



Public Notice # FERC 1894

Public Notice Date: April 20, 2020

### **NOTICE OF DEPARTMENT DECISION – WATER QUALITY CERTIFICATION**

The SC Department of Health and Environmental Control, acting on an application for Water Quality Certification pursuant to Section 401 of the Federal Clean Water Act, has reached a proposed decision for the project described below:

Dominion Energy South Carolina Inc  
Parr Hydroelectric Project (FERC 1894)  
Newberry and Fairfield Counties  
P/N FERC 1894

After reviewing the project plans, Department Staff determined that there is a reasonable assurance that the proposed project will be conducted in a manner consistent with the certification requirements of Section 401 of the Federal Clean Water Act. Accordingly, the Department proposes to certify the project with conditions as follows:

1. Dominion Energy South Carolina, Inc. must operate the Parr Hydroelectric Project (FERC 1894) in accordance with the following plans from the Comprehensive Relicensing Settlement Agreement (CRSA), including adaptive management provisions:
  - a. Flow Fluctuations Downstream of Parr Shoals Dam Adaptive Management Plan (CRSA Appendix A-2)
  - b. Minimum Flows Downstream of Parr Shoals Dam Adaptive Management Plan (CRSA Appendix A-3)
  - c. Enhancements to the West Channel Downstream of Parr Shoals Dam Adaptive Management Plan (CRSA Appendix A-10)
  - d. Parr Shoals Dam Turbine Venting Plan (CRSA Appendix A-11)
  - e. Erosion Monitoring Plan (CRSA Appendix A-15)
2. Dominion Energy South Carolina, Inc. must take all necessary measures during Parr Hydroelectric Project operation and maintenance to prevent fuel, oil, tar, trash, debris and other pollutants from entering the adjacent waters or wetlands.

The SC Department of Health and Environmental Control reserves the right to impose additional conditions on this Certification to respond to unforeseen, specific problems that might arise and to take any enforcement action necessary to ensure compliance with State standards.

A copy of the staff assessment supporting the proposed decision is enclosed. A copy of plans submitted by the applicant is available for review in the office of the Division of Water Quality, Bureau of Water. Additional information about the technical aspects of this application is available from Rusty Wenerick, the project manager, at 803-898-4266.

The final 401 Water Quality Certification will be issued unless there is a timely request for review of the Department Decision based on water quality or water use impacts.

The issuance of this Notice of Department Decision represents a final staff decision that may be appealed. Please see the attached appeal procedures for details.

A handwritten signature in blue ink, appearing to read "Chuck Hightower", is written over a horizontal line.

Chuck Hightower, Manager  
Water Quality Certification  
and Wetlands Section

South Carolina Board of Health and Environmental Control

Guide to Board Review

Pursuant to S.C. Code Ann. § 44-1-60

The decision of the South Carolina Department of Health and Environmental Control (Department) becomes the final agency decision fifteen (15) calendar days after notice of the decision has been mailed to the applicant, permittee, licensee and affected persons who have requested in writing to be notified, unless a written request for final review accompanied by a filing fee in the amount of \$100 is filed with Department by the applicant, permittee, licensee or affected person.

Applicants, permittees, licensees, and affected parties are encouraged to engage in mediation or settlement discussions during the final review process.

If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within thirty (30) calendar days after notice is mailed that the Board declined to hold a final review conference. In matters pertaining to decisions under the South Carolina Mining Act, appeals should be made to the South Carolina Mining Council.

