hosting a meeting on August 22nd to discuss the draft PAD for the Stevens Creek Hydroelectric Project. I wanted to check in and ask if a representative from the Georgia DNR-EPD would be attending this meeting. We will be discussing water quality at the meeting and feedback from your division would be appreciated. If you would like to join, but can't be there in person, I can provide a call-in number.

Thanks so much!

Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt

Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

Kelly,

I'm sorry that it has taken me a bit to get back with you on the mussel survey. I'd like to request that at a minimum the reach of Steven Creek between the top (upstream extent) of the Stevens Creek reservoir and the confluence with Horn Creek should be surveyed. This is the area with the highest likelihood of rare mussel species within the project boundary.

Also just to let you know I will be calling in next week for the meeting.

Thanks,

Melanie

Melanie Olds | Fish & Wildlife Biologist/ SC FERC Coordinator U.S. Fish and Wildlife Service South Carolina Ecological Services Field Office 176 Croghan Spur Road, Suite 200 Charleston, SC 29407 843-727-4707 ext. 205 NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

From: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Sent: Friday, January 31, 2020 11:24 AM
To: Olds, Melanie J <melanie_olds@fws.gov>
Subject: [EXTERNAL] RE: Stevens Creek Mussel Study

Hi Melanie,

Attached is the Project boundary on a topo map. If you need something else, just let me know.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Office: 803.462.5633 www.KleinschmidtGroup.com

From: Olds, Melanie J <melanie_olds@fws.gov>
Sent: Thursday, January 30, 2020 4:28 PM
To: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>

Subject: Re: Stevens Creek Mussel Study

Kelly,

Can you send me a map of the project area?

Thanks,

Melanie

Melanie Olds | Fish & Wildlife Biologist/FERC Coordinator U.S. Fish and Wildlife Service South Carolina Ecological Services Field Office 176 Croghan Spur Road, Suite 200 Charleston, SC 29407 843-727-4707 ext. 205 NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

From: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>
Sent: Monday, January 20, 2020 12:52 PM
To: Olds, Melanie J <<u>melanie_olds@fws.gov</u>>
Subject: [EXTERNAL] Stevens Creek Mussel Study

Hi Melanie!

I hope you are doing well. I just wanted to touch base with you and see if you have had a chance to gather any specifics on what the USFWS wants to see in the Stevens Creek Mussel Study. We want to try and put together a draft over the next few weeks so we can review with the RCG at a meeting sometime in late March.

Thanks! Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660

www.KleinschmidtGroup.com

From:	Twyla Cheatwood - NOAA Federal
To:	Kelly Kirven; Alison Jakupca
Cc:	Alice Lawrence
Subject:	Re: Stevens Creek PAD Information Questionnaire
Date:	Wednesday, February 13, 2019 10:53:29 AM

Kelly,

The NMFS received the Stevens Creek PAD Questionnaire via email on February 6th, 2019. The FERC license issued to SCG&E on November 22, 1995 included a fish passage prescription by NMFS and USFWS requiring SCE&G to provide up-stream fish passage facilities within two years after installation of such facilities at the Augusta diversion dam. This email is to inform you we have no additional information or comments to provide at this time.

Thank you for your coordination during this relicensing process.

Twyla

On Wed, Feb 6, 2019 at 11:28 AM Kelly Kirven <<u>Kelly.Kirven@kleinschmidtgroup.com</u>> wrote:

Good morning all,

The Stevens Creek Hydroelectric Project (Project) (FERC Project No. 2535) is a 17.28 MW hydroelectric project located at the confluence of Stevens Creek and the Savannah River, in Edgefield and McCormick counties, South Carolina, and Columbia County, Georgia. The current operating license for the Project is due to expire on October 31, 2025.

As part of relicensing, SCE&G is developing a Pre-Application Document (PAD) for the Project that includes all existing engineering, economic, and environmental information relevant to licensing that is reasonably available or can reasonably be obtained with due diligence. Attached is a PAD information questionnaire. This questionnaire will assist SCE&G with the collection of any additional relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential issues early in the relicensing process.

SCE&G asks that you take a few moments to fill out the questionnaire and provide all responses on or before Wednesday, March 6, 2019. If you have any questions regarding the questionnaire, please don't hesitate to email me, or Alison Jakupca at <u>Alison.Jakupca@KleinschmidtGroup.com</u>.

Thanks,

Kelly

Kelly Miller Kirven

Project Licensing Coordinator

Kleinschmidt

Office: 803.462.5633

Cell: 423.747.2660

www.KleinschmidtGroup.com

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Twyla H Cheatwood Fishery Biologist Southeast Region, Habitat Conservation Division NOAA Fisheries Beaufort, NC 28516 Office: (252) 728-8758 Twyla.cheatwood@noaa.gov

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Webwww.nmfs.noaa.govFacebookwww.facebook.com/usnoaafisheriesgovTwitterwww.twitter.com/noaafisheriesgovYouTubewww.youtube.com/usnoaafisheriesgov

From:	Schroer, Keely
To:	Amy.Bresnahan@scana.com
Cc:	Caitlinh@ccppcrafts.com; Whitney.Rooks@dnr.ga.gov; Johnson, Elizabeth; elizabeth-toombs@cherokee.org; Kelly Kirven; Alison Jakupca; RAMMARELL@scana.com; Bates, Jim -FS; Morgan, Robert T -FS; SPIREK, JIM; BRADLEY, RYAN
Subject:	RE: Stevens Creek Project (P-2535) Relicensing Consultation
Date:	Wednesday, November 6, 2019 4:31:53 PM
Attachments:	image003.png MULT Stevens Creek Hydroelectric Project Relicensing 18-EJ0115.pdf

From: South Carolina State Historic Preservation Office

Please find attached our comments letter on the subject referenced project. A hard copy can be provided upon request.

Please contact us if you have any questions regarding our comments.



Keely Lewis-Schroer Archaeologist State Historic Preservation Office SC Department of Archives & History 8301 Parklane Road Columbia, SC 29223 Ph: 803.896.6181 Fax: 803.896.6167 <u>https://scdah.sc.gov/historic-preservation</u> kschroer@scdah.sc.gov

From: BRESNAHAN, AMY [mailto:Amy.Bresnahan@scana.com]
Sent: Tuesday, October 15, 2019 3:14 PM
To: 'Caitlinh@ccppcrafts.com' <<u>Caitlinh@ccppcrafts.com</u>>; 'Rooks, Whitney'
<<u>Whitney.Rooks@dnr.ga.gov</u>>; Johnson, Elizabeth <<u>EJohnson@scdah.sc.gov</u>>; 'elizabethtoombs@cherokee.org' <<u>elizabeth-toombs@cherokee.org</u>>
Cc: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>; Alison Jakupca
<<u>Alison.Jakupca@KleinschmidtGroup.com</u>>; AMMARELL, RAYMOND R (SCE&G - 8)
<<u>RAMMARELL@scana.com</u>>
Subject: Stevens Creek Project (P-2535) relicensing consultation

To all,

Dominion Energy South Carolina, Inc. (DESC), licensee of the Stevens Creek Hydroelectric Project, (FERC Project No. 2535) is initiating consultation pursuant to Section 106 of the National Historic Preservation Act for the relicensing of the Stevens Creek Hydroelectric Project.

During the previous relicensing a Phase I and II Cultural Resources investigation was completed in 1996. A Historic Properties Management Plan (HPMP) was approved by the FERC in March 2004. Since a comprehensive investigation has been done in the past at the Stevens Creek Project, DESC

requests that the agencies and tribes review the existing investigations and HPMP to determine if any additional investigation needs to be undertaken for this relicensing. Also, any updates recommended for the HPMP will be discussed during this process to develop the new Historic Management Properties Plan.

Please note that the Project Boundary ends at the Stevens Creek dam but the area of potential effects (APE) for cultural resources scope of this Project encompasses area not only within the project boundary but an area outside as well. Outside of the project boundary the APE encompasses both shorelines of the Savannah River downstream from the Stevens Creek dam for approximately 2, 000 feet below the dam which includes Stallings Island (see Figure 1 of the HPMP). DESC would like confirmation as to whether you are in agreement with the current delineated APE.

Please respond to me within 30 days as to whether your agency or tribe requests additional cultural resource investigations and whether you agree with using the current APE for this relicensing process.

Due to the large file sizes of the documents, you may access them for download via Sharefile site hosted by Kleinschmidt, a consulting firm assisting in the relicensing process. Click on the following link to download; <u>https://kleinschmidt.sharefile.com/d-scff04f3c2534e958</u>

If you have any questions please contact me. I look forward to working with you during this relicensing.

Amy Bresnahan, P.E.

Dominion Energy South Carolina, Inc. Fossil/Hydro Civil Engineering MC A221 220 Operation Way Cayce, SC 29033-3701 Office: (803) 217-9965 Cell: (803)206-4667 amy.bresnahan@scana.com



Actions Speak Louder"

From:	Miller, Derrick L -FS
To:	Alison Jakupca; Whalen, James -FS
Cc:	Kelly Kirven
Subject:	RE: Stevens Creek Recreation Study - revised user survey
Date:	Monday, April 6, 2020 2:48:36 PM
Attachments:	image006.png
	image007.png
	image008.png
	image009.png
	image010.png

Yes I would remove the camera use from Stevens Creek because of the past issue there with cameras.



Derrick L. Miller, Forester Special Uses Program Manager

President NFFE, Local 466 National Federation of Federal Employees Francis Marion & Sumter National Forest

p: 803-561-4056 f: 803-561-4004 derrick.miller@usda.gov

4931 Broad River Road Columbia, SC 29212 http://www.nffe-fsc.org

From: Alison Jakupca [mailto:Alison.Jakupca@KleinschmidtGroup.com]
Sent: Monday, April 6, 2020 2:43 PM
To: Whalen, James -FS <james.whalen@usda.gov>; Miller, Derrick L -FS <derrick.miller@usda.gov>
Cc: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Subject: RE: Stevens Creek Recreation Study - revised user survey

Good Afternoon Gentlemen,

I hope that you are both doing well and staying healthy. Are you guys working from home at this point? The Lexington Kleinschmidt office is closed, and Kelly and I are both working from home; however, that is something we are both pretty used to. We were discussing the finalization of the Stevens Creek Recreation Study Plan today and wanted to check back in with you regarding camera use at Fury's Ferry and Chota Dr. Should we remove the camera component from the study plan? Just let us know. Thanks and take care! Alison

Alison Jakupca Senior Regulatory Coordinator Office: 803 462 5628 Mobile: 864 906 4119 www.KleinschmidtGroup.com

Providing practical solutions for complex problems affecting energy, water, and the environment

From: Whalen, James -FS <james.whalen@usda.gov>
Sent: Wednesday, February 19, 2020 10:31 AM
To: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>; Miller, Derrick L -FS
<<u>derrick.miller@usda.gov></u>
Cc: Alison Jakupca <<u>Alison.Jakupca@KleinschmidtGroup.com</u>>
Subject: RE: Stevens Creek Recreation Study - revised user survey

Looks good to me.



J. Keith Whalen Forest Fish Biologist Forest Service Francis Marion & Sumter National Forests - Supervisor's Office p: 803-561-4076 james.whalen@usda.gov 4931 Broad River Road Columbia, SC 29212 www.fs.fed.us

Caring for the land and serving people

From: Kelly Kirven <<u>Kelly.Kirven@KleinschmidtGroup.com</u>>
Sent: Wednesday, February 19, 2020 10:29 AM
To: Whalen, James -FS <<u>james.whalen@usda.gov</u>>; Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>>;
Cc: Alison Jakupca <<u>Alison.Jakupca@KleinschmidtGroup.com</u>>
Subject: Stevens Creek Recreation Study - revised user survey

Hi Keith and Derrick,

It was so nice to see you both yesterday. I made some changes to the User Survey that we will be using during the Stevens Creek Recreation Study next year – particularly regarding the extra questions on Fury's Ferry and Chota Drive. Would you mind looking at these questions and letting me know if you have any edits (Question 9 A-D on the attached document)? Thanks so much!

Kelly

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From:	BRESNAHAN, AMY
To:	Johnson, Elizabeth
Cc:	<u>Kelly Kirven; Alison Jakupca; AMMARELL, RAYMOND R (SCE&G - 8); ARGENTIERI, WILLIAM R (SCE&G - 8);</u> <u>Henry Mealing</u>
Subject:	RE: Stevens Creek Relicensing Meeting Agenda - 8/22/19
Date:	Friday, August 23, 2019 1:06:12 PM
Attachments:	image007.png

Elizabeth,

Currently we are not aware of any new recreation area or expansion of existing ones. I do want to let you know that I am currently in the process of revising the existing Recreation Plan to remove from the Plan one of the sites that is adjacent to historic property 38ED48. That site was identified in the existing Recreation Plan to make improvements to which is on USFS land. That site is not supported by the current Forest Service Recreation plan is not consistent with the recent Forest Service Sustainable Recreation Strategy, therefore the USFS requested to not move forward with developing this site.

At the meeting yesterday there was some discussion of looking for more informal sites for bank fishing and/or kayak put ins. As those discussion progress through the process we will verify any proposed site with the existing archeological survey and keep that in mind should it not be within that surveyed area.

Thank you. *Amy Bresnahan* office: (803) 217-9965 mobile: (803) 206-4667



Actions Speak Louder"

From: Johnson, Elizabeth <EJohnson@scdah.sc.gov>
Sent: Wednesday, August 21, 2019 3:57 PM
To: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Subject: RE: Stevens Creek Relicensing Meeting Agenda - 8/22/19

Kelly:

Thank you for the invitation to this meeting. I regret that I won't be in attendance.

I have had a chance to review our office's previous consultation on the relicensing process in the 1990s, and the resulting cultural resources studies that were conducted, along with the existing Cultural Resources Management Plan. Please let us know when you would like to talk specifically about the cultural resources and consultation for Section 106. (Please note that these documents are available in the state archives.)

One specific question is do you anticipate any new recreational areas or expansions of existing ones? I know that may be unknown at this point, but those types of projects can arise in this process. And if the areas are in locations that are likely to contain archaeological sites, a survey may be recommended, if the area hasn't been previously surveyed.

Thanks,

Elizabeth



Elizabeth M. Johnson Director, Historical Services, D-SHPO State Historic Preservation Office SC Department of Archives & History 8301 Parklane Road Columbia, SC 29223 Ph: 803.896.6168 Fax: 803.896.6167 <u>https://scdah.sc.gov/historic-preservation</u> *Note that our web site address has changed*. Good morning Alison,

We look forward to presenting to the stakeholders on the 4th. Hopefully there will not be government shutdown to cause a bump.

Is there a date that you need our presentation by? Or will it be alright to bring a laptop with it? Please let us know if there are any specific questions about Thurmond's operations you would like answered upfront in the presentation. We are planning on giving a overview of operations at Thurmond, and a bit about the system as a whole since that is how we manage it.

Has Amy been in contact with Vince Moody recently? He no longer works for the Corps, so I can't really speak to his availability. But if Amy has been in contact with him recently, and that is something that you think will add value then I think it's a good idea. Personally, I would enjoy a presentation/discussion on the application of the HEC-RAS 2d model to the savannah river, but I don't know your stakeholders as well as you do.

Looking forward to the 4th.

Respectfully,

Kathryn Feingold Savannah District Water Manager Hydrology & Hydraulics Branch U.S. Army Corps of Engineers (W) 912-652-5959 (C) 912-239-0275

From: Alison Jakupca [mailto:Alison.Jakupca@KleinschmidtGroup.com]
Sent: Tuesday, November 19, 2019 8:47 AM
To: Feingold, Kathryn A CIV USARMY CESAS (USA) <Kathryn.A.Feingold@usace.army.mil>; Simpson,
Stanley L CIV USARMY CESAS (US) <Stanley.L.Simpson@usace.army.mil>
Cc: BRESNAHAN, AMY <Amy.Bresnahan@scana.com>; Kelly Kirven
<Kelly.Kirven@KleinschmidtGroup.com>
Subject: [Non-DoD Source] USACE Presentation - December 4th Meeting

Good Morning Kat,

I hope that all is well your way. As you probably saw, we chose Wednesday, December 4th for the Stevens Creek Operations RCG meeting. I wanted to touch base again regarding the potential for a discussion/powerpoint on Thurmond operations given by you and/or Stan at that meeting. In discussions with Amy Bresnahan, fluctuations of the Stevens Creek reservoir, and the need to

prepare for Corps operations is an ongoing education exercise in order to help stakeholders understand the operation of the river system. We are confident that you all can help with stakeholder understanding. Here is my tentative agenda for the meeting:

- Presentation on Thurmond Operations given by Kat and Stan
- Follow-up discussions on Stevens Creek Operations Dominion/Kleinschmidt
- (HEC RAS 2D Model Discussions by Vince Moody???? See below)
- USGS Gage Discussions and Correlations/Lack of Correlation Kleinschmidt

Amy has been in contact with Vince Moody regarding the HEC-RAS 2D model the Corps has been developing using LiDAR and bathymetric data. I understand that this model may still be in development, but what are your thoughts on if Vince may be willing to come talk about the model and the intended outcome and potential uses at the December 4th meeting? I can certainly call him but I would love your thoughts first.

Please let me know any thoughts and questions and feel free to give me a ring as well, if you like. There is the slight potential that we may have to move this meeting if there is a government shutdown, but I am hopeful that everything gets funded on Thursday. Take care and talk soon, Alison

Alison Jakupca Senior Regulatory Coordinator *Kleinschmidt* Office: 803 462 5628 Mobile: 864 906 4119 <u>Blockedwww.KleinschmidtGroup.com</u>

Providing practical solutions for complex problems affecting energy, water, and the environment

From:	Kelly Kirven
To:	<u>Alison Jakupca; Ashley Holmes; Bill Marshall (marshallb@dnr.sc.gov); BRESNAHAN, AMY;</u>
	caitlinh@ccppcrafts.com; Caleb Gaston (caleb.gaston@scana.com); Chris Howard (chris@linksolar.net); Chris
	<u>Nelson (chris.nelson@dnr.ga.gov); Debbie Wallsmith (debbie.wallsmith@dnr.ga.gov); Derrick Miller</u>
	(derrickmiller@fs.fed.us); Ed Bettross (Ed.Bettross@dnr.ga.gov); Elena Richards
	(elena@savannahriverkeeper.org); Elizabeth Johnson (emjohnson@scdah.state.sc.us); Elizabeth Miller
	(MillerE@dnr.sc.gov); Elizabeth Toombs (elizabeth-toombs@cherokee.org); Henry Mealing; Jaime Loichinger
	(jloichinger@achp.gov); Jamie Rader (jrader@ducks.org); Jamie Sykes (James.A.Sykes@usace.army.mil); Jeff
	<u>Darley (jeff.darley@dnr.ga.gov); Jennifer Welte (jennifer.welte@dnr.ga.gov); John Eddins (jeddins@achp.gov);</u>
	<u>Jon Ambrose (jon.ambrose@dnr.ga.gov); Jordan Johnson; Kathryn Feingold</u>
	(Kathryn.A.Feingold@usace.army.mil); Kelly Kirven; Madeline Banyas (madeline.banyas@dnr.ga.gov); Matt
	Thomas (matt.thomas@dnr.ga.gov); Melanie Olds (melanie_olds@fws.gov); Mike Mosley (MMosley@scana.com);
	Outdoor Augusta; Paula Marcinek (paula.marcinek@dnr.ga.gov); rammarell@scana.com; randy mahan
	(rmahan@sc.rr.com); Rob Pavey (rpavey1@comcast.net); Robert Phillips (rphillips@gwf.org); Robin Goodloe
	<u>(robin_goodloe@fws.gov); Rooks, Whitney; Scott Hyatt (scott.m.hyatt2@usace.army.mil); Stan Simpson</u>
	(Stanley.L.Simpson@usace.army.mil); Steve Schleiger (steve.schleiger@dnr.ga.gov); Thom Litts
	(thom.litts@dnr.ga.gov); Tonya Bonitatibus (riverkeeper@savannahriverkeeper.org); Wenonah G. Haire
	(wenonahh@ccppcrafts.com); Whalen, James -FS; William Jabour (William.E.Jabour@usace.army.mil)
Subject:	Stevens Creek Draft Recreation Use and Needs Study Plan
Date:	Friday, November 1, 2019 3:36:06 PM
Attachments:	Draft Stevens Creek Recreation Study Plan 11-1.docx

Attached is the draft Recreation Use and Needs Study Plan for the Stevens Creek relicensing. Please review and be prepared to discuss at the upcoming Stevens Creek Land Mgt/Recreation RCG meeting on November 13th.

Thanks, Kelly

From:	Kelly Kirven
To:	Alison Jakupca; Andy Herndon (Andrew.Herndon@noaa.gov); Ashley Holmes; Bill Marshall
	(marshallb@dnr.sc.gov); BRESNAHAN, AMY; Caleb Gaston (caleb gaston@scana.com); Chris Howard
	(chris@linksolar.net); Chris Nelson (chris.nelson@dnr.ga.gov); Chris Thomason (thomasonc@dnr.sc.gov); David
	Eargle (eargleda@dhec.sc.gov); Derrick Miller (derrickmiller@fs.fed.us); Don Imm (donald_imm@fws.gov); Ed
	Bettross (Ed.Bettross@dnr.ga.gov); Elena Richards (elena@savannahriverkeeper.org); Elizabeth Miller
	(MillerE@dnr.sc.gov); Fritz Rohde (Fritz.Rohde@noaa.gov); Greg Mixon (mixong@dnr.sc.gov); Henry Mealing;
	Jamie Sykes (James.A.Sykes@usace.army.mil); Jason Bettinger (bettingerj@dnr.sc.gov); Jason Moak; Jeff Darley
	(jeff.darley@dnr.ga.gov); Jeffery Williams (jeffery.williams@dnr.ga.gov); Jennifer Welte
	(jennifer.welte@dnr.ga.gov); Jon Ambrose (jon.ambrose@dnr.ga.gov); Jordan Johnson; Kathryn Feingold
	(Kathryn.A.Feingold@usace.army.mil); Kelly Kirven; Madeline Banyas (madeline.banyas@dnr.ga.gov); Matt
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	Morgan Kern (KernM@dnr.sc.gov); Pace Wilber (Pace.Wilber@noaa.gov); Paula Marcinek
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	mahan (rmahan@sc.rr.com); Rob Pavey (rpavey1@comcast.net); Robin Goodloe (robin goodloe@fws.gov); Ron
	Ahle; Rusty Wenerick (weneriwr@dhec.sc.gov); Scott Hyatt (scott.m.hyatt2@usace.army.mil); Smith, Leland A.;
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	(thom.litts@dnr.ga.gov); Tony Hornbuckle (thornbuckle61@gmail.com); Tonya Bonitatibus
	(riverkeeper@savannahriverkeeper.org); Twyla Cheatwood (twyla.cheatwood@noaa.gov); Whalen, James -FS;
.	William Jabour (William.E.Jabour@usace.army.mil)
Subject:	Stevens Creek Draft Water Quality Study Plan
Date:	Friday, November 1, 2019 3:39:21 PM
Attachments:	2019-10-23 Draft Stevens Creek Water Quality Study Plan.docx

Attached is the draft Water Quality Study Plan for the Stevens Creek relicensing. Please review and be prepared to discuss at the upcoming Stevens Creek Water Quality, Fish and Wildlife RCG meeting on November 13th.

Thanks, Kelly

From:	Kelly Kirven
To:	<u>Alice Lawrence (alice lawrence@fws.gov); Alison Jakupca; Andy Herndon (Andrew.Herndon@noaa.gov);</u>
	ARGENTIERI, WILLIAM R; Ashley Holmes; Bill Marshall (marshallb@dnr.sc.gov); Bill Smith
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	(wenonahh@ccppcrafts.com); William Jabour (William.E.Jabour@usace.army.mil)
Subject:	Stevens Creek Federal Agency Meeting Notes - 3/27/19
Date:	Monday, April 29, 2019 4:41:37 PM
	5. T
Attachments:	final 032719 JointRCG notes .pdf

Due to the government shutdown a few months ago, several agency representatives were not able to attend the Stevens Creek Agency/NGO outreach meeting held in January 2019. A second outreach meeting was held in March to accommodate those agencies. The notes from that meeting are attached to this email and are available at the Project website, <u>www.stevenscreekrelicense.com</u>.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator *Kleinschmidt*

Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

From:	Kelly Kirven
То:	Alison Jakupca; Andy Herndon (Andrew.Herndon@noaa.gov); ARGENTIERI, WILLIAM R; Ashley Holmes; Bill
	<u>Marshall (marshallb@dnr.sc.gov); Bill Smith (BISMITH44@comcast.net); Bill Stringer (catboyz@nctv.com);</u>
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<u></u>	
Subject:	Stevens Creek Final Meeting Notes - August 22, 2019
Date:	Friday, September 20, 2019 11:18:34 AM
Attachments:	final_082219_JointRCG_notes_pdf

Good morning all,

Attached for your record are the final notes from the Stevens Creek relicensing meeting held on August 22, 2019. These notes are also available on the project website at <u>www.stevenscreekrelicense.com</u>.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt

Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

From:	Kelly Kirven
To:	Alison Jakupca; AMY BRESNAHAN (Amy.Bresnahan@dominionenergy.com); Ashley Holmes; Bill Marshall
	(marshallb@dnr.sc.gov); caitlinh@ccppcrafts.com; Caleb Gaston (caleb.gaston@scana.com); Chris Howard
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	toombs@cherokee.org); Henderson, Cameron T.; Henry Mealing; Jaime Loichinger (iloichinger@achp.gov);
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	randy mahan (rmahan@sc.rr.com); RAYMOND AMMARELL; Rob Pavey (rpavey1@comcast.net); Robert Phillips
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	(Pace Wilber@noaa.gov); Ron Ahle; Rusty Wenerick (weneriwr@dhec.sc.gov); Scott Glassmever; Tony
	Hornbuckle (thornbuckle61@gmail.com); Twyla Cheatwood (twyla.cheatwood@noaa.gov); Zapata, Martha
Subject.	
Subject:	Stevens Creek Joint RCG Meeting Documents
Date:	Thursday, February 13, 2020 12:20:33 PM
Attachments:	Stevens Creek RCG Meeting Agenda 02-18-20.docx
	Draft Stevens Creek Water Quality Study Plan 2-13.docx
	Final Stevens Creek Recreation Study Plan.pdf

Attached is the agenda for our Stevens Creek Joint RCG Meeting, scheduled for next Tuesday,

February 18th. At this meeting, we plan to review the edits made to the Water Quality Study Plan and Recreation Study Plan stemming from our November 2019 meeting. These revised documents are attached to this email for your review.

We will also discuss two new documents, including a Mussel Study Plan and the RTE Whitepaper. These documents will be sent out in a separate email prior to next week's meeting.

If you have not already RSVP'ed, please do so that I can plan appropriately for lunch. Thanks!

Kelly

From:	Kelly Kirven
То:	Alison Jakupca; AMY BRESNAHAN (Amy.Bresnahan@dominionenergy.com); Ashley Holmes; Bill Marshall
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	Ahle; Rusty Wenerick (weneriwr@dhec.sc.gov); Tony Hornbuckle (thornbuckle61@gmail.com); Twyla Cheatwood
	(twyla.cheatwood@noaa.gov)
Subject:	Stevens Creek LLM/Rec RCG and WQFW RCG Meeting Notes - 11/13/2019
Date:	Wednesday, January 8, 2020 3:37:49 PM
Attachments:	final 111319 RecLLMRCG notes.pdf
	final 111319 WOFWRCG notes.pdf
	•

Attached are the final notes from the LLM/Rec RCG and WQFW RCG meetings, held on November 13, 2019. These notes are also available on the Project website at <u>www.stevenscreekrelicense.com</u>.

Thanks, Kelly

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	caitlinh@ccppcrafts.com; Caleb Gaston (caleb.gaston@scana.com); Chris Howard (chris@linksolar.net); Chris
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Subject:	Stevens Creek Meeting Agenda - 11/13/19
Date:	Wednesday, November 6, 2019 11:53:25 AM
Attachments:	Stevens Creek RCG Meeting Agenda 11-13-19.docx

Good morning all,

Attached is the agenda for next week's Stevens Creek Lake, Land and Recreation RCG and Water Quality, Fish and Wildlife RCG meetings. If you will need to join us by phone, please let me know so we can set up a call-in number.

Thanks, Kelly

From:	Kelly Kirven
To:	<u>Alison Jakupca; Andy Herndon (Andrew.Herndon@noaa.gov); Ashley Holmes; Bill Marshall</u>
	(marshallb@dnr.sc.gov); BRESNAHAN, AMY; Bret Hoffman; Caleb Gaston (caleb.gaston@scana.com); Chris
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	(William.E.Jabour@usace.army.mil)
Subject:	Stevens Creek Operations RCG Meeting - Doodle Poll
Date:	Tuesday, October 15, 2019 9:57:07 AM

Good morning all,

Dominion Energy South Carolina, Inc. would like to schedule a meeting of the Stevens Creek Operations Resource Conservation Group (RCG). Please follow the link below to vote for the day(s) that work best for your schedule.

https://www.doodle.com/poll/ywmgtcpf3r92c44f

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

From:	Kelly Kirven
To:	<u>Alison Jakupca; AMY BRESNAHAN (Amy Bresnahan@dominionenergy.com); Andy Herndon</u>
	(Andrew.Herndon@noaa.gov); Ashley Holmes; Bill Marshall (marshallb@dnr.sc.gov); Bret Hoffman; Caleb Gaston
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	(<u>MillerE@dnr.sc.gov</u>); <u>Henderson, Cameron T.; Henry Mealing;</u> <u>Jamie Sykes (James.A.Sykes@usace.army.mil)</u> ;
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	(jon.ambrose@dnr.ga.gov); Kathryn Feingold (Kathryn.A.Feingold@usace.army.mil); Kelly Kirven; Madeline
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	<u>(riverkeeper@savannahriverkeeper.org);</u> <u>Twyla Cheatwood (twyla.cheatwood@noaa.gov)</u> ; <u>Whalen, James -FS</u> ;
	William Jabour (William.E.Jabour@usace.army.mil)
Subject:	Stevens Creek Operations RCG Meeting Agenda - 12/4/19
Date:	Tuesday, November 26, 2019 4:15:44 PM
Attachments:	Stevens Creek RCG Meeting Agenda 12-04-19.docx

Good afternoon all,

Attached is the agenda for the Stevens Creek Operations RCG meeting scheduled for next

Wednesday, December 4th. Please note that this will be a half-day meeting, from 9:00 AM until 12:00 PM. If you will be joining us by phone, please let me know so that I can send you call-in information.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

From:	BRESNAHAN, AMY
To:	"Caitlinh@ccppcrafts.com"; "Rooks, Whitney"; Johnson, Elizabeth; "elizabeth-toombs@cherokee.org"
Cc:	Kelly Kirven; Alison Jakupca; AMMARELL, RAYMOND R (SCE&G - 8)
Subject:	Stevens Creek Project (P-2535) relicensing consultation
Date:	Tuesday, October 15, 2019 3:14:26 PM

To all,

Dominion Energy South Carolina, Inc. (DESC), licensee of the Stevens Creek Hydroelectric Project, (FERC Project No. 2535) is initiating consultation pursuant to Section 106 of the National Historic Preservation Act for the relicensing of the Stevens Creek Hydroelectric Project.

During the previous relicensing a Phase I and II Cultural Resources investigation was completed in 1996. A Historic Properties Management Plan (HPMP) was approved by the FERC in March 2004. Since a comprehensive investigation has been done in the past at the Stevens Creek Project, DESC requests that the agencies and tribes review the existing investigations and HPMP to determine if any additional investigation needs to be undertaken for this relicensing. Also, any updates recommended for the HPMP will be discussed during this process to develop the new Historic Management Properties Plan.

Please note that the Project Boundary ends at the Stevens Creek dam but the area of potential effects (APE) for cultural resources scope of this Project encompasses area not only within the project boundary but an area outside as well. Outside of the project boundary the APE encompasses both shorelines of the Savannah River downstream from the Stevens Creek dam for approximately 2, 000 feet below the dam which includes Stallings Island (see Figure 1 of the HPMP). DESC would like confirmation as to whether you are in agreement with the current delineated APE.

Please respond to me within 30 days as to whether your agency or tribe requests additional cultural resource investigations and whether you agree with using the current APE for this relicensing process.

Due to the large file sizes of the documents, you may access them for download via Sharefile site hosted by Kleinschmidt, a consulting firm assisting in the relicensing process. Click on the following link to download; <u>https://kleinschmidt.sharefile.com/d-scff04f3c2534e958</u>

If you have any questions please contact me. I look forward to working with you during this relicensing.

Amy Bresnahan, P.E.

Dominion Energy South Carolina, Inc. Fossil/Hydro Civil Engineering MC A221 220 Operation Way Cayce, SC 29033-3701 Office: (803) 217-9965 Cell: (803)206-4667 amy.bresnahan@scana.com



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То:	Alison Jakupca; Andy Herndon (Andrew.Herndon@noaa.gov); ARGENTIERI, WILLIAM R; Ashley Holmes; Bill
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o	
Subject:	Stevens Creek Project Relicensing Meeting - Doodle Poll
Date:	Tuesday, July 9, 2019 1:39:00 PM

Good afternoon all,

Dominion Energy South Carolina, Inc. would like to schedule a meeting for the Stevens Creek Project relicensing. At the meeting we will discuss the formation of Resource Conservation Groups, the draft Pre-Application Document, and draft study plans. Please follow the link below to vote for the day(s) that work best for your schedule.

https://doodle.com/poll/a7c2z9ghhha864yf

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633

Cell: 423.747.2660 www.KleinschmidtGroup.com

From:	Kelly Kirven
To:	<u>Alison Jakupca; Ashley Holmes; Bill Marshall (marshallb@dnr.sc.gov); BRESNAHAN, AMY;</u>
	caitlinh@ccppcrafts.com; Caleb Gaston (caleb.gaston@scana.com); Chris Howard (chris@linksolar.net); Chris
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	(MillerE@dnr.sc.gov); Elizabeth Toombs (elizabeth-toombs@cherokee.org); Henry Mealing; Jaime Loichinger
	(jloichinger@achp.gov); Jamie Rader (jrader@ducks.org); Jamie Sykes (James.A.Sykes@usace.army.mil); Jeff
	<u>Darley (jeff.darley@dnr.ga.gov); Jennifer Welte (jennifer.welte@dnr.ga.gov); John Eddins (jeddins@achp.gov);</u>
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	Keith Whalen (jwhalen@fs.fed.us); Jason Bettinger (bettingerj@dnr.sc.gov); Jason Moak; Jeffery Williams
	(jeffery.williams@dnr.ga.gov); Morgan Kern (KernM@dnr.sc.gov); Pace Wilber (Pace.Wilber@noaa.gov); R. A.
	(Tony) Hicks (barneybimmer@gmail.com); Ron Ahle; Rusty Wenerick (weneriwr@dhec.sc.gov); Tony Hornbuckle
	(thornbuckle61@gmail.com); Twyla Cheatwood (twyla.cheatwood@noaa.gov)
Subject:	Stevens Creek RCG Meetings - Doodle Poll
Date:	Wednesday, September 25, 2019 10:44:15 AM

Good morning all,

Dominion Energy South Carolina, Inc. would like to schedule Water Quality, Fish and Wildlife (WQFW) RCG and Recreation/Land Management (Rec/LM) RCG meetings. Ideally, both RCGs will meet on the same day, with one RCG meeting in the morning and the other RCG meeting in the afternoon. This will cut down on travel for those parties that are members of both RCGs. Please follow the link below to vote for the day(s) that work best for your schedule.

https://doodle.com/poll/wkmqf4ty3mbi74d5

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

To: Alison Jakupca: Andy Herndon (Andrew Herndon@noaa_gov): ARGENTIERL WILLIAM R: Ashley Holmes; Bill Marshall (marshallb@dnr.sc.gov): Bill Smith (BISMTTH44@concast.net): Bill Stringer (ratboyz@nctv.com): BRESNAHAN. ANY: Caleb Caston (rateb qaston@scana.com): Chad Athman (athmank@dhec.sc.gov): Charlene Coleman (cheetahtrk@yahoo.com): Charles Whisenant (chaswhis1988@aol.com): CHASTAIN. WILLIAM K.J.R: Chris Howard (chris@linksolar.net): Chris Nelson (chris.nelson@dnr.ga.gov): Chris Thomason (thomasonc@dnr.sc.gov): Duvid Bernhart (david.bernhart@noaa_gov): David Earole (eargleda@dhec.sc.gov): Debbie Wallsmith (debbie wallsmith@dnr.ga.gov): Derick Miller (derrickmiller@fs.fed.us): Don Imm (donald imm@fws.gov): Ed Bettross (Ed.Bettross@dnr.ga.gov): Elava Etabets (elena@savannahriverkeeper.org): Eitzabeth Johnson (emjohnson@scdah.state.sc.us): Elizabeth Miller (Miller@dnr.sc.gov): Sizabet Toombs (elizabeth-toombs@cheroke.org): Fritz Rohde (Fritz Rohde@noaa_gov): George and Diane.Sleister (gwsleister@att.net): Greg Mixon.(mixong@dnr.sc.gov): Henry Mealing: Jaime Loichinger (liochinger@achp.gov): Jamie Bettinger (Dettinger@dnc.sc.gov): Jason Mak; Jeff Darley (jeff.darley@dnr.ga.gov): John Boland (jkkoland59@me.com): John Eddins (jeddins@achp.gov): John Harris (john.harris@gfii.com): John Boland (jkkoland59@me.com): John Eddins (jeddins@achp.gov): John Harris (john.harris@gfii.com): John Boland (jkkoland59@me.com): John Eddins (jeddins@achp.gov): Mark Davis: Matt Thomas (matt.thomas@dnr.ga.gov): Makan Caldwell (mark.caldwell@fmaca.armv.mil): Kelly Klivren: Ley. Amada; Lorianne Rigin (RiginL@dnr.sc.gov): Jurn Arnett (LynnAmett325@gmail.com): Kabele (Masley@chan.ga.gov): Makan (radolb): Ratan Dalas Sinon (patsimon@wctel.net): Sou Pader (iradametl@scana.com): Ratana (KernM@dnr.sc.gov): Wark Davis: Matt Thomas (matt.thomas@dnr.ga.gov): Mata Caldwell (mark.caldwell@fws.gov): Mark Davis: Matt Thomas (matt.thomas@dnr.ga.gov): Mata Caldwell (mark.caldwell@fmaca.carmv.mil): Kelly Klivren: Ley.Amada; Lorianne Rigin (Riginl.@dn	From:	Kelly Kirven
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Subject: Stevens Creek Relicensing Meeting - August 22, 2019	Subject:	Stevens Creek Relicensing Meeting - August 22, 2019
Date: Tuesday, July 30, 2019 2:45:36 PM	Date:	Tuesday, July 30, 2019 2:45:36 PM

Good afternoon all,

A Stevens Creek Relicensing Meeting is scheduled for August 22, 2019 from 9:30 AM – 4:00 PM at the Misty Lake Clubhouse. A detailed agenda is forthcoming, however at this meeting, our primary focus will be to review the draft Pre-Application Document (PAD). The draft PAD is available for download at http://stevenscreekrelicense.com/index.php/milestone-documents/. Please review this document, and if possible, provide any comments or questions to me prior to the meeting so that we can come prepared to answer them.