**I. Filing of Request for Final Review**

1. A written Request for Final Review (RFR) and the required filing fee of one hundred dollars (\$100) must be received by Clerk of the Board within fifteen (15) calendar days after notice of the staff decision has been mailed to the applicant, permittee, licensee, or affected persons. If the 15<sup>th</sup> day occurs on a weekend or State holiday, the RFR must be received by the Clerk on the next working day. RFRs will not be accepted after 5:00 p.m.
2. RFRs shall be in writing and should include, at a minimum, the following information:
  - The grounds for amending, modifying, or rescinding the staff decision;
  - a statement of any significant issues or factors the Board should consider in deciding how to handle the matter;
  - the relief requested;
  - a copy of the decision for which review is requested; and
  - mailing address, email address, if applicable, and phone number(s) at which the requestor can be contacted.
3. RFRs should be filed in person or by mail at the following address:  
South Carolina Board of Health and Environmental Control  
Attention: Clerk of the Board  
2600 Bull Street  
Columbia, South Carolina 29201  
Alternatively, RFR's may be filed with the Clerk by facsimile (803-898-3393) or by electronic mail (boardclerk@dhec.sc.gov).
4. The filing fee may be paid by cash, check or credit card and must be received by the 15<sup>th</sup> day.
5. If there is any perceived discrepancy in compliance with this RFR filing procedure, the Clerk should consult with the Chairman or, if the Chairman is unavailable, the Vice-Chairman. The Chairman or the Vice-Chairman will determine whether the RFR is timely and properly filed and direct the Clerk to (1) process the RFR for consideration by the Board or (2) return the RFR and filing fee to the requestor with a cover letter explaining why the RFR was not timely or properly filed. Processing an RFR for consideration by the Board shall not be interpreted as a waiver of any claim or defense by the agency in subsequent proceedings concerning the RFR.
6. If the RFR will be processed for Board consideration, the Clerk will send an Acknowledgement of RFR to the Requestor and the applicant, permittee, or licensee, if other than the Requestor. All personal and financial identifying information will be redacted from the RFR and accompanying documentation before the RFR is released to the Board, Department staff or the public.
7. If an RFR pertains to an emergency order, the Clerk will, upon receipt, immediately provide a copy of the RFR to all Board members. The Chairman, or in his or her absence, the Vice-Chairman shall based on the circumstances, decide whether to refer the RFR to the RFR Committee for expedited review or to decline in writing to schedule a Final Review Conference. If the Chairman or Vice-Chairman determines review by the RFR Committee is appropriate, the Clerk will forward a copy of the RFR to Department staff and Office of General Counsel. A Department response and RFR Committee review will be provided on an expedited schedule defined by the Chairman or Vice-Chairman.
8. The Clerk will email the RFR to staff and Office of General Counsel and request a Department Response within eight (8) working days. Upon receipt of the Department Response, the Clerk will forward the RFR and Department Response to all Board members for review, and all Board members will confirm receipt of the RFR to the Clerk by email. If a Board member does not confirm receipt of the RFR within a twenty-four (24) hour period, the Clerk will contact the Board member and confirm receipt. If a Board member believes the RFR should be considered by the RFR Committee, he or she will

respond to the Clerk's email within forty-eight (48) hours and will request further review. If no Board member requests further review of the RFR within the forty-eight (48) hour period, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Final Review Conference. Contested case guidance will be included within the letter.

*NOTE: If the time periods described above end on a weekend or State holiday, the time is automatically extended to 5:00 p.m. on the next business day.*

9. If the RFR is to be considered by the RFR Committee, the Clerk will notify the Presiding Member of the RFR Committee and the Chairman that further review is requested by the Board. RFR Committee meetings are open to the public and will be public noticed at least 24 hours in advance.
10. Following RFR Committee or Board consideration of the RFR, if it is determined no Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Conference. Contested case guidance will be included within the letter.

## II. Final Review Conference Scheduling

1. If a Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, informing the Requestor of the determination.
2. The Clerk will request Department staff provide the Administrative Record.
3. The Clerk will send Notice of Final Review Conference to the parties at least ten (10) days before the Conference. The Conference will be publically noticed and should:
  - include the place, date and time of the Conference;
  - state the presentation times allowed in the Conference;
  - state evidence may be presented at the Conference;
  - if the conference will be held by committee, include a copy of the Chairman's order appointing the committee; and
  - inform the Requestor of his or her right to request a transcript of the proceedings of the Conference prepared at Requestor's expense.
4. If a party requests a transcript of the proceedings of the Conference and agrees to pay all related costs in writing, including costs for the transcript, the Clerk will schedule a court reporter for the Conference.

## III. Final Review Conference and Decision

1. The order of presentation in the Conference will, subject to the presiding officer's discretion, be as follows:
  - Department staff will provide an overview of the staff decision and the applicable law to include [10 minutes]:
    - Type of decision (permit, enforcement, etc.) and description of the program.
    - Parties
    - Description of facility/site
    - Applicable statutes and regulations
    - Decision and materials relied upon in the administrative record to support the staff decision.
  - Requestor(s) will state the reasons for protesting the staff decision and may provide evidence to support amending, modifying, or rescinding the staff decision. [15 minutes] *NOTE: The burden of proof is on the Requestor(s)*
  - Rebuttal by Department staff [15 minutes]
  - Rebuttal by Requestor(s) [10 minutes]