If you will need to join this meeting via teleconference, please let me know so that I can provide you with the call-in information.

Thanks, Kelly

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Subject:	Stevens Creek Relicensing Meeting Agenda - 8/22/19
Date:	Thursday, August 1, 2019 2:21:47 PM
	5. 5 · ·
Attachments:	Final Stevens Creek Relicensing Meeting Agenda 082219 .docx

Good afternoon all,

Attached is the agenda for the Stevens Creek Relicensing Meeting, scheduled for Thursday, August

22nd. I also wanted to note that the PAD available for download on the website has been converted to a PDF (<u>http://stevenscreekrelicense.com/index.php/milestone-documents/</u>). If you would like to review a copy of the PAD in a Word format, please let me know and I can email you directly.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt

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From:	Alison Jakupca
То:	<u>Morgan Kern; Elizabeth Miller; Paula Marcinek (paula.marcinek@dnr.ga.gov); Melanie Olds (melanie_olds@fws.gov); Twyla Cheatwood; Keith Whalen; Miller, Derrick L -FS</u>
Cc:	Henry Mealing; Kelly Kirven; AMY BRESNAHAN; RAYMOND AMMARELL; CALEB GASTON; Jason Moak; Jordan Johnson
Subject:	Stevens Creek Revised Mussel Study Plan
Date:	Monday, April 13, 2020 10:47:40 AM
Attachments:	<u>Stevens Creek Mussel Study Plan - April 2020 Track Changes.docx</u> SCDNR Freshwater Mussel Survey SOP.pdf

Good Morning,

I hope that everyone is doing well after the severe storms and the general health situation we are in at the moment. I am reaching out to you all specifically prior to our Stevens Creek conference call next week in order to provide you with a revised copy of the draft Mussel Study Plan that encompasses the SC DNR Freshwater Mussel SOPs (attached). We have also included relevant species information within the Study Plan and have updated the Survey Area map in order to encompass the additional survey scope requested at the February meeting. All relevant changes are in track changes (I have accepted most of the extraneous formatting changes). If possible, could you please provide us with any comments prior to the meeting so that we are prepared to address them during the meeting review? Please reach out if you have any questions or would like to discuss this further prior to the meeting. Thanks and have a great week. Alison

Alison Jakupca Senior Regulatory Coordinator *Kleinschmidt* Office: 803 462 5628 Mobile: 864 906 4119 www.KleinschmidtGroup.com

Providing practical solutions for complex problems affecting energy, water, and the environment

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Subject:	Stevens Creek Site Visit - 05/15/19
Date:	Thursday, May 2, 2019 2:34:18 PM

Good afternoon all,

Dominion Energy South Carolina, Inc. (previously SCE&G) is hosting a site visit to the Stevens Creek

Hydroelectric Project on Wednesday, May 15th. We will view the Project area from several recreation sites and visit the Project powerhouse. We will meet at the Betty's Branch Recreation Site and consolidate into large vehicles to travel to the other sites. An itinerary for the day is included below.

- Meet at 9:00 AM at Betty's Branch Recreation Site, view site;
- Travel to Fury's Ferry Recreation Site and view site;
- Travel to Stevens Creek Park Site and view site;
- Travel to the Stevens Creek Project powerhouse and view powerhouse;
- Travel back to Betty's Branch Recreation Site and eat lunch;
- Adjourn.

A few additional notes are listed below.

- Lunch will be provided.
- If you would like to walk inside of the powerhouse, you will need to bring a pair of steel-toed boots. We will have several hard hats and safety glasses available.
- We plan to caravan to all of the sites in as few vehicles as possible. If you have a large vehicle and don't mind others riding with you, please let me know ASAP.

- This is a rain or shine event. Please dress appropriately for that day's weather.
- If you have not already RSVP'ed by accepting the meeting notice and plan to attend this event, please RSVP to me as soon as possible so that we can plan lunch.

Thanks! Kelly

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(James,A. Sykes@usace.army,mil); Jason Bettinger (bettingerj@dnr.sc.gov); Jason Moak; Jeff Darley (jeff.darley@dnr.ga.gov); Jennifer Welte (jennifer.welte@dnr.ga.gov); John Boland (jkboland59@me.com); John Eddins (jeddins@achp.gov); John Harris (john.harris@qfii.com); John Mobrose (jon.ambrose@dnr.ga.gov); Jordan Johnson; Josh Willford (joshua.pul.willford@gmail.com); Kathryn Feingold (Kathryn,A. Feingold@usace.army.mil); Kelly Kirven; Ley, Amanda; Lorianne Riggin (RigginL@dnr.sc.gov); Lynn Arnett (LynnArnett325@gmail.com); Madeline Banyas (madeline.banyas@dnr.ga.gov); Mark Caldwell (mark.caldwell@fws.gov); Mark Davis; Matt Thomas (matt.thomas@dnr.ga.gov); Mark Caldwell (mark.caldwell@fws.gov); Mark Davis; Matt Thomas (matt.thomas@dnr.ga.gov); Mark Caldwell (metanie olds@fws.gov); Mark Davis; Matt Thomas (matt.thomas@dnr.ga.gov); Mark Caldwell (mark.caldwell@fws.gov); Mark Davis; Matt Thomas (matt.thomas@dnr.ga.gov); Mark Dalas Simon (patsimon@wctel.net); Paula Marcinek (paula.marcinek@dnr.ga.gov); Phil Gaines (pgaines@scprt.com); R. A. (Tony) Hicks (Darneybinmer@gmail.com); Randy Mahan (randolph.mahan@scana.com); randy mahan (rmahan@sc.rr.com); Rob Pavey (rpavey1@comcast.net); Robert.Phillips (rphillips@gwf.org); Robin Goodlee (robin.goodloe@fws.gov); Soott Hyatt (scott.m.hyatt2@usace.army.mil); Sica Collins (Sica@savannahriverkeeper.org); Stan Simpson (Stanley L. Simpson@usace.army.mil); Steve Schleiger (steve.schleiger@dnr.ga.gov); Susan Barrett (sdbarrit@gmail.com); Thom Litts (thom.litts@dnr.ga.gov); Tom McCoy (thomas mccoy@fws.gov); Tom Proctor (proctor351@aol.com); Tony Hornbuckle (thornbuckle61@gmail.com); Tonya Bonitatibus (riverkeeper@savannahriverkeeper.org); Twyla Cheatwood (twyla.cheatwood@noaa.gov); Wenonah G. Haire (wenonahh@ccppcrafts.com); William Jabour (William E.Jabour@usace.army.mil)Subject:Stevens Creek Site Visit Notes and RCG Lists Date:Friday, June 21, 2019		
(jeff.darley@dnr.ga.gov); Jennifer Welte (jennifer.welte@dnr.ga.gov); John Boland (jkboland59@me.com); John Eddins (jeddins@achp.gov); John Harris (john.harris@gfii.com); Jon Ambrose (jon.ambrose@dnr.ga.gov); Jordan Johnson; Josh Williford (joshua.paul.williford@gmail.com); Kathryn Feingold (Kathryn.A.Feingold@usace.army.mil); Kelly Kirven; Ley. Amanda; Lorianne Riggin (RigginL@dnr.sc.gov); Lynn Arnett (LynnArnet1325@gmail.com); Madeline Banyas (madeline.banyas@dnr.ga.gov); Mark Caldwell (mark. caldwell@fws.gov); Mark Davis; Matt Thomas (matt.thomas@dnr.ga.gov); Melanie Olds (melanie olds@fws.gov); Merrill McGregor (merrillm@scccl.org); Mike Mosley (MMosley@scana.com); Morgan Kern (KernM@dnr.sc.gov); Outdoor Augusta; Pace Wilber (Pace.Wilber@noaa.gov); Pat and Dallas Simon (patsimon@wctel.net); Paula Marcinek (paula.marcinek@dnr.ga.gov); Phil Gaines (pgaines@scprt.com); R. A. (Tony) Hicks (barneybimmer@gmail.com); Randy Mahan (randolph.mahan@scana.com); Robin Goodloe (robin goodloe@fws.gov); Sott Hyatt (sott.myat2@usace.army.mil); Siez Collins (Sica@savannahriverkeeper.org); Susan Barrett (sdbarrit@gmail.com); Tony Hornbuckle (thornbuckle61@gmail.com); Tony Proctor (proctor351@aol.com); Tony Hornbuckle (thornbuckle61@gmail.com); Tony Bonitatibus (riverkeeper@savannahriverkeeper.org); Tuyla Cheatwood (twyla.cheatwood@noaa.gov); Wennah G. Laire (wenonahh@ccppcrafts.com); William Jabour (William.E.Jabour@usace.army.mil)Subject:Stevens Creek Site Visit Notes and RCG Lists.docxDateFriday, June 21, 2019 1:51:53 PMAttachments:Stevens Creek Hydroelectric Project RCG Lists.docx		
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(mark_caldwell@fws.gov); Mark Davis; Matt Thomas (matt.thomas@dnr.ga.gov); Melanie Olds (melanie_olds@fws.gov); Merrill McGregor (merrillm@scccl.org); Mike Mosley (MMosley@scana.com); Morgan Kern (KernM@dnr.sc.gov); Outdoor Augusta; Pace Wilber (Pace.Wilber@noaa.gov); Pat and Dallas Simon (patsimon@wctel.net); Paula Marcinek (paula.marcinek@dnr.ga.gov); Phil Gaines (pgaines@scprt.com); R. A. (Tony) Hicks (barneybimmer@gmail.com); Randy Mahan (randolph.mahan@scana.com); randy mahan (rmahan@sc.rr.com); Rob Pavey (rpavey1@comcast.net); Robert Phillips (rphillips@gwf.org); Robin Goodloe (robin_goodloe@fws.gov); Soot Hyatt (scott.m.hyatt2@usace.army.mil); Sica Collins (Sica@savannahriverkeeper.org); Stan Simpson (Stanley.L.Simpson@usace.army.mil); Steve Schleiger (steve.schleiger@dnr.ga.gov); Tom Proctor (proctor351@aol.com); Tony Hornbuckle (thornbuckle61@gmail.com); Tonya Bonitatibus (riverkeeper@savannahriverkeeper.org); Twyla Cheatwood (twyla.cheatwood@noaa.gov); Wenonah G. Haire (wenonahh@ccppcrafts.com); William Jabour (William.E.Jabour@usace.army.mil)Subject:Stevens Creek Site Visit Notes and RCG Lists Date:Friday, June 21, 2019 1:51:53 PMAttachments:Stevens Creek Hydroelectric Project RCG Lists.docx		
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Good morning all,

Attached for your record are the final notes from the Stevens Creek Project site visit held on May 15, 2019. These notes will also be available on the Project website at <u>www.stevenscreekrelicense.com</u>.

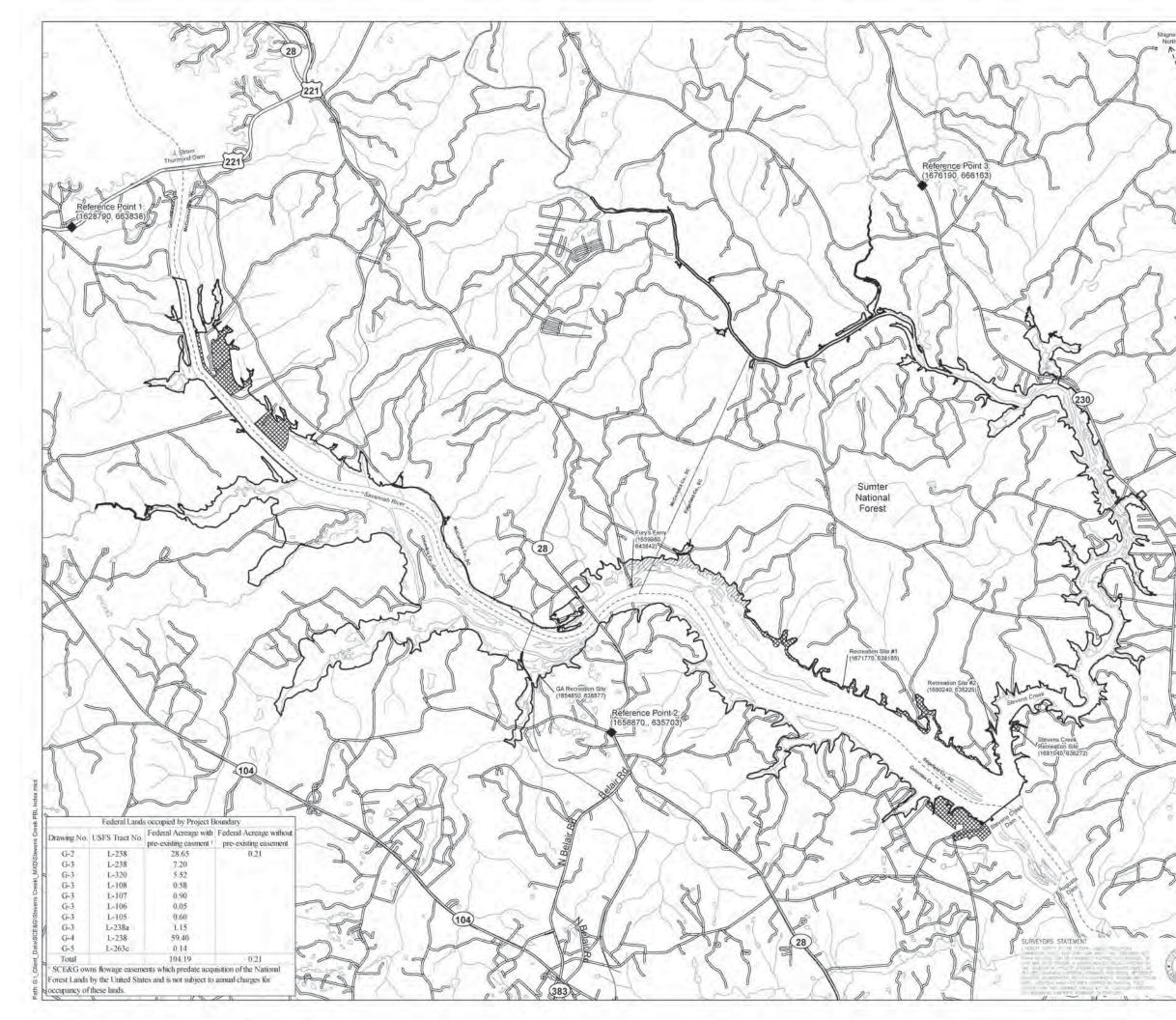
Also attached is a draft list of the three Resource Conservation Groups (RCGs) for the Project and stakeholders who might be interested in participating in each RCG. Please review and let me know if you would like me to add your name to a particular RCG; likewise, please let me know if I need to remove your name from a particular RCG.

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt

Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com **APPENDIX B**

EXHIBIT G PROJECT BOUNDARY MAPS



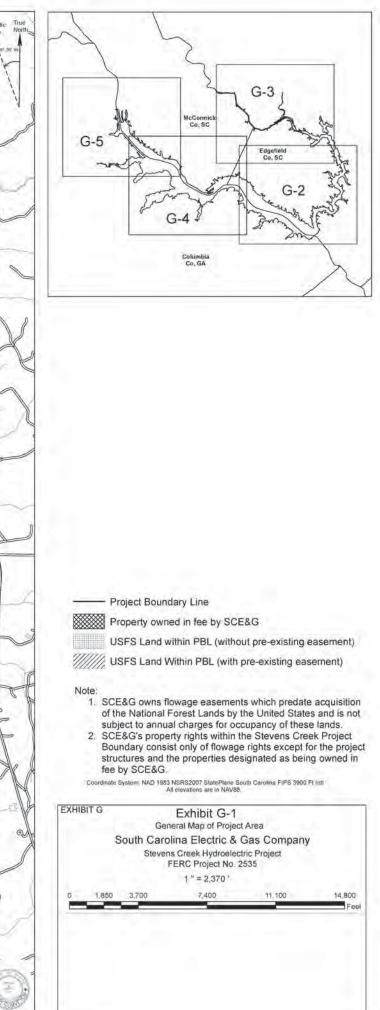


EXHIBIT G

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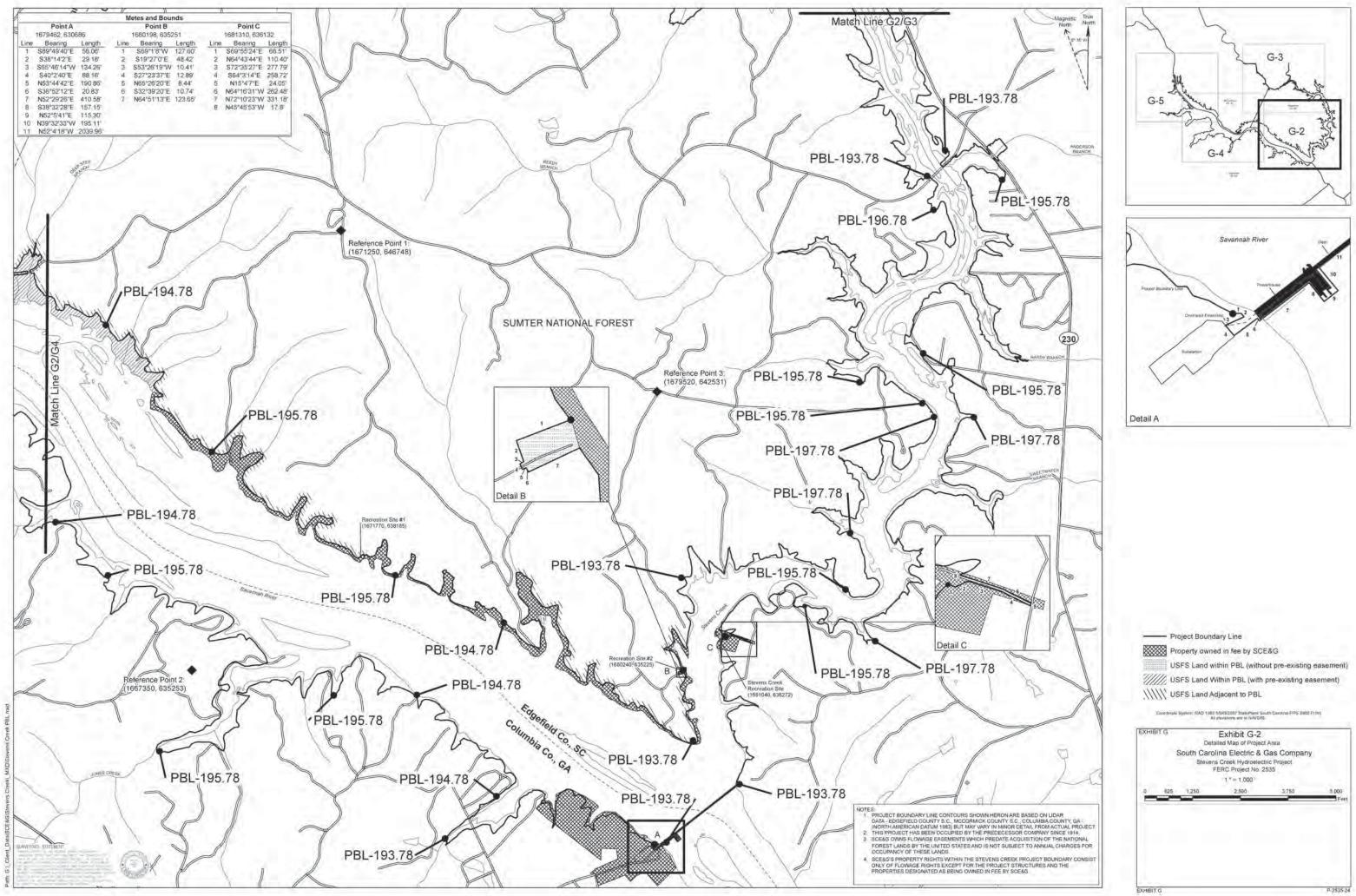
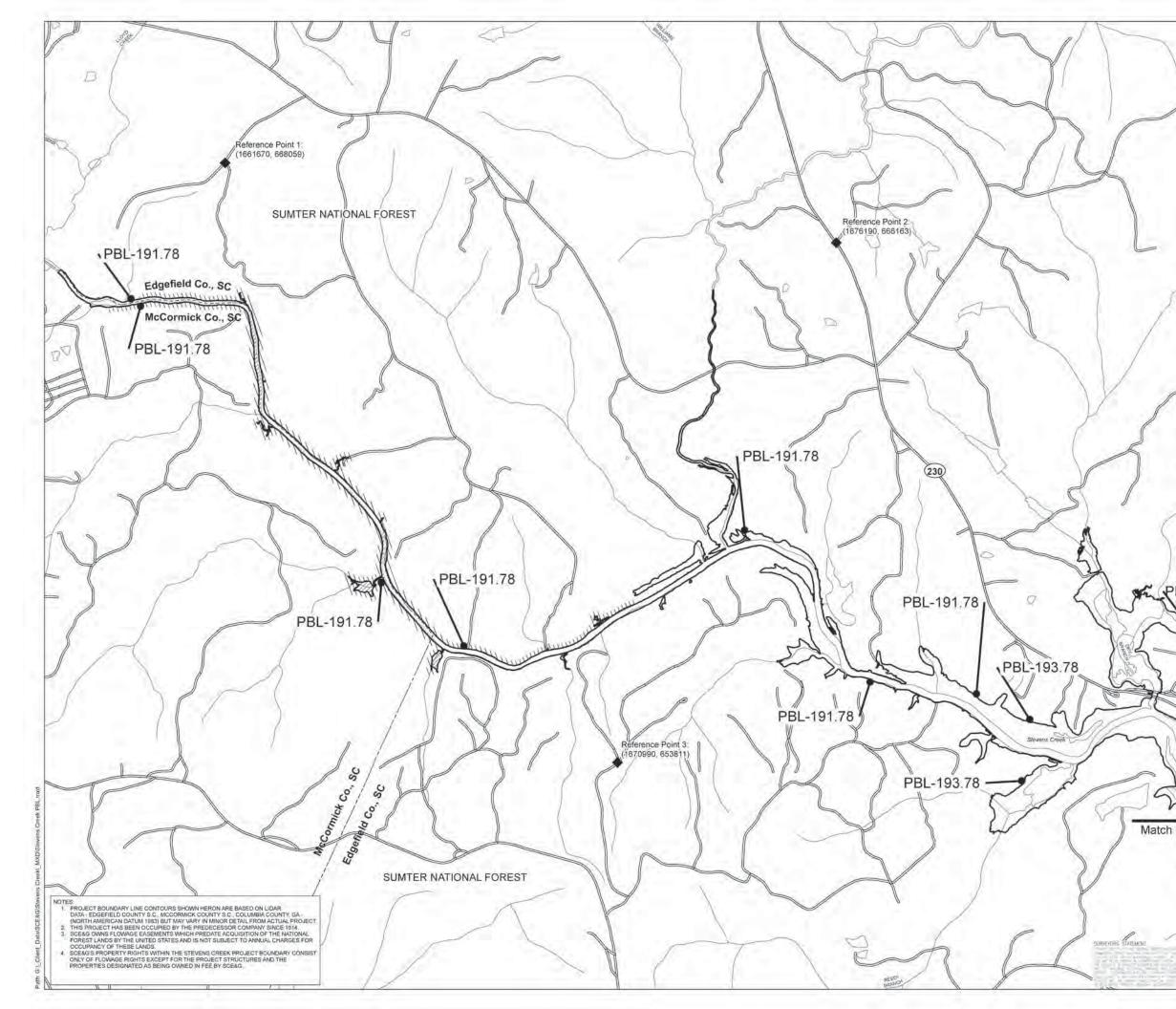


EXHIBIT G	Deta	Exhibit G-2 lled Map of Project		
	Stevens	ina Electric & Creek Hydroelec ERC Project No. 2		
		1."=1.000		
0 625	1,250	2,500	3,750	5,000 Feet



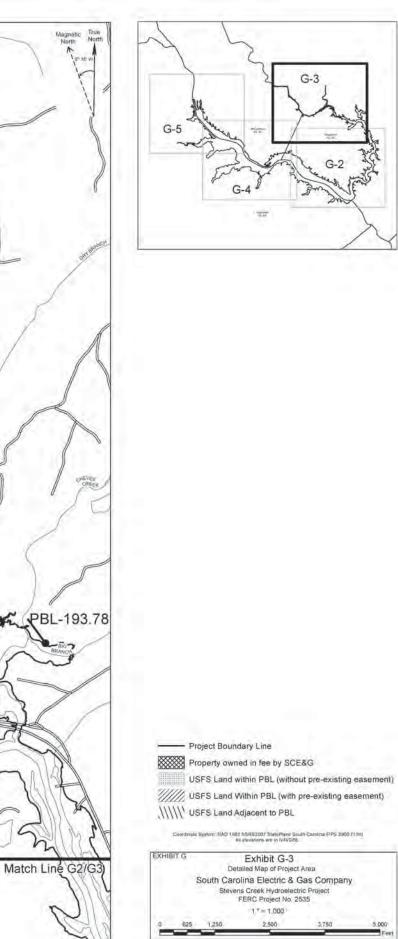
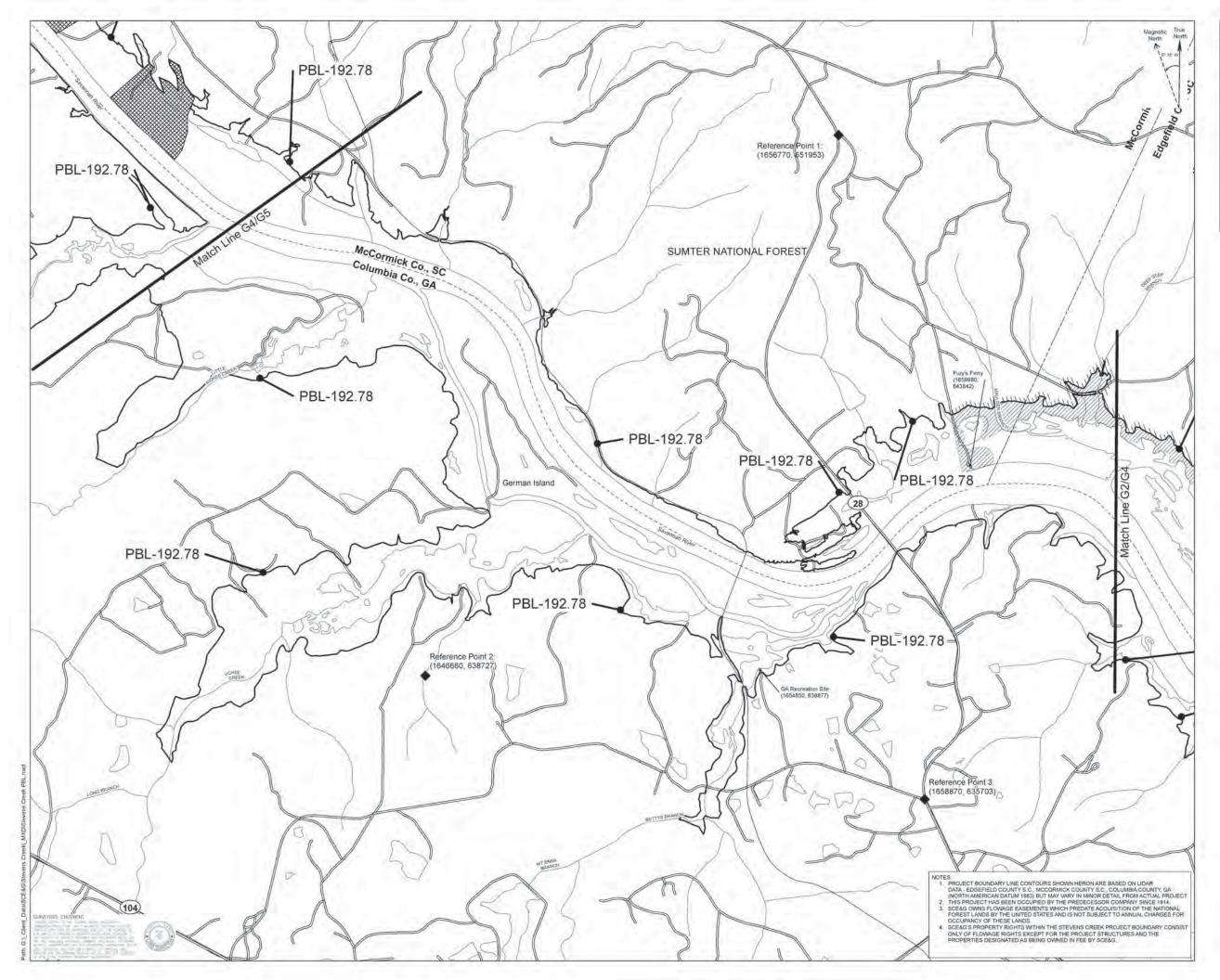
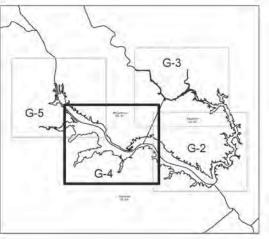


EXHIBIT G

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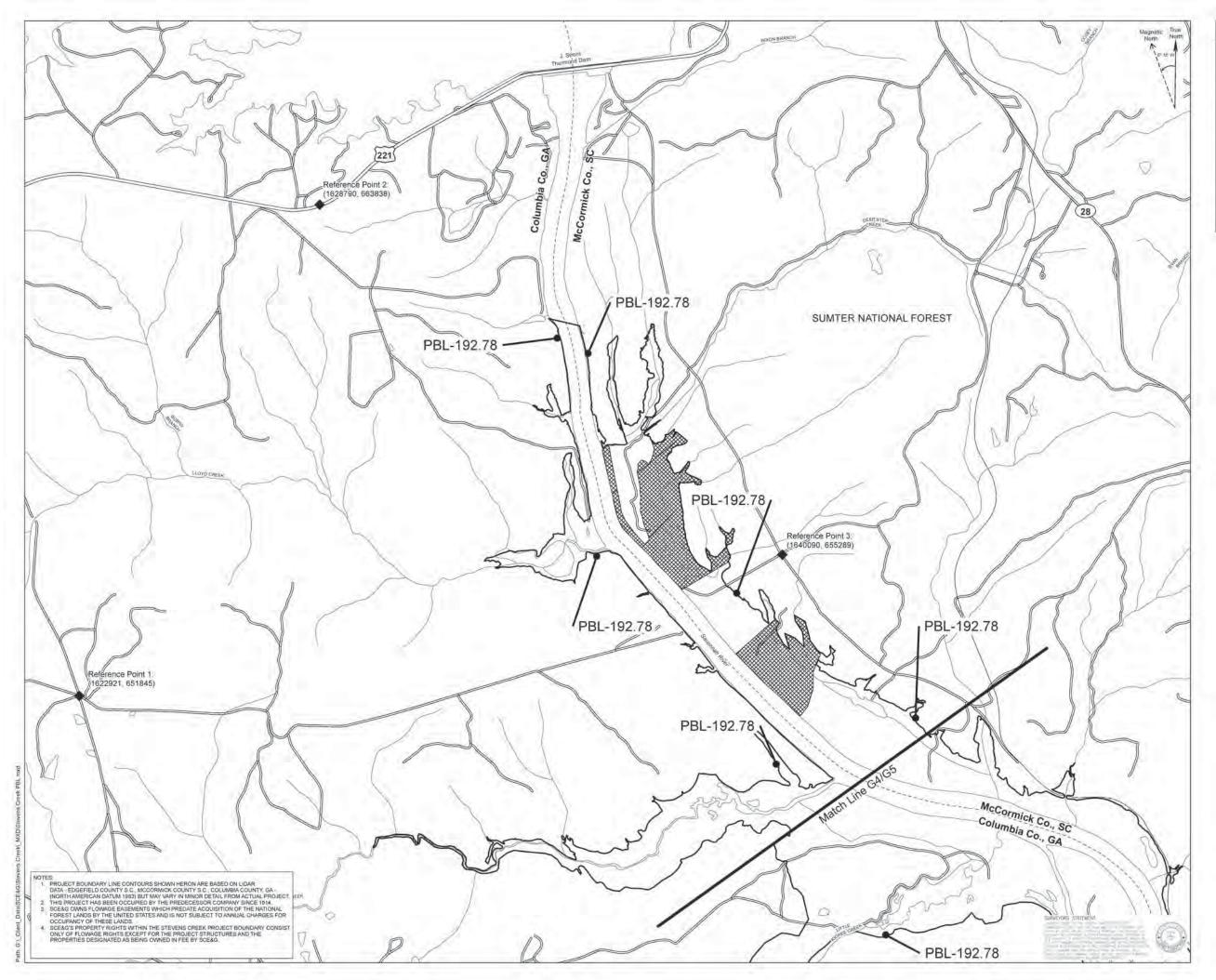


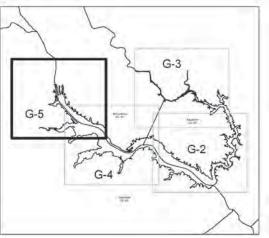
Project Boundary Line
 Property owned in fee by SCE&G
 USFS Land within PBL (without pre-existing easement)
 USFS Land Within PBL (with pre-existing easement)

,///// USFS Land Adjacent to PBL

Coordinate Bystem NAD 1983 NSRS2007 StatePlane South Carolina FIPS 3900 Ft Inti All plavations are in IAAVD35.

EXHIBI		outh Carol Steven	s Creek Hydroelec	Gas Company	
		F	ERC Project No. 2 1 " = 1,000."	2535	
0	625	1,250	2,500	3,750	5,000
	_	1,200	2,000	0.100	Fee
XHIBIT					P-2535-





----- Project Boundary Line

Property owned in fee by SCE&G

USFS Land within PBL (without pre-existing easement) USFS Land Within PBL (with pre-existing easement)

WISFS Land Adjacent to PBL

Goordinate Bystem NAD 1983 NSRS2007 StatePlane South Carolina FIPS 2900 F1 Inti All glavations are in (AVD26.

EXHIB	IT G	Exhibit G-5 Detailed Map of Project Area					
		Stevens	ina Electric & Creek Hydroelec ERC Project No. 2	tric Project			
			1 " = 1,000				
0	625	1,250	2,500	3,750	5,000 Fee		
-		_			J Fee		

P-2535-27

EXHIBIT G

APPENDIX C

SINGLE-LINE DRAWINGS

Considered Critical Energy Infrastructure Information and Not Included in Public Versions of this Document

APPENDIX D

CURRENT NET INVESTMENT

Considered Privileged Information and Not Included in Public Versions of this Document

APPENDIX E

CURRENT PROJECT LICENSE

73 44 RC 162, 124

UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION

South Carolina Electric & Gas Company Project No. 2535-003 South Carolina/Georgia

ORDER ISSUING NEW LICENSE (Major Project)

NOV 2 2 1995

South Carolina Electric & Gas Company (SCE&G or licensee) filed an application for a new license under Part I of the Federal Power Act (FPA) to continue to operate and maintain the 17.3 megawatt (MW) Stevens Creek Project. The project is located at the confluence of Stevens Creek and the Savannah River, in Edgefield and McCormick Counties, South Carolina; and Columbia County, Georgia. The project occupies 90 acres of United States Lands within the Sumter National Forest. 1/

BACKGROUND

Notice of the application was published on September 15, 1993. On November 4, 1993, the South Carolina Department of Natural Resources (South Carolina DNR) filed a motion to intervene in the proceedings. On November 5, 1993, the Department of the Interior (Interior) filed a motion to intervene in the proceedings. The Commission granted intervenor status to both South Carolina DNR and Interior on December 2, 1993. No agency, organization, or individual filed a motion to intervene in opposition to the project. All comments received have been fully considered in determining whether and under what conditions to issue this license. 2/

The Commission's staff issued a draft environmental

DC-A-1

FERC DOCKETED

^{1/} The Savannah River is a navigable waterway of the United States as determined in United States v. Twin City Power Co. 350 U.S. 222. Projects on navigable waterways and occupying United States Lands are required to be licensed. On May 11, 1965 the Commission issued an order, 33 FPC 489, requiring South Carolina Electric & Gas Company to secure a license for the Stevens Creek Project.