Note: Times noted in brackets are for information only and are superseded by times stated in the Notice of Final Review Conference or by the presiding officer.
2. Parties may present evidence during the conference; however, the rules of evidence do not apply.
3. At any time during the conference, the officers conducting the Conference may request additional information and may question the Requestor, the staff, and anyone else providing information at the Conference.
4. The presiding officer, in his or her sole discretion, may allow additional time for presentations and may impose time limits on the Conference.
5. All Conferences are open to the public.
6. The officers may deliberate in closed session.
7. The officers may announce the decision at the conclusion of the Conference or it may be reserved for consideration.
8. The Clerk will mail the written final agency decision (FAD) to parties within 30 days after the Conference. The written decision must explain the basis for the decision and inform the parties of their right to request a contested case hearing before the Administrative Law Court or in matters pertaining to decisions under the South Carolina Mining Act, to request a hearing before the South Carolina Mining Council. The FAD will be sent by certified mail, return receipt requested.
9. Communications may also be sent by electronic mail, in addition to the forms stated herein, when electronic mail addresses are provided to the Clerk.

The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

## STAFF ASSESSMENT

### THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (DHEC) DIVISION OF WATER QUALITY WATER QUALITY CERTIFICATION AND WETLANDS SECTION

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#### I. Background Information

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**Applicant:** Dominion Energy South Carolina, Inc. (DESC)      **DHEC P/N Number:** FERC 1894

**Date DHEC received request for 401 Water Quality Certification (WQC):** August 16, 2019

**DHEC P/N Date:** September 11, 2019

**DHEC P/N Close:** October 11, 2019

**Section of Applicable Federal Law:**     **Federal Energy Regulatory Commission (FERC)**  
   Section 10 Permit  
   Section 404 Permit

**Section of Applicable State Law:**     **Section 401 WQC**  
   Coastal Zone Consistency Certification  
   Permit for Construction in Navigable Waters

#### **Brief explanation and purpose of activity:**

**Activity:** The Parr Hydroelectric Project (PHP) is an existing FERC-licensed hydroelectric project (FERC 1894) with an active license that will expire on June 30, 2020. DESC filed a final license application (FLA) for a new license with the FERC and subsequently requested a 401 WQC from DHEC. The PHP consists of the 1) Parr Shoals Development (Parr Development), a modified run-of-river generating facility that impounds the Broad River to form Parr Reservoir; and, the adjacent 2) Fairfield Pumped Storage Development (Fairfield Development), a pumped storage generating facility that impounds Frees Creek, a tributary to the Broad River, to form Monticello Reservoir. The Fairfield Development utilizes Monticello Reservoir as the upper reservoir and Parr as the lower one.

**Purpose:** The Parr Development operates in modified run of river mode to provide baseload generation. The Fairfield Development operates as a pumped storage development providing generation during periods of peak electricity demand and acting as a load on the system during non-peak periods, providing important grid stabilization benefits. The Fairfield Development is also often relied on as a reserve asset as units can be started and brought to full load within 15 minutes, helping fulfill the Licensee's system reserve and regional reserve share obligation. Aside from hydropower, PHP waters are also utilized in a cooling water system at the V. C. Summer Nuclear Station.

**Waterbodies:** Broad River, and Parr and Monticello Reservoirs    **Classification:** Freshwaters (FW)

**Location:** The PHP is located on and adjacent to the Broad River approximately 26 river miles upstream from the City of Columbia in Newberry and Fairfield Counties.

#### **Waterbodies on 2016 303(d) List or within an approved TMDL (Total Maximum Daily Load) Watershed?**

**Yes**, see Table 1 and discussion below and in Section VI, Conclusions on Water Quality and Classified Uses.

**No**

Station	Description	Use	Cause(s)	Priority Rank <sup>1</sup>	Target Yr. for TMDL Dev.
<b>Monticello Reservoir</b>					
B-327 (Active WQMS <sup>2</sup> & Fish Tissue Monitoring Site)	Monticello Reservoir - lower impoundment between large islands	Aquatic Life	pH	3	After 2022
RL-04370 (SSS <sup>3</sup> , Equivalent to RL-11031, sampled in '04 & '11)	Monticello Reservoir - 1.7 miles NW of Monticello	Aquatic Life	pH	3	After 2022
RL-04374 (SSS, sampled in '04)	Monticello Reservoir - 3.5 miles N of Jenkinsville	Aquatic Life	pH	3	After 2022
RL-13089 (SSS, sampled in '13)	Monticello Reservoir - approx. 0.8 mile SW of Monticello East Landing	Aquatic Life	pH	3	After 2022
<b>Hellers Creek, tributary to Parr Reservoir</b>					
B-151, (Benthic Macroinvertebrate Site, sampled in '99, '04, '09, & '19)	Hellers Creek @ SR 97	Aquatic Life	Bio (based on bioassessment data)	3	After 2022
<b>Parr Reservoir</b>					
B-346 (Inactive WQMS)	Parr Reservoir - approx. 3 miles N of dam, upstream of Monticello	Aquatic Life	Total Phosphorus	3	After 2022
RL-12049 (SSS, sampled in '12)	Parr Reservoir - approx. 0.7 mile NNW of B-346 & approx. 0.9 mile SE of mouth of Hellers Creek	Aquatic Life	Total Phosphorus	3	After 2022
<b>Broad River downstream of Parr Reservoir</b>					
B-236, (Inactive WQMS, sampled in '99, '00, & '04)	Broad River - @ S Railroad Trestle, 0.5 miles downstream of SC 213	Aquatic Life	Copper	3	After 2022

<sup>1</sup>Priority Rank 3: Long-Term Priorities will be addressed by TMDL or alternative restoration plans developed after 2022.

<sup>2</sup>WQMS = Water Quality Monitoring Site.

<sup>3</sup>SSS = Statistical Survey Site; see State of South Carolina Monitoring Strategy For Calendar Year 2019 (Technical Report No. 1211-18).

**Table 1.** Monitoring Stations in and downstream of PHP Waters included on the 2016 303(d) List.

The PHP is also within an approved TMDL for fecal coliform bacteria for the Lower Broad River watershed (DHEC technical report 028-05) and the Parr Reservoir Landing at Broad River Road is under a long-term swim advisory due to high amounts of bacteria. DHEC has reasonable assurance that operation of the PHP as proposed under the FLA, including proposed protection, mitigation, and enhancement measures, will not contribute to the above-listed impairments and DHEC plans to address these impairments through TMDLs.

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## II. Project Description

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### A. Description of Facilities

As described briefly above the PHP consists of two developments: 1) the 14.88-megawatt (MW) Parr Development, and 2) the 511.2-MW Fairfield Development.

**1) The Parr Development** was constructed from 1912 to 1914 and consists of a powerhouse with six (6) generators, a 2,390-foot-long dam (including spillway and non-overflow sections), Parr Reservoir, and transmission and appurtenant facilities. Parr Reservoir is a 4,400-acre impoundment formed by the Broad River and the Parr Shoals Dam. Parr Reservoir extends fifteen (15) miles up the Broad River to the tip of Henderson Island. A significant modification was made between 1975 and 1977, when the spillway section of the Parr Shoals Dam was raised nine (9) feet by the addition of ten (10) hydraulically-operated, bottom hinged bascule-type spillway crest gates. Two (2) rows of post-tensioned rock anchors were also installed during gate installation to increase dam stability under the higher reservoir load conditions. These modifications were made in conjunction with construction of the Fairfield Development.

**2) The Fairfield Development** was constructed from 1974 to 1978 and consists of four (4) earthen dams, an intake channel, a gated intake structure, four (4) surface penstocks bifurcating into eight (8) concrete-encased penstocks, a generating station housing eight (8) pump-turbine units, Monticello Reservoir, and transmission and appurtenant facilities. Monticello Reservoir is a 6,800-acre impoundment (of Frees Creek, a tributary to the Broad River) formed by a series of four (4) earthen dams. Monticello Reservoir serves as the upper reservoir for the Fairfield Development and Parr Reservoir serves as the lower reservoir.

### Existing Operations

The Parr Development operates in modified run of river mode, generating as a baseload facility using available inflows up to 4,800 cubic feet per second (cfs). This flow is associated with the gates that control flow to the turbines set at approximately 50 percent open, as the full hydraulic capacity of 6,000 cfs results in power output that exceeds the rated capacity of the generators. (The generators were originally designed to operate at a head of thirty-five (35) feet, but the Parr Shoals Dam was raised nine (9) feet by the addition of crest gates when the Fairfield Development was constructed.)