^{2/} In addition to the intervenors, comments were received from the National Marine Fisheries Service, U.S. Forest Service (Forest Service), U.S. Army Corps of Engineers (Corps), Georgia Department of Natural Resources (Georgia DNR), and South Carolina Department of Antiquities and History.

assessment (EA) for this project on March 13, 1995. The final EA is attached to this license order. Staff also prepared a Safety and Design Assessment which is available in the Commission's public file for this project.

PROJECT DESCRIPTION

The existing project consists of a 33-foot-high dam with a spillway section with flashboards, a reservoir with a surface area of 2,400 acres, a powerhouse containing eight generating units with a total installed capacity of 17.3 MW, and two substation ties to the licensee's transmission system. The project functions as a reregulating plant to mitigate the down-stream effects of the wide-ranging discharges from the up-stream J. Strom Thurmond dam, which operates in a peaking mode. The J. Strom Thurmond project is owned and operated by the U.S. Army Corps of Engineers (Corps). A more detailed project description can be found in ordering paragraph B(2).

APPLICANT'S PLANS AND CAPABILITIES

In accordance with Sections 10 and 15 of the FPA, the staff evaluated SCE&G's record as a licensee for these areas: (1) conservation efforts; (2) ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission line improvements; (7) project modification; and (8) compliance record. I accept the staff's finding in each of these areas.

Here are the findings:

1. Section 10 (a) (2) (C): Conservation Efforts

SCE&G encourages energy conservation through: (1) customer education, contact, and assistance, including Energy Info Centers, the Good Cents Home Program, the Home Energy Check Program, a company Speaker's Bureau, and news releases; (2) a varied rate structure such as time of use rates and interruptible rates; and (3) several programs to improve efficiency and promote energy conservation at its generating plants. SCE&G is making a good faith effort to conserve electric energy.

2. Section 15(a)(2)(A): Ability to Comply with the New License

SCE&G's license application shows SCE&G's ability to comply with the articles, terms, and conditions of any license issued and with other applicable provisions of the FPA.

SCE&G has or can acquire the resources and expertise necessary to carry out its plans and comply with all articles, 19951128-0044 FERC PDF (Unofficial) 11/22/1995

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terms, and conditions of a new license.

<u>3. Section 15(a)(2)(B): Safe Management, Operation, and</u> <u>Maintenance of the Project</u>

The project is safe for continued use and operation under the Commission's continued oversight through its dam safety program administered in accordance with Part 12 of its regulations.

Under Part 12 of the Commission's regulation, SCE&G filed the Part 12 Safety Inspection Report on January 28, 1987. SCE&G also has an emergency action plan posted in the powerhouse which is reviewed and updated annually.

Instrumentation to monitor project stability consists of reference points to perform movement surveys along and downstream of the spillway. Following each major flood, the licensee conducts measurements to monitor scouring.

SCE&G shows its regard for public safety by placing warning signs up-stream and down-stream of the powerhouse, a suspended buoy system in the reservoir up-stream of the intake and open spillway, lighted warning signs and flashing lights on the poles that support the reservoir's suspended buoy system, and floating buoys in the tailrace.

<u>4. Section 15(a)(2)(C): Ability to Provide Efficient and Reliable Electric Service</u>

The Stevens Creek plant has had only three significant forced outages from 1985 to 1990, and only one of these shut down the entire plant:

- Unit No. 8 was forced off because of failure of leveling washers in thrust bearing C. The unit was off line from July 9, 1990, through August 31, 1990, for washer replacement.
- 2. On August 17, 1990, the entire plant was shut down from 8:30 a.m. to 6:30 p.m. due to an accident involving station service. Fifty of the 5-foot-high flashboards were knocked down to maintain the minimum flow discharge.
- 3. On March 6, 1990, the No. 3 main transformer blew up. The new transformer was put into service on April 9, 1990, (it had been on order at the time the old transformer was destroyed). Water was spilled during the outage to ensure minimum flow down-stream. On April 10, 1990, the No. 4 main transformer was taken out of service to install a new transformer. The new

transformer went into service on April 19, 1990.

The project derives maximum energy benefit from the river flow. SCE&G operates the project in an efficient and reliable manner.

5. Section 15(a)(2)(D): Need for Power

SCE&G operates the Stevens Creek Project in a reregulating mode. The project provides base load generating capacity. The Stevens Creek Project provides energy, as river flow permits, on a continuous basis, similar to large coal-fired generating facilities on SCE&G's system. This energy would have to be replaced from another source at a higher cost. According to SCE&G, the cost of producing electricity at the Stevens Creek Project is considerably less than the cost to produce electricity at its most efficient steam plants. Any replacement of capacity and energy would drive the applicant's costs up and would be reflected in higher rates to its retail and wholesale customers.

SCE&G's projections of its system supply and demand indicate that over the period from 1991 through 2010 peak demand will grow from 3,232 MW to 4,863 MW (50.5 percent) while generating capacity will grow from 3,890 MW to 5,535 MW (42.3 percent). Thus, even with Stevens Creek and all other planned facilities in operation, demand will increase faster than capacity as reserve margins decrease.

Similarly, the North American Electric Reliability Council projects demand will increase in the region slightly faster than capacity during the period 1992 through 2002. Their publication "Electric Supply and Demand 1993 through 2002" (August 1993) predicts the average annual growth rate for load will be 2.3 percent while capacity will grow at 2.1 percent. Therefore, the power from the project is needed.

6. Section 15(a)(2)(E): Transmission Line Improvements

SCE&G does not plan to change the transmission network affected by the project operation. Licensing of the project would have no significant effect on the existing or planned transmission system.

7. Section 15(a)(2)(F): Project Modifications

SCE&G is not planning any future development of the project. In a 1990 study of potential redevelopment alternatives for Stevens Creek, performed by Southern Electric International, it was concluded that it is not economically feasible to increase capacity at the Stevens Creek plant either by upgrading existing units or by adding one or two new units in the plant's empty bays. ~5-

8. Section 15(a)(3)(A) and (B): Compliance Record

SCE&G's overall record of making timely filings and compliance with its license has been satisfactory.

WATER QUALITY CERTIFICATION

Section 401(a)(1) of the Clean Water Act (CWA) requires that an applicant for a federal license or permit for any activity that may result in a discharge into navigable waters of the United States provide to the licensing or permitting agency a certification from the state in which the discharge originates that such discharge will comply with certain sections of the CWA. Section 401(d) of the CWA provides that state certifications shall set forth conditions necessary to ensure that applicants comply with specific portions of the CWA and with appropriate requirements of state law. Section 4.38(f)(7)(ii) of the Commission's regulations stipulates that if a state fails to act on a request for certification within 1 year, the certification requirement is waived.

Water is discharged through the powerhouse on the Georgia shore of the Savannah River; thus, since the point of discharge is in the State of Georgia, the State of Georgia has authority under Section 401 of the CWA to issue water quality certification. On July 15, 1991, SCE&G applied to the Georgia DNR for water quality certification in a cover letter accompanying the draft license application. The Georgia DNR received the request for water quality certification before August 14, 1991, as evidenced by a telephone conversation record of that date in which Georgia DNR acknowledged receipt of the draft license application. Because the Georgia DNR did not deny or grant certification by one year after the date of receipt of the request, I deem the agency to have waived certification for this project pursuant to the Commission's regulations.

COASTAL ZONE MANAGEMENT ACT

Under Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

South Carolina has a federally-approved coastal zone management program administered by the South Carolina DNR Office of Coastal Resource Management. The area of jurisdiction for the South Carolina coastal zone management program includes the eight coastal counties of South Carolina but not the counties in which the project is located. Therefore, the South Carolina program -6-

has no regulatory authority to provide review or comment on the Stevens Creek Project. Georgia does not have a federallyapproved coastal zone management program. Although Georgia legislation protects coastal marshlands, beaches, and tidallyinfluenced areas within the state, the Stevens Creek Project does not fall within any of these areas and, therefore, Georgia coastal protection laws are not applicable.

SECTION 18 OF THE FPA

Section 18 of the FPA authorizes the Secretary of the Interior or the Secretary of Commerce to prescribe fishways at Commission-licensed projects. 3/

In their letters dated October 28, 1994, Interior and the Department of Commerce's National Marine Fisheries Service (NMFS) prescribed the construction, operation, and maintenance of fishways for the Stevens Creek Project pursuant to Section 18 of the FPA to enable the safe, timely, and unimpeded movement of anadromous and riverine fish species for spawning, rearing, feeding, dispersion, and seasonal utilization of habitat. The prescription is in accordance with the goals of the preliminary interagency management plan for anadromous fish in the Savannah River, which focuses primarily on American shad. 4/

Interior and NMFS require the licensee to design the fishways in cooperation and consultation with the U.S. Fish and Wildlife Service (Fish & Wildlife Service) and other appropriate resource agencies. After coordination with the Fish & Wildlife Service, Interior requires that the licensee submit detailed engineering plans to the Fish & Wildlife Service for review. However, Interior and NMFS do not require construction and operation of the fishway unless fish passage facilities are in

^{3/} Section 18 of the FPA states "The Commission shall require the construction, maintenance, and operation by a licensee at its own expense of . . . such fishways as may be prescribed by the Secretary of Commerce or the Secretary of the Interior as appropriate."

^{4/} Elements of Consensus on American Shad Management in the Stretch of Savannah River Between Strom Thurmond (Clarks Hill) Dam and Augusta. U.S. Fish and Wildlife Service. 1994.

place at the Augusta diversion dam down-stream of the project. 5/

The fishway prescription would require that up-stream passage facilities consist of a refurbished navigation lock at the Stevens Creek dam, which the licensee will operate using attraction flows or other fish attraction mechanisms to provide a minimum of 30 lockages during the shad migration season. Interior and NMFS require that SCE&G perform, in coordination with the Fish & Wildlife Service, studies or monitoring efforts necessary to ensure successful up-stream passage through the lock. Based on high turbine passage survival rates observed during project studies, the Fish & Wildlife Service does not believe that specific measures for safe down-stream fish passage are needed at this time.

I agree that the above recommendations for a refurbished navigation lock, attraction flows, monitoring, and consultation with the Fish & Wildlife Service are appropriate fishway prescriptions under Section 18. Article 408 of this license requires such measures.

SCE&G proposed that they install up-stream fish passage only after successful up-stream passage of fish can be demonstrated, rather than immediately after up-stream fish passage facilities are installed at the Augusta diversion dam. I agree with the SCE&G request, which does not modify the Interior/NMFS prescription. Therefore, Article 408 of this license requires SCE&G to provide up-stream fish passage facilities within two years after installation of such facilities at the Augusta diversion dam unless SCE&G can effectively document that the facilities at the Augusta diversion dam are not successfully passing anadromous fish species up-stream to the Stevens Creek dam.

Interior and NMFS also request reservation of the right to amend their prescription to include an alternative down-stream passage mechanism, should future documentation of down-stream passage problems (i.e., much higher mortality rates than anticipated) occur. Article 408 of this license reserves authority to the Commission to require the licensee to construct, operate, and maintain such fishways, or comply with such reasonable modifications to existing fishways, as may be prescribed by the Secretary of Commerce or the Secretary of the Interior pursuant to Section 18 of the FPA.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

^{5/} The application of the city of Augusta for the Augusta Canal Project No. 5772 was dismissed on January 28, 1994. The dismissal is currently pending on rehearing.

Section 10(j) of the FPA requires the inclusion, in each license issued, of conditions for the protection, mitigation, and enhancement of fish and wildlife based on recommendations from federal and state fish and wildlife agencies, unless the Commission believes that the recommendations are inconsistent with the FPA or other applicable law.

I have adopted all agency Section 10(j) fish and wildlife recommendations. I conclude that the fish and wildlife measures required in this license comply with the requirements of Section 10(j) of the FPA. All agency recommendations that staff determined to be outside the scope of Section 10(j) have been adopted under either Section 10(a) or Section 18, with two exceptions. First, South Carolina DNR recommended that SCE&G complete all recreation enhancements within 1 year of license issuance. Article 413 of this license requires completion of all recreation enhancements within 18 months of license issuance. Second, South Carolina DNR, in requesting compensatory mitigation, requested that SCE&G provide the annual fish enhancement payments to South Carolina DNR. However, the mitigation is being required under a federal license for the project and must remain subject to the Commission's regulatory oversight (see Ohio Power Corporation, 71 FERC ¶ 61,095 (1995)). SCE&G will cooperate with the South Carolina DNR and Georgia DNR to develop a fish enhancement plan containing the mitigation measures that will be funded with the payments. The Commission shall retain its authority to determine how the funds are spent and what measures are undertaken.

Interior and South Carolina DNR, in their comments on the draft EA dated April 5, 1995 and May 10, 1995, respectively, disagreed with staff's conclusion that staff had adopted all Section 10(j) comments. Specifically, the agencies disagreed with the staff recommendation in the draft EA to require an absolute minimum flow of 3,600 cfs from the Stevens Creek dam. In a teleconference held on June 22, 1995, which included representatives of Interior, South Carolina DNR, Corps, and SCE&G, all parties agreed that it would be inappropriate at this time to establish an absolute numeric minimum flow. The parties agreed that any such requirements be established through the operating plan. Article 403 requires SCE&G to develop an operating plan in cooperation with the agencies and file the plan for Commission approval. Interior and South Carolina DNR now agree that staff has adopted all Section 10(j) comments.

COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Under Section 10(a)(1), federal and state agencies filed 25 plans that address various resources in Georgia and South Carolina. Of these, we identified 8 plans relevant to the project. 6/ No conflicts were found.

COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. §§ 797(e) and 803(a)(1), require the Commission, in acting on applications for license, to give equal consideration to the power and development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreation opportunities, and the preservation of other aspects of environmental quality. In deciding whether, and under what conditions, a hydropower license should be issued the Commission must consider the various economic and environmental tradeoffs involved in the decision. The decision to license this project, and the terms and conditions included herein, reflect such consideration. For the reasons discussed below and in sections V and VI of the EA, I conclude that the Stevens Creek Project does not conflict with any planned or authorized development and is best adapted to comprehensive development of the waterway for beneficial public uses.

Recommended Alternative

The final EA analyzes the effects of SCE&G's proposed Stevens Creek Project, the project with staff's recommended environmental measures, and the no action alternative. I have selected issuing a new license with staff's recommended measures as the preferred alternative because, overall, these measures

^{6/} Georgia Department of Natural Resource, Environmental Protection Division, 1986, Water availability and use-Savannah River Basin.; Savannah District Corps of Engineers, 1985, Water resources development by the U.S. Army Corps of Engineers in Georgia.; State of Georgia, Office of the Governor, 1987; Water resources management strategy-summary document.; Fish and Wildlife Service, 1994, Elements of consensus on American shad management in the stretch of Savannah River between Strom Thurmond (Clarks Hill) Dam and Augusta.; Forest Service, 1985, Sumter National Forest land and resource management plan.; South Carolina Department of Parks, Recreation, and Tourism, Division of Engineering and 1985, South Carolina's comprehensive outdoor Planning, recreation plan.; South Carolina Water Resources Commission, Park Service, 1988, South National Carolina rivers assessment.; South Carolina Wildlife and Marine Resources Department, Division of Wildlife and Freshwater Fisheries, 1989, South Carolina instream flow studies: a status report.

along with the standard articles would protect or enhance environmental resources. Also, the electricity generated from the project would continue to offset the use of fossil-fueled, electrical generating plants, conserve non-renewable energy resources, and reduce atmospheric pollution.

The measures included in this license require the licensee to:

- Develop a plan to control erosion, slope instability, and sedimentation during construction of the proposed recreation enhancements and any other land-disturbing or land-clearing activities. SCE&G must also inspect the reservoir shoreline annually for erosion and report its findings to the Commission every 3 years.
- Operate the project to reregulate releases from the upstream J. Strom Thurmond dam. SCE&G shall contact the J. Strom Thurmond dam operators to obtain the predicted operating schedule for the J. Strom Thurmond dam and release all flow discharged to it from the J. Strom Thurmond dam on a weekly basis. SCE&G shall operate the project with the goal of attaining full pool by the end of the J. Strom Thurmond dam's production week to provide, to the extent practicable, a continuous weekend release. SCE&G must also minimize pool fluctuations to the extent practicable and maintain the reservoir between 183.0 and 187.5 feet NGVD.
- Develop an operating plan to address planned storage and operating scenarios for the up-stream J. Strom Thurmond and down-stream Augusta diversion dams. Also develop stage-discharge relationships for two existing level gages on the Savannah River and telemetry at one gage. The plan shall be updated in the future as necessary to reflect changes in operation of the dams. The operating plan shall be developed in cooperation with the Corps, Interior, South Carolina DNR, and Georgia DNR.
- Cooperate with the Corps and other agencies to address and enhance basinwide water quality, namely low dissolved oxygen (DO), identified through agency water quality monitoring. SCE&G shall begin participating in a cooperative planning process within 6 months of license issuance and document this to the Commission.
- Continue the existing water quality monitoring program to monitor DO conditions in the project reservoir and tailrace.
- Obtain water quality data from the Corps water quality

monitoring station in the tailrace of the J. Strom Thurmond dam that coincides with the frequency and timing of data collected at SCE&G's other six water quality monitoring stations and include these data in its annual submission to the Commission.

- Develop an enhancement plan related to fish entrainment mortality. The plan must include setting aside annual payments in the amount of \$4,700 (1995 dollars) adjusted annually to reflect changes in the Consumer Price Index, to finance specific resource-based enhancements that will be developed and implemented by SCE&G in coordination with Interior, South Carolina DNR, and Georgia DNR. These enhancements must be located in the Savannah River basin.
- Develop an aquatic plant management plan to include: (1) posting plant information signs provided by South Carolina DNR at existing and proposed boat ramps; (2) monitoring aquatic plant distribution; (3) an evaluation of herbicide application and mechanical removal in selected areas; and (4) proper disposal of plant material removed from trash racks to minimize down-stream dispersal.
- Maintain a buffer area of trees on SCE&G-owned land around the reservoir to minimize soil erosion and maintain aesthetic quality.
- Protect archaeologic and historic sites within the project area by developing and implementing a cultural resources management plan, pursuant to a programmatic agreement between SCE&G, Advisory Council on Historic Preservation, U.S. Forest Service, South Carolina and Georgia State Historic Preservation Officers, South Carolina Institute of Archaeology and Anthropoloy.
- Provide barrier-free facilities (picnic table and restroom) at the existing Stevens Creek recreation site.
- Provide three picnic tables, including one barrier-free picnic table, a barrier-free restroom, a barrier-free fishing pier with a floating boat dock, a paved walkway, and a shoreline trail at the Forest Service's Fury's Ferry recreation site within the Sumter National Forest.
- Provide recreation facilities at two additional sites within the Sumter National Forest:
 - (1) develop an unpaved boat launch, parking, and

signage at Proposed Site No. 1, on the Savannah River about 2 miles up-stream of the Stevens Creek dam; and

- develop an unpaved boat launch, parking, signage, and shoreline fishing stations at Proposed Site
 No. 2, on Stevens Creek about three-fourths of a mile up-stream of the Stevens Creek dam.
- Provide a tailwater fishing platform and parking below the dam on the Georgia side of the river.
- Install a gate and safety sign to prevent public access to a previously-proposed recreation site on the Savannah River about 1 mile up-stream of the Stevens Creek dam. SCE&G and the Forest Service now consider this site inappropriate for recreation development and propose access restriction to enhance public safety.
- Develop a recreation plan for the project to include a schedule for implementing the proposed recreation enhancements within 18 months of license issuance and a recreation site maintenance plan.
- File recreation plan updates every six years. The plan updates should include: (1) estimated use of the recreation sites and the reservoir; (2) an evaluation of adequacy of recreation facilities within the project; and (3) an evaluation of the feasibility of providing a recreation site on the Georgia side of the reservoir.
- Submit to the Fish & Wildlife Service, after coordination with the Fish & Wildlife Service, detailed engineering plans for the operation, maintenance and monitoring of the fishway. The actual construction and operation of the Fish & Wildlife Service-approved final design are not being required until such time as fish passage facilities are in place and functioning successfully at the Augusta diversion dam. Interior and the National Marine Fisheries Service do not envision the need for down-stream fish passage, but reserve the right to amend their prescription in the future should down-stream passage or other alternative passage mechanisms prove necessary.

Developmental and Nondevelopmental Uses of the Waterway

In determining whether a proposed project will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes pursuant to Section 10(a)(1) of the FPA, 16 U.S.C. § 803(a)(1), the Commission considers a number of public interest factors, including the projected economic benefits of project power. In making these determinations, I considered the project both with the applicant's mitigative proposals and with staff's mitigative proposals.

Under the Commission's new approach to evaluating the economics of a project, as recently articulated in Mead Corporation, Publishing Paper Division, 72 FERC ¶ 61,027 (1995), a proposed project is economically beneficial so long as its projected cost is less than the current cost of alternative energy to any utility in the region that can be served by the To determine whether the project is economically project. beneficial staff compared the cost of energy from the licensee's proposal to the most economical source of new power which is a combined cycle combustion turbine. The Stevens Creek Project produces about 94.3 Gigawatthours (GWh) per year. Based on current economic conditions, without future escalation or inflation, the project if licensed as SCE&G proposes would have an annual cost of about \$1,595,000 (17 mill/kwh) less than currently available alternative equivalent power (which costs about 33 mills/kwh). When licensed in accordance with the conditions adopted herein, the project would still produce about 94.3 GWh of energy annually, at an annual cost about \$1,537,000 (16 mills/kwh) less than currently available alternative power.

I conclude, as discussed herein, that it is in the public interest to license the project.

LICENSE TERM

Section 15 of the FPA specifies that any license issued shall be for a term that the Commission determines to be in the pubic interest but is not less than 30 years or more than 50 years. The Commission's policy, which establishes 30-year terms for projects that propose little or no redevelopment, new construction, new capacity, or enhancement; 40-year terms for projects that propose moderate redevelopment, new construction, new capacity, or enhancement; and 50-year terms for projects that propose extensive redevelopment, new construction, new capacity, or enhancement; is consistent with the FPA as modified by the Electric Consumers Protection Act.

SCE&G proposes no new construction nor does this license require enhancement measures that would justify a longer term. Accordingly, the license for the Stevens Creek project will be for a term of 30 years.

SUMMARY OF FINDINGS

A Final EA was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on

the environment are contained in the Final EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment.

Based upon a review of the agency and public comments filed on the project, and on staff's independent analysis pursuant to Sections 4(e), 10(a)(1), and 10(a)(2) of the FPA, I conclude that issuing a license for the Stevens Creek Project, with the required enhancement measures, up-stream fish passage, and other special license conditions, would not conflict with any planned or authorized development, and would be best adapted to a plan for comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to South Carolina Electric & Gas Company, for a period of 30 years, effective the first day of the month in which this order is issued, to construct, operate and maintain the Stevens Creek Hydroelectric Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by Exhibit G, filed on December 30, 1991:

<u>Exhibit</u>		FERC No. 2535-	Showing
G	-	15	Project Area
G	-	16	Project Area
G		17	Project Area
G		18	Project Area
G		19	Project Area

(2) Project works consisting of a (1) 2,000-foot spillway composed of a (a) cyclopean concrete gravity section, ogee crest, with a top elevation of 183.54 (1929 National Geodetic Vertical Datum [NGVD], 169.0 Plant Datum), (b) 1,000 feet of 5-foot-high flashboards from the lock to the center of the spillway, (c) 1,000 feet of 4-foot-high flashboards from the center of the spillway to the South Carolina abutment; (2) nonoverflow portions, located at the abutments with top elevations of 198.54 (1929 NGVD, 184.0

Plant Datum); (3) a concrete gravity lock 90 feet wide by 165 feet 6 inches long located between the powerhouse and spillway section; (4) a reservoir with a surface area of about 2,400 acres (gross capacity is 23,700 acre-feet and usable storage is about 8,600 acre-feet); (5) a 390-footlong powerhouse, integral with the dam, consisting of (a) a reinforced concrete substructure, (b) a steel-framed brick superstructure, and containing (a) five I.P. Morris Francis vertical shaft single runner turbines, each rated at 3,125 horsepower (hp) and 75 revolutions per minute (rpm), (b) three S. Morgan Smith Francis vertical shaft single runner turbines, each rated at 3,125 hp and 75 rpm, (c) eight vertical shaft Westinghouse generators, each rated at 2,700 kilovolt-ampere (kVA), 2,300 volts, 60 cycle, 3 phase and 75 rpm, (d) two vertical shaft turbine-driven exciters rated at 300 kilowatts (kW), 250 volts, 1,200 amps, and 200 rpm, with static excitation systems for units 5-8, (e) governors on Units 1, 2, 4, and 5, ball-head type, gear driven from the main turbine shaft, (f) a governor on Unit 6, ball-head type, v-belt driven from the main turbine shaft, and (g) governors on Units 3, 7, and 8, Woodward Type UG-8 hydraulic governors; (6) a transmission system containing (a) two 5,000-kVA, 2,500V/46,000V transformers, (b) two 5,600-kVA, 2,300V/46,000V transformers, and (c) two 46-kV ties to a 46/115-kV substation; and (7) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

<u>Exhibit A</u>--The following sections of exhibit A filed December 30, 1991:

Section 1, page A-1, entitled "Project Structures"; Section 2, page A-2, entitled "Project Impoundment"; Section 3, page A-2, "Project Generating Equipment"; Section 4, page A-3, "Project Transmission Equipment"; and Section 5, page A-3, "Miscellaneous Equipment".

<u>Exhibit F</u>--The following exhibit F drawings filed December 30, 1991:

<u>Exhibit</u>	<u>FERC No. 2535-</u>	<u>Showing</u>
F	13	Plan, elevation-
		dam, powerhouse
F	14	Plan, elevation-
		powerhouse

(3) All structures, fixtures, equipment, or facilities used to operate or maintain the project and located within the project boundary; all portable property that may be employed in connection with the project and located within or outside the project boundary; and all riparian or other rights necessary or appropriate in the operation or maintenance of the project.

(C) The exhibits A, F, and G described above are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-5 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States" and the following additional articles:

<u>Article 201</u>. The licensee shall pay the United States an annual charge, effective the first day of the month in which this license is issued:

For the purposes of reimbursing the United States for the Commission's administrative costs, pursuant to Part I of the Federal Power Act, a reasonable amount as determined in accordance with the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 17,280 kW. Under the regulations currently in effect, projects with authorized installed capacity of less than or equal to 1,500 kW will not be assessed an annual charge.

<u>Article 202</u>. Pursuant to Section 10(d) of the FPA, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includible in the licensee's longterm debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus 4 percentage points (400 basis points).

<u>Article 203</u>. If the licensee's project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

Article 401. The licensee shall file erosion and sedimentation control plans at least 90 days before the start of any scheduled land-disturbing or land-clearing activities. The erosion control plans shall include measures to control dust and erosion, to stabilize slopes, and to minimize the quantity of sediment and other potential air or water pollutants likely to result from site access, project construction, spoil-disposal, and project operation.

The erosion control plan(s), at a minimum, shall include:

- (1) a description of the actual site conditions;
- (2) measures proposed to control erosion, to prevent slope instability, and to minimize the quantity of sediment resulting from project construction and operation;
- (3) detailed descriptions, functional design drawings, and specific topographic locations of all control measures; and
- (4) a specific implementation schedule and details for monitoring and maintenance programs for project construction and operation.

The licensee shall prepare the plan after consultation with the Department of Interior, Forest Service, Georgia Department of Natural Resources (Georgia DNR), and South Carolina Department of Natural Resources (South Carolina DNR). The licensee shall include with the plan documentation of consultation and copies of comments and recommendations made during plan preparation, and specific descriptions of how the agencies' comments are accomodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and make final recommendations before filing the plan with the Commission. If the licensee does not adopt an agency's recommendation, the filing shall state the licensee's reasons, including those that are based on geological, soil, and groundwater conditions at the site.

The plans shall incorporate applicable Best Management Practices. The Commission may require changes to the plan. No land-disturbing or land-clearing activities shall begin until the Commission notifies the licensee that the plan complies with the requirements of this article. Upon Commission approval, the licensee shall implement the action items identified in the operating plan, including any changes required by the Commission.

The licensee shall also inspect the reservoir shoreline for erosion annually and report the results to the Commission every three years on January 1. If specific areas of shoreline erosion are identified, the licensee shall cooperate with the Forest Service, Georgia DNR, and South Carolina DNR, as appropriate, to address adverse effects such as unstable slopes or suspended sediments.

Arti<u>c</u>le 402. The licensee shall operate the Stevens Creek Project to reregulate releases from the up-stream U.S. Army Corps of Engineers' J. Strom Thurmond dam. The licensee shall contact the J. Strom Thurmond dam operators to obtain the predicted operating schedule for the J. Strom Thurmond dam. The Stevens Creek Project shall release all flow discharged to it from the J. Strom Thurmond dam on a weekly basis. The licensee shall operate the Stevens Creek Project with the goal of attaining full pool by the end of the J. Strom Thurmond dam's production week to provide, to the extent practicable, a continuous weekend release. The licensee shall operate the project to minimize pool fluctuations to the extent practicable while discharging flow in response to daily and weekly projections from the J. Strom Thurmond dam. The reservoir shall be maintained between 183.0 and 187.5 feet National Geodetic Vertical Datum.

Article 403. The licensee shall file with the Commission, for approval, an operating plan for the Stevens Creek project. Within one month after license issuance, the licensee shall schedule a meeting with the U.S. Army Corps of Engineers (Corps), Department of the Interior, Georgia Department of Natural Resources, South Carolina Department of Natural Resources, and city of Augusta (or current licensee of the Augusta diversion dam) to begin development of the operating plan. The plan shall be submitted to the Commission for approval within six months of the first meeting between the licensee and the above-mentioned agencies. The plan shall conform to the basic framework described in this license. The plan shall be updated every five years to accommodate changing operations at up-stream or downstream dams.

The licensee shall include with the plan documentation of the cooperative effort between the licensee and the agencies, copies of agency comments and recommendations made during plan preparation, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and make final recommendations before filing the plan with the Commission. If agreement is not reached among the licensee and the agencies as to the elements of the plan, the licensee shall submit all data and documentation developed to date, describing in detail the various parties' positions, to the Commission for resolution.

The intent of the operating plan will be to develop minimum flow, or flows, for the Stevens Creek Project under various operating conditions, improve operational efficiency, leading to minimization of reservoir fluctuation and more uniform flows in the river down-stream of the Stevens Creek project. The plan shall address planned storage and flow releases under different J. Strom Thurmond operating scenarios. The plan shall place particular emphasis on minimizing reservoir fluctuations from March through June, which encompasses the spawning periods of the majority of important game fish.

The plan shall include operating procedures for emergency plant shutdowns, procedures to follow when the flashboards trip, notification of down-stream users when the minimum flow cannot be provided, provisions to address potential future minimum release requirements at the Augusta diversion dam, and operating rules that correspond to the anticipated range of average daily flows from the J. Strom Thurmond dam.

Within six months after license issuance, the licensee shall prepare a formal cooperative agreement with the Corps that addresses notification procedures to alleviate problems due to flashboard tripping when high flows are unexpectedly released from the J. Strom Thurmond dam.

If the Stevens Creek Project deviates from the minimum flow developed in the operating plan, the licensee shall document the event and provide an explanation in a memorandum to the Commission within ten days. If the occurrence is beyond the licensee's control, it shall not be considered a non-compliance event.

To demonstrate operational compliance, the licensee shall submit annual reports to the Commission with operating data including daily generation data, daily flows released through the turbine and spilled over the dam, daily flow data from the belowdam USGS gage, J. Strom Thurmond's projected daily average releases and any memorandums submitted to the Commission during the year explaining deviations from the continuous minimum flow. The licensee shall provide actual hourly releases from the J. Strom Thurmond dam and hourly generation data and hourly flows released through the turbines and released over the dam at the Stevens Creek Project to the Commission or agencies within 30 days upon request. Hourly data shall be retained on file for a period of no less than five years.

To accurately quantify and reregulate the flows from the Stevens Creek project, the operating plan shall include development of stage-discharge relationships for existing U.S. Geological Survey (USGS) water level gages located in the tailrace of the J. Strom Thurmond dam (USGS No. 02194501) and 200 feet downstream of the Stevens Creek dam (USGS No. 021964831). The gaging plan shall be prepared in cooperation with the USGS and the Corps. If these two monitoring locations prove to be unsuitable for long-term flow gaging purposes, the plan shall establish other monitoring locations in consultation with USGS or document in a report to the Commission why no suitable locations could be found. The licensee shall also provide funding to install and maintain telemetry at Gage No. 02194501 in the tailrace of the J. Strom Thurmond dam.

The Commission reserves the right to require changes to the operating plan. Upon Commission approval, the licensee shall implement the action items identified in the operating plan, including any changes required by the Commission.

Article 404. The licensee shall participate in a cooperative planning process for enhancing dissolved oxygen in the Stevens Creek reservoir and downstream of the Stevens Creek The planning process shall include representatives of the dam. Corps of Engineers (Corps), Department of the Interior, Georgia Department of Natural Resources, South Carolina Department of Natural Resources, Environmental Protection Agency, and other interested parties. The licensee shall convene or participate in a meeting with the above-mentioned agencies within six months after license issuance and document this to the Commission. Subsequently, the licensee shall continue to participate in a cooperative planning process. A goal of the process shall be to improve dissolved oxygen concentrations downstream of J. Strom Thurmond dam. The process shall build on the information developed for this license renewal and on the results of the Corps' investigation of dissolved oxygen enhancement options at up-stream reservoirs. The planning process shall focus on achieving a consensus on how to develop, fund, implement, and maintain a plan for seasonal improvement of dissolved oxygen downstream of J. Strom Thurmond dam.

The licensee shall submit annual status reports to the Commission by January 1 describing the dissolved oxygen enhancement planning, including meetings held, participants, and decisions or progress made. The status reports shall also contain a summary of the water quality monitoring data described in Article 405.

<u>Article 405</u>. Within six months after license issuance, the licensee shall file with the Commission, for approval, a water quality monitoring plan. The plan shall be prepared in consultation with the Department of the Interior (Interior), Georgia Department of Natural Resources (Georgia DNR), South Carolina Department of Natural Resources (South Carolina DNR), and the Environmental Protection Agency (EPA). The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The licensee shall continue the existing water quality monitoring program begun by U.S. Geological Survey in 1990. The monitoring shall occur at the one existing site in the Stevens Creek tailrace and the five existing sites in the Stevens Creek reservoir:

- Savannah River below the Highway 28 bridge
- Forebay of the powerhouse
- Stevens Creek at the existing Stevens Creek recreation site
- Stevens Creek at the County Road 53 bridge
- Savannah River just up-stream of the Columbia County pollution control plant outfall.

The water quality monitoring shall include obtaining data from the Army Corps of Engineer's (Corps') water quality monitoring station installed below the J. Strom Thurmond dam in order to assess water quality as water enters the Stevens Creek reservoir. Data shall be obtained from the Corps to coincide with the collection of data from the other water quality monitoring stations.

The licensee shall collect data on pH, temperature, dissolved oxygen, and conductivity on a monthly basis from the seven monitoring stations. Monitoring results should be presented to the Commission annually and provided to the Corps, EPA, Interior, Georgia DNR, and South Carolina DNR to assist in development of the most appropriate enhancements to improve dissolved oxygen conditions in the Savannah River within the Stevens Creek reservoir and directly down-stream of the Stevens Creek dam. The monitoring results shall be included in the annual status reports required in Article 404.

The licensee shall continue the monitoring effort while the cooperative planning effort to enhance the dissolved oxygen level in the Stevens Creek reservoir described in Article 404 is underway. After a plan for enhancing seasonal dissolved oxygen levels is agreed upon, the licensee shall consult with Interior, EPA, Georgia DNR, and South Carolina DNR to update the water quality monitoring plan based on the selected dissolved oxygen enhancement plan. When dissolved oxygen enhancement measures are in place and the monitoring data show that state dissolved oxygen standards are consistently being met in the Stevens Creek reservoir and down-stream of the dam, the licensee may petition the Commission to reduce the frequency of water quality monitoring.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the action items identified in the plan, including any changes required by the Commission.