The Fairfield Development is a pumped storage facility utilized as a peaking resource, and also as a reserve generation asset to the extent it is not being used to meet peak demand. The Fairfield Development generates and pumps using an active storage of 29,000 acre-feet of water. During the generation cycle, active storage in the upper Monticello Reservoir is released from the powerhouse into the lower Parr Reservoir. During the pumping cycle, the active storage is transferred from the Parr Reservoir back into the Monticello Reservoir. This cycle occurs daily, and the transfer of the full active storage results in an upper reservoir maximum fluctuation of four and a half (4.5) feet, and a corresponding lower reservoir fluctuation of ten (10) feet. During periods of extremely low flow, it is sometimes not possible to completely replenish Monticello Reservoir each day due to evaporative and other losses (e.g. leakage) from the PHP reservoirs, and the energy dispatched from Fairfield Development must be reduced each day during the following generation cycle to account for this.

When inflows to the PHP are expected to exceed 4,800 cfs, the bascule gates (floodgates or crest gates) on the Parr Shoals Dam spillway are systematically lowered and excess flows are spilled to prevent the Parr Reservoir from exceeding the maximum elevation. (Both reservoirs are operated without any reservoir guide or rule curves.) Generation from the Fairfield Development is also partially curtailed during high flow conditions to prevent total PHP releases from contributing to downstream flooding (as required by Article 39 of the current license). When inflows reach a threshold that causes flooding downstream of the PHP, all Parr Shoals Dam spillway gates are fully lowered to pass natural inflows, and the Fairfield Development generation is completely suspended until flows recede, such that only natural inflows above 40,000 cfs

pass downstream of the PHP. Fairfield Development pumping operations may occur with any flow in the Broad River as pumping would reduce downstream flows. On the falling leg of a flood event, gates are gradually raised to retain active storage while preventing the reservoir from exceeding the maximum elevation.

**Existing DHEC Water Pollution Control Permits:**

The PHP must be operated in accordance with the terms and conditions of the DHEC General (NPDES) Permit for Discharges from Hydroelectric Generating Facilities issued May 15, 2015 with an effective date of July 1, 2015. This permit covers all new and existing point source discharges to lands or waters of South Carolina from hydroelectric generating facilities engaged in electric power generation, transmission or distribution as identified with limitations as identified in the General Permit. Facilities regulated under this General Permit represent run-of-river projects, conventional projects, and pumped-storage projects with the following types of wastewater: (1) equipment-related cooling water and (2) equipment maintenance and floor drain water. The General Permit includes effluent limitations and monitoring requirements for each category of discharge.

Aside from hydroelectric generation, PHP waters are also utilized in a cooling water system at the V.C. Summer Nuclear Station and DESC must operate in accordance with terms and conditions of the National Pollutant Discharge Elimination System (NPDES) permit for the V.C. Summer Nuclear Station issued by DHEC May 7, 2014 with an effective date of June 1, 2014 (and currently active). The V.C. Summer Nuclear Station uses a once-through cooling water system that withdraws water from the Monticello Reservoir into its condensers. After the water cools the condensers, the heated water is transferred to a discharge bay and then flows back into the Monticello Reservoir via a 1,000-foot-long discharge channel. Approximately 1,190 cfs is withdrawn and returned to Monticello Reservoir through this once-through operation. The permit includes effluent limitations and monitoring requirements. Special effluent requirements prohibit detectable amounts of priority pollutants in the discharge, if the pollutants are present due to the use of maintenance chemicals. Of course, copper is listed as both a toxic and priority pollutant and limited in outfall 008.

**Existing Environmental Measures Related to Water Quality and Classified Uses:**

Per the existing license, the PHP is required to release minimum flows to the Broad River (Table 2). During fish spawning season in the months of March, April and May, the minimum flow release requirement is the lesser of 1,000 cfs or daily average inflow (minus evaporative losses from both reservoirs). During the remainder of the year, the minimum flow requirements are 150 cfs instantaneous flow, and 800 cfs daily average flow or the daily average inflow (minus evaporative losses), whichever is less.

Months (Season)	PHP Outflow Requirements
March, April, & May (Fish-spawning season)	1,000 cfs <u>or</u> daily average inflow minus evaporative losses, whichever is less
June through February	150 cfs instantaneous flow; <u>and</u> , 800 cfs daily average flow <u>or</u> daily average inflow minus evaporative losses, whichever is less

**Table 2.** Current FERC license requirements for minimum flow releases downstream of the PHP.

The Licensee provides public access to PHP waters and adjacent PHP lands for navigation and outdoor recreational purposes. In addition, the Licensee controls activities associated with PHP lands and waters through the existing Recreation Management Plan.

DESC monitors erosion of the shoreline of Parr Reservoir on an annual basis and at Monticello Reservoir

on a bi-annual basis. When areas of severe erosion are noted, DESC addresses the erosion by installing riprap, following United States Army Corps of Engineers (USACE) permitting procedures as required.