<u>Article 406</u>. By January 1 of each year, the licensee shall provide the replacement value of \$4,700 (1995 dollars) annually on January 1 to fund resource-based activities in the Savannah River basin. To ensure that future payments accurately reflect the effects of inflation, the required annual payment should be adjusted to reflect changes in the Consumer Price Index. If subsequent analyses indicate that project-related entrainment is significantly less than or greater than determined in the relicensing process, the licensee shall, following consultation with the South Carolina Department of Natural Resources, Georgia Department of Natural Resources, and the Department of the Interior, file recommendations for modification of the compensation requirement for Commission approval. The filing shall include the comments of these agencies on the licensee's recommendations.

Article 407. Within six months after license issuance, and every 10 years thereafter, the licensee shall file a resource enhancement plan and implementation schedule for Commission approval using the funds described in Article 406. The plan shall describe specific enhancement activities to be undertaken and contain provisions to monitor the success of these measures. The licensee shall include with the plan documentation of consultation with the South Carolina Department of Natural Resources, Georgia Department of Natural Resources, and Department of the Interior, copies of agency comments and recommendations made during plan preparation, and specific descriptions of how the agencies' are accomodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment on the plan and make final recommendations before filing the plan with the Commission. if the licesee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. The licensee shall finance the enhancement measures annually, until or unless the Commission determines otherwise. Any enhancement activities may include, but are not limited to, fish stocking, habitat improvement projects, and dissolved oxygen improvement.

<u>Article 408</u>. The licensee shall provide for the construction, maintenance, and operation of up-stream fish passage facilities at its own expense as prescribed by the Secretary of the Interior and Secretary of Commerce.

Up-stream fish passage facilities shall consist of a refurbished navigation lock at the Stevens Creek dam, which shall be operated using attraction flows or other fish attraction mechanisms to provide a minimum of 30 lockages during the American shad migration season. The up-stream fish passage facilities must be designed in cooperation and consultation with the U.S. Fish and Wildlife Service (Fish and Wildlife Service), Georgia Department of Natural Resources (Georgia DNR), and South Carolina Department of Natural Resources (South Carolina DNR). The licensee shall complete design of up-stream fish passage facilities at the Stevens Creek project if and when up-stream fish passage facilities are installed at the Augusta diversion dam down-stream of the Stevens Creek project.

Actual construction and operation of the Fish & Wildlife Service-approved final design will be required within two years after fish passage facilities are in place at the Augusta diversion dam, unless the licensee can effectively document that up-stream fish passage facilities at the Augusta diversion dam are not successfully passing anadromous fish species upstream to the Stevens Creek dam. In such case, the licensee shall provide up-stream fish passage facilities within two years after fish passage facilities are successfully operating at the Augusta diversion dam.

The Commission reserves the authority to require the construction, maintenance, and operation of downstream fish passage facilities, or the modification of up-stream fish passage facilities, by the licensee at its own expense as may be prescribed by the Secretary of the Interior or the Secretary of Commerce.

Article 409. Within six months after license issuance, the

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licensee shall file with the Commission, for approval, an aquatic plant management plan. This plan shall be prepared in consultation with the Department of the Interior, Georgia Department of Natural Resources, South Carolina Department of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The intent of the plan shall be to control nuisance aquatic weeds which are present in the reservoir, namely Eurasian watermilfoil and Brazilian elodea. The plan shall include the following measures:

(1) posting of signs at boat ramps requesting boaters to remove aquatic plants from boats and trailers

(2) evaluation of herbicide application and mechanical removal in selected areas of the Stevens Creek reservoir to facilitate recreational boating and limit the spread of aquatic plants, including consideration of the potential effects of herbicide application on down-stream populations of the protected rocky shoals spider-lily

(3) monitoring of aquatic plant distribution and plant accumulation at the intakes

(4) composting of all aquatic plants removed from the trash racks to minimize down-stream distribution of these species.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 410. The licensee shall maintain a 50-foot shoreline buffer of trees on licensee-owned land on the Stevens Creek reservoir to minimize soil erosion and maintain aesthetic quality.

Article 411. Before the commencement of any construction or development of any project works or other facilities at the project, the licensee shall consult and cooperate with the Georgia and South Carolina State Historic Preservation Officers (SHPOs) to determine the need for, and extent of, any archaeological or historic resource surveys and any mitigation measures that may be necessary. The licensee shall provide funds in a reasonable amount for such activity. If any previously unrecorded archaeological or historic sites are discovered during the course of construction, construction activity in the vicinity shall be halted, a qualified archaeologist shall be consulted to determine the significance of the sites, and the licensee shall consult with the Georgia and South Carolina SHPOs to develop a mitigation plan for the protection of significant archaeological or historic resources. If the licensee and the SHPOs cannot agree on the amount of money to be expended on archaeological or historic work related to the project, the Commission reserves the right to require the licensee to conduct, at its own expense, any such work found necessary.

Article 412. The licensee shall implement the provisions of the Programmatic Agreement among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, the Forest Service, the South Carolina State Historic Preservation Officer, the Georgia State Historic Preservation Officer, the South Carolina Institute of Archaeology and Anthropology, and the licensee for managing historic properties that may be affected by the new license for the Stevens Creek project. The Commission reserves the authority to place such additional requirements upon this license as may be necessary to ensure the Commission's compliance with the National Historic Preservation Act and 36 CFR Part 800, at any time during the term of this license, in the event the Programmatic Agreement is terminated.

<u>Article 413</u>. The licensee shall, within six months after license issuance, submit a recreation plan to the Commission for review.

The licensee shall prepare the plan after consultation with the Forest Service, Georgia Department of Natural Resources, South Carolina Department of Natural Resources, Columbia, Edgefield, and McCormick counties, law enforcement officials, and agencies having land management or planning/zoning authority in the area. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 60 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The licensee shall implement the plan upon Commission approval. The Commission reserves the right to require changes to the recreation plan, which shall reflect the following recreation enhancements: (1) Existing Stevens Creek recreation site. The licensee shall provide the following enhancements in addition to the existing facilities:

- a. one barrier-free picnic table
- b. one barrier-free restroom
- c. a paved access road, parking for 20 vehicles, and turnaround area
- d. one barrier-free parking space

(2) Existing Fury's Ferry recreation site. The licensee shall provide the following enhancements in addition to the existing facilities:

- a. three picnic tables, one of which is barrier-free
- b. paved walkways and a shoreline trail
- one stationary barrier-free fishing pier with a floating boat dock
- d. one barrier-free rest room
- e. gravel parking for 20 vehicles, including 1 barrierfree parking space

(3) Proposed recreation site #1. The licensee shall develop appropriate access to this site and provide:

- a. an unpaved boat launch
- b. gravel parking area for six cars and four trailers
- c. one trash receptacle and safety sign.

(4) Proposed recreation site #2. The licensee shall develop appropriate access to this site and provide:

- a. an unpaved boat launch
- b. gravel parking area for seven cars and four trailers
- c. four fishing stations connected by 520 feet of trails. The fishing stations shall consist of cleared areas on the bank of the creek. Three years after construction, the licensee shall evaluate the fishing stations to determine if benches are appropriate
- d. one safety sign.

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(5) Tailwater Fishing Platform. The licensee shall provide:

- a. a shore fishing platform below the dam on the Georgia side of the river
- b. parking for 10 vehicles, including one barrier-free parking space
- c. a walkway from the parking area to the fishing platform
- d. one safety sign.

In addition, the licensee shall restrict access to the area in the Sumter National Forest at the end of Forest Road 636B that was originally proposed as a recreation site by installing a gate across the access road to the site. The recreation plan shall comply with the Cultural Resources Management Plan for the project. The plan shall also include:

- a schedule for implementing the improvements described above within 18 months after the issuance date of this license
- a maintenance plan, including trash and litter collection, clearing of brush and undergrowth, maintenance of signs, facilities, and parking areas.

The recreation plan shall also include specific proposals to:

- minimize destruction of the natural vegetation directly adjacent to the reservoir, and where possible, on the land adjoining the project boundary
- minimize unauthorized use and vandalism of the existing and proposed recreation sites through monitoring, use of certain construction materials, and cooperation with local law enforcement authorities.
- blend the recreation development into the existing landscape character by selective vegetation removal and landscaping
- revegetate, stabilize, and landscape new construction areas and slopes damaged by erosion.

The licensee shall provide sufficient funds to the Forest Service to maintain the existing Fury's Ferry recreation site and proposed recreation sites #1 and #2.

The design and construction of all recreational facilities shall comply with the standards and provisions of the Americans with Disabilities Act (ADA).

Article 414. The licensee shall file a recreation plan update with the Commission every 6 years following issuance of the license. The first recreation plan update shall be submitted to the Commission in conjunction with the licensee's next Form 80 Inventory of Recreational Resources submission (Section 8.11(a)(2) of the Commission's regulations). The plan update must be prepared in consultation with the Forest Service, Georgia Department of Natural Resources, South Carolina Department of Natural Resources, Columbia, Edgefield, and McCormick Counties, local communities, law enforcement agencies, and any other agencies having land management or planning/zoning authority in the area.

The licensee shall include with the 6-year recreation plan updates documentation of consultation, copies of agency comments and recommendations on the completed plan update, and specific descriptions of how those agencies' comments are accommodated by the plan update. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the update with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The purpose of the plan updates are to evaluate the adequacy of recreational facilities in the project area. The 6-year recreation plan updates shall include:

- annual recreation use figures for the reservoir and recreation sites
- (2) a discussion of the adequacy of the licensee's recreation facilities to meet recreation demand
- (3) an assessment of the need for new or expanded facilities.
- (4) a description of the methodology used to collect all study data
- (5) consideration of the following project-specific issues:
 - a. safety, security, and vandalism
 - b. navigational problems such as shallow water, heavy boat traffic, and aquatic weed growth
 - c. the viability of providing a recreation site, including a year-round accessible boat launch ramp, on the Georgia side of the reservoir.

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If the Commission determines that recreation facilities in the project area are inadequate to meet demand, the Commission may require the licensee to provide recreation facilities adequate to meet recreation needs in the project area.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the action items identified in the plan, including any changes required by the Commission.

Article 415. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article.

If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any noncomplying structures and facilities.

(b) The type of use and occupancy of project lands and water for which the licensee may grant permission without prior Commission approval are:

- (1) landscape plantings;
- (2) noncommercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings;
- (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and

(4) food plots and wildlife enhancement.

To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall:

- (1) inspect the site of the proposed construction;
- (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and
- (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline.

To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of, project lands for:

- replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained;
- (2) storm drains and water mains;
- (3) sewers that do not discharge into project waters;
- (4) minor access roads;
- (5) telephone, gas, and electric utility distribution lines;

- (6) nonproject overhead electric transmission lines that do not require erection of support structures within the project boundary;
- (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and
- (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir.

No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for:

- construction of new bridges or roads for which all necessary state and federal approvals have been obtained;
- (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained;
- (3) other pipelines that cross project lands or waters but do not discharge into project waters;
- (4) nonproject overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained;
- (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina;
- (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and

(7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d) (7) in any calendar year.

At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

- Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.
- (2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or approved report on recreational resources of an exhibit E; or, if the project does not have an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.
- (3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

The conveyance of an interest in project lands under (f) this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion of that Lands conveyed under this article will be excluded from land. the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(E) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

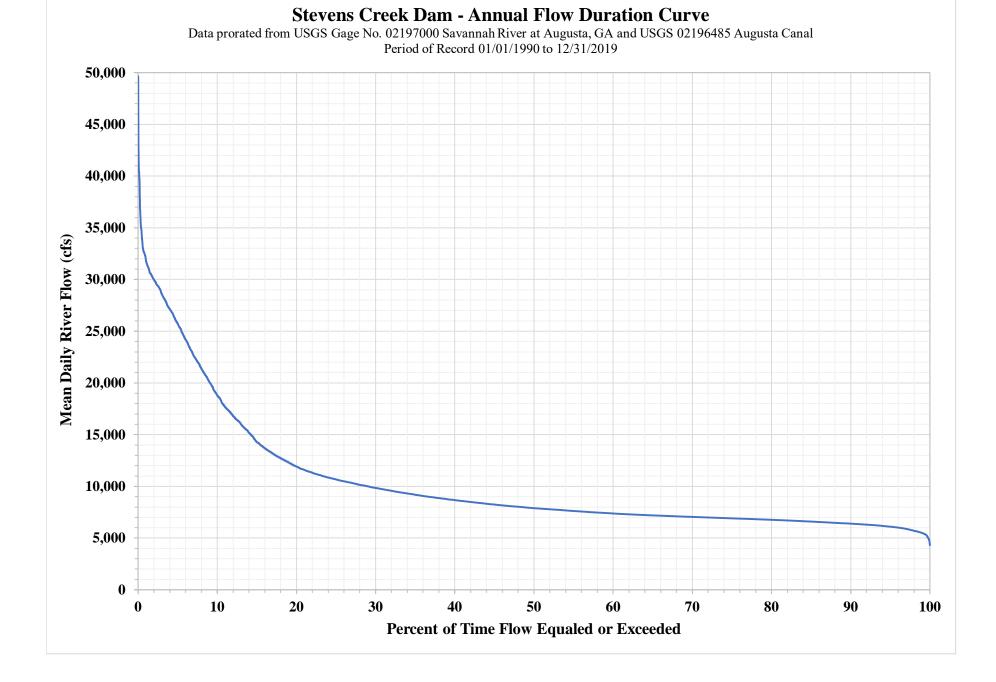
(F) This order is issued under authority delegated to the Director and constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of this order, pursuant to 18 C.F.R. §§ 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The licensees failure to file a request for rehearing shall constitute acceptance of this order.

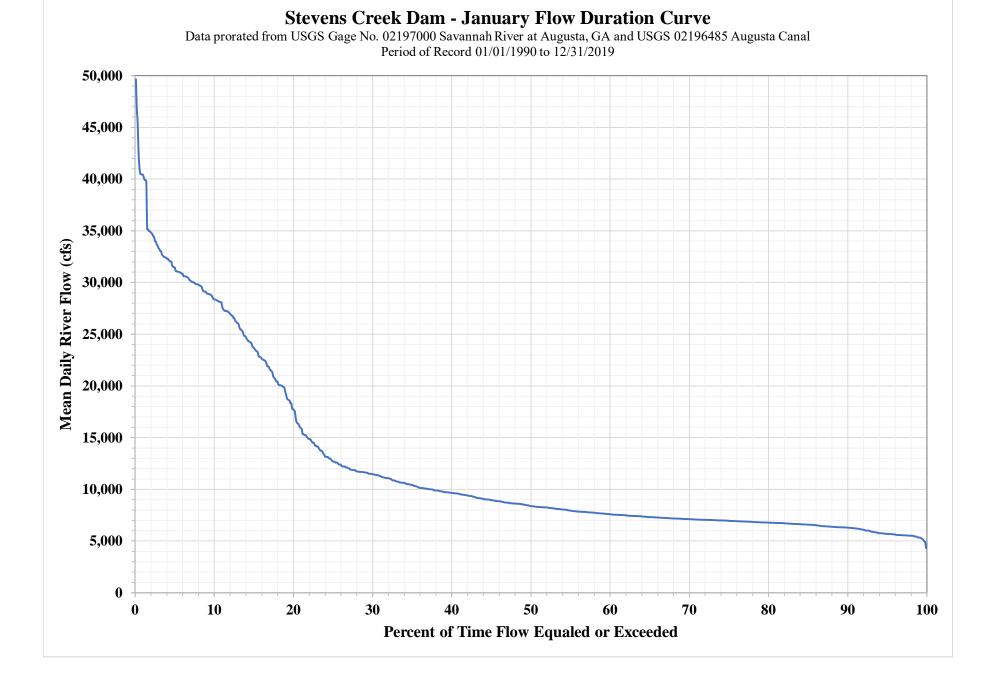
Fred E. Springer Director, Office of Hydropower Licensing

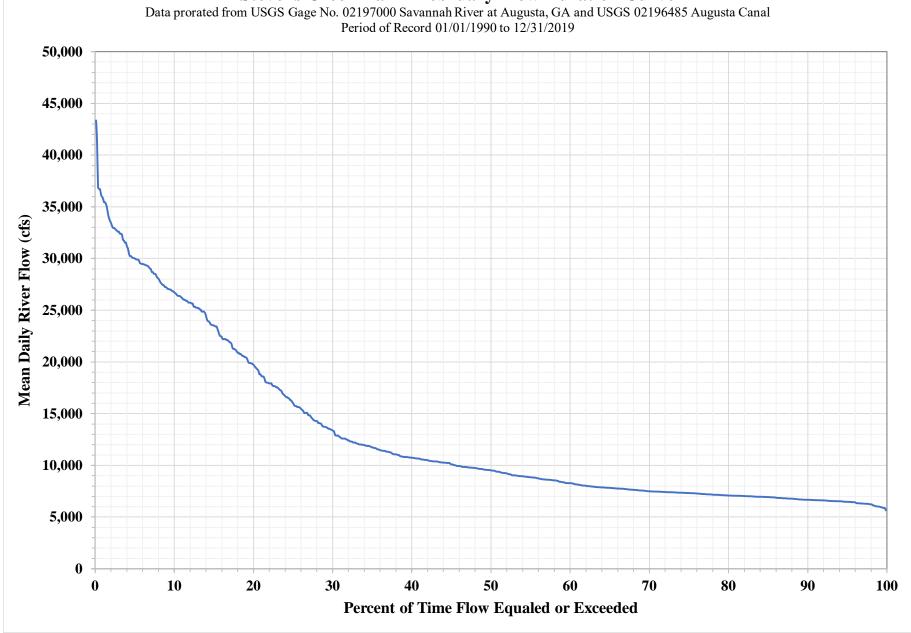
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APPENDIX F

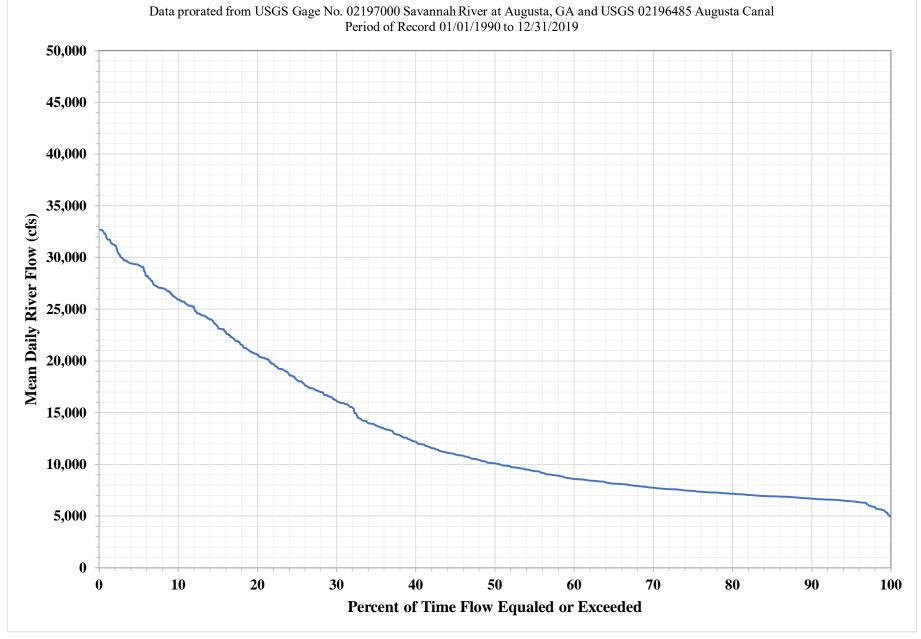
FLOW DURATION CURVES



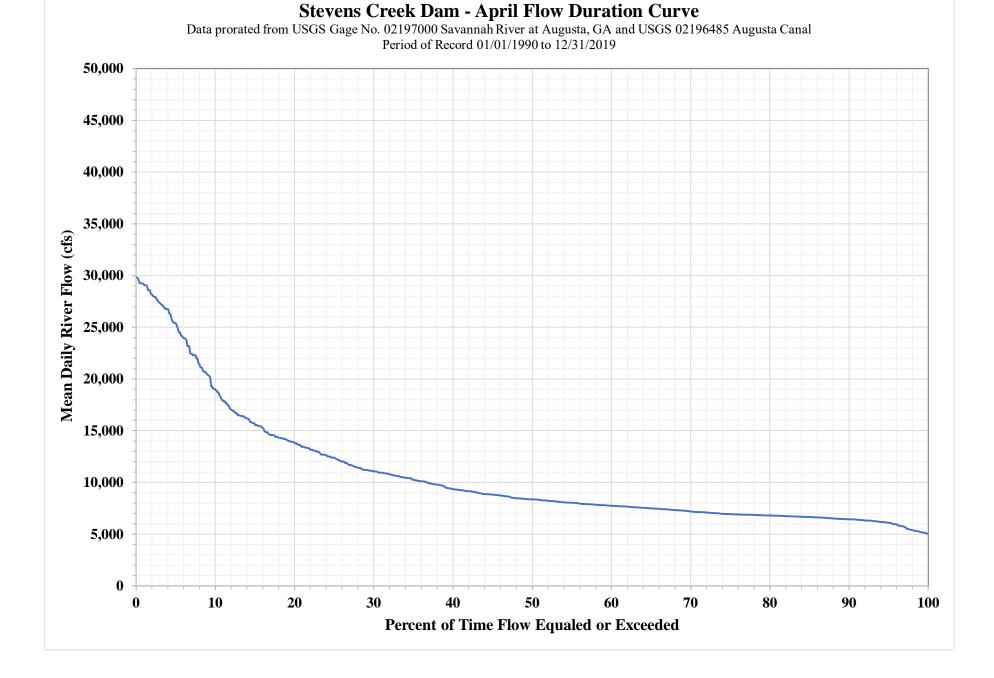


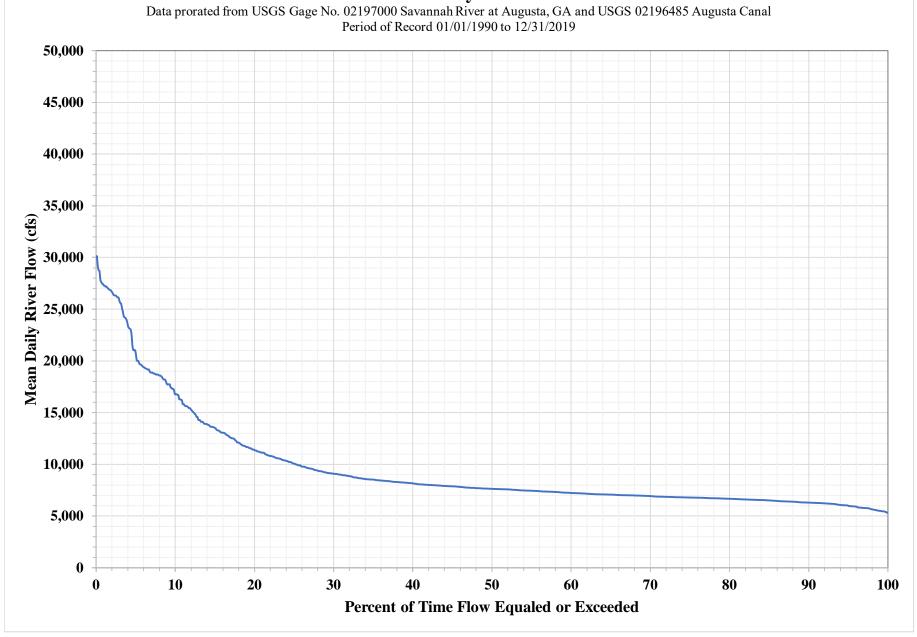


Stevens Creek Dam - February Flow Duration Curve

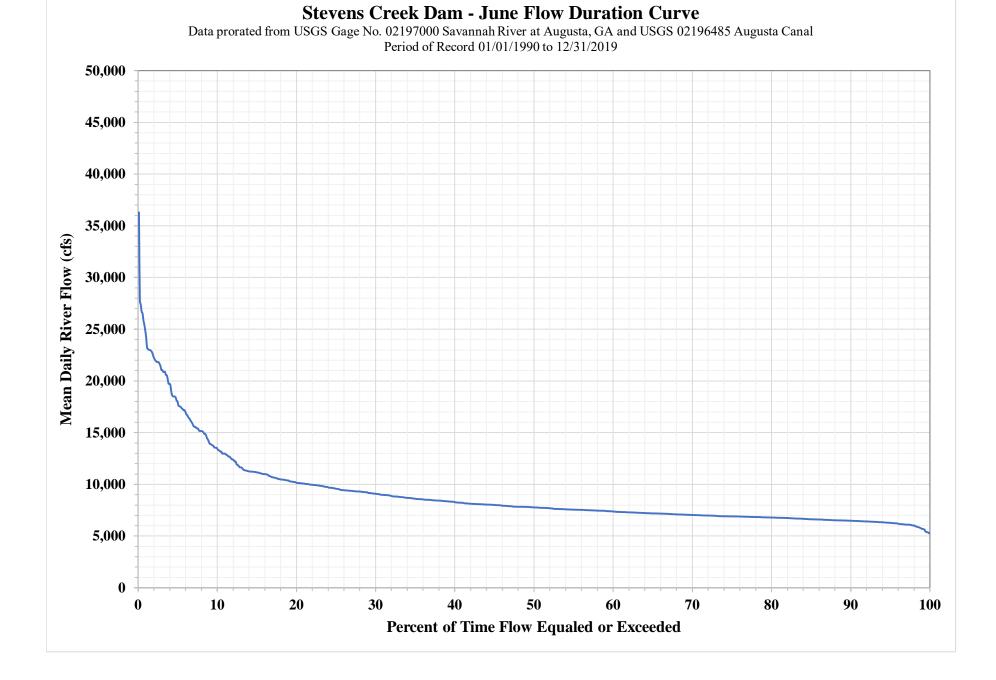


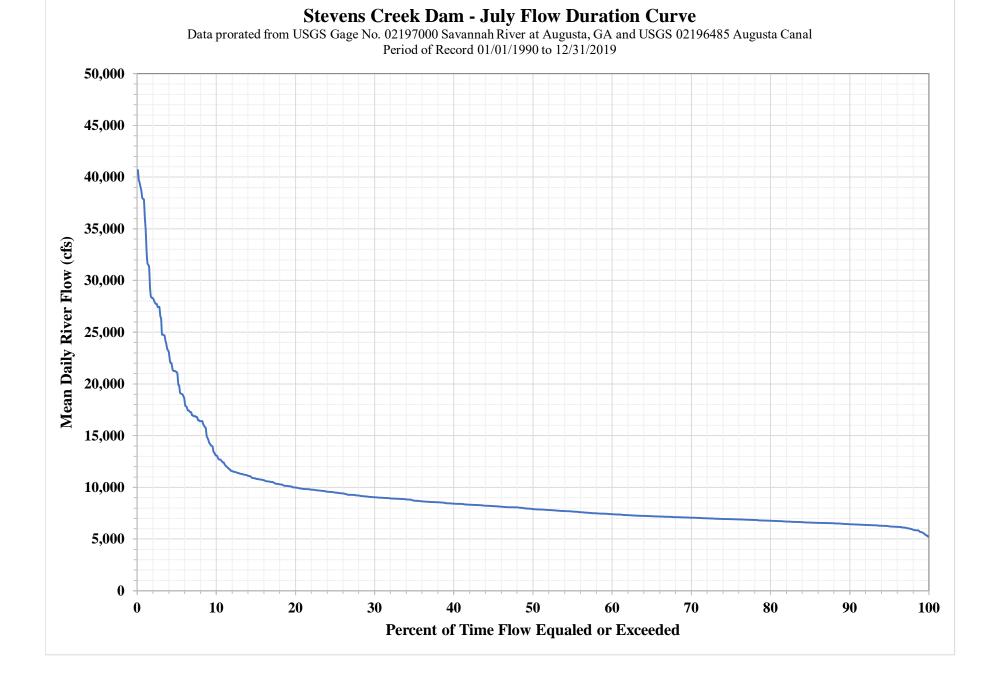
Stevens Creek Dam - March Flow Duration Curve

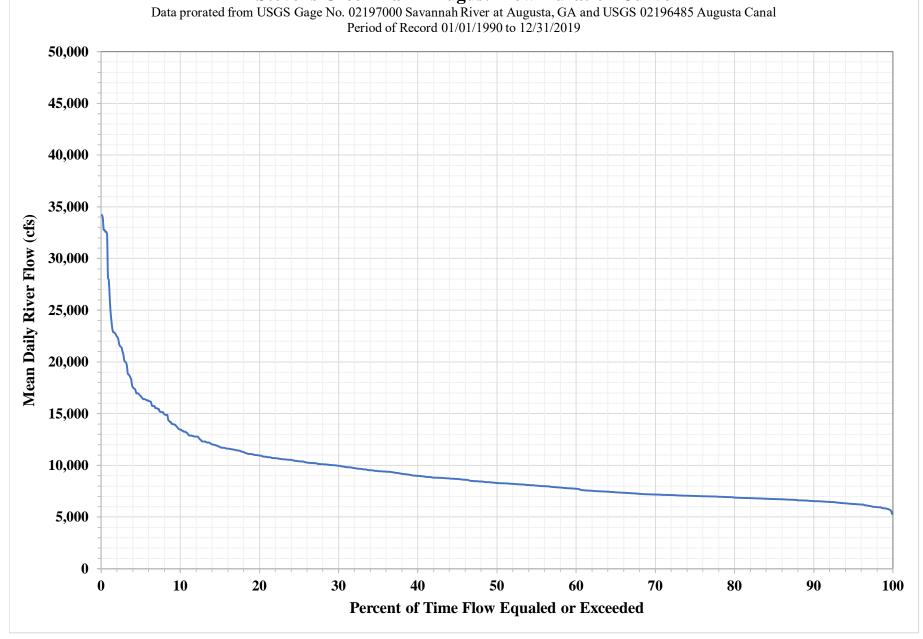




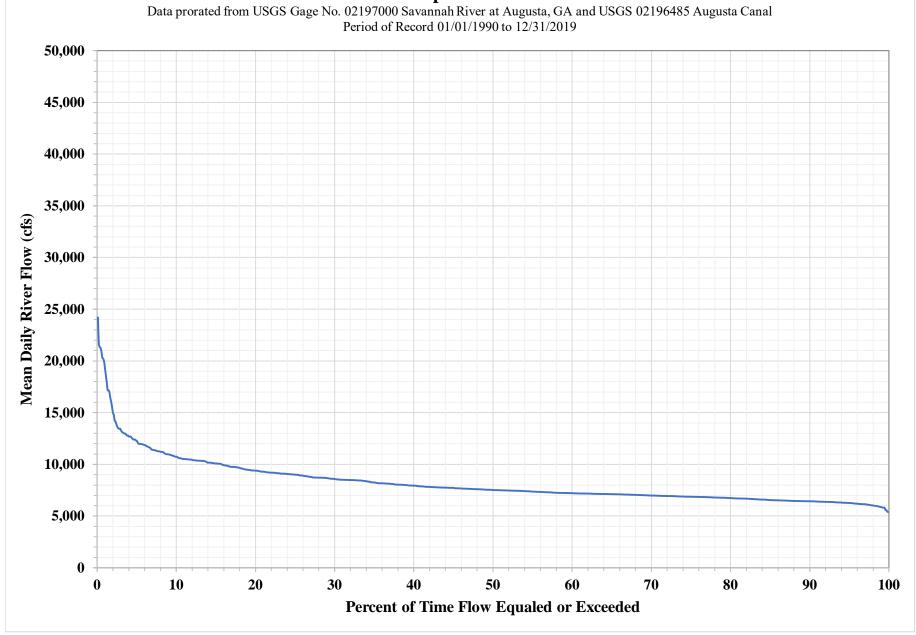
Stevens Creek Dam - May Flow Duration Curve



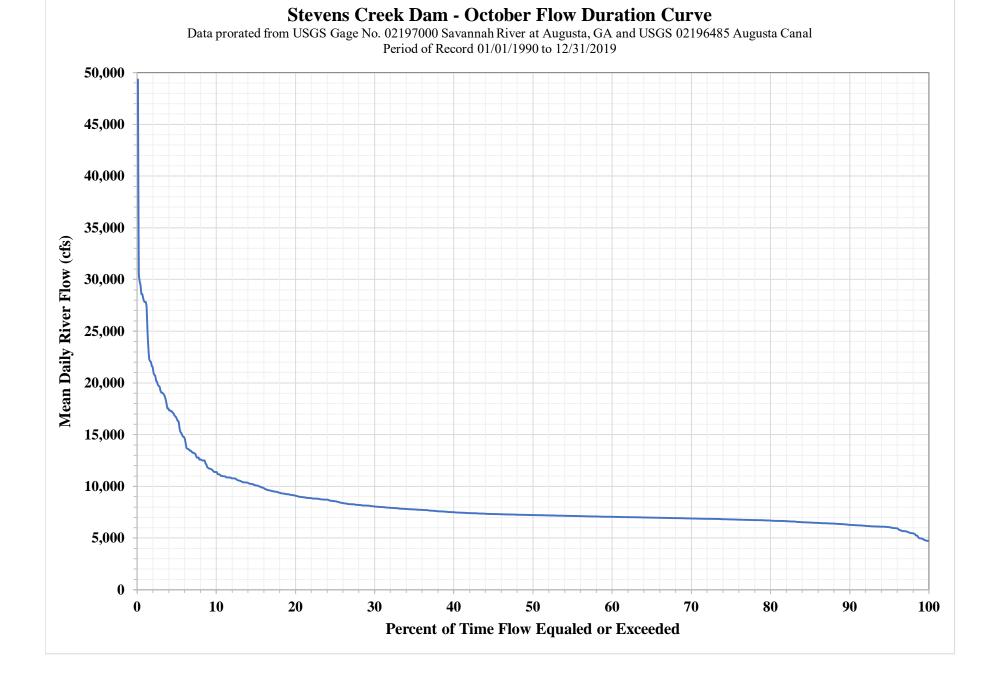


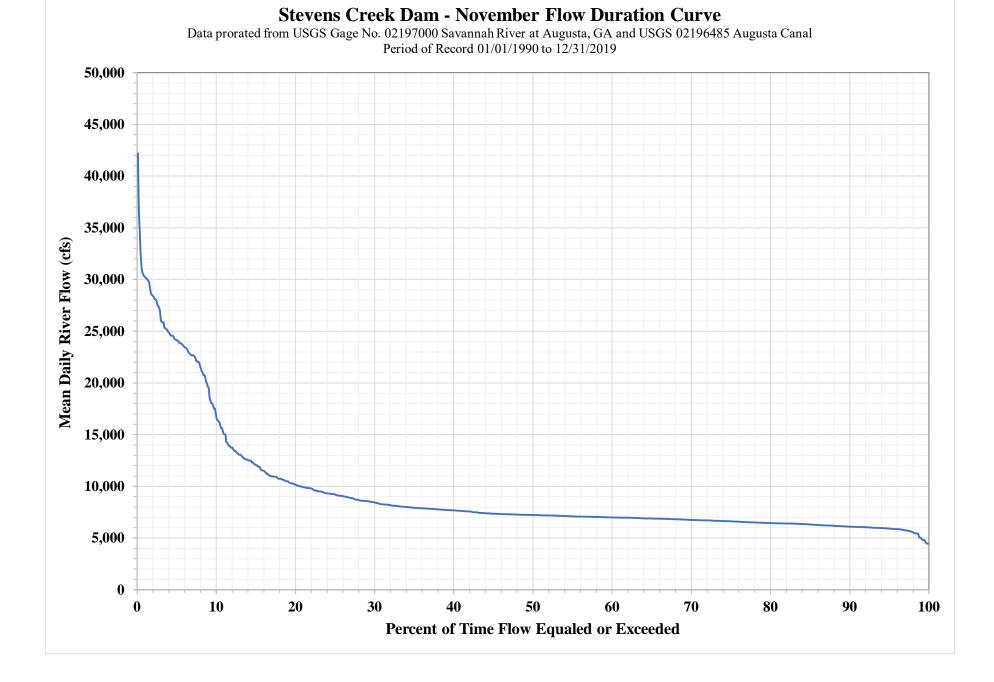


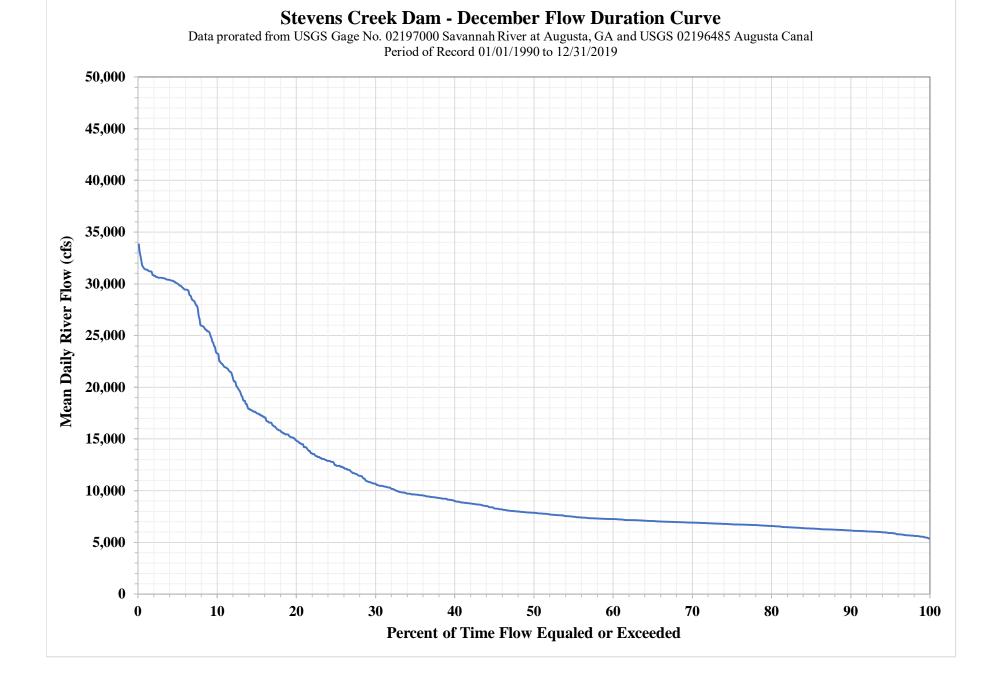
Stevens Creek Dam - August Flow Duration Curve



Stevens Creek Dam - September Flow Duration Curve







APPENDIX G

RTE SPECIES LIST

Federal Rare, Threatened & Endangered Species				
Common Name	Scientific Name	Status	Critical Habitat	
Red-cockaded Woodpecker	Picoides borealis	Endangered	None	
Wood Stork	Mycteria americana	Threatened	None	
Carolina Heelsplitter	Lasmigona decorata	Endangered	Critical habitat is outside the Project boundary.	
Miccosukee Gooseberry	Ribes echinellum	Threatened	None	
Relict Trillium	Trillium reliquum	Endangered	None	

Source: USFWS IPaC Lists, Georgia and South Carolina, 2020

Migratory Birds/Birds of Conservation Concern/Protected Birds			
Common Name	Scientific Name	Breeding Season within the Project Area	
American Kestrel	Falco sparverius paulus	April 1 to August 31	
Bald Eagle	Haliaeetus leucocephalus	September 1 to July 31	
Blue-winged Warbler	Vermivora pinus	May 1 to June 30	
Kentucky Warbler	Oporornis formosus	April 20 to August 20	
Prairie Warbler	Dendroica discolor	May 1 to July 31	
Prothontary Warbler	Protonotaria citrea	April 1 to July 31	
Red-headed Woodpecker	Melanerpes erythrocephalus	May 10 to September 10	
Red-throated Loon	Gavia stellata	Breeds elsewhere	
Rusty Blackbird	Euphagus caorlinus	Breeds elsewhere	
Short-billed Dowitcher	Limnodromus griseus	Breeds elsewhere	
Wood Thrush	Hylocichla mustelina	May 10 to August 31	

Source: USFWS IPaC List, South Carolina, 2020

Forest Service Threatened, Endangered, and Sensitive Species: Long Cane Ranger District of the Sumter National Forest					
Common Name	Scientific Name	Status			
	Animals				
Atlantic Spike	Elliptio producta	Sensitive			
Bachman's Sparrow	Peucaea aestivalis	Sensitive			
Bartam's Bass	Micropterus coosae	Sensitive			
Brook Floater	Alasmidonta varicosa	Sensitive			
Carolina Heelsplitter	Lasmigona decorata	Endangered			
Monarch Butterfly	Danaus plexippus	Sensitive			
Piedmont Prairie Burrowing Cray	Distocambarus crockeri	Sensitive			
Red-Cockaded Woodpecker	Dryobates borealis	Endangered			
Roanoke Slabshell	Elliptio roanokensis	Sensitive			
Robust Redhorse	Moxostoma robustrum	Sensitive			
Tricolored Bat	Perimyotis subflavus	Sensitive			
Webster's Salamander	Plethodon websteri	Sensitive			
Wood Stork	Mycteria americana	Endangered			

Yellow Lampmussel	Lampsilis cariosa	Sensitive
	Plants	
Faded Trillium	Trillium discolor	Sensitive
Georgia Aster	Symphyotrichum georgianus	Sensitive
Lanceleaf Trillium	Trillium lancifolium	Sensitive
Miccosukee Gooseberry	Ribes echinellum	Threatened
Oglethorpe Oak	Quercus oglethorpensis	Sensitive
Relict Trillium	Trillium reliquum	Endangered
Shoals Spider Lily	Hymenocallis coronaria	Sensitive
Sweet Pinesap	Monotropsis odorata	Sensitive

Source: US Forest Service, 2020

Georgia and South Carolina State Protected Species			
Common Name	Georgia Protected Species ¹	South Carolina Protected Species ²	
	Animals		
American Eel		highest	
Atlantic Pigtoe	high		
Atlantic Spike		high	
Atlantic Sturgeon	high		
Bald Eagle		high	
Baltimore Oriole		high	
Bartram's Bass		highest	
Brother Spike	high		
Carolina Slabshell	*		
Christmas Darter		highest	
Delicate Spike	high		
Dwarf Waterdog	high		
Eastern Creekshell		moderate	
Eastern Elliptio		moderate	
Flat Bullhead		moderate	
Florida Pondhorn		*	
Highfin Shiner		moderate	
Ironcolor Shiner	*		
Notchlip Redhorse		moderate	
Roanoke Slabshell	*		
Rosyface Chub		moderate	
Robust Redhorse	high	highest	
Savannah Elimia	*		
Savannah Lilliput	high		
Shortnose Sturgeon	high		
Snail Bullhead		moderate	
Spotted Turtle	high		

Tiger Salamander		highest
Turquoise Darter		high
Webster's Salamander		highest
Yellow Lampmussel	high	highest
· · · · · ·	Plants	2
Aethusa-like Trepocarpus		moderate
American Barberry	high	
American Ginseng		high
Carolina Larkspur		moderate
Carolina Trefoil	high	
Curly-Heads	*	
Dixie Mountain Breadroot	high	
Dutchman's Breeches		moderate
Eared Goldenrod		moderate
Faded Trillium		*
False-Rue Anemone	*	moderate
Georgia Aster		highest
Georgia Plume	high	
James' Sedge	-	moderate
Lanceleaf Wakerobin (Narrow-		
leaved Trillium)		high
Log Fern	*	
Lowland Bladderfern		*
Miccosukee Gooseberry		highest
Ocmulgee Skullcap	high	*
One-Flowered Broomrape		*
Pale Yellow Trillium	*	
Pineland Barbara Buttons	*	
Relict Trillium	high	highest
Shoals Spider Lily	high	high
Side-Oats Grama	*	
Slender Sedge		moderate
Smooth Indigobush		*
Southern Nodding Trillium		high
Streambank Mock Orange		*
Tall Bellflower		moderate
Tuberous Gromwell		moderate
Virginia Spiderwort		moderate
Weak Nettle		*
Whiteleaf Sunflower		moderate
Wingpod Purslane	high	
Yellow Nailwort	high	

¹GA SWAP species with state protection are indicated with an asterisk (*); species identified as "high" are state protected species with high priority status.

² Listed species categorized in the SC SWAP are noted as having moderate, high or highest priority status; species identified with an asterisk (*) are state "tracked" species.

Source: Georgia DNR, 2019; South Carolina DNR, 2020

APPENDIX H

RTE WHITEPAPER

STEVENS CREEK HYDROELECTRIC PROJECT

FERC No. 2535

RARE, THREATENED AND ENDANGERED SPECIES WHITEPAPER

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt

Lexington, South Carolina www.KleinschmidtGroup.com

May 2020

STEVENS CREEK HYDROELECTRIC PROJECT

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STEVENS CREEK HYDROELECTRIC PROJECT FERC No. 2535

RARE, THREATENED AND ENDANGERED SPECIES WHITEPAPER DOMINION ENERGY SOUTH CAROLINA, INC.

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STEVENS CREEK HYDROELECTRIC PROJECT FERC No. 2535

RARE, THREATENED AND ENDANGERED SPECIES WHITEPAPER 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 J. Strom Thurmond Dam. The Project occupies approximately 104 acres of federal lands within the Sumter National Forest. A project location map is included in Figure 3-1.

On November 22, 1995, FERC issued a 30-year license for the Project 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 undergoing 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. During early stakeholder meetings, DESC and stakeholders identified the need for a Rare, Threatened and Endangered (RTE) Species Whitepaper to provide baseline information on federal and state-listed RTE species within the FERC project boundary¹ and the area of potential Project influence (project area)². The information included in this whitepaper will be used during the development of the Draft License Application (DLA) and Final License Application (FLA) and identify potential Project effects on RTE species within the project area.

¹ The FERC-delineated boundary surrounding those lands and waters necessary for operation of a federally-licensed hydroelectric project.

² For the purposes of this whitepaper the "project area" is considered those lands and waters in the vicinity of the Project that may be influenced by operation and maintenance of the Project. The Project area may include lands and water adjacent to, but outside of, the FERC Project boundary.

2.0 CONSULTATION HISTORY

When developing the Pre-Application Document (PAD), DESC reached out to the Georgia Department of Natural Resources (GDNR), South Carolina Department of Natural Resources (SCDNR), United States Forest Service (Forest Service), and the United States Fish and Wildlife Service (USFWS) to compile a comprehensive list of federal and state-listed RTE species and Forest Service species of conservation concern. Consultation records are included in Appendix A.

3.0 METHODOLOGY

The Project area for the purpose of this study includes the main stem of the Savannah River from the Thurmond Dam downstream to the Stevens Creek Dam (approximately 13 River Miles [RMs]), the main stem of Stevens Creek, from the Stevens Creek Dam upstream to the top of the Project boundary (approximately 12 RMs), and associated shoreline habitats (Figure 3-1).

As an initial step, a comprehensive list was developed that includes federal-protected and Forest Service Threatened, Endangered and Sensitive (TES) species that may occur in the Project boundary (Table 3-1). In order to identify federal-protected species in the Project area, the USFWS's Information for Planning and Consultation (IPaC) online system was reviewed. Results from the IPaC review are included in Table 3-1 and Appendix A. Forest Service TES species that may occur in the Project area were also identified. The Forest Service provided a list of their Threatened, Endangered and Sensitive (TES) Species for the Long Cane Ranger District of the Sumter National Forest on January 15, 2020. These species are also in Table 3-1 and Appendix A.

After identification of federal-protected and Forest Service TES species, habitat requirements for each species were reviewed to determine the likelihood of each species to occur within the Project boundary. Species that were deemed likely to occur within the Project boundary were then analyzed to determine if continued Project operations would have any adverse effect on the species.

In addition to USFWS and Forest Service protected species, the National Marine Fisheries Service (NMFS) is responsible for the protection of threatened and endangered anadromous and marine fish species. Atlantic Sturgeon and Shortnose Sturgeon, two species that inhabit freshwater seasonally, are listed under the Endangered Species Act (ESA) as threatened and endangered, respectively. These species are not known to occur in the Project area at this time, however there is potential for the species to occur in the future, following the implementation of fish passage downstream of Stevens Creek dam. These species are discussed further in Section 4.0.

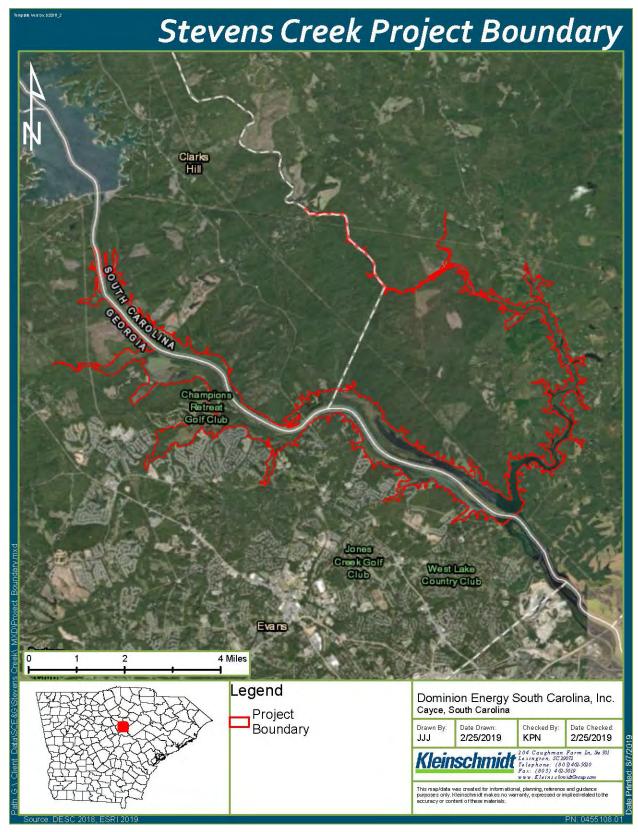


FIGURE 3-1 STEVENS CREEK RARE, THREATENED, AND ENDANGERED SPECIES STUDY AREA

TABLE 3-1 FEDERAL-PROTECTED AND FOREST SERVICE TES SPECIES IN THE STEVENS CREEK PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	FEDERAL PROTECTION	FOREST SERVICE TES SPECIES - SNF		
	ANIMALS				
Atlantic Spike	Elliptio producta		Sensitive		
Bachman's Sparrow	Peucaea aestivalis		Sensitive		
Bald Eagle	Haliaeetus leucocephalus	*			
Bartam's Bass	Micropterus coosae		Sensitive		
Brook Floater	Alasmidonta varicosa		Sensitive		
Carolina Heelsplitter	Lasmigona decorata	Endangered	Endangered		
Monarch Butterfly	Danaus plexippus	_	Sensitive		
Piedmont Prairie Burrowing Crayfish	Distocambarus crockeri		Sensitive		
Red-Cockaded	Dryobates borealis	Endangered	Endangered		
Woodpecker					
Roanoke Slabshell	Elliptio roanokensis		Sensitive		
Robust Redhorse	Moxostoma robustrum		Sensitive		
Tricolored Bat	Perimyotis subflavus		Sensitive		
Webster's Salamander	Plethodon websteri		Sensitive		
Wood Stork	Mycteria americana	Threatened	Endangered		
Yellow Lampmussel	Lampsilis cariosa		Sensitive		
PLANTS					
Faded Trillium	Trillium discolor		Sensitive		
Georgia Aster	Symphyotrichum georgianus		Sensitive		
Lanceleaf Trillium	Trillium lancifolium		Sensitive		
Miccosukee Gooseberry	Ribes echinellum	Threatened	Threatened		
Oglethorpe Oak	Quercus oglethorpensis		Sensitive		
Relict Trillium	Trillium reliquum	Endangered	Endangered		
Shoals Spider Lily	Hymenocallis coronaria		Sensitive		
Sweet Pinesap	Monotropsis odorata		Sensitive		

* This species is protected under the Bald and Golden Eagle Protection Act of 1940.

In addition to federal-protected and Forest Service TES species, this report identifies stateprotected species that may occur in the Project area. On February 4, 2019, the Georgia Department of Natural Resources (Georgia DNR) provided a letter summarizing plant and animal species of the highest priority conservation status near the Stevens Creek Project in Columbia County, GA. On March 27, 2020, the South Carolina Department of Natural Resources (South Carolina DNR) provided information on the South Carolina State Wildlife Action Plan (SWAP) priority species and other "tracked species" that may occur in the Project area. Tracked species are those within the state's natural heritage database that are deemed vulnerable or imperiled within the state but may be more secure in other parts of the species' range. These species are also included in Table 3-2 and Appendix A.

Although these species were not analyzed for likelihood of existence within the Project boundary and potential Project operations effects, they are included in this report for informational purposes.

 TABLE 3-2
 GEORGIA AND SOUTH CAROLINA STATE-PROTECTED SPECIES IN THE PROJECT AREA

Common Name	GEORGIA PROTECTED SPECIES ¹	SOUTH CAROLINA PROTECTED SPECIES ²		
ANIMALS				
American Eel		highest		
Atlantic Pigtoe	high			
Atlantic Spike		high		
Atlantic Sturgeon	high			
Bald Eagle		high		
Baltimore Oriole		high		
Bartram's Bass		highest		
Brother Spike	high			
Carolina Slabshell	*			
Christmas Darter		highest		
Delicate Spike	high			
Dwarf Waterdog	high			
Eastern Creekshell		moderate		
Eastern Elliptio		moderate		
Flat Bullhead		moderate		
Florida Pondhorn		*		
Highfin Shiner		moderate		
Ironcolor Shiner	*			
Notchlip Redhorse		moderate		
Roanoke Slabshell	*			
Rosyface Chub		moderate		
Robust Redhorse	high	highest		
Savannah Elimia	*			
Savannah Lilliput	high			
Shortnose Sturgeon	high			
Snail Bullhead		moderate		
Spotted Turtle	high			
Tiger Salamander		highest		
Turquoise Darter		high		
Webster's Salamander		highest		

COMMON NAME	GEORGIA PROTECTED Species ¹	SOUTH CAROLINA PROTECTED Species ²
Yellow Lampmussel	high	highest
• •	PLANTS	<u> </u>
Aethusa-like		
Trepocarpus		moderate
American Barberry	high	
American Ginseng		high
Carolina Larkspur		moderate
Carolina Trefoil	high	
Curly-Heads	*	
Dixie Mountain		
Breadroot	high	
Dutchman's Breeches		moderate
Eared Goldenrod		moderate
Faded Trillium		*
False-Rue Anemone	*	moderate
Georgia Aster		highest
Georgia Plume	high	<u> </u>
James' Sedge	5	moderate
Lanceleaf Wakerobin		
(Narrow-leaved Trillium)		high
Log Fern	*	
Lowland Bladderfern		*
Miccosukee Gooseberry		highest
Ocmulgee Skullcap	high	*
One-Flowered	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Broomrape		*
Pale Yellow Trillium	*	
Pineland Barbara Buttons	*	
Relict Trillium	high	highest
Shoals Spider Lily	high	high
Side-Oats Grama	*	
Slender Sedge		moderate
Smooth Indigobush		*
Southern Nodding		
Trillium		high
Streambank Mock		
Orange		*
Tall Bellflower		moderate
Tuberous Gromwell		moderate
Virginia Spiderwort		moderate
Weak Nettle		*
Whiteleaf Sunflower		moderate

COMMON NAME	GEORGIA PROTECTED SPECIES ¹	SOUTH CAROLINA PROTECTED SPECIES ²
Wingpod Purslane	high	
Yellow Nailwort	high	

¹ GA SWAP species with state protection are indicated with an asterisk (*); species identified as "high" are state

protected species with high priority status. ² Listed species categorized in the SC SWAP are noted as having moderate, high or highest priority status; species identified with an asterisk (*) are state "tracked" species.

4.0 PROPOSED ACTION, SPECIES DESCRIPTIONS AND ANALYSIS

4.1 **PROPOSED ACTION**

For the purpose of this analysis, we have assumed that the Project will continue operating as a reregulating facility for flows released from the upstream U.S. Army Corps of Engineers' J. Strom Thurmond Dam. Stevens Creek reservoir fluctuations and downstream releases are anticipated to continue under the new license in the same form and capacity as they have over the past 30 years. Moreover, much of the land in the Project area is easement/Forest Service lands, not owned by DESC. Therefore, DESC does not actively manage or maintain these lands, and they are generally left in a natural state. If the proposed action changes prior to submittal of the Final License Application, species discussions will be updated accordingly.

4.2 FEDERAL-PROTECTED SPECIES

Table 4-1 lists the federal-protected species that may occur in the Project area. Habitat descriptions of each species along with an analysis of likelihood to exist in the Project boundary and potential for adverse effects from continued Project operations are included below. As mentioned, Atlantic Sturgeon and Shortnose Sturgeon do not occur in the Project area, however they have the potential to occur in the future following the implementation of fish passage downstream of Stevens Creek dam. These species are not listed in Table 4-1 however they are discussed further in the following sections.

COMMON NAME	SCIENTIFIC NAME	FEDERAL PROTECTION STATUS
Bald Eagle	Haliaeetus leucocephalus	*
Carolina Heelsplitter	Lasmigona decorata	Endangered
Miccosukee Gooseberry	Ribes echinellum	Threatened
Red-Cockaded Woodpecker	Dryobates borealis	Endangered
Relict Trillium	Trillium reliquum	Endangered
Wood Stork	Mycteria americana	Threatened

 TABLE 4-1
 FEDERAL-PROTECTED SPECIES IN THE PROJECT AREA

* This species is protected under the Bald and Golden Eagle Protection Act of 1940.

4.2.1 BALD EAGLE

The bald eagle was removed from the federal list of threatened species in 2007 (USFWS 2007) but remains protected under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act (16 U.S.C. 668-668d) (72 FR 37345-37372). Bald eagles are found throughout North American, typically around water bodies, where they feed on fish and carrion. Studies have shown that foraging bald eagles are particularly attracted to reservoirs associated with hydroelectric facilities (Brown 1996). Bald eagles nest in large trees near water and typically use the same nest for several years (Degraaf and Rudis 1986).

Status in the Project Boundary and Effects of Continued Project Operations

The USACE monitors eagles on an annual basis on Lake Thurmond and in the immediate tailrace. During the 2020 survey, approximately 37 bald eagles were documented. In addition, SCDNR tracks bald eagle nests around the state. One nest is documented very close to the Project, however outside the Project boundary. It is likely that bald eagles reside and forage within the Project boundary, although no nests have been documented. Since much of the land surrounding the Project reservoir is maintained in a natural state, continued operation of the Project is not likely to result in negative effects on eagle foraging or nesting.

4.2.2 CAROLINA HEELSPLITTER

The Carolina heelsplitter is found in cool, well-oxygenated reaches of rivers and streams. The current range of this species is limited as compared to its historic range. These declines and loss of populations are associated with factors including pollutants from municipal and industrial wastewater releases. The species is sensitive to silt and is generally found in silt-free areas with banks that are stabilized and shaded by trees and shrubs (USFWS 2011). One of the eight surviving populations of Carolina heelsplitter is found in Turkey Creek and its tributaries. These creeks are part of the Savannah River drainage, located in Edgefield County, SC (NRC 2020).

Status in the Project Boundary and Effects of Continued Project Operations

As mentioned, the Carolina heelsplitter is known to occur in the Savannah River drainage in Edgefield County, SC. DESC is conducting a mussel study as part of the relicensing process, with special focus on identification of this species. Effects of continued Project operations will be determined as part of that study in the event this species is found within the project area of influence.

4.2.3 MICCOSUKEE GOOSEBERRY

The Miccosukee gooseberry is a bushy shrub that flowers in late February to early April and produces spiny green berries. The Miccosukee gooseberry is associated with a deciduous, mixed hardwood forest with an overstory canopy dominated by oak and hickory trees. Specifically, the species is known to occur in three locations, including the shores of Lake Miccosukee in Jefferson County, Florida; and along Stevens Creek and a site on the Sumter National Forest in McCormick and Edgefield counties, South Carolina (NatureServe 2019).

Status in the Project Boundary and Effects of Continued Project Operations

This species is known to occur on north-facing hardwood slopes in the Stevens Creek drainage and at a site in the Long Cane Ranger District of the Sumter National Forest in McCormick and Edgefield counties. It is likely a portion of this population occurs within the Project boundary. Continued Project effects are unlikely to adversely affect this species, as the population in the Sumter National Forest appears stable and no modifications to Project operations are proposed.

4.2.4 **Red-Cockaded Woodpecker**

The red-cockaded woodpecker is found in open, mature, and old growth pine ecosystems in the southeastern portion of the United States (USFWS 2003). Suitable nesting habitat includes open pine forests and savannahs with large, older pines and minimal hardwood midstory or overstory. Older living trees that are easily excavated due to susceptibility to red-heart disease are preferred nesting trees for the species. Suitable foraging habitat includes open-canopy, mature pine forests with low densities of small pines, little midstory vegetation, limited hardwood overstory, and abundance bunchgrass and forb groundcover (USFWS 2003).

Status in the Project Boundary and Effects of Continued Project Operations

Although the species is known to occur in Edgefield County (Forest Service 2020), it is unlikely the species occurs in the Project boundary, since there is limited suitable woodland habitat within the Project boundary. The potential of Project effects to this species are minimal and would likely only occur during any development activities involving logging that may be proposed through the new license. Consideration of the potential occurrence of this species should take place prior to the development or expansion of recreation facilities proposed under the new license.

4.2.5 **RELICT TRILLIUM**

Relict trillium is typically found in mesic hardwood forests that can be on slopes or on bottomlands and floodplains. Soils and subsoils include rocky clays to alluvial sands all with high organic matter content. The largest populations are found in the drainages of the Savannah and Chattahoochee Rivers. The species is not indicated to occur in areas that have ever been disturbed by fire. The species is known to occur in Aiken County in proximity to the Sumter National Forest (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

This species is known to occur in Edgefield County and likely occurs within the Project boundary. This species is most often threatened by residential and urban development. The potential of Project effects to this species are minimal and would likely only occur during any development activities that may be proposed through the new license. Consideration of the potential occurrence of this species should take place prior to the development or expansion of recreation facilities proposed under the new license.

4.2.6 WOOD STORK

The wood stork, a large colonial wading bird, is the only stork species that breeds in the United States (USFWS 1996). The wood stork uses a variety of wetlands for nesting, feeding, and roosting. Wood storks require periods of flooding, during which fish populations increase, alternating with dryer periods, during which receding water levels trap fish, leaving higher densities for easier foraging (USFWS 2020b). Nesting habitat includes primarily cypress swamps with nests located in the upper branches of large black gum or cypress trees. Nesting in the United States is currently thought to be limited to the coastal plain of South Carolina, North Carolina, Georgia and Florida (Murphy and Hand 2013).

Although the wood stork is not likely to nest within the Project boundary, it may forage periodically in the freshwater wetlands associated with the Stevens Creek reservoir. Project operations are expected to result in no adverse effects on wood storks or their foraging habitat.

4.2.7 ATLANTIC STURGEON

The Atlantic Sturgeon is a large anadromous fish found in rivers and coastal waters along the Atlantic coast, from Canada to Florida (NOAA Fisheries 2020). After hatching in freshwater rivers, juveniles leave their birthplace for ocean waters only to return to their birthplace as adults to spawn. Atlantic sturgeon populations have largely declined due to overfishing and habitat loss. All five US Atlantic sturgeon distinct population segments are listed as endangered or threatened under the ESA (NOAA Fisheries 2020).

Status in the Project Boundary and Effects of Continued Project Operations

Historically, Atlantic Sturgeon migrated through the Savannah River to reach spawning or rearing grounds at the Augusta Shoals. Today there are six dams along the Savannah River with only one, the New Savannah Bluff Lock and Dam, having an upstream fish passage system. The Augusta Diversion Dam, located one mile downstream of Stevens Creek dam, does not have fish passage at this time. For these reasons, the Atlantic Sturgeon is not located within the Project area, although there is potential for the species to occur in the future, following fish passage implementation at August Diversion Dam.

4.2.8 SHORTNOSE STURGEON

The Shortnose Sturgeon is an anadromous fish found in rivers and coastal waters along the Atlantic coast, from Canada to Florida (NOAA Fisheries 2020b). Shortnose Sturgeon hatch in freshwater rivers and spend a majority of their lifetime in the estuaries of these rivers. They spend relatively little time in the ocean. Adults travel far upstream in rivers to spawn and then move back downstream to the estuaries to feed and rest. The Shortnose Sturgeon is listed as endangered under the ESA (NOAA Fisheries 2020b).

Similar to the Atlantic Sturgeon, Shortnose Sturgeon historically migrated through the Savannah River to reach spawning or rearing grounds at the Augusta Shoals. Access in Savannah River beyond the New Savannah Bluff Lock and Dam is impeded by dams. The Augusta Diversion Dam, located one mile downstream of Stevens Creek dam, does not have fish passage at this time. For these reasons, the Shortnose Sturgeon is not located within the Project area, although there is potential for the species to occur in the future, following fish passage implementation at August Diversion Dam.

4.3 U.S. FOREST SERVICE THREATENED, ENDANGERED AND SENSITIVE SPECIES

Table 4-2 lists the Forest Service TES species that may occur in the Project area. Habitat descriptions of each species along with an analysis of likelihood to exist in the Project boundary and potential for adverse effects from continued Project operations are included below. See Section 4.1 for the habitat descriptions and analysis of species that are also federal-protected species, as indicated in Table 4-2 with an asterisk (*).

~		FOREST SERVICE TES
COMMON NAME	SCIENTIFIC NAME	SPECIES
	ANIMALS	
Atlantic Spike	Elliptio producta	Sensitive
Bachman's Sparrow	Peucaea aestivalis	Sensitive
Bartam's Bass	Micropterus coosae	Sensitive
Brook Floater	Alasmidonta varicosa	Sensitive
Carolina Heelsplitter*	Lasmigona decorata	Endangered
Monarch Butterfly	Danaus plexippus	Sensitive
Piedmont Prairie Burrowing Crayfish	Distocambarus crockeri	Sensitive
Red-Cockaded Woodpecker*	Dryobates borealis	Endangered
Roanoke Slabshell	Elliptio roanokensis	Sensitive
Robust Redhorse	Moxostoma robustrum	Sensitive
Tricolored Bat	Perimyotis subflavus	Sensitive
Webster's Salamander	Plethodon websteri	Sensitive
Wood Stork*	Mycteria americana	Endangered
Yellow Lampmussel	Lampsilis cariosa	Sensitive
PLANTS		
Faded Trillium	Trillium discolor	Sensitive
Georgia Aster	Symphyotrichum georgianus	Sensitive

 TABLE 4-2
 FOREST SERVICE TES SPECIES FOR THE LONG CANE DISTRICT OF SUMTER

 NATIONAL FOREST

COMMON NAME	SCIENTIFIC NAME	FOREST SERVICE TES SPECIES
Lanceleaf Trillium	Trillium lancifolium	Sensitive
Miccosukee Gooseberry*	Ribes echinellum	Threatened
Oglethorpe Oak	Quercus oglethorpensis	Sensitive
Relict Trillium*	Trillium reliquum	Endangered
Shoals Spider Lily	Hymenocallis coronaria	Sensitive
Sweet Pinesap	Monotropsis odorata	Sensitive

4.3.1 ATLANTIC SPIKE

The Atlantic spike is found throughout South Carolina (Bogan and Alderman 2008) and prefers streams or rivers with sandy, rocky, and/or muddy bottoms in sections where the current is not too rapid (Forest Service 2020). This species is found throughout Maryland, Pennsylvania, North Carolina, Virginia, and South Carolina, although it has been extirpated from some reaches where it was previously found, possibly due to environmental factors including decreased water quality associated with sedimentation and pollution. The host fish for this species is not known (NatureServe 2020a).

This species is found throughout the Savannah River Basin (NatureServe 2020a) and is found in the Long Cane Ranger District of the Sumter National Forest (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

As mentioned, this mussel is found throughout the Savannah River Basin and may occur within the Project boundary. DESC is conducting a mussel survey as part of the relicensing process and will document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.2 BACHMAN'S SPARROW

Bachman's sparrow, known by its "buffy" brownish-gray under plumage tinged with reddish streaks, typically yields two broods each breeding season (USFWS 2015). The female sparrow builds nests of grasses at or just above ground level. The species historically preferred mature pine forests, however since most of these areas have been logged, today the sparrow is typically found in pine forests with a more open understory and herbaceous understories. The sparrow is known to span the Coastal Plains and Piedmont regions of the southeastern United States.

Bachman's sparrow is found in the Piedmont region of the southeastern United States and within the Long Cane Ranger District of the Sumter National Forest. This species is unlikely to occur in the Project boundary area as it has not been documented in the counties in which the Project is located. Continued Project operations are not expected to affect this species.

4.3.3 BARTRAM'S BASS

The Bartram's Bass is a small to medium sized black bass species that occurs in the Savannah River drainage above the fall line and has been introduced in the Saluda River drainage (Forest Service 2020). This species utilizes shoal habitats in small to moderate size upland streams, particularly upland reaches with cool water temperatures. Specifically, it is generally found in areas with boulders, submerged logs, and undercut banks with vegetation such as water willow (Forest Service 2020). It can also be found in some lentic habitats over rocky substrates. The diet consists of terrestrial insects, crayfish, small fish, salamanders, and aquatic insects. Threats to the species include hybridization with Spotted Bass and Smallmouth Bass. Spotted Bass have spread throughout the upper Savannah River system, and hybridization between the two species has eliminated Bartram's Bass from several reaches. Additional threats include increased water temperatures and increased turbidity from loss of riparian vegetation along stream banks (SCDNR 2020).

Status in the Project Boundary and Effects of Continued Project Operations

Bartram's Bass have been collected from the mainstem of the Savannah River and in upstream reaches of Stevens Creek well upstream of the Project Boundary (SCDNR 2020, Freeman et al. 2015). Bartram's Bass inhabiting reaches of Stevens Creek upstream of the Project Boundary would not be affected by Project operations. Bartram's Bass inhabiting the Savannah River downstream of the Project would likely benefit from flow reregulation resulting habitat stability in the Augusta Shoals.

4.3.4 BROOK FLOATER

The brook floater is a freshwater mussel species that is usually found in high gradient, consistently flowing reaches of rivers and streams. Preferred substrates are characterized by sand and gravel, often with adjacent boulders (PNHP 2020; USFWS 2019). This species is sensitive to habitat

degradation, including excessive silt and nutrient inputs, and is also sensitive to hypoxia (PNHP 2020; USFWS 2019). Potential host fish include blacknose dace, longnose dace, golden shiner, pumpkinseed, slimy sculpin, yellow perch, and margined madtom (PNHP 2020). This species is known to occur in Edgefield and McCormick counties in SC. Specifically, it has been documented in several streams in the Steven's Creek basin (USFWS 2019).

Status in the Project Boundary and Effects of Continued Project Operations

The brook floater is known to occur in the Upper Stevens Creek watershed on the Long Cane Ranger District in the Sumter National Forest. DESC is conducting a mussel survey as part of the relicensing process and will document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.5 MONARCH BUTTERFLY

The monarch butterfly is a migratory insect that passes through South Carolina and Georgia on a seasonal basis. The species has declined 80 percent during the last 20 years, in large part due to habitat loss at overwintering sites in Mexico and breeding sites in the American Midwest. The monarch butterfly population in Eastern North America overwinters in central Mexico, with northern migrations to the United States and Canada occurring during March, and southward migrations occurring between August and September. Adult female monarch butterflies lay their eggs on milkweed plants and utilize a variety of other plant species as nectar sources throughout their migrations (USFWS 2020). Summer breeding habitat includes woodlands, roadsides, or utility rights-of-way containing nectaring plants (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

As mentioned, the monarch butterfly passes through South Carolina and Georgia on a seasonal basis. Summer breeding may occur within the Project boundary in woodlands, roadsides, or utility rights-of-way. Continued Project operations are not expected to affect the species as significant disturbance of these potential breeding areas is not expected to occur as a result of Project operation or maintenance activities.

4.3.6 PIEDMONT PRAIRIE BURROWING CRAYFISH

The Piedmont prairie burrowing crayfish is a semi-terrestrial species that utilizes the eastern watershed of the South Carolina Piedmont. Habitats can include intermittently flooded low lying areas and agricultural land. Specifically, it is found in terrestrial habitats around intermittent streams and colluvial valleys with treeless, prairie-like characteristics. Non-hydric well drained soils with seasonally perched water tables are necessary for the species' life history needs, as compared to species that require more aquatic and semi-aquatic habitats (Eversole and Welch 2013; NatureServe 2020b). Piedmont prairie burrowing crayfish spend much of the year in burrows, often below layers of leaf litter and organic matter, and are most likely to venture from burrows during wet periods in search of food or breeding opportunity. (Eversole and Welch 2013).

Status in the Project Boundary and Effects of Continued Project Operations

This species is present in Thurmond Lake – Savannah River, Upper Stevens Creek, Kiokee Creek – Savannah River, Turkey Creek – Stevens Creek, Bush River – Saluda River, and Little River – Savannah River watersheds that contain Forest Service land on the Long Cane Ranger District (Forest Service 2020). It is not likely that this species occurs within the Project boundary as it is most often found on a perched water table along ridge tops and not in aquatic habitats (Forest Service 2020). Continued Project operations are not expected to affect this species.

4.3.7 ROANOKE SLABSHELL

The Roanoke slabshell is typically found in large rivers and occasionally in small creeks. The mussel tolerates large variations in flow levels and higher water temperatures, making it able to survive in some locations near dams and hydroelectric plants (Price 2006). In South Carolina, the mussel is found in the Pee Dee River and the Catawba, Congaree and Savannah River basins. Although it has the potential to be found in watersheds on the Long Cane Ranger District in the Savannah River basin, no known records in the Sumter National Forest exist (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

In 2006, the Catena Group inventoried freshwater mussels in the Savannah River from the Augusta Shoals area (near RM 203) downstream to RM 23. The Roanoke slabshell was identified during this inventory. DESC is conducting a mussel survey as part of the relicensing process and will

document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.8 ROBUST REDHORSE

Once presumed extinct, the Robust Redhorse, a large, heavy-bodied sucker, was rediscovered in the Oconee River below Georgia Power's Sinclair Hydroelectric Project (FERC No. 1951) in the early 1990s. This rediscovery sparked the formation of the Robust Redhorse Conservation Committee (RRCC) in 1995 to guide recovery efforts for the species. While little is still known about habitat preferences of juvenile Robust Redhorse, adults typically inhabit areas of the river where the current is moderately swift. Preferred habitat includes riffle areas or in/near outside bends, where depths are greater, and accumulations of logs and other woody debris are present (Evans 1997). Spawning occurs between April and June over gravel substrate in deep and shallow waters (Hendricks 1998). In South Carolina, it is found in the Savannah River and Pee Dee River basins (Forest Service 2020).