**Public Participation and Comprehensive Relicensing Settlement Agreement (CRSA):** In developing the FLA and 401 WQC request, application, and supporting information, DESC engaged in a multi-year public participation process, consulting with numerous state and federal resource agencies (including DHEC), non-governmental organizations, and all interested stakeholders. As a result of this process, DESC entered into a CRSA with nearly all of the participating stakeholders. The CRSA includes proposed license articles developed in consultation with stakeholders and intended to reduce impacts to environmental resources, and protect and enhance terrestrial and aquatic resources within the Project boundary and area of influence. Signatories to the CRSA include American Rivers (AR), American Whitewater (AW), the Congaree Riverkeeper (CR), Jeffrey Carter (concerned individual), NOAA National Marine Fisheries Service (NMFS), South Carolina Department of Natural Resources (SCDNR), DESC (the applicant), and US Fish & Wildlife Service (USFWS).

DHEC issued a thirty-day public notice of DESC's 401 WQC request, application, and supporting information on September 11, 2019, working with DESC to concurrently mail written notice to all adjacent property owners and others on DHEC's public notice mailing list. DHEC also posted a link to a scan of DESC's 401 WQC request cover letter, application, and supporting information on the DHEC website, including a link to the web page in the public notice mailing. DHEC also posted a copy of the public notice text, and links to the FERC e-library web page, and DESC's relicensing web page for the public's convenience (A copy of the CRSA is posted on DESC's relicensing web page). In accordance with regulation DHEC also required DESC to place notice of the application in a newspaper providing DHEC with a notarized affidavit of such. DHEC also coordinated with DESC so the 30-day public comment period specified in the newspaper notice would more or less run concurrently with the public comment period in the DHEC notice.

#### **Environmental Measures Proposed by DESC:**

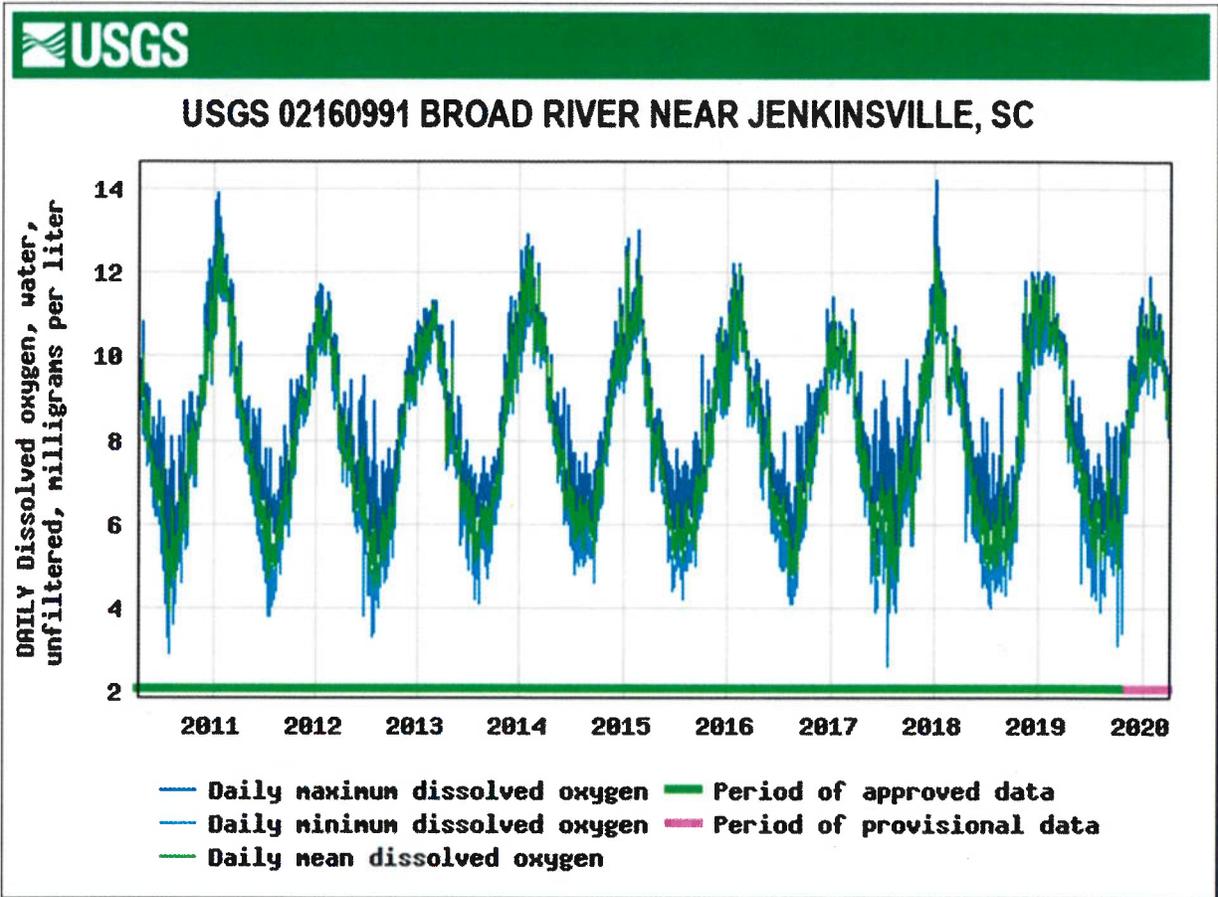
##### Parr Shoals Dam Turbine Venting Plan (Exhibit E-4 of FLA, Appendix A-11 of CRSA)