Status in the Project Boundary and Effects of Continued Project Operations

The Robust Redhorse is known to occur in the Savannah River and the Georgia DNR documented the species in the shoals below the Augusta Diversion Dam in 2005. Within the last five years, Robust Redhorse has been documented as occurring in the Savannah River immediately downstream of the Stevens Creek dam (RRCC 2020). Continued Project operations are not expected to adversely affect the species since the Project reregulates large pulses from Thurmond Dam, providing increased flow and associated habitat stability in the Augusta Shoals and further downstream.

4.3.9 TRICOLORED BAT

The tricolored bat is a small bat weighing 0.2 to 0.3 ounces, that roosts in trees in the summertime and hibernates in caves, mines and rock crevices during the winter (USFWS 2019b). The species is found statewide in South Carolina, but populations have declined recently due to the white-nose-syndrome (USFWS 2019b).

The tricolored bat may roost in trees around the Project reservoir in the summertime but is unlikely to hibernate in the area due to a lack of hibernacula. Continued Project operations are unlikely to have any effect on the species as DESC does not plan to significantly change the Project shoreline or remove trees used for roosting.

4.3.10 WEBSTER'S SALAMANDER

The Webster's salamander is a woodland species that is often found on hardwood-forested hillsides underneath cover including rocks, logs, and leaf litter. The species breeds in early winter and lays eggs during the summer months. With the exception of June and July breeding activity, adults are mostly active between October and May, likely to avoid the high heat of the summer months. Unlike some other salamander species, there is no aquatic larval lifestage, and hatchlings emerge during August and September. The range of the species is fragmented, with isolated populations occurring across Louisiana, Mississippi, Alabama, Georgia, and South Carolina (Rogers 2020). In South Carolina, it has been documented in both Edgefield and McCormick counties (NatureServe 2020c).

Status in the Project Boundary and Effects of Continued Project Operations

This species may occur in the forested habitat surrounding the Project boundary. Nevertheless, much of the land surrounding the Project has been left in its natural state, and there are no Project-related disturbance activities proposed under the new license. Therefore, continued Project operations are unlikely to affect populations occurring in the Project boundary.

4.3.11 YELLOW LAMPMUSSEL

The yellow lampmussel is a freshwater mussel species found primarily in medium to large rivers and streams with a variety of substrates including silt or sand, gravel bars and bedrock cracks (Price 2006b). Distribution in South Carolina spans the Savannah, Broad, Wateree, Congaree, and Pee Dee River basins. The species is found in the Long Cane Ranger District in the Lower Stevens Creek and Turkey Creek-Stevens Creek watersheds with the potential to also occur in the Upper Stevens Creek watershed (Forest Service 2020).

The yellow lampmussel may occur within the Project boundary, as it is found throughout the Savannah River basin, including Stevens Creek watersheds. DESC is conducting a mussel survey as part of the relicensing process and will document any individuals found during the survey. Effects of continued Project operations on the species will be assessed as part of that survey, if the species is found.

4.3.12 FADED TRILLIUM

The faded trillium (or pale-yellow trillium) is a perennial herb characterized by three whorled leaves and a pale yellow or cream-colored flower. The faded trillium sends up leaves and flowers in early spring before the forest canopy has fully leafed out. The above ground plant is not present during the fall and winter, persisting as an underground rhizome. Mature faded trillium are long lived, as the rhizomes continue to persist and produce shoots as other portions decay (Chafin 2007). Habitat types for the species include wooded slopes, rich cove forests, oak-pine woods, and cane breaks. They are often found in areas that are sheltered with dense forest canopies (NatureServe 2020d).

This species is only found in the Savannah River Basin across Georgia, North Carolina, and South Carolina (Chafin 2007), and has been documented in Columbia County, GA and Edgefield and McCormick counties, SC (NatureServe 2020d).

Status in the Project Boundary and Effects of Continued Project Operations

Although the faded trillium has not been documented within the Project boundary, it may occur in wooded areas around the shoreline. As no changes to Project operation or maintenance activities are proposed, continued Project operations are unlikely to affect this species.

4.3.13 GEORGIA ASTER

Georgia aster is a flowering plant that prefers a habitat of open woodlands, savannas and prairies, including open woodlands associated with utility and roadside rights-of-way (Forest Service 2020). It is thought to be a relict species of the post oak-savannah communities that existed in the southeast prior to fire suppression.

Georgia aster is known to occur in the Long Cane Ranger District of the Sumter National Forest and in McCormick and Edgefield counties, SC. Habitat for Georgia aster may exist within the Project boundary, however potential occurrences would be limited to terrestrial sites, which should not be affected by continued operation of the Project.

4.3.14 LANCELEAF TRILLIUM

The lanceleaf trillium occurs in a variety of habitat types, including floodplains, rocky upland woodlands, brushy thickets, canebrakes, and shaded or open woods. It is most commonly associated with alluvial soils. This regional endemic species is relatively small compared to other southeastern trilliums, with narrow leaves, a flower comprised of 3 maroon petals, and an ovoid pulpy fruit that contains several seeds (NatureServe 2020i).

Known populations of this species exist in Edgefield and McCormick Counties, SC (NatureServe 2020i).

Status in the Project Boundary and Effects of Continued Project Operations

Lanceleaf trillium is known to occur in the Long Cane Ranger District of the Sumter National Forest and in McCormick and Edgefield counties, SC. Habitat for this species may exist within the Project boundary, however potential occurrences would be limited to terrestrial sites, which should not be affected by continued operation of the Project.

4.3.15 OGLETHORPE OAK

The Oglethorpe oak is a "white oak" species that is associated with wet clay soils and is found in disjunct populations throughout Georgia, Alabama, Mississippi, Louisiana, and South Carolina. The species can grow up to 80 ft. tall and is characterized by reddish-gray bark that covers the tree in loose plates. It is generally found in seepage swamps, stream edges, and moist areas of hardwood forests adjacent to these types of habitats. Like other oak species, the Oglethorpe oak is windpollinated, and must be cross pollinated in order to produce acorns. Habitat fragmentation can isolate individuals, decreasing pollination and associated acorn production (Chafin 2008).

Oglethorpe oak has been documented in McCormick and Edgefield counties in SC (NatureServe 2020f).

The Oglethorpe oak is known to occur in the Long Cane Ranger District of the Sumter National Forest and in McCormick and Edgefield counties, SC. Habitat for this species within the Long Cane Ranger District is limited to streamside forests and depressional wetlands in the Carolina Slate belt, located north and outside of the Project boundary (Forest Service 2020). It is unlikely this species exists within the Project boundary and therefore, continued Project operations should have no effect on this species.

4.3.16 SHOALS SPIDER LILY

The shoals spider lily occurs mostly above the fall line in Alabama, Georgia, and South Carolina. This flowering plant is often found in bedrock outcroppings or in large cobble and boulder substrates where the plants' roots and bulbs can anchor into the substrate. Habitat requirements for the species include direct sunlight, constantly flowing water, and low sediment loads (Kleinschmidt 2015).

Status in the Project Boundary and Effects of Continued Project Operations

Shoals spider lilies are currently found at multiple locations in Edgefield and McCormick counites, SC and Columbia County, GA, with populations known in Stevens Creek (NatureServe 2020h). This population is located outside of the Project boundary, east of Plum Branch, South Carolina, approximately 52 km upstream of Stevens Creek Dam (Gordon and Wear 2011). Due to this species' distance from the Project, and since no changes to Project operations are proposed, no adverse effects to this species are expected.

4.3.17 SWEET PINESAP

The sweet pinesap is an herbaceous perennial wildflower characterized by a fleshy stalk, scalelike leaves, and pink or yellowish flowers that produce a strong odor of violets. The flowers are present in mid to late spring. The sweet pinesap is generally found in mature, moist hardwood forests under areas that are well shaded by the canopy (Forest Service 2020b). Specifically, the species is known to occur in shortleaf pine-oak heaths in the Southern Appalachians and Piedmont (Forest Service 2020).

The sweet pinesap is not expected to occur within the Project boundary due to a lack of habitat. Continued Project operations should not have any effect on this species.

4.4 STATE-PROTECTED SPECIES

On February 4, 2019, the Georgia DNR provided a list of Natural Heritage Database occurrences within 3 miles of the Project site for terrestrial species and within the local HUC10 watershed for aquatic species. These species are listed below in Table 4-3. For more information on the locations of these species, see Appendix A.

COMMON NAME	SCIENTIFIC NAME
American Barberry	Ververis canadensis
Atlantic Pigtoe	Fusconaia masoni
Atlantic Sturgeon	Acipenser oxyrinchus
Brother Spike	Elliptio fraterna
Carolina Slabshell	Elliptio congaraea
Carolina Trefoil	Acmispon helleri
Curly-Heads	Clematis ochroleuca
Delicate Spike	Elliptio arctata
Dixie Mountain Breadroot	Pediomelum piedmontanum
Dwarf Waterdog	Necturus punctatus
False-Rue Anemone	Enemion biternatum
Georgia Plume	Elliottia racemosa
Ironcolor Shiner	Notropis chalybaeus
Log Fern	Dryopteris celsa
Ocmulgee Skullcap	Scutellaria ocmulgee
Pale Yellow Trillium	Trillium discolor
Pineland Barbra Buttons	Marshallia ramosa
Relict Trillium	Trillium reliquum
Roanoke Slabshell	Elliptio roanokensis
Robust Redhorse	Moxostoma robustum
Savannah Elimia	Elimia caelatura
Savannah Lilliput	Toxolasma pullus
Shoals Spiderlily	Hymenocallis coronaria
Shortnose Sturgeon	Acipenser vrevirostrum
Spotted Turtle	Clemmys guttata
Wingpod Purslane	Portulaca umbraticola ssp.coronata
Yellow Lampmussel	Lampsilis cariosa
Yellow Nailwort	Paronychia virginica

 TABLE 4-3
 GEORGIA STATE-PROTECTED SPECIES WITHIN 3 MILES OF THE PROJECT AREA

Source: GDNR, Letter dated February 4, 2019

On March 27, 2020, the South Carolina DNR provided a list of species having conservation priority through the South Carolina State Wildlife Action Plan (SWAP) and other state tracked species that are located within the Project boundary and within 3 miles of the Project boundary. These species are listed below in Table 4-4. Additional details on these species are included in Appendix A.

COMMON NAME	SCIENTIFIC NAME
Aethusa-like Trepocarpus	Trepocarpus aethusae
American Eel	Anguilla rostrate
American Ginseng	Panax quinquefolius
Atlantic Spike	Elliptio producta
Bald Eagle	Haliaeetus leucocephalus
Baltimore Oriole	Icterus galbula
Bartram's Bass	Micropterus
Carolina Larkspur	Delphinium carolinianum
Christmas Darter	Etheostoma hopkinsi
Dutchman's Breeches	Dicentra cucullaria
Eared Goldenrod	Solidago auriculate
Eastern Creekshell	Villosa delumbis
Eastern Elliptio	Elliptio complanate
Faded Trillium	Trillium discolor
False-Rue Anemone	Enemion biternatum
Flat Bullhead	Ameiurus platycephalus
Florida Pondhorn	Uniomerus caroliniana
Georgia Aster	Symphyotrichum georgianum
Highfin Shiner	Notropis altipinnis
James' Sedge	Carex jamesii
Lanceleaf Wakerobin	Trillium lancifolium
Lowland Bladderfern	Cystopteris protrusa
Miccosukee Gooseberry	Ribes echinellum
Notchlip Redhorse	Moxostoma collapsum
Ocmulgee Skullcap	Scutellaria ocmulgee
One-Flowered Broomrape	Orobanche uniflora
Relict Trillium	Trillium reliquum
Robust Redhorse	Moxostoma robustum
Rosyface Chub	Hybopsis rubrifrons
Shoals Spider Lily	Hymenocallis coronaria

 TABLE 4-4
 SOUTH CAROLINA STATE-PROTECTED SPECIES IN THE PROJECT AREA

COMMON NAME	SCIENTIFIC NAME
Slender Sedge	Carex gracilescens
Smooth Indigobush	Amorpha glabra
Snail Bullhead	Ameiurus brunneus
Southern Nodding Trillium	Trillium rugelii
Streambank Mock Orange	Philadelphus hirsutus
Tall Bellflower	Campanulastrum americanum
Tiger Salamander	Ambystoma tigrinum
Tuberous Gromwell	Lithospermum tuberosum
Turquoise Darter	Etheostoma inscriptum
Virginia Spiderwort	Tradescantia virginiana
Weak Nettle	Urtica chamaedryoides
Webster's Salamander	Plethodon webster
Whiteleaf Sunflower	Helianthus glaucophyllus
Yellow Lampmussel	Lampsilis cariosa

5.0 SUMMARY

There are several federal-protected and Forest Service TES species that have either been documented within the Project boundary or have potential to occur within the Project boundary due to availability of suitable habitat. These species are listed below.

- Atlantic Spike
- Bald Eagle
- Bartram's Bass
- Brook Floater
- Carolina Heelsplitter
- Faded Trillium
- Miccosukee Gooseberry
- Monarch Butterfly
- Relict Trillium
- Roanoke Slabshell
- Robust Redhorse
- Shoals Spider Lily
- Tricolored Bat
- Webster's Salamander
- Wood Stork
- Yellow Lampmussel

Although these species occur or have the potential to occur within the Project boundary, continued Project operations are not expected to have any adverse effect on these species. DESC is not proposing any changes to Project operations and does not have any plans for significant logging or shoreline changes within the Project boundary. If the need arises for tree removal, construction, or other shoreline modifications in the future, DESC will consult with the USFWS, Forest Service, and the Georgia DNR and/or South Carolina DNR (as appropriate) prior to the commencement of these activities.

In addition, DESC is conducting a mussel survey within the Project boundary with methodology developed in consultation with federal and state agencies. The results of this study will determine the presence of any mussel species listed in this report within the Project boundary and will identify the potential for Project effects on these species. The results of this study will be included in the Project's Final License Application.

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APPENDIX A

CONSULTATION RECORD

Threatened, Endangered, and Sensitive (TES) Species Sumter National Forest

Secolog	Species	States	Hekitet Description	District	Habitat	
Species CAROLINA HEELSPLITTER	Group Mussel	Status Federally	Habitat Description Known historically from Catawba, Pee Dee, and Savannah	District LC	Group ¹	
Lasmigona decorata	MUSSO	Endangered	River basins in North Carolina and South Carolina with a possibility that they were historically found in the Saluda River basin in South Carolina; it is found in the Upper Stevens Creek, Bush River – Saluda River, and Turkey Creek –Stevens Creek watersheds on or adjacent to the Forest; on the Forest it has been found in the Beaverdam Creek – Turkey Creek and Lower Turkey Creek – Stevens Creek subwatersheds	LC	Ĩ	
FLORIDA (MICCOSUKEE) GOOSEBERRY Ribes echinellum	Plant	Federally Threatened	Known from the Stevens Creek drainage on north-facing hardwood slopes in association with basic soils	LC	8	
NORTHERN LONG-EARED BAT Myotis septentrionalis	Mammal	Federally Threatened	Winters in caves and cave-like structures (e.g., mines, railroad tunnels); summer roosts include cavities, underneath bark, crevices, or hollows of both live and dead trees	AP	3,4,5,6,7	
PERSISTENT TRILLIUM Trillium persistens	Plant	Federally Endangered	Known from one site in South Carolina in proximity to the Sumter National Forest; occurs in mixed mesic forest in the Tugaloo River Composite watershed	AP	7	
RED-COCKADED WOODPECKER Dryobates borealis	Bird	Federally Endangered	Known from Edgefield County; historically known from Laurens County; nests in live large pines and forages in open pine woodlands	LC	4,5	
RELICT TRILLIUM Trillium reliquum	Plant	Federally Endangered	Occurs in basic mesic forests in Savannah and Chattahoochee drainages; known from Aiken County in proximity to the Sumter National Forest	LC	8	
SMALL WHORLED POGONIA Isotria medeoloides	Plant	Federally Threatened	Occurs in mixed mesic forests at moderate elevations (>1,000 feet)	AP	7	
SMOOTH CONEFLOWER Echinacea laevigata	Plant	Federally Endangered	Occurs along the Brevard Geologic Belt in open woodlands, including select roadsides and utility rights-of-ways	AP	4,10	
WOOD STORK Mycteria americana	Bird	Federally Endangered	Known to forage in freshwater wetlands on both Enoree and Long Cane Ranger Districts	EN, LC	1,3	
ASHLEAF GOLDENBANNER Thermopsis mollis	Plant	Sensitive	Occurs on dry slopes and ridges; documented from one location on the Sumter National Forest	AP	4,5	
ATLANTIC SPIKE Elliptio producta	Mussel	Sensitive	Widespread in South Carolina, the species is found in streams or rivers with sandy, rocky, and/or muddy bottoms in sections where the current is not too rapid; on the Forest it is known from the Long Cane and Andrew Pickens Ranger Districts	AP, LC	1	
BACHMAN'S SPARROW Peucaea aestivalis	Bird	Sensitive	Inhabits forest stands with open canopies and herbaceous understories	EN, LC	4	
BARTRAM'S REDEYE BASS Micropterus coosae	Fish	Sensitive	In South Carolina this species occurs in the Savannah River drainage and has been introduced in the Saluda River drainage; it inhabits small upland streams and rivers with undercut banks and vegetation such as water willow, as well as boulders and submerged logs; it is found on the Andrew Pickens and Long Cane Ranger Districts	AP, LC	1	
BROOK FLOATER Alasmidonta varicosa	Mussel	Sensitive	Small streams and rivers with gravel bottoms; known from Chattooga, Turkey, and Upper Stevens Creek watersheds on the Andrew Pickens and Long Cane Ranger Districts	AP, LC	1	
BUTTERNUT Juglans cinerea	Plant	Sensitive	Basic mesic forests along the Brevard Geologic Belt	AP	3,8	

CAROLINA PLAGIOMNIUM Plagiomnium carolinianum	Plant	Sensitive	Damp, shaded, vertical rock faces along streams in mountain gorges; known from Long Creek, Opossum Creek, and Fishtrap	AP	2
CHAUGA CRAYFISH	Crustacean	Sensitive	Creek at their junction with the Chattooga River Fast-moving, rocky 3 rd and 4 th order streams and tributaries of	AP	1
Cambarus chaugaensis			the Savannah and Saluda River basins in South Carolina; on the Forest known from all the watersheds on the Andrew Pickens Ranger District		
EASTERN SMALL-FOOTED BAT Myotis leibii	Mammal	Sensitive	At southern terminus of range on Andrew Pickens Ranger District; known from Moody Creek near Lake Cherokee; may commonly roost in hemlock trees near streams in summer	AP	3,4,5
EDMUND'S SNAKETAIL Ophiogomphus edmundo	Insect	Sensitive	Clear moderately flowing mountain streams and rivers with sand or gravel riffles; known to occur in the Chattooga River	AP	1
FADED TRILLIUM Trillum discolor	Plant	Sensitive	Basic mesic hardwood forests restricted to the Savannah River drainage system	AP, LC	4
FORT MOUNTAIN SEDGE Carex communis var. amplisquama	Plant	Sensitive	Found in rich coves and basic mesic forests, at Tamassee Knob, East Fork of the Chattooga, and White Rock Cove on the Andrew Pickens Ranger District	AP	8
FRASER'S LOOSESTRIFE Lysimachia fraseri	Plant	Sensitive	Found at several locations ranging from woodlands, riparian disturbance zones, roadsides, and utility rights-of-way – including Highway 28, Highway 107, and the Chattooga River corridor	AP	3,4
GEORGIA ASTER Symphyotrichum georgianus	Plant	Sensitive	Known from select open woodlands, including those associated with utility and roadside rights-of-way	All	4
GREEN SALAMANDER Aneides aeneus	Amphibian	Sensitive	Overwintering in cliff faces and damp rock crevices, moving under bark and logs (preferably hardwoods) in spring and summer; known from the Chattooga Wild and Scenic River Corridor	AP	2,7
JEWELED TRILLIUM Trillium simile	Plant	Sensitive	Basic mesic hardwood forests of the Southern Blue Ridge mountains	AP	8
LANCELEAF TRILLIUM Trillium lancifolium	Plant	Sensitive	Basic mesic hardwood and floodplain forests	LC, EN	3,8
LIVERWORT Cheilolejeunea evansii	Plant	Sensitive	Bark of trees in moist escarpment gorges or gorge-like habitats	AP	2
LIVERWORT Plagiochila caduciloba	Plant	Sensitive	Found on damp, shaded, vertical rock faces along streams in mountain gorges; Southern Appalachian endemic	AP	2
LIVERWORT Radula sullivantii	Plant	Sensitive	Wet shaded rocks and crevices; known from Whetstone Falls, downstream of Sandy Ford, and approximately 0.75 of Whetstone's confluence with the Chattooga River, and King Creek Falls	AP	2
MAY WHITE AZALEA Rhododendron eastmanii	Plant	Sensitive	Mesic hardwood forests, known from several locations on the Enoree Ranger District	EN	7
MONARCH BUTTERFLY Danaus plexippus	Insect	Sensitive	Summer breeding habitat includes woodlands, roadsides, or utility rights-of-way containing nectaring plants throughout summer for the adults and abundant, healthy, larval plants (milkweeds)	All	3,4,5,7,8
MOUNTAIN WITCH ALDER Fothergilla major	Plant	Sensitive	Occurs in oak-hickory forests; may occur on monadnocks or north-facing slopes in piedmont	AP	5
OGLETHORPE OAK <i>Quercus oglethorpensis</i>	Plant	Sensitive	Streamside forests and depressional wetlands in the Carolina Slate belt	LC	3,5,9
PIEDMONT PRAIRIE BURROWING CRAYFISH Distocambarus crockeri	Crustacean	Sensitive	This species is most abundant on a perched water table along ridge tops and negatively associated with aquatic habitats; found in forest canopy openings like roadside ditches usually with sedges present; it is present in Thurmond Lake – Savannah River, Upper Stevens Creek, Kiokee Creek – Savannah River, Turkey Creek – Stevens Creek, Bush River – Saluda River, and Little River – Savannah River watersheds that contain Forest Service land on the Long Cane Ranger District; on the Forest it has only been found in the Mountain Creek – Turkey Creek subwatershed	LC	4,9

PIEDMONT STRAWBERRY Waldsteinia lobata	Plant	Sensitive	Occurs in mixed mesic hardwood forests in the lower elevations of the Southern Blue Ridge mountains	AP	8
RADFORD'S SEDGE Carex radfordii	Plant	Sensitive	Occurs in basic mesic and mixed mesic hardwood forests in the Southern Appalachians	AP	7,8
RAFINESQUE'S BIG-EARED BAT Corynorhinus rafinesquii	Mammal	Sensitive	Restricted to the mountains, sandhills, and coastal plain Physiographic regions; may be found in hollow trees or behind loose bark near streams, caves, mines, or human-made structures	AP	2,3,4,5,6
ROANOKE SLABSHELL Elliptio roanokensis	Mussel	Sensitive	In South Carolina, it is found in the Pee Dee River and in the Catawba, Congaree, and Savannah River basins, typically in large rivers but can occasionally be found in small creeks; It has the potential to be found in watersheds on the Long Cane Ranger District that are in the Savannah River basin but no known records on the Forest exist	LC	1
ROBUST REDHORSE Moxostoma robustrum	Fish	Sensitive	In South Carolina it is found in the Savannah River and Pee Dee River basins; it was extirpated from the Santee River basin but recent stocking has been completed in the Broad and Wateree River systems to reestablish a population in the Santee River basin; on the Forest it has the potential to be found on the Enoree Ranger District within the Broad River and lower parts of the Enoree Tyger, and Sandy River	LC, EN	1
SHOAL'S SPIDER LILY Hymenocallis coronaria	Plant	Sensitive	Rocky river shoals; known from Stevens Creek and historically from the Broad River	LC, EN	2
SOUTHERN OCONEE BELLS Shortia galacifolia	Plant	Sensitive	Large colonies in mixed mesic forests near Lake Jocassee	AP	7
SUN-FACING CONEFLOWER Rudbeckia heliopsidis	Plant	Sensitive	Known from open woodlands, roadsides, and nearby riparian areas in the vicinity of Lake Cherokee	AP	3,4,5
SWEET PINESAP Monotropsis odorata	Plant	Sensitive	Shortleaf pine-oak heaths in the Southern Appalachians and piedmont	All	5
TRI-COLORED BAT Perimyotis subflavus	Mammal	Sensitive	Found in mines and caves in winter	All	2,3,4,5,6
WEBSTER'S SALAMANDER Plethodon websteri	Amphibian	Sensitive	Mesic hardwood slopes with rocky outcrops	LC	7
WHORLED HORSEBALM Collinsonia verticillata	Plant	Sensitive	Found in basic mesic forests along the Brevard Geologic Belt in South Carolina	AP	8
YELLOW LAMPMUSSEL Lampsilis cariosa	Mussel	Sensitive	In South Carolina it is found in the Savannah, Wateree, Cogaree, and Pee Dee River Basins; on the Forest it is found on the Long Cane Ranger District in the Lower Stephens Creek and Turkey Creek – Stevens Creek watersheds; it also has the potential to occur in the Upper Stevens Creek watershed	LC	1
YOUNG'S CRAYFISH Distocambarus youngineri	Crustacean	Sensitive	In South Carolina it is found in the Saluda and Broad River basins only in Newberry County; it is found in moist, terrestrial areas with leaf litter and a mixed-hardwood overstory usually near stream headwaters or intermittent streams (Eversole 1995); it is found in areas with a perched water table and is not found very close to streambanks and does not appear to be directly associated with the streams themselves; on the Forest it is found only on the Enoree Ranger District within the Indian Creek watershed; it has also been found in the Cannos Creek- Broad River watershed outside the Forest Service boundary	EN	3

¹Habitat Group: 1 = Aquatic habitats; 2 = Rock outcrops associated with streams; 3 = Riparian forests and native canebrakes; 4 = Woodlands, savannas, prairies, and openings; 5 = Upland oak and pine forests; 6 = Mines and caves; 7 = Mesic forests; 8=Basic mesic forests and rich coves; 9 = Upland depression ponds, bogs, and seepage areas; 10 = Glades and mafic woodlands

From:	Magniez, Jeff -FS
То:	Kelly Kirven
Cc:	Miller, Derrick L -FS
Subject:	RE: Stevens Creek - Forest Service Species of Conservation Concern
Date:	Wednesday, January 15, 2020 1:17:23 PM
Attachments:	image002.png
	Sumter NF TES List 011520.docx

Attached please find the Sumter National Forest list of threatened, endangered, and Forest Service sensitive species.

From: Miller, Derrick L -FS <derrick.miller@usda.gov>
Sent: Wednesday, January 15, 2020 12:52 PM
To: Magniez, Jeff -FS <jeff.magniez@usda.gov>
Cc: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Subject: FW: Stevens Creek - Forest Service Species of Conservation Concern

Jeff

Can you respond to Kelly for me.



Derrick L. Miller, Forester Special Uses Program Manager

President NFFE, Local 466 National Federation of Federal Employees Francis Marion & Sumter National Forest

p: 803-561-4056 f: 803-561-4004 derrick.miller@usda.gov

4931 Broad River Road Columbia, SC 29212 http://www.nffe-fsc.org

From: Kelly Kirven [mailto:Kelly.Kirven@KleinschmidtGroup.com]
Sent: Wednesday, January 15, 2020 12:43 PM
To: Miller, Derrick L -FS <<u>derrick.miller@usda.gov</u>>
Subject: Stevens Creek - Forest Service Species of Conservation Concern

Hi Derrick,

I hope you are doing well and had a great Christmas and New Year's! I wanted to reach out to you to see if you could provide a list of the Forest Service Species of Conservation Concern that may exist on Forest Service lands within the Stevens Creek project area. We are beginning to pull together our Rare, Threatened, and Endangered Species Whitepaper and would like to list the species that are important to the Forest Service.

Thanks so much! Kelly

Kelly Kirven Project Licensing Coordinator Kleinschmidt Office: 803.462.5633 Cell: 423.747.2660 www.KleinschmidtGroup.com

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United States Department of the Interior

FISH AND WILDLIFE SERVICE Georgia Ecological Services Field Office 355 East Hancock Avenue Room 320 Athens, GA 30601 Phone: (706) 613-9493 Fax: (706) 613-6059



In Reply Refer To: Consultation Code: 04EG1000-2020-SLI-1041 Event Code: 04EG1000-2020-E-01928 Project Name: Stevens Creek Hydrelectric Project Relicensing P-2535 February 03, 2020

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This list identifies threatened, endangered, proposed and candidate species, as well as critical habitat, that may be affected by your proposed project. This list may change before your project is completed. Under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation.

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*). Projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html).

Wind energy projects should follow the wind energy guidelines http://www.fws.gov/windenergy/ for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts of communcation towers on migratory birds can be found under the "Bird Hazards" tab at: <u>www.fws.gov/migratorybirds</u>.

Attachment(s):

Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Georgia Ecological Services Field Office

355 East Hancock Avenue Room 320 Athens, GA 30601 (706) 613-9493

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

South Carolina Ecological Services

176 Croghan Spur Road, Suite 200 Charleston, SC 29407-7558 (843) 727-4707

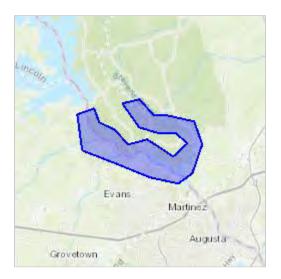
Project Summary

Consultation Code:	04EG1000-2020-SLI-1041
Event Code:	04EG1000-2020-E-01928
Project Name:	Stevens Creek Hydrelectric Project Relicensing P-2535
Project Type:	DAM

Project Description: FERC Relicensing for the Stevens Creek Hydroelectric Project

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/33.610026431497204N82.17446483698222W</u>



Counties: Columbia, GA | Edgefield, SC | McCormick, SC

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Flowering Plants

NAME	STATUS
Relict Trillium <i>Trillium reliquum</i>	Endangered
No critical habitat has been designated for this species.	
Species profile: <u>https://ecos.fws.gov/ecp/species/8489</u>	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior

FISH AND WILDLIFE SERVICE South Carolina Ecological Services 176 Croghan Spur Road, Suite 200 Charleston, SC 29407-7558 Phone: (843) 727-4707 Fax: (843) 727-4218 http://www.fws.gov/charleston/



In Reply Refer To: Consultation Code: 04ES1000-2020-SLI-0371 Event Code: 04ES1000-2020-E-00735 Project Name: Stevens Creek Hydrelectric Project Relicensing P-2535 February 03, 2020

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

South Carolina Ecological Services

176 Croghan Spur Road, Suite 200 Charleston, SC 29407-7558 (843) 727-4707

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Georgia Ecological Services Field Office

355 East Hancock Avenue Room 320 Athens, GA 30601 (706) 613-9493

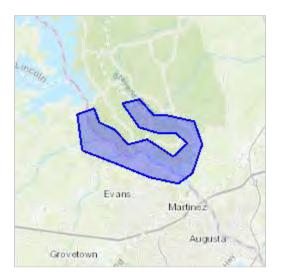
Project Summary

Consultation Code:	04ES1000-2020-SLI-0371
Event Code:	04ES1000-2020-E-00735
Project Name:	Stevens Creek Hydrelectric Project Relicensing P-2535
Project Type:	DAM
Project Description:	FERC Relicensing for the Stevens Creek Hydroelectric Project

Troject Description. Third Rencenoing for the Stevens Greek Hydroclech

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/33.610026431497204N82.17446483698222W</u>



Counties: Columbia, GA | Edgefield, SC | McCormick, SC

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Red-cockaded Woodpecker <i>Picoides borealis</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/7614</u>	Endangered
Wood Stork <i>Mycteria americana</i> Population: AL, FL, GA, MS, NC, SC No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/8477</u>	Threatened
Clams	
NAME	STATUS
Carolina Heelsplitter Lasmigona decorata	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/3534</u>

Flowering Plants

NAME	STATUS
Miccosukee Gooseberry <i>Ribes echinellum</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/3580</u>	Threatened
Relict Trillium Trillium reliquum	Endangered

No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/8489</u>

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the <u>USFWS</u> <u>Birds of Conservation Concern</u> (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ <u>below</u>. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the <u>E-bird data</u> <u>mapping tool</u> (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found <u>below</u>.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel <i>Falco sparverius paulus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 1 to Aug 31
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Red-throated Loon <i>Gavia stellata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- 1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (=)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
American Kestrel BCC - BCR	++++	· + + +	1+++		+++++		••••	++++	+++	+++++++++++++++++++++++++++++++++++++++	+++++++++++++++++++++++++++++++++++++++	++
Bald Eagle Non-BCC Vulnerable	[++]	111+	11 ++	11++	++++	++	+ [+]	+11	+ [+ +	11+1		1++1
Blue-winged Warbler BCC - BCR	++++	- + + + +	++++	++			+-+-	++++	1+++	+ + + + + + + + + + + + + + + + + + + +	· + + + +	++
Kentucky Warbler BCC Rangewide (CON)		++++	++++	-+++	+ [+ +		• • • •	+ + + +	++++	++++	++++	++
Prairie Warbler BCC Rangewide (CON)	++++	++++	++++	+	+ 🛛 + +	++++	++++	++++	++++	++++	++++	++++
Prothonotary Warbler BCC Rangewide (CON)		++++	++++	++ I +	+++1	+11		+-+	+++	++++	·	
Red-headed Woodpecker BCC Rangewide (CON)	111		 ++	++	111+] +] +	++1+	11+1	1 <mark>+</mark>]]		11++	111+
Red-throated Loon BCC Rangewide (CON)	++++	+++	++++	-+-+	++++	· + + + +	++	++++	++++	++++	++++	++
Rusty Blackbird BCC Rangewide (CON)	+++++++++++++++++++++++++++++++++++++++	++++	++++	-+-+	++++		++	++++	++++	++++	++++	++
Short-billed Dowitcher BCC Rangewide (CON)		++++	++++	-+-+	++++		++	+++++++++++++++++++++++++++++++++++++++	++++	++++	++++	++
Wood Thrush BCC Rangewide (CON)	++++	++++	++++	+++	+	11++	1+++	++++	++++	+ + + + + + + + + + + + + + + + + + + +	++++	++++

Additional information can be found using the following links:

- Birds of Conservation Concern <u>http://www.fws.gov/birds/management/managed-species/</u> <u>birds-of-conservation-concern.php</u>
- Measures for avoiding and minimizing impacts to birds <u>http://www.fws.gov/birds/</u> <u>management/project-assessment-tools-and-guidance/</u> <u>conservation-measures.php</u>
- Nationwide conservation measures for birds <u>http://www.fws.gov/migratorybirds/pdf/</u> management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

<u>Nationwide Conservation Measures</u> describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. <u>Additional measures</u> and/or <u>permits</u> may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern</u> (<u>BCC</u>) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian</u> <u>Knowledge Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>AKN Phenology Tool</u>.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN</u>). This data is derived from a growing collection of <u>survey, banding, and citizen science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: <u>The Cornell Lab of Ornithology All About Birds Bird Guide</u>, or (if you are unsuccessful in locating the bird of interest there), the <u>Cornell Lab of Ornithology Neotropical Birds guide</u>. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- 1. "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA NCCOS Integrative Statistical</u> <u>Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic</u> <u>Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam Loring</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In

contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.



WILDLIFE RESOURCES DIVISION

MARK WILLIAMS COMMISSIONER RUSTY GARRISON DIRECTOR

February 04, 2019

Caleb Gaston Sr. Environmental Specialist SCANA CALEB.GASTON@scana.com

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near Stevens Creek Project, Columbia County, Georgia

Dear Mr. Gaston:

This is in response to your request of January 10, 2019. According to our records, within 3 miles of the project site for terrestrial elements (TR) and within the local HUC10 watershed for aquatic elements (AQ), there are the following Natural Heritage Database occurrences:

Savannah River Middle 3 (0306010605) - Upstream from Dam

GA Acmispon helleri (Carolina Trefoil) [EXTIRPATED] (TR), approx. 2.3 mi NW of site Bouteloua curtipendula var. curtipendula (Side-oats Grama) (TR), in an uncertain location near the project site

Clematis ochroleuca (Curly-heads) (TR), approx. 0.4 mi W of site

Clematis ochroleuca (Curly-heads) (TR), in an uncertain location near the project site *Dryopteris celsa* (Log Fern) (TR), approx. 0.9 mi SE of site

- GA *Elliottia racemosa* (Georgia Plume) (TR), approx. 1.4 mi NW of site *Enemion biternatum* (False Rue-anemone) (TR), approx. 0.8 mi SE of site
- GA Hymenocallis coronaria (Shoals Spiderlily) (TR), approx. 1.6 mi SE of site
- GA Hymenocallis coronaria (Shoals Spiderlily) (TR), approx. 0.9 mi SE of site
- GA Marshallia ramosa (Pineland Barbara Buttons) (TR), on site
- GA Marshallia ramosa (Pineland Barbara Buttons) (TR), approx. 0.4 mi NW of site
- GA Paronychia virginica (Yellow Nailwort) (TR), on site
- GA Pediomelum piedmontanum (Dixie Mountain Breadroot) (TR), approx. 0.6 mi NW of site
- GA *Pediomelum piedmontanum* (Dixie Mountain Breadroot) (TR), in an uncertain location near the project site

Portulaca umbraticola ssp. coronata (Wingpod Purslane) [HISTORIC?] (TR), on site

- GA Scutellaria ocmulgee (Ocmulgee Skullcap) (TR), approx. 0.9 mi SE of site
- GA *Scutellaria ocmulgee* (Ocmulgee Skullcap) (TR), approx. 2.6 mi SE of site *Trillium discolor* (Pale Yellow Trillium) (TR), approx. 0.2 mi N of site
- US Trillium reliquum (Relict Trillium) (TR), approx. 0.8 mi SE of site
- US Trillium reliquum (Relict Trillium) (TR), in an uncertain location near the project site
- US Trillium reliquum (Relict Trillium) (TR), approx. 0.5 mi SE of site

US Trillium reliquum (Relict Trillium) (TR), on site 2009009 [Georgia Land Trust] (TR), on site 2010058 [Central Savannah River Land Trust] (TR), on site Savannah River Lakes [U.S. Army Corps of Engineers] (TR), approx. 0.1 mi N of site Greenspace program acquisition (TR), approx. 1.1 mi S of site Greenspace program acquisition (TR), approx. 1.2 mi S of site Greenspace program acquisition (TR), approx. 1.3 mi S of site Greenspace program acquisition (TR), approx. 1.4 mi S of site Greenspace program acquisition (TR), approx. 1.7 mi S of site Greenspace program acquisition (TR), approx. 1.8 mi S of site Greenspace program acquisition (TR), approx. 1.9 mi S of site Greenspace program acquisition (TR), approx. 2.1 mi S of site Greenspace program acquisition (TR), approx. 2.1 mi SW of site Greenspace program acquisition (TR), approx. 2.2 mi S of site Greenspace program acquisition (TR), approx. 2.9 mi S of site Greenspace program acquisition (TR), on site Savannah River Upper 1, Clark Hill (0306010310) [SWAP High Priority Watershed] (TR), approx. 0.8 mi N of site Little River 1, Little R, Clark Hill (0306010504) [SWAP High Priority Watershed] (TR), approx. 1.9 mi NW of site

Savannah River Middle 4 (0306010603) [SWAP High Priority Watershed] (TR), on site Savannah River Middle 3 (0306010605) [SWAP High Priority Watershed] (TR), on site

Savannah River Middle 4 (0306010603) - Downstream from Dam

- US Acipenser brevirostrum (Shortnose Sturgeon) (AQ) approx. 18.5 mi SE of site in the Savannah River
- US Acipenser oxyrinchus oxyrinchus (Atlantic Sturgeon) (AQ), approx. 19.2 mi SE of site in the Savannah River
- GA Berberis canadensis (American Barberry) [HISTORIC] (TR), approx. 2.9 mi S of site
- GA Clemmys guttata (Spotted Turtle) [HISTORIC] (AQ), approx. 20.8 mi S of site Dryopteris celsa (Log Fern) (TR), in an uncertain location near the project site Elimia caelatura (Savannah Elimia) [HISTORIC] (AQ), approx. 0.4 mi SE of site in the Savannah River
- GA *Elliptio arctata* (Delicate Spike) (AQ), approx. 1.3 mi SE of site in the Savannah River *Elliptio congaraea* (Carolina Slabshell) (AQ), approx. 1.3 mi SE of site in the Savannah River

Elliptio fraterna (Brother Spike) (AQ), approx. 3.4 mi SE of site in the Savannah River *Elliptio roanokensis* (Roanoke Slabshell) (AQ), approx. 1.4 mi SE of site in the Savannah

River Elliptio roanokensis (Roanoke Slabshell) (AQ), approx. 21.9 mi S of site in the Savannah River

Enemion biternatum (False Rue-anemone) (TR), in an uncertain location near the project site

GA Fusconaia masoni (Atlantic Pigtoe) [HISTORIC] (AQ), on site in the Savannah River

- GA Hymenocallis coronaria (Shoals Spiderlily) (TR), approx. 1.8 mi SE of site
- GA Hymenocallis coronaria (Shoals Spiderlily) (TR), in an uncertain location near the project site
- GA Hymenocallis coronaria (Shoals Spiderlily) (TR), in an uncertain location near the project site
 - Lampsilis cariosa (Yellow Lampmussel) (AQ), approx. 21.9 mi S of site in McBean Creek
 - Lampsilis cariosa (Yellow Lampmussel) (AQ), approx. 1.3 mi SE of site in the Savannah River
- GA Moxostoma robustum (Robust Redhorse) (AQ), on site in the Savannah River
- GA Moxostoma robustum (Robust Redhorse) (AQ), approx. 13.0 mi SE of site in the Savannah River
 - Necturus punctatus (Dwarf Waterdog) (AQ), approx. 21.2 mi S of site in McBean Creek Notropis chalybaeus (Ironcolor Shiner) (AQ), approx. 9.5 mi S of site in Butler Creek Notropis chalybaeus (Ironcolor Shiner) [HISTORIC?] (AQ), approx. 21.6 mi SE of site in the Savannah River
 - Portulaca umbraticola ssp. coronata (Wingpod Purslane) [HISTORIC?] (TR), approx. 1.5 mi W of site
- GA Scutellaria ocmulgee (Ocmulgee Skullcap) (TR), on site
- GA Scutellaria ocmulgee (Ocmulgee Skullcap) (TR), approx. 1.1 mi S of site
- GA *Toxolasma pullus* (Savannah Lilliput) (AQ), approx. 15.7 mi SE of site in the Savannah River
- US Trillium reliquum (Relict Trillium) in an uncertain location near the project site
- US Trillium reliquum (Relict Trillium) in an uncertain location near the project site
- US Trillium reliquum (Relict Trillium) (TR), approx. 1.8 mi NW of site
- 2010058 [Central Savannah River Land Trust] (TR), approx. 2.2 mi NW of site
 Greenspace program acquisition (TR), approx. 0.7 mi SW of site
 Greenspace program acquisition (TR), approx. 2.3 mi SW of site
 Greenspace program acquisition (TR), approx. 2.4 mi SW of site
 Greenspace program acquisition (TR), approx. 2.8 mi W of site
 Greenspace program acquisition (TR), approx. 3.0 mi SW of site
 Greenspace program acquisition (TR), approx. 3.0 mi SW of site
 Greenspace program acquisition (TR), approx. 3.0 mi SW of site
 Savannah River Middle 4 (0306010603) [SWAP High Priority Watershed] (TR), approx.
 0.5 mi NW of site
 Savannah River Middle 3 (0306010605) [SWAP High Priority Watershed] (TR), on site

Recommendations:

Federally listed species have been documented within three miles of the proposed project. To minimize potential impacts to federally listed species, we recommend consultation with the United States Fish and Wildlife Service. Please contact the following: In North Georgia, email Robin Goodloe at GAES_Assistance@fws.gov. In Southeast Georgia, call the Coastal Georgia Office at 912-832-8739. In Southwest Georgia, please contact John Doresky at 706-544-6030 or John_Doresky@fws.gov.

Please be aware that state protected species have been documented within three miles of the proposed project. For information about these species, including survey recommendations, please visit our webpage at http://georgiawildlife.com/conservation/species-of-concern#rare-locations. Surveys for species of federal or state conservation concern should be conducted prior to commencement of construction.

This project occurs within a high priority watershed. As part of Georgia's State Wildlife Action Plan, high priority watersheds were identified to protect the best-known populations of high priority aquatic species, important coastal habitats, and migratory corridors for anadromous species. Please refer to Appendix F of Georgia's State Wildlife Action Plan to find out more specific information about this high priority watershed (https://georgiawildlife.com/wildlifeactionplan).

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Nongame Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Nongame Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site https://georgiawildlife.com/conservation/species-of-concern#providing or by contacting our office.

If I can be of further assistance, please let me know.

Sincerely,

Anna Yellin Wildlife Biologist II

Data Available on the Wildlife Conservation Section Website

- Georgia protected plant and animal profiles are available on our website. These accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit http://georgiabiodiversity.org/natels/general-info.html.
- Rare species and natural community information can be viewed by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Data Portal at: <u>http://georgiabiodiversity.org/</u>
- Downloadable files of rare species and natural community data by Quarter Quad and County are also available. Please visit: <u>http://georgiabiodiversity.org/natels/natural-element-locations.html</u>

South Carolina Department of Natural Resources



Robert H. Boyles, Jr Interim Director

Emily C. Cope Deputy Director for Wildlife and Freshwater Fisheries

PO Box 167 Columbia, SC 29202 (803) 734-1396 HagertyJ@dnr.sc.gov

March 27, 2020

Kelly Kirven Project Licensing Coordinator Kleinschmidt 204 Caughman Farm Lane Suite 301 Lexington, SC 29072

Electronic submission

Re: Request for Threatened and Endangered Species Review Stevens Creek Hydro Project - Edgefield, SC

Dear Ms. Kirven,

The South Carolina Department of Natural Resources has received your request for threatened and endangered species consultation for the Stevens Creek Hydro Project area in Edgefield County (approximately 33.65° N, -82.192° E). The project consists of a hydroelectric dam and surrounding facilities and impact areas. A detailed project description was not provided. Aerial images indicate the existing project site and surrounding area consists of wetlands, waterways and wooded areas.

According to SCDNR data, there are no records of listed threatened and endangered species or designated critical habitat within the project footprint. However, there are several species of concern within 3-miles of the site, including the federally endangered relict trillium (*Trillium reliquum*), federally threatened Miccosukee gooseberry (*Ribes echinellum*), the state endangered Webster's salamander (*Plethodon websteri*), and the state threatened bald eagle (*Haliaeetus leucocephalus*). Please keep in mind that this information is derived from existing databases and do not assume that it is complete. Areas not yet inventoried may contain significant species or communities.

Table 1: Species documented within the boundary

Deld coele (Unline sture laws a such shure)	State Threater ad Dald 9
Bald eagle (Haliaeetus leucocephalus)	State Threatened, Bald &
	Golden Eagle Protection Act
Aethusa-like trepocarpus (Trepocarpus	SWAP
aethusae)	
Atlantic spike (Elliptio producta)	SWAP
Baltimore oriole (Icterus galbula)	SWAP
Bartram's bass (Micropterus)	SWAP
Carolina larkspur (<i>Delphinium carolinianum</i>)	SWAP
Christmas darter (Etheostoma hopkinsi)	SWAP
Highfin shiner (Notropis altipinnis)	SWAP
Lanceleaf wakerobin (Trillium lancifolium)	SWAP
Rosyface chub (Hybopsis rubrifrons)	SWAP
Shoals spider-lily (Hymenocallis coronaria)	SWAP

Snail bullhead (Ameiurus brunneus)	SWAP
Turquoise darter (Etheostoma inscriptum)	SWAP
Faded trillium (Trillium discolor)	Tracked Species
Smooth indigobush (Amorpha glabra)	Tracked Species

Table 2: Species documented within 3 miles of the boundary

les documented within 3 miles of the boundary		
Relict Trillium - Trillium reliquum	Federally Endangered	
Relict Trillium - Trillium reliquum	Federally Endangered	
Miccosukee Gooseberry - Ribes echinellum	Federally Threatened	
Georgia Aster - Symphyotrichum georgianum	Federal Candidate	
Webster's Salamander - Plethodon webster	State Endangered	
Bald Eagle - Haliaeetus leucocephalus	State Threatened, Bald & Golden Eagle Protection Act	
Robust Redhorse - Moxostoma robustum	Federal At-Risk Species	
Ocmulgee Skullcap - Scutellaria ocmulgee	Federal At-Risk Species	
Aethusa-like Trepocarpus - <i>Trepocarpus aethusae</i>	SWAP	
American Eel - Anguilla rostrata	SWAP	
American Ginseng - Panax quinquefolius	SWAP	
American Ginseng - Panax quinquefolius	SWAP	
Atlantic Spike - Elliptio producta	SWAP	
Baltimore Oriole - Icterus galbula	SWAP	
Bartram's Bass - Micropterus	SWAP	
Carolina Larkspur - <i>Delphinium</i> carolinianum	SWAP	
Christmas Darter - Etheostoma hopkinsi	SWAP	
Dutchman's Breeches - Dicentra cucullaria	SWAP	
Eared Goldenrod - Solidago auriculata	SWAP	
Eastern Creekshell - Villosa delumbis	SWAP	
Eastern Elliptio - Elliptio complanata	SWAP	
False Rue-anemone - Enemion biternatum	SWAP	
Flat Bullhead - Ameiurus platycephalus	SWAP	
Highfin Shiner - Notropis altipinnis	SWAP	
James' Sedge - Carex jamesii	SWAP	
Lanceleaf Wakerobin - Trillium lancifolium	SWAP	
Miccosukee Gooseberry - Ribes echinellum	SWAP	
Notchlip Redhorse - Moxostoma collapsum	SWAP	
Rosyface Chub - Hybopsis rubrifrons	SWAP	
Rosyface Chub - Hybopsis rubrifrons	SWAP	
Shoals Spider-lily - Hymenocallis coronaria	SWAP	
Slender Sedge - Carex gracilescens	SWAP	
Snail Bullhead - Ameiurus brunneus	SWAP	
Southern Nodding Trillium - Trillium rugelii	SWAP	
	1	

Tall Bellflower - Campanulastrum americanum	SWAP
Tiger Salamander - Ambystoma tigrinum	SWAP
Tuberous Gromwell - Lithospermum tuberosum	SWAP
Turquoise Darter - Etheostoma inscriptum	SWAP
Virginia Spiderwort - Tradescantia virginiana	SWAP
Virginia Spiderwort - Tradescantia virginiana	SWAP
Whiteleaf Sunflower - Helianthus glaucophyllus	SWAP
Yellow Lampmussel - Lampsilis cariosa	SWAP
Florida Pondhorn - Uniomerus caroliniana	Tracked Species
Faded Trillium - Trillium discolor	Tracked Species
Lowland Bladderfern - Cystopteris protrusa	Tracked Species
Lowland Bladderfern - Cystopteris protrusa	Tracked Species
One-flowered Broomrape - Orobanche uniflora	Tracked Species
Smooth Indigobush - Amorpha glabra	Tracked Species
Streambank Mock Orange - Philadelphus hirsutus	Tracked Species
Weak Nettle - Urtica chamaedryoides	Tracked Species

Active bald eagle nests are known to occur within or near to your project area. Surveys to rule out nests in the project area are advised to avoid negative impacts to bald eagle. bald eagles are a state listed threatened species and are federally protected under the Bald and Golden Eagle Protection Act. If bald eagle nests are found to be within the project area, please consult with the U.S. Fish and Wildlife Service before proceeding with any construction activities.

Webster's salamander is known to occur within 3 miles of the project area. This species prefers hardwood forested hillsides and is usually found under rocks, logs or leaflitter. Surveys to identify Webster's salamander in the project area should be done in August/September (for hatchlings) or October through May (adults). This species is state listed as endangered; therefore, no individuals shall be removed without first obtaining a permit through SCDNR.

Georgia aster, relict trillium and Miccosukee gooseberry are both federally listed plant species found within 3 miles of the project area. Should either of these species be found within the project area, please contact SCDNR and the US Fish & Wildlife Service.

The aforementioned species are designated as having conservation priority as designated through the South Carolina State Wildlife Action Plan (SWAP). SWAP species are those species of greatest conservation need not traditionally covered under any federal funded programs. Species are listed in the SWAP because they are rare or designated as at-risk due to knowledge deficiencies; species common in South Carolina but listed rare or declining elsewhere; or species that serve as indicators of detrimental environmental conditions. SCDNR recommends that appropriate measures should be taken to minimize or avoid impacts to the aforementioned species of concern.

Review of National Wetlands Inventory (NWI) indicate that wetlands and/or hydric soils are present within your project area. SCDNR advises that you consult with the U.S. Army Corps of Engineers (www.sac.usace.army.mil/Missions/Regulatory) to determine if jurisdictional wetlands are present and if a permit and mitigation is required for any activities impacting these areas. If jurisdiction features are present, SCDNR recommends that developed project plans avoid or minimize impacts where practicable. Additionally, a 401 Water Quality Certification may also be required from the SC Department of Health & Environmental Control. For more information, please visit their website at https://www.scdhec.gov/environment/water-quality/water-quality-certification-section-401-clean-water-act.

SCDNR offers the following comments and Best Management Practices (BMPs) regarding this project's potential impacts to natural resources:

- All necessary measures must be taken to prevent oil, tar, trash and other pollutants from entering the adjacent offsite areas/wetlands/water.
- Once the project is initiated, it must be carried to completion in an expeditious manner to minimize the period of disturbance to the environment.
- Upon project completion, all disturbed areas must be permanently stabilized with vegetative cover (preferable), riprap or other erosion control methods as appropriate.
- The project must be in compliance with any applicable floodplain, stormwater, land disturbance, shoreline management guidance or riparian buffer ordinances.
- Prior to beginning any land disturbing activity, appropriate erosion and siltation control measures (e.g. silt fences or barriers) must be in place and maintained in a functioning capacity until the area is permanently stabilized.
- Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts.
- Land disturbing activities must avoid encroachment into any wetland areas (outside the permitted impact area). Wetlands that are unavoidably impacted must be appropriately mitigated.
- If clearing must occur, riparian vegetation within wetlands and waters of the U.S. must be conducted manually and low growing, woody vegetation and shrubs must be left intact to maintain bank stability and reduce erosion.
- Construction activities must avoid and minimize, to the greatest extent practicable, disturbance of woody shoreline vegetation within the project area. Removal of vegetation should be limited to only what is necessary for construction of the proposed structures.
- Where necessary to remove vegetation, supplemental plantings should be installed following completion of the project. These plantings should consist of appropriate native species for this ecoregion.

These technical comments are submitted to speak to the general impacts of the activities as described through inquiry by parties outside the South Carolina Department of Natural Resources. These technical comments are submitted as guidance to be considered and are not submitted as final agency comments that might be related to any unspecified local, state or federal permit, certification or license applications that may be needed by any applicant or their contractors, consultants or agents presently under review or not yet made available for public review. In accordance with its policy 600.01, Comments on Projects Under Department Review, the South Carolina Department of Natural Resources, reserves the right to comment on any permit, certification or license application that may be published by any regulatory agency which may incorporate, directly or by reference, these technical comments.

Interested parties are to understand that SCDNR may provide a final agency positon to regulatory agencies if any local, state or federal permit, certification or license applications may be needed by any applicant or their contractors, consultants or agents. For further information regarding comments and input from SCDNR on your project, please contact our Office of Environmental Programs by emailing <u>environmental@dnr.sc.gov</u> or visiting <u>www.dnr.sc.gov/environmental</u>.

Thank you for the opportunity to review this project and provide comments. Please feel free to contact Joseph Lemeris via email at LemerisJ@dnr.sc.gov or via phone at 803-734-1396 regarding needs for additional information.

Sincerely,

us to get

James Hagerty Heritage Trust Program

SC Department of Natural Resources

From:	Joe Lemeris
To:	Kelly Kirven
Subject:	RE: Revised species review, Stevens Creek Hydro Project
Date:	Friday, March 27, 2020 1:03:21 PM
Attachments:	image003.png image001.png

Unfortunately right now it does not, since it was not reviewed/tracked at the time of the 2015 SWAP. It will almost certainly be included in the upcoming revision of the SWAP, in which I'd imagine it will receive a high or highest status, but as it stands it is not on our list. It is definitely one of our tracked species for sure!

Cheers, Joe

Joseph Lemeris, Jr.

GIS/Data Manager, Natural Heritage Program | o: 803-734-1396 | m: 843-729-0679 | e: LemerisJ@dnr.sc.gov South Carolina Dept. of Natural Resources | 1000 Assembly St, Columbia, SC 29201 | www.dnr.sc.gov



From: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Sent: Friday, March 27, 2020 12:40 PM
To: Joe Lemeris <LemerisJ@dnr.sc.gov>
Subject: RE: Revised species review, Stevens Creek Hydro Project

Hi Joe,

One follow-up question. Does the Ocmulgee skullcap have a state priority status (highest, high, or moderate) or is it a tracked species?

Thanks, Kelly

Kelly Kirven Project Licensing Coordinator Office: 803.462.5633 www.KleinschmidtGroup.com

From: Joe Lemeris <LemerisJ@dnr.sc.gov>
Sent: Friday, March 27, 2020 11:37 AM
To: Kelly Kirven <Kelly.Kirven@KleinschmidtGroup.com>
Cc: Elizabeth Miller <MillerE@dnr.sc.gov>; speciesreview <speciesreview@dnr.sc.gov>
Subject: Revised species review, Stevens Creek Hydro Project

Good morning Ms. Kirven,

I was forwarded your request for more information from Elizabeth Miller about the species list included in our response to the Stevens Creek Hydro Project. Unfortunately one of our previous staff members had made some errors listing the status of several species in this list, therefore please find a revised copy which reflects accurate status. Note that species listed as 'Tracked Species' are species within our natural heritage database deemed to be vulnerable or imperiled within the state, but may be more secure in other parts of its range.

Please let me know if you have any other questions!!!

Cheers, Joe

Joseph Lemeris, Jr.

GIS/Data Manager, Natural Heritage Program | o: 803-734-1396 | m: 843-729-0679 | e: <u>LemerisJ@dnr.sc.gov</u> South Carolina Dept. of Natural Resources | 1000 Assembly St, Columbia, SC 29201 | <u>www.heritagetrust.dnr.sc.gov</u>



EXTERNAL EMAIL: Do not click any links or open any attachments unless you trust the sender and know the content is safe.

APPENDIX I

PROPOSED STUDY PLANS

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt

Lexington, South Carolina www.KleinschmidtGroup.com

May 2020

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:



Lexington, South Carolina www.KleinschmidtGroup.com

May 2020

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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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 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 Project occupies approximately 104 acres of federal lands within the Sumter National Forest.

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. During an RCG meeting on November 13, 2019, the US Fish and Wildlife Service (USFWS) formally requested a mussel study at the Project, particularly in the Stevens Creek arm of the Project reservoir. This study plan was developed in consultation with the USFWS, Georgia Department of Natural Resources (GA DNR), South Carolina Department of Natural Resources (SC DNR) and the RCG.

2.0 RELEVANT SPECIES INFORMATION

2.1 FEDERAL-PROTECTED SPECIES

As part of relicensing, DESC developed a Rare, Threatened and Endangered (RTE) Species Whitepaper for the Project. The whitepaper included a comprehensive list of federal-protected and Forest Service Threatened, Endangered and Sensitive (TES) mussel species that may occur in the Project boundary (Table 2-1) (Kleinschmidt 2020). In order to identify federal-protected mussel species in the Project area, the USFWS's Information for Planning and Consultation (IPaC) online system was reviewed. Forest Service TES species that may occur in the Project area were also identified. The Forest Service provided a list of their Threatened, Endangered and Sensitive (TES) Species for the Long Cane Ranger District of the Sumter National Forest on January 15, 2020. These mussel species are included in Table 2-1. After identification of federal-protected and Forest Service TES species, habitat requirements for each species were reviewed to determine the likelihood of each species to occur within the Project boundary.

 TABLE 2-1
 FEDERAL-PROTECTED AND FOREST SERVICE TES MUSSEL SPECIES IN THE

 STEVENS CREEK PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	FEDERAL PROTECTION	FOREST SERVICE TES SPECIES - SNF
Atlantic Spike	Elliptio producta		Sensitive
Brook Floater	Alasmidonta varicosa		Sensitive
Carolina Heelsplitter	Lasmigona decorata	Endangered	Endangered
Roanoke Slabshell	Elliptio roanokensis		Sensitive
Yellow Lampmussel	Lampsilis cariosa		Sensitive

ATLANTIC SPIKE

The Atlantic spike is found throughout South Carolina and prefers streams or rivers with sandy, rocky, and/or muddy bottoms in sections where the current is not too rapid. This species is found throughout Maryland, Pennsylvania, North Carolina, Virginia, and South Carolina, although it has been extirpated from some reaches where it was previously found, possibly due to environmental factors including decreased water quality associated with sedimentation and pollution. The host fish for this species is not known.

BROOK FLOATER

The brook floater is a freshwater mussel species that is usually found in high gradient, consistently flowing reaches of rivers and streams. Preferred substrates are characterized by sand and gravel, often with adjacent boulders. This species is sensitive to habitat degradation, including excessive silt and nutrient inputs, and is also sensitive to hypoxia. Potential host fish include blacknose dace, longnose dace, golden shiner, pumpkinseed, slimy sculpin, yellow perch, and margined madtom. This species is known to occur in Edgefield and McCormick counties in SC. Specifically, it has been documented in several streams in the Stevens Creek basin.

CAROLINA HEELSPLITTER

The Carolina heelsplitter is found in cool, well-oxygenated reaches of rivers and streams. The current range of this species is limited as compared to its historic range. These declines and loss of populations are associated with factors including pollutants from municipal and industrial wastewater releases. The species is sensitive to silt and is generally found in silt-free areas with banks that are stabilized and shaded by trees and shrubs. One of the eight surviving populations of Carolina heelsplitter is found in Turkey Creek and its tributaries. These creeks are part of the Savannah River drainage, located in Edgefield County, SC.

ROANOKE SLABSHELL

The Roanoke slabshell is typically found in large rivers and occasionally in small creeks. The mussel tolerates large variations in flow levels and higher water temperatures, making it able to survive in some locations near dams and hydroelectric plants. In South Carolina, the mussel is found in the Pee Dee River and the Catawba, Congaree and Savannah River basins. Although it has the potential to be found in watersheds on the Long Cane Ranger District in the Savannah River basin, no known records in the Sumter National Forest exist.

YELLOW LAMPMUSSEL

The yellow lampmussel is a freshwater mussel species found primarily in medium to large rivers and streams with a variety of substrates including silt or sand, gravel bars and bedrock cracks. Distribution in South Carolina spans the Savannah, Broad, Wateree, Congaree, and Pee Dee River basins. The species is found in the Long Cane Ranger District in the Lower Stevens Creek and Turkey Creek-Stevens Creek watersheds with the potential to also occur in the Upper Stevens Creek watershed.

2.2 STATE PROTECTED SPECIES

In addition to federal-protected and Forest Service TES species, the RTE Whitepaper listed stateprotected mussel species that may occur in the Project boundary (Kleinschmidt 2020). These species are listed in Table 2-2 and Table 2-3.

 TABLE 2-2
 GEORGIA STATE-PROTECTED MUSSEL SPECIES IN THE STEVENS CREEK

 PROJECT AREA

COMMON NAME	SCIENTIFIC NAME
Atlantic Pigtoe	Fusconaia masoni
Brother Spike	Elliptio fraterna
Carolina Slabshell	Elliptio congaraea
Delicate Spike	Elliptio arctata
Roanoke Slabshell	Elliptio roanokensis
Savannah Lilliput	Toxolasma pullus
Yellow Lampmussel	Lampsilis cariosa

 TABLE 2-3
 SOUTH CAROLINA STATE-PROTECTED MUSSEL SPECIES IN THE STEVENS CREEK PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	
Atlantic Spike	Elliptio producta	
Eastern Creekshell	Villosa delumbis	
Eastern Elliptio	Elliptio complanate	
Florida Pondhorn	Uniomerus caroliniana	
Yellow Lampmussel	Lampsilis cariosa	

3.0 STUDY OBJECTIVE

The purpose of this study is to gather quantitative and qualitative data on the diversity, spatial distribution and relative abundance (density) of the mussel fauna inhabiting the portion of Stevens Creek included within the Stevens Creek Project boundary.

4.0 GEOGRAPHIC AND TEMPORAL SCOPE

Hypolimnetic releases from J.S. Thurmond Reservoir are both low in oxygen and much colder than southeastern river typical temperatures. Therefore, mussel surveys will focus on selected habitats within Stevens Creek that are more likely to support populations of native freshwater mussels. Due to the accumulation of silt in the lower portions of Stevens Creek, a majority of the surveys will take place in the upper portion of Stevens Creek within the Project boundary. USFWS requested that the reach between the upstream extent of the Stevens Creek reservoir to the confluence with Horn Creek be surveyed (Figure 4-1). Specific survey points will be identified in the field by the lead malacologist performing the study. Surveys will be conducted between late March and late October in 2021. Surveys will be focused during non-rainy periods when water clarity and temperatures are sufficiently high to support wading, snorkeling, and other in-water survey methods. We do not anticipate that scuba will be needed to perform surveys in the identified areas.

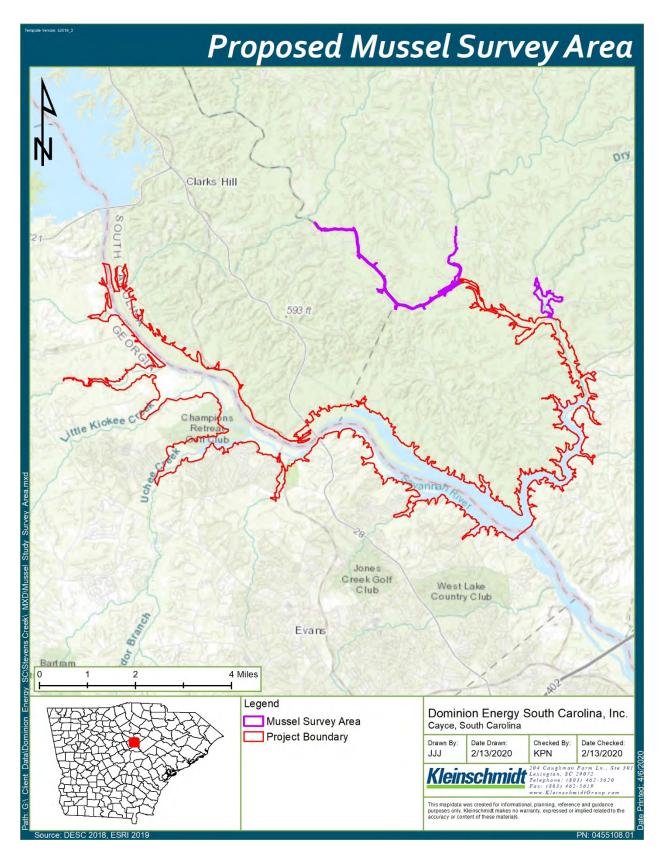


FIGURE 4-1 MUSSEL STUDY AREA

5.0 DATA COLLECTION METHODS

Freshwater mussel surveys in Stevens Creek will involve timed visual (qualitative) and tactile inspections (quantitative) of suitable habitat for presence of live freshwater mussels and/or shell material. Survey methods will follow freshwater mussel survey standard operating procedures (SOP) established by the SC DNR (Appendix A) and will be conducted by a qualified malacologist with expertise in Savannah River fauna. Although the number and specific location of qualitative survey points will likely be refined in the field based on professional judgement of the lead malacologist, it is expected that a range of 5 to 10 representative sites, of approximately 100 meters per site, will be distributed along the creek. Particular attention will be placed upon the examination of potential Carolina heelsplitter (*Lasmigona decorata*) (federal-endangered species and South Carolina state-endangered species) habitat within areas of Stevens Creek, as well as habitat for the Forest Service TES species and state-protected species listed in Section 2.0. If key species are detected during the qualitative survey, quantitative surveys will be performed to determine relative abundance.

Exact methods for conducting visual and tactile searches will vary depending on water depth and survey method. Daily and weekly fluctuations of the Stevens Creek reservoir within a 4.5-foot band to accommodate flow releases from Thurmond Dam result in routine changes to the water surface elevation, microhabitat characteristics (e.g., water depth and water velocity), and change water levels along shoreline habitats. The maximum reservoir drawdown of 4.5-feet exposes approximately 575 acres of littoral zone habitat (FERC 1995). Because of this, mussel surveys will focus primarily on those areas below the 4.5-foot depth contour where mussels are likely to become established.

Specific sampling protocols, using the SC DNR methods, for both qualitative and quantitative surveys to be employed during this study are included below (Appendix A) (SCDNR 2020).

Qualitative

Qualitative surveys should consist of tactile and visual searches of all habitats (not just suitable habitats) within the survey area to be searched, or "prescribed search area" (PSA). When delineating the PSA, every attempt should be made to not disturb the sediment. Shells should be collected from along all exposed areas in the PSA including banks and midchannel bars. The visual

search on the bank(s) should be conducted in addition to hand grubbing (probing substrate with hands 1-2 inches into substrate) search and a visual search for individuals within the water (SCDNR 2020).

Recommended survey equipment will vary with stream condition. Mask and snorkel with hand grubbing should be used in areas with water depth less than an arm's length. When habitat type or turbidity preclude the use of a mask and snorkel only hand grubbing would be sufficient. View buckets/bathyscopes may be used as a supplemental method. (SCDNR 2020).

Surveys should be conducted from downstream to upstream to maximize visibility and should cover the stream from bank to bank using a single pass and multiple observers. A minimum search rate of 10 m2/min (Smith et al. 2001) should be employed to ensure adequate coverage. Individuals of a native mussel species should be identified and counted, up to the first 100 individuals of each species found. One representative color photograph should be taken of each native mussel species found. If live, federally or state protected species are located, they should be identified, counted, measured for length, and photographed. If more than 100 live individuals of a single federally or state protected species, measure lengths for the first 100 individuals and count the remaining individuals. When measuring length of a mussel, calipers should be used to record the greatest distance from the anterior to the posterior shell margin to the nearest 0.1 mm (SCDNR 2020).

Quantitative

Quadrat surveys are used to estimate recruitment and the density or relative species abundance at a fixed site. Because mussels are typically non-uniformly distributed throughout a site, reach, or river, large sample sizes are required (SCDNR 2020). This method is not as effective for documenting species richness or the presence of rare species due to a smaller total search area but does provide higher detection rates for juvenile mussels. This method is not recommended for monitoring mussels at a watershed or range wide scale but can be extremely useful for monitoring specific sites or meta-populations of interest (SCDNR 2020).

This method involves a fixed site location. The site is divided into a 0.25 m2 grid and excavation quadrats are chosen using systematic sampling. To reduce time in water, multiple observers use snorkeling to excavate the 0.25 m2 quadrat to 6 inches in depth. A minimum of 3 percent of the survey area should be surveyed when using this method (SCDNR 2020).

Live and fresh dead mussels collected during the survey will be identified to species, enumerated and returned to their habitat consistent with SCDNR SOP (Appendix A), although some shell material and/or live specimens may be preserved and returned to the laboratory for taxonomic confirmation. All sampling stations, as well as any significant mussel beds found during sampling, will be documented using a GPS receiver. Mussel habitat and substrate surveyed at each sample location, as well as the species collected during the survey, will also be noted and photo documented. Basic water quality parameters (temperature, dissolved oxygen and conductivity) will be collected near the substrate at representative sample areas. Any equipment used as part of the sampling will be cleaned before and after sampling in each area.

6.0 SCHEDULE

Field surveys will be conducted from late March to late October of 2021 over 2-3 days. Study methodology, timing and duration may be adjusted based on consultation with resource agencies and interested stakeholders. A final report will be issued to the RCG within four months of the completion of field work.

7.0 **REFERENCES**

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- South Carolina Department of Natural Resources (SCDNR). 2020. Freshwater Mussel Survey Protocol. March 2020.

APPENDIX A

SCDNR FRESHWATER MUSSEL SURVEY PROTOCOL

FRESHWATER MUSSEL SURVEY PROTOCOL



DNR

March 2020

Morgan Kern Wildlife Biologist III

Division of Wildlife and Freshwater Fisheries Emily Cope, Deputy Director

NEED

Survey efforts for freshwater mussels is site specific, considering stream types, sizes across ecoregions and survey objective. However, a standardized survey protocol is critical for generating comparable and consistent survey efforts. The methods outlined hereafter are intended to be flexible while remaining specific to account for variation in survey environment. This is a living document subject to change and will be updated as relevant data become available.

SURVEY WINDOW

In general, all surveys should be conducted from the end of March to the end of October. This timeframe was selected to maximize detectability as this is the typical period when flow, turbidity, and leaf litter are low. Disturbing exothermic mussels during months with cold air and water temperatures could cause tissue to freeze and/or reduces their ability to burrow into the substrate. Decreased burrowing ability increases chances of predation and the probability of movement downstream during high water flow. Additionally, there is evidence that some native mussel species burrow during colder periods (Carlson et al. 2008).

RECONNAISSANCE

Prior to implementing any stream survey protocol, a thorough review of available resources related to the potentially affected species of concern, candidate species, and threatened and/or endangered mussel species should be completed. This review should include recovery plans, habitat descriptions, life history (spawning and or brooding seasons), characteristics determining identification, historical distributions including distributional maps, published journal articles, museum records, and communications with field malacologists with relevant experience.

Freshwater mussel survey results can be affected by the river conditions. Precipitation and U.S. Geological Survey (USGS) gage station data, if available, should be consulted prior to initiating survey work. Notes on weather conditions, increased flow, turbidity, and temperature should be taken on site to record survey conditions. Surveys should be rescheduled if unfavorable conditions for sampling are recorded.

BIOSECURITY

In order to reduce the spread or introduction of nonindigenous species while conducting surveys, survey gear should be washed and dried, free of mud and aquatic vegetation. The list of gear needing to be cleaned includes wetsuits, gloves, collecting bags, dry bags, boats and trailers etc.