Early in the stakeholder process, DESC compiled existing data into a Water Quality Report (May 2014, in Exhibit E-4 of FLA) later supplemented by a Water Quality Addendum (June 2014, in Exhibit E-4 of FLA). The Water Quality Report included data from a variety of sources including the DHEC ambient surface water monitoring program.

DHEC monitored water quality, including dissolved oxygen (DO), at station B-236 just below the Parr Shoals Dam (Latitude: 34.259278, Longitude -81.332883) beginning in 1999, but the station was dropped and became inactive in 2005. Prior to the site becoming inactive, monitoring data indicated DO levels met water quality standards and fully supported classified uses. DHEC also monitored water quality, including DO, in the Parr reservoir forebay near the dam at station B-345 (Latitude: 34.262088, Longitude -81.3353014). This station is an active base site and DO is currently sampled monthly (DHEC Technical Report No. 1211-8, June 2019). DHEC's most recent assessment of monitoring data (2016 Use Support and Trends - SC Watershed Atlas) indicates this site fully supports classified uses, including aquatic life uses; however, trends towards not supporting were noted in several parameters including DO.

The Water Quality Report also included data from the United States Geological Survey (USGS) monitoring station 02160991 on the Broad River near Jenkinsville, SC (Latitude: 34.26070285, Longitude: -81.3303747). This station is located on the eastern shore of the Broad River just below the Parr Shoals Dam and Powerhouse. Parameters reported for this station include gage height, temperature, specific conductivity, DO, and pH. DO data is recorded at 15-minute intervals and is available from March, 1985 to the present. Daily, monthly, and annual statistics for the station are also calculated and available through the USGS web page. USGS data indicated excursions below the

instantaneous DO standard for freshwaters of 4.0 mg/l in some years during the time of year when flows are low and temperatures are high in the late summer and early fall (Figure 1). The Water Quality Addendum presented more detailed data representing these periods.



**Figure 1.** Daily max., min., and mean DO (mg/l) for the last 10 years at USGS 02160991, just below Parr Shoals Dam and Powerhouse. YSI 6150 ROX optical (luminescent-based) DO sensor with self-cleaning wiper system installed around 2011.

After reviewing this information, stakeholders asked for additional study including collection of additional DO data and an evaluation of the capability of existing turbines to increase oxygen levels and oxygen saturation. DESC collected additional data in the forebay of the Parr Reservoir near the dam and just below the Parr Shoals Dam and Powerhouse in front of the turbines. All but one of the turbines in the Parr Powerhouse are equipped with vacuum breakers and DESC conducted tests to determine the venting/oxygenating capability of each of the turbines with or without the vacuum breakers opened. DESC subsequently proposed a turbine venting plan to enhance DO levels in PHP discharges during periods of historic excursions. Turbines were tested, additional data was collected, and a turbine venting plan was formulated, implemented, and tested.