SURVEY METHODS

Qualitative and quantitative methods are commonly used for mussel surveys. When choosing the type of survey that will be conducted, the objective of the study should be considered. Qualitative methods typically provide presence/absence or occupancy data and may provide relative abundance and species diversity if the protocol methods are followed. Qualitative surveys also produce the most robust species lists, especially for detection of rare species (Miller and Payne 1993, Strayer et al. 1997, Vaughn et al. 1997). Quantitative surveys can provide a multitude of data related to population demography or changes in a population over time.

DETERMINING PRESCRIBED SEARCH AREA (PSA)

PSAs should be determined using minimum lengths. Methods for determining minimum lengths in wadeable streams were adopted from the "Freshwater Mussel Survey Protocol for the Southeastern

Atlantic Slope and Northeastern Gulf Drainages in Florida and Georgia" which were field-tested at survey sites in Georgia, Florida, and Alabama using species-area curves (Carlson et al. 2008). Wadeable streams are defined as reaches where investigators can wade from one end of the reach to the other. Nonwadeable survey methods are not covered in this document.

In wadeable streams, a survey length of 100 m (~300 ft) upstream and 300 m (~900 ft) downstream of the proposed project should be used as a minimum length. The minimum lengths should include appropriate mussel habitat (gravel and cobble substrate, islands, sand bars, muddy sand substrates around tree roots, sand/limestone, and pools, riffles, and runs, etc.). The surveyor should extend the PSA when possible to include appropriate habitat when they are not included in the original PSA and should also include any unique aquatic habitats outside of the PSA. Additionally, if the surveyor determines the minimum length does not encompass all of the areas of interest or effect, the lengths should be extended as necessary.

QUALITATIVE

Qualitative surveys are presence/absence surveys using tactile and visual search methods, where catch per unit effort (CPUE) can be calculated based on a PSA. CPUE searches require minimal set-up time and crew sizes. These surveys are predominately visual and do not include the use of quadrat and/or substrate removal methods past hand grubbing (probing with hands 1-2 inches into substrate to increase detection of more deeply buried mussels). CPUE surveys can maximize the spatial coverage of survey sites and, therefore, often result in finding more rare species than quantitative methods.

Normally, qualitative surveys are used to provide resource agencies with presence/absence data or occupancy data, assemblage richness, and a general indication of relative abundances and recruitments. Independent of species, freshwater mussels ≤ 25 mm in length are evidence of recent reproduction (Haag and Warren 2007). A relative age class can be obtained from external annuli counts to determine the general age distribution of a population. Visual and tactile surveys can be biased towards larger animals but provide less habitat disturbance. Since excavation is not employed in this method, the detection rate for juveniles is often low (Wisniewski et al. 2013). Qualitative surveys will be recommended for all sites and the results would be used to determine the need and/or scope of a second quantitative survey.

Methods

Qualitative surveys should consist of tactile and visual searches of all habitats (not just suitable habitats) within the survey area to be searched, or PSA. When delineating the PSA, every attempt should be made to not disturb the sediment. Shells should be collected from along all exposed areas in the PSA including banks and midchannel bars. The visual search on the bank(s) should be conducted in addition to hand grubbing (probing substrate with hands 1-2 inches into substrate) search and a visual search for individuals within the water.

Recommended survey equipment will vary with stream condition. Mask and snorkel with hand grubbing should be used in areas with water depth less than an arm's length. When habitat type or turbidity preclude the use of a mask and snorkel only hand grubbing would be sufficient. View buckets/bathyscopes may be used as a supplemental method. At greater depths, SCUBA diving equipment should be used (divers should follow all applicable safety regulations).

Surveys should be conducted from downstream to upstream to maximize visibility and should cover the stream from bank to bank using a single pass and multiple observers. A minimum search rate of 10 m^2/min (Smith et al. 2001) should be employed to ensure adequate coverage. Individuals of a native mussel species should be identified and counted, up to the first 100 individuals of each species found. One representative color photograph should be taken of each native mussel species found. If live, federally or state protected species are located, they should be identified, counted, measured for length,

and photographed. If more than 100 live individuals of a single federally or state protected species, measure lengths for the first 100 individuals and count the remaining individuals. When measuring length of a mussel, calipers should be used to record the greatest distance from the anterior to the posterior shell margin to the nearest 0.1 mm.

All mussels should remain in a mesh collecting bag kept in the water until being measured and photographed one-at-a-time to reduce stress. Federally or state protected species must be handled with care and returned to the area of collection. Individuals should be rebedded into the sediment in the correct position (Hail et al. 2007, Strayer and Smith 2003, Young et al. 2003). Mussels should only be rebedded in the correct orientation, if this is not known, they should be placed on the substrate surface and left to burrow on their own. The surveyor should only retain shells of dead animals; moribund animals must be left in the stream (separate state and federal permits may be required to collect shells). Relict shells of federally protected species should be enumerated on the data sheet regardless of decision to retain shells. Justifications for deviations from these recommendations should be included in the final report.

QUANTITATIVE

Quantitative surveys use abundance-based methods, such as, capture mark recapture (CMR), quadrats with excavation, and transects. These surveys are used to estimate densities, population changes overtime, and more absolute recruitment data. A quantitative survey might be requested if a federally or state protected species is found and more data regarding population structure or dynamics (density, recruitment levels, survivorship, etc.) are needed. Quantitative surveys will consist of a statistically valid sampling design that should be validated based on survey objectives. Appropriate designs may be chosen from Strayer and Smith (2003). A general description of these methods can be found below. Justifications for deviations from these recommendations should be included in the final report.

Capture Mark Recapture

The CMR survey method is used for estimating apparent survival, recruitment, recapture probabilities, and changes in meta-populations. CMR is among the most common methods used to monitor population status and demography. There are many modeling approaches that provide estimate population parameters with appropriate data collection (Williams et al. 2002). Visual and tactile surveys can be biased towards larger animals but provide less habitat disturbance. Since excavation is not employed in this method, the detection rate for juveniles is often low (Wisniewski et al. 2013).

This method involves a fixed site location that would be sampled using visual and tactile searches. These surveys should consist of complete coverage using a single pass and multiple observers. Snorkeling, view buckets, or SCUBA are acceptable detection methods. Sites are searched following a maximum of 10 m wide lanes that run parallel to flow. A minimum search rate of $10 \text{ m}^2/\text{min}$ (Smith et al. 2001) will be employed to ensure full coverage. Recovered species of interest would be tagged using Hallprint or passive integrated transponder (PIT) tags glued to the shell. If Hallprint tags are used, it is recommended that two tags are used per individual, one on each valve.

Quadrat Survey

Quadrat surveys are used to estimate recruitment and the density or relative species abundance at a fixed site. Because mussels are typically non-uniformly distributed throughout a site, reach, or river (Downing and Downing 1992; Strayer and Smith 2003), large sample sizes are required (Smith et al. 2001; Pooler and Smith 2005). This method is not as effective for documenting species richness or the presence of rare species due to a smaller total search area but does provide higher detection rates for juvenile mussels. This method is not recommended for monitoring mussels at a watershed or range wide scale but can be extremely useful for monitoring specific sites or meta-populations of interest.

This method involves a fixed site location. The site is divided into a 0.25 m^2 grid and excavation quadrats are chosen using systematic sampling. To reduce time in water, multiple observers use snorkeling or SCUBA to excavate the 0.25 m^2 quadrat to 6 inches in depth. A minimum of 3 percent of the survey area should be surveyed when using this method (Pooler and Smith 2005).

REPORTS

PRELIMINARY RESEARCH

State the purpose of the survey and list the federal and state species of concern, candidate species, and threatened and/or endangered species that may be expected to occur in the drainage basin in which the stream(s) to be surveyed is located.

SURVEY AREA DESCRIPTION

The area of stream surveyed should be graphically represented on a 7.5-minute USGS topographic map. A description of the area, including physiographic area, general topography, land use, drainage basin, and potential suitable mussel habitat should be included.

METHODS

Provide a full text description of the equipment to be used along with a description of the method used to determine PSA or survey lengths. A brief description of the affiliations, qualifications, and all valid permits of the persons who conducted the survey in the stream noting the person or persons who were identifying mussel species. Indicate the date(s) during which the survey was completed along with descriptions and justifications for any deviations from the recommendations including stream conditions.

RESULTS

Include a detailed summary of the survey results. Records of all mussel species found including shells of interest and the locations where they were found, measurements, and water quality parameters should be included in summary tables. Information on stream conditions including discharge data from the closest USGS stream gage when the stream was sampled. Photographs, including representative area surveyed at each site and individual mussels, as well as copies of all data survey forms should be attached as appendices.

DISCUSSION

Describe the quality of the habitat observed within the survey area and the suitability of these areas for supporting the targeted species. If individuals of the target mussel species were not located, potential reasons for their absence should be discussed. Deviations from recommendations should also be discussed, relating to how they helped meet the survey objective and any other pertinent information should be included.

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All literature sources used in preparation for the survey and for the survey reporting should be included.

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STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt

Lexington, South Carolina www.KleinschmidtGroup.com

April 2020

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April 2020

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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APPENDICES

 $\begin{array}{l} \mbox{Appendix } A-Site \mbox{ Inventory Form} \\ \mbox{Appendix } B-Recreation \mbox{ Site } Questionnaire \\ \mbox{Appendix } C-Spot \mbox{ Count Form} \\ \end{array}$

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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 J. Strom Thurmond Dam. The Project occupies approximately 104 acres of federal lands within the Sumter National Forest, with three existing Project recreation sites located on federal land and managed through agreement with the U.S. Forest Service (Forest Service).

2.0 PURPOSE OF THE STUDY

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 Recreation and Land Management Resource Conservation Group (RCG), with interested stakeholders to address Project issues related to recreation and land management. The RCG determined there was a need for a recreation study at the Project.

DESC is proposing to perform an assessment of existing and future recreational use, opportunities, and needs for the Project. The assessment is designed to provide information pertinent to the current and future availability and adequacy of DESC-owned and managed recreation sites, Forest Service owned and managed recreation sites, and Columbia County, Georgia owned and managed recreation sites at the Project. The overall study plan objective is to identify current and potential recreation opportunities, use, and needs at the Project by addressing the specific goals and objectives listed below. Results from the study will be used to develop a new Recreation Management Plan (RMP) for the Project.

<u>Goal 1</u>: Characterize the existing use of recreation sites at the Project. This will be accomplished by meeting the following objectives:

- i. Identify recreation sites; inventory the services and facilities offered; and assess the general condition of each site (including whether the site provides barrier free access).
- ii. Identify patterns of use at each site (type, volume, and daily patterns of use).
- iii. Assess existing recreation sites located on federal land for consistency with Forest Service Sustainable Recreation Strategy.

<u>Goal 2</u>: Identify future needs relating to public recreation sites at the Project. This will be accomplished by meeting the following objectives:

- i. Identify existing user needs and preferences, including perceptions of crowding at recreation sites.
- ii. Estimate future recreation use of existing recreation sites.
- iii. Identify future needs for new recreation sites and facilities.

3.0 STUDY AREA

Recreation sites at the Project that will be included in this study are listed in Table 3-1 and shown in Figure 3-1.

RECREATION SITE NAME	RECREATION SITE NAME AS LISTED IN 2014 RECREATION PLAN	RECREATION SITE NAME AS LISTED IN 1995 PROJECT LICENSE/EXHIBIT G DRAWINGS	RECREATION SITE OWNER/ MANAGER
Stevens Creek	SC Recreation Site #1	Stevens Creek Recreation Site	DESC
Recreation Site			
Fury's Ferry	SC Recreation Site #2	Fury's Ferry Recreation Site	Forest Service
Recreation Site			
Chota Drive	SC Recreation Site #4	Recreation Site #2	Forest Service
Recreation Site			
Betty's Branch/	SC Recreation Site #5	GA Recreation Site	Columbia
Riverside Park			County, GA

 TABLE 3-1
 EXISTING PROJECT RECREATION SITES AT THE STEVENS CREEK PROJECT¹

Source: SCE&G 2014

¹ The 2014 Recreation Management Plan (RMP) includes an additional recreation site – Stevens Creek Recreation Site #3 (also known as Recreation Site #1 or the Mims Recreation Site). This site is located on Forest Service property and is maintained by the Forest Service. The Forest Service has decided that this recreation site is not in line with their Sustainable Recreation Strategy and will no longer be supported by the Forest Service. The Forest Service has asked that this site be removed from the RMP and therefore not be studied during relicensing.



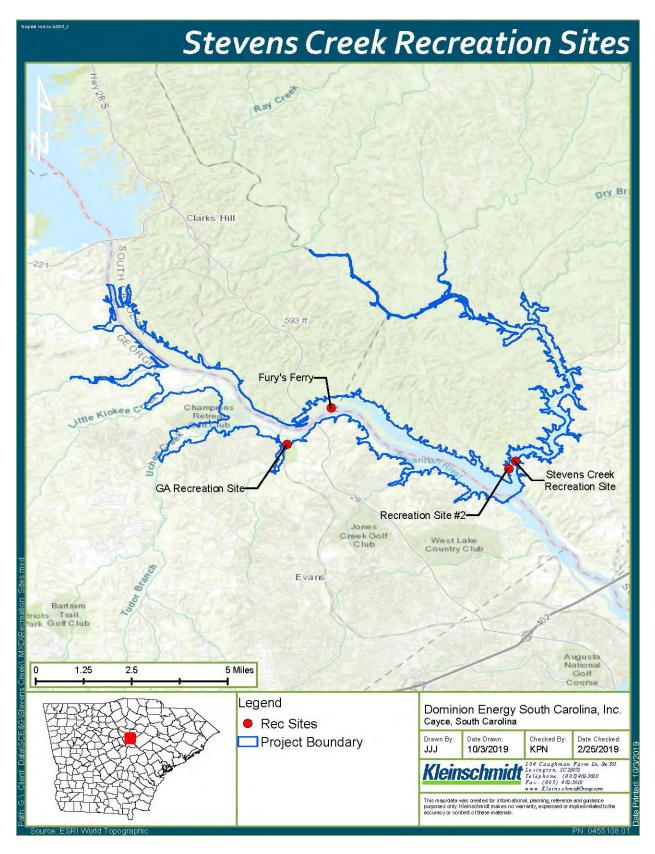


FIGURE 3-1 STEVENS CREEK PROJECT RECREATION SITES

4.0 STUDY SEASON

Generally, the study season will last for one year, beginning on April 1, 2021 and ending on March 31, 2022. During this time, traffic counters will be deployed at all four recreation sites, collecting continuous data for one full year. Within this general study season, recreation user surveys and spot counts will be collected during the peak recreation season, from April 1, 2021 through Labor Day weekend or September 6, 2021.

5.0 DATA COLLECTION METHODS

A variety of data collection techniques will be used to obtain the information necessary to meet the study objectives and goals listed in Section 2.0. Both primary and secondary data will be collected. Primary data will entail site inventories, spot counts, traffic counter data, and recreation user surveys. Primary data will be collected at each site as shown in Table 5-1.

	DATA COLLECTION METHOD			
RECREATION	SITE	Spot	TRAFFIC	RECREATION
SITE	INVENTORY	COUNT ²	COUNTER	USER
			DATA	SURVEYS ³
Stevens Creek	*	*	*	*
Recreation Site	·	·	•	
Fury's Ferry	*	Periodic	*	Periodic
Recreation Site		Ferioaic		Ferioaic
Chota Drive	*	Periodic	*	Periodic
Recreation Site		Perioaic	•	Perioaic
Betty's				
Branch/	*	*	*	*
Riverside Park				

 TABLE 5-1
 DATA COLLECTION METHODS AT STEVENS CREEK RECREATION SITES

Secondary data will include U.S. Bureau of Census data, the South Carolina Statewide Comprehensive Outdoor Recreation Plan (SCORP), SC Recreation Participation & Preference Study, and other relevant, readily available literature. Additional input will be solicited from the



² Spot counts will be administered at Fury's Ferry and Chota Drive during traffic counter data download events.

³ Recreation user surveys will be administered at Fury's Ferry and Chota Drive if recreation users are present during traffic counter data download events.

RCG, Columbia County, and Forest Service. Table 5-2 summarizes the study objectives, information needed to meet these objectives, and sources for information. Sections 5.1 through 5.4 summarize the primary data collection methods.

OBJECTIVES	INFORMATION NEEDED	SOURCE				
Goal 1: Characterize existing recreational use of Project rec	Goal 1: Characterize existing recreational use of Project recreation sites					
Goal 1a: Identify formal recreation sites, inventory the services and facilities offered at each, and assess the general condition and ADA compliance of each site Goal 1b: Identify the patterns of use at each site (type, volume, and daily patterns of use)	 Physical inventory of all facilities at each recreation site General assessment of site condition to include maintenance, basic rehabilitation needs, etc. Visitors' assessment of site conditions Identification of activities that occur at each site Barrier free/ADA compliance assessment Utilize vehicle counts as an estimation of people Estimate of # people/vehicle Estimate of # vehicles/site Parking capacity 	 Recreation Site Inventory Recreation User Surveys Traffic Counter Data Spot Count Data Recreation User Surveys - # of people per vehicle and length of visit Recreation Site Inventory - # of parking spaces Columbia County/Forest Service data, if available 				
Goal 1c: Assess existing recreation sites located on federal land for consistency with Forest Service Sustainable Recreation Strategy.	Results from Goal 1a and Goal 1b for recreation sites located on federal land	 Forest Service input Forest Service Sustainable Recreation Strategy 				

TABLE 5-2 Recreation Use and Needs Study Plan Objectives and Efforts

OBJECTIVES	INFORMATION NEEDED	SOURCE
Goal 2: Identify future recreational needs at the Project		
Goal 2a: Identify existing user needs and preferences, including perceptions of crowding at Project recreation sites	 User preferences and opinions of needs and crowding at sites Condition assessment 	Recreation User SurveysRecreation Site Inventory

OBJECTIVES	INFORMATION NEEDED	SOURCE
Goal 2b: Estimate future recreation use of existing Project recreation sites	 Inventory and use data Population projections for the project area Recreational use trends 	 Results of Goal 1 U.S. Bureau of Census Data SC Division of Research & Statistics (Budget and Control Board) SCORP, SC Recreation Participation & Preference Study, or other readily available literature
Goal 2c: Identify future needs for new recreation sites and/or facilities	 Estimate of future recreation use at the Project Parking capacity at recreation sites vs. existing and projected use density Condition/perception assessment 	 Results of Goal 1a, 1b, 2a, 2b, Columbia County, USFS, and RCG input on future needs

5.1 **RECREATION SITE INVENTORY**

Prior to completion of a recreation site inventory, GPS points and land area of each recreation site will be collected and recorded. Then a recreation site inventory will be completed for each recreation site included in Table 3-1. A site visit will be made to collect data on the type, number, and size of facilities (restrooms, parking areas, boat ramps, picnic shelters and tables, etc.) located at each site. The general condition of all recreation facilities will be noted during the inventory. In addition, any facilities that qualify as barrier free will be identified as such. A copy of the inventory form is provided in Appendix A.

Upon completion of the inventory, all data will be uploaded into an Excel database. The database will be structured so that it can be used in a variety of formats (brochure, maps, web pages, etc.) and can be updated as recreation sites are modified, added, or changed in any way.

5.2 TRAFFIC COUNTS

Traffic counters will be installed at all recreation sites included in Table 3-1 to record the number of vehicles that enter and exit the public recreation areas. Traffic count data will be collected for one year in order to capture use during the various seasons. Counters will be installed by April 1, 2021 and will collect data through March 31, 2022. Traffic counter data will be downloaded from the counter at a minimum of twice per month to ensure the counter is working properly and to minimize the potential for lost data.

5.3 **RECREATION USER SURVEYS**

The preferences and perceptions of people using Project recreation sites weigh heavily into the determination of need for recreation site improvements and/or new recreation sites. Information from recreation site users will be collected through on-site surveys. Surveys will be conducted at recreation sites as shown in Table 5-1. Surveys may be collected at Chota Drive Recreation Site and Fury's Ferry Recreation Site when traffic counter data is downloaded. However, a recreation clerk will not be stationed at these sites.

Surveys will be administered to recreation site users at the close of their recreation day⁴. Data collected will include user demographics, group size, the type of land-based and water-based recreation activities individuals are participating in, length of stay, and perceptions of crowdedness and condition of recreation facilities at the Project. The data collected will be used to identify recreation use patterns and use estimates at the recreation sites. The data will also characterize user perceptions on crowdedness, which will be considered during the future needs analysis.

The survey will be pre-tested in the field prior to implementation and revisions will be incorporated, as necessary. If any significant revisions to the survey or study protocol are deemed necessary following field pre-testing, the RCG will be notified. A copy of the survey is provided in Appendix B.

Surveys will be administered during the peak recreation season from April 1 through Labor Day weekend, 2021. Each recreation site will be sampled according to a sampling plan that will be prepared in consultation with the RCG. Sampling days will include weekdays, weekends and peak use weekends⁵. The sampling plan will be developed using a stratified random sampling method, with weekends being sampled at a greater rate than weekdays to account for the heavier use that typically occurs on these days. During each sampling day, survey clerks will be on-site for a four-hour shift, collecting as many complete surveys as possible. The shifts will occur randomly throughout the day within the window of 7:00 AM to 8:00 PM. Shift start times will be listed in the sampling plan.

All survey clerks will be trained thoroughly as a means of quality control. Survey clerks will be provided with detailed information on the study schedule, appropriate materials to aid in data collection, and direction on appropriate interviewing techniques and attire. Interviewers will also be provided with an incentive for survey respondents to complete the survey.

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⁴ FERC defines a recreation day as a visit by a person to a development for recreational purposes during any portion of a 24-hour period.

⁵ FERC defined peak use weekends as weekends when recreation use is at its peak for the season (typically Memorial Day, Independence Day and Labor Day). All three days in a holiday weekend should be included.

5.4 SPOT COUNTS

Spot counts will be conducted at the recreation sites listed in Table 3-1 once per sampling day, prior to the start of survey collection. Spot counts will document the number of vehicles present at a recreation site at one moment in time. Information recorded during spot counts will include: date, time, and weather; number of vehicles and vehicles with trailer at recreation site; type of activities observed at the site; and state license plate data. Spot count data will be used in parallel with traffic counter data. Spot counts will only be collected at Chota Drive Recreation Site and Fury's Ferry Recreation Site when traffic counter data is downloaded. However, a recreation clerk will not be stationed at these sites.

6.0 ANALYSIS

The following sections provide a description of the approach for estimating existing and future recreational use, recreation site capacity and use density percentages, and future recreation needs.

6.1 CURRENT RECREATION USE ESTIMATES

The reported estimates of recreation will be presented in "recreation days". The FERC defines a recreation day as one visit by a person to a development for purposes of recreation during any 24-hour period. The weekday, weekend, and peak weekend average recreation days will be calculated for each recreation site utilizing the traffic counters and recreation site survey data. The average number of people at each site within the morning and afternoon periods will be estimated within each day type and converted to a daily estimate. Daily estimates for each day type will be expanded to represent the study period and summed for a total estimate for each recreation site.

6.2 FUTURE RECREATION USE ESTIMATES

Estimated projections of future recreation use at the Project will be developed using the average annual increase in population growth over the past 10 years, as reported by the Census Bureau or the State Division of Research and Statistics, for Edgefield and McCormick counties, SC and

Columbia County, GA. The estimates will be augmented with discussion of trends reported in the SCORP (2014) and the SC Recreation Participation & Preference Study (2005). Estimated projections will be provided in 5-year intervals for the anticipated term of the license up to 50 years into the future (through year 2075).

While it is acknowledged that future changes in the supply of recreation resources, either in their quantity, accessibility, and/or quality may influence future demand and use, the demand analysis undertaken for this study does not attempt to predict what these future changes might consist of or how they might specifically affect levels of use at Project facilities. Therefore, the demand analysis results should be viewed as a general guide of potential future recreation pressure developed for planning purposes only.

6.3 **RECREATION SITE CAPACITY**

For purposes of this study, the carrying capacity for a recreation site is defined as the number of vehicles and boat trailers that can be parked at a recreation site at one time, based on the number of available parking spaces associated with each site. For paved parking areas, this will be achieved by counting the number of designated parking spaces available at the recreation site. For gravel parking areas, the number of available parking spaces for each recreation site will be estimated by measuring the area (sq ft) available for parking and estimating the number of vehicles that could be parked at the location, if optimal space were utilized. These estimates will be based on parking capacity standards for vehicle length, width, and available turn around space.

6.4 RECREATION SITE USE DENSITY

The use density of recreation sites will be estimated by comparing the average observed number of vehicles at the sites on sampled weekday, weekend, and peak weekend days with the available parking capacity for each recreation site. The average observed number of vehicles divided by the parking capacity will provide an estimated use density for each site. The average number of vehicles at the site will be determined using spot count and traffic counter data.



6.5 RECREATION NEEDS ASSESSMENT

The need for recreation and site development or modification of existing recreation resources will be assessed based on the inventory, condition assessment results, parking capacity and use density assessment results, user survey results, and Forest Service consultation. The needs assessment will focus on the existing condition and user opinions of recreation sites, the presence of "barrier free" facilities at recreation sites, and the ability of sites to meet current and anticipated future recreation demand. Consideration will also be given to site opportunities and constraints, as well as support facilities such as signage and maintenance. The need for new recreation sites and/or facilities will be determined through assessment of the information collected and the input of stakeholders through the RCG and the Forest Service.

7.0 SCHEDULE

The proposed schedule for completion of the Recreation Use and Needs Study is as follows:

TASK	DATE	
Mobilization for field work (includes field clerk hiring, training, etc.)	March 2021	
User survey pre-testing	March 2021	
Installation of traffic counters	April 1, 2021	
Traffic counter data collection	April 1, 2021 – March 31, 2022	
User survey collection	April 1 - September 6, 2021	
Preliminary data entry, cleaning, and processing	October 2021	
Conduct analyses	April-May 2022	
Submit draft report	July 2022	
Determine if additional data collection is needed	July 2022 ⁶	
Finalize report	August 2022	

8.0 **REFERENCES**

- Federal Energy Regulatory Commission (FERC). 2018. 18 CFR Parts 8 and 141: Elimination of Form 80 and Revision of Regulations on Recreational Opportunities and Development at Licensed Hydropower Projects. Issued December 20, 2018.
- South Carolina Electric & Gas Company (SCE&G). 2014. Revised Recreation Plan: Stevens Creek Hydroelectric Project, FERC Project No. 2535. January 2014.

⁶ If additional data collection is required, data collection methods, results and analyses will be developed and assessed in cooperation with the RCG and will be provided in an addendum to the report.

APPENDIX A

SITE INVENTORY FORM

DOMINION ENERGY SOUTH CAROLINA, INC.

RECREATION STUDY

STEVENS CREEK HYDROELECTRIC PROJECT

(FERC NO. 2535)

Recreation Site Inventory Form

Inspector:	 	
City:		

Road Access:

	Paved	Unpaved/Gravel
Road Access		

Parking:

	Paved	Unpaved/Gravel
Vehicle Spaces		
Vehicle with Trailer Spaces		
ADA/Barrier Free Spaces		

Restrooms:

	Flush Toilets	Vault Toilets	Portable Toilets	ADA/Barrier Free
Women				
Men				
Unisex				

Boat Launches (# of lanes):

	Hard Surface (concrete/paved)	Gravel	Informal
Trailer Launch			
Carry-In			

Docks:

	# of Docks	ADA/Barrier Free
Courtesy Dock		
Fishing Dock/Pier		

Camping:

	# of Sites	ADA/Barrier Free
RV Sites		
Cabins		
Tent Sites		
Primitive Sites		

Operations (circle the one that applies):

Manning	Manned	Unmanned
Availability	Seasonal	Year Round
Fees	Yes	No

Amenities:

	Yes	No	Additional Information
Marina			
Whitewater Boating			
Portage			
Tailwater Fishing			
Reservoir Fishing			
Swim Area			
Trails			
Active Recreation Area			
Picnic Area			
Overlook/Vista			

	Yes	No	Additional Information
Interpretive Display			
(Signage/Kiosk/Billboard)			
Hunting Area			
Trash Cans			
Other			

APPENDIX B

RECREATION USER SURVEY

Recreation User Survey Stevens Creek Hydroelectric Project (FERC No. 2535)

Clerk:	Site:	Date:	Time:	am/pm		
Weather: 🛛 Sunny	Partly Cloudy	□ Cloudy	Light Rain	🗆 Heavy Rain		
RESPONDENT GENDER:	🗆 Male 🛛 Female	RESPONDEN	REFUSED INTERVI	EW: 🗆		
NUMBER OF PEOPLE IN		_ RESPONDENT DOES NOT SPEAK ENGLISH: 🗆				
			I'S PRIMARY LANG	•		
VEHICLE HAS A BOAT T		RESPONDEN	T IS NOT 18 YEARS (OR OLDER: 🗆		
RESPONDENT HAS BEEN INTERVIEWED AT THIS SITE PREVIOUSLY:						

THE FIRST FEW QUESTIONS ASK ABOUT YOUR EXPERIENCE HERE TODAY

1. Including yourself, how many people are in your party today? (Fill in blank.)

_____ people in party

2. What time did you arrive at this recreation site today? (Fill in blank.)

_____ am / pm

3. What is the primary recreation activity that you participated in today at this recreation site? (*Please read the list to respondents. Check only one main activity in the first column.*)

What other activities did you participate in today at this recreation site? (Check all that apply in the second column.)

Check only one main	Check all other	
activity	activities	Types of Activities
		FISHING:
		boat fishing
		pier/dock fishing
		bank fishing
		bow fishing/spear fishing
		BOATING:
		motor boating
		pontoon/party boating
		canoeing/kayaking
		paddle-boarding
		Jet-skiing
		OTHER:
		bicycling
		diving/SCUBA
		tent or vehicle camping
		horseback riding
		walking/hiking/backpacking
		sightseeing

Check only	Check all	
<u>one</u> main	other	
activity	activities	Types of Activities
		hunting
		nature study/wildlife viewing/photography
		swimming
		picnicking
		sunbathing
		other:
		None

- 4. If you are hunting or fishing today, what is/are your target species? (List all that are stated.)
- 5. Did you spend any time on the water today? (Check one box.)

YES	
NO	(If no, skip to Question 7.)

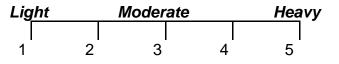
6A. Did you recreate on or near any of the islands today?

YES	
NO	(If no, skip to Question 7.)

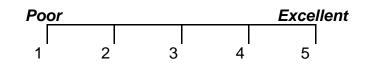
6B. What activities did you participate in *while on/near the island(s)*? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

□ sunbathing		bank fishing		hunting
		walking/hiking		sightseeing
nature study/wildlife viewing/photography		swimming		picnicking
□ other (please specify:	•)	

7. On a scale from 1 to 5, with 1 being light, 3 being moderate, and 5 being heavy, how would you rate the crowdedness *at this recreation site* today? (*Circle one number.*)



8A. On a scale from 1 to 5, with 1 being poor and 5 being excellent, how would you rate the overall condition *of this recreation site* today? (*Circle one number.*)



- 8B. Are there any additional facilities/improvements needed **at this recreation site**? (Check one box.)
 - □ YES
 □ NO (If no, skip to Question 9.)
- 8C. What do you recommend? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

access road	bank fishing area		boat dock
boat launch	camping area		fish cleaning station
fishing pier/dock	lighting		parking lot
picnic tables/shelter	restrooms		signs & information
swimming area	trails		trash cans
RV camping	tent camping	□ infor	bilingual signs & mation
other (please specify:)	

8D. Are there any other improvements that you would recommend for this site?

□ YES □ NO

NO (If no, skip to Question 9.)

8E. What improvements do you recommend? (Fill in the blank.)

9A. Do you ever recreate **at Fury's Ferry or Chota Drive** recreation sites? (Check one box.)

YES	
NO	(If no, skip to Question 10.)

9B. What activities have you participated in *while at Fury's Ferry or Chota Drive*? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

□ sunbathing		bank fishing		hunting
		walking/hiking		sightseeing
nature study/wildlife viewing/photography		swimming		picnicking
□ motor-boating		kayaking/canoeing		boat fishing
□ other (please specify:	•)	

- 9C. Are there any additional facilities/improvements needed **at Fury's Ferry and/or Chota Drive**? (Check one box.)
 - □ YES□ NO (If no, skip to Question 10.)
- 9D. What improvements do you recommend **at Fury's Ferry and/or Chota Drive**? (Fill in the blank.)

10. What other lakes do you recreate at? (Fill in blank.)

11. What is your zip code? ______

12. In what year were you born?

13. Do you have any additional comments about this recreation site, including comments on existing or needed recreation facilities? (*Please fill in blank and be as specific as possible.*)

THANK YOU FOR YOUR HELP! WE APPRECIATE YOUR TIME TODAY!

APPENDIX C

SPOT COUNT FORM

Spot Count Form Dominion Energy South Carolina, Inc. Stevens Creek Hydroelectric Project							
MONITOR:						ay Type: 1 weekday 2 weekend 3 holiday	
WEATHER AT START (PLEASE CIRCLE AS MANY DESCRIPTORS AS APPLY)	 SUNNY PARTLY SU CLOUDY LIGHT SHO HEAVY RA WINDY 	WERS					
SPOT COUNT							
RECREATION SITE	TIME		TOTAL VEHICLES W/O TRAILERS	TOTAL VEHIC TRAILERS	LES W BOAT	TOTAL VEHICLES W KAYAK/CANOE TRAILERS	
		AM/PM					
					T		
Types of Activities		Check all	STATE LICENS	SE PLATES	# F	ROM EACH STATE	
FISHING			South Carolina				
Boat Fishing			Georgia				
Pier/dock Fishing			North Carolina				
Bank Fishing			Other:				
BOATING							
Motor Boating							
Pontoon/party Boating							
Sailing							
Canoeing/Kayaking							
Windsurfing							
Paddle-boarding							
OTHER							
Bicycling							
Tent or Vehicle Campin	-						
Walking/Hiking/Backpa	acking						
Sightseeing							
Hunting							
Nature Study/Wildlife							
Swimming							
Picnicking							
Sunbathing							
Other:							
TOTAL:							

STEVENS CREEK HYDROELECTRIC PROJECT

FERC No. 2535

AQUATIC HABITAT WHITEPAPER

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:

Kleinschmidt

Lexington, South Carolina www.KleinschmidtGroup.com

February 2020

STEVENS CREEK HYDROELECTRIC PROJECT

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February 2020

STEVENS CREEK HYDROELECTRIC PROJECT FERC No. 2535

AQUATIC HABITAT WHITEPAPER DOMINION ENERGY SOUTH CAROLINA, INC.

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7.0 REGIONAL FISH RESTORATION EFFORTS AND IMPEDIMENTS

8.0 SUMMARY

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APPENDIX A

CONSULTATION RECORD

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

Dominion Energy South Carolina, Inc. Cayce, South Carolina

Prepared by:



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May 2020

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

Prepared for:

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May 2020

STEVENS CREEK HYDROELECTRIC PROJECT (FERC No. 2535)

DOMINION ENERGY SOUTH CAROLINA, INC.

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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 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 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 at 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.

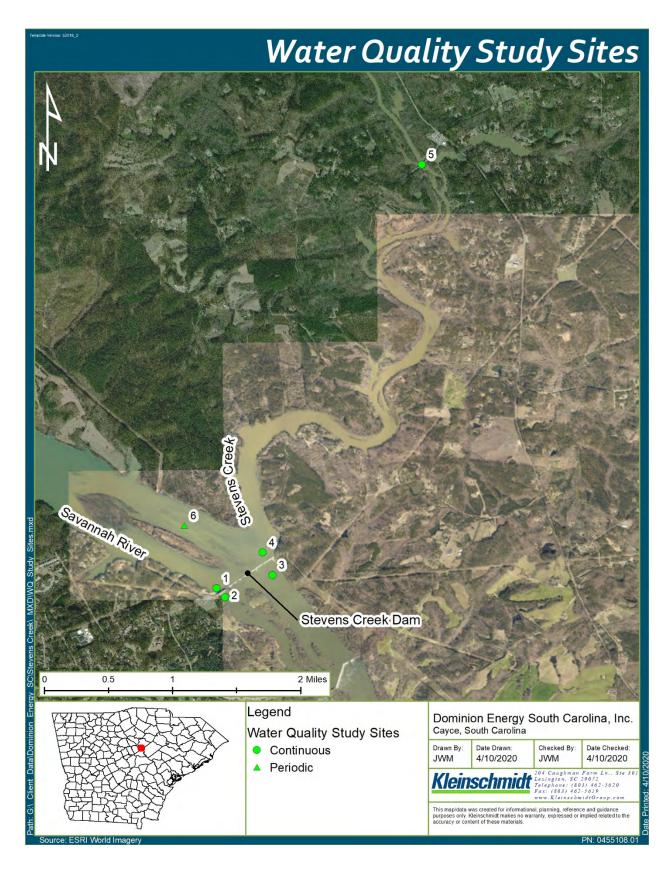


FIGURE 1 STEVENS CREEK HYDROELECTRIC PROJECT WATER QUALITY STUDY SITES

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 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.

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 2, 3, and 5 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.