DESC proposes to implement the Turbine Venting Plan (April 2017, in Exhibit E-4 of FLA) at Parr Shoals Dam during the first year following license issuance to improve DO levels downstream of the dam, enhance classified uses, and minimize excursions from numeric water quality standards. The turbine venting plan calls for turbine venting to occur continuously during a “venting period” for each calendar year, with vents

opened as turbines are started and brought online. During the venting period, the turbines will be operated with vents opened in a first-on / last-off order as follows: 3, 1, 5, 2, 4, and 6. The plan utilizes the turbines with the highest documented venting/oxygenating capabilities first and last. Exceptions to this operating order may occur due to equipment maintenance that results in unit outages, or emergency conditions. DESC will follow the venting procedures from June 15 through August 31 of each year. If DO excursions below the numeric water quality standard occur, DESC will provide documentation to DHEC within ten (10) days of occurrence. Upon request from a consulting agency, DESC will provide hourly records to agency representatives to demonstrate adherence to the proper order of turbine operation during a venting period. Documentation of maintenance activities to justify deviation from the turbine operating order established in the plan will be provided, should a deviation occur.

DESC has been voluntarily implementing the Turbine Venting Plan and included results from 2018 as Attachment A-1 of the supporting information accompanying the request for 401 WQC. Daily mean DO levels during the venting period in 2018 (June 15 to August 31) were reported as ranging from 4.8 to 7.7mg/l. A total of 2 days (July 15 and August 3) were reported to have mean DO levels below the daily mean freshwaters standard of 5.0 mg/l. (The daily mean as reported by USGS was only below 5.0 mg/l on one day, July 15, when it was 4.9 mg/l.) Data was also averaged by hour so it could be compared to generation data. No hourly average DO levels were below the instantaneous freshwaters standard of 4.0 mg/l. during the venting period, nor were any of the USGS 15-minute interval records.

DESC also reported results from implementation of the Turbine Venting Plan in 2019 in a memo to the Water Quality Technical Working Committee (WQTC – an interested stakeholder subgroup formed during relicensing) dated January 6, 2020. DHEC also examined 2019 data from the USGS gage at Jenkinsville, which indicated a number of instantaneous excursions below 4.0 mg/l and one (1) excursion below the daily average of 5.0 mg/l in 2019; however, data after early November is still flagged as provisional (indicated by a different shade on the x-axis in figure 1). There were a total of 23 15-minute interval record excursions below the 4.0 mg/l instantaneous standard with an average excursion of 0.3 mg/l. However, the majority of these, including the one daily average excursion (4.9 mg/l), were outside the venting period, indicating that the venting period may need to be adjusted during consultation when the new license is issued.

*Daily Min. DO (mg/l)	Date	Number of Excursions (# of 15-minute interval records)	*Daily Ave. DO (mg/L)	Date
3.9	8/8/2019	2 & 5 consecutive readings	4.9	10/5/2019
3.1	10/6/2019	1 & 13 consecutive readings		
3.4	10/17/2019	2 consecutive readings		
Average excursion below 4.0 mg/l = 0.3 mg/l, n = 23 (<0.07%/yr.)				

**Table 3.** Summary of 2019 DO data to date from USGS Jenkinsville Gage.

\* Data after early November 2019 was still marked provisional as of April 8, 2020.

*DHEC will include this Plan as an enforceable special condition of the WQC to enhance water quality and protect classified uses.*

**Minimum Flows Downstream of Parr Shoals Dam AMP (Exhibit E-5 of FLA, Appendix A-3 of CRSA)**

The current license includes requirements for seasonal minimum flows to be released to the Broad River downstream of the PHP (see also Table 2 above under Existing Environmental Measures Related to Water Quality and Classified Uses). During the months of March, April and May (fish-spawning season) the minimum flow requirement is the lesser of 1,000 cfs or daily average inflow (minus evaporative losses from both reservoirs). During the remainder of the year, the minimum flow requirements are 150 cfs

instantaneous flow; and, 800 cfs daily average flow or the daily average inflow (minus evaporative losses), whichever is less.

Enhanced minimum flow recommendations were developed by state and federal resource agencies and other stakeholders who participated on the Instream Flows Technical Working Committee (TWC) and the Fisheries TWC. Recommendations were informed by results from requested studies and are intended to protect both resident fish during spawning season, as well as anadromous alosine fishes during spring migration runs. The proposed enhanced minimum flow schedule introduces a tiered approach to minimum flows, requiring higher minimum flows when inflows are higher. Refinements also include shifting the fish-spawning season/high-flow period and adding medium-flow transition periods before and after the fish-spawning season/high-flow period and the low-flow period (summer and fall). The proposed enhanced minimum flow schedule is presented in detail below in Table 3.

Flow Period/ Season	Net Broad River Inflow	Target Minimum PHP Outflow	Compliance Minimum PHP Outflow
<u>High Flow Period/ Fish-spawning Season</u>  February 1 – April 30	> 2300 cfs	2300 cfs	2100 cfs
	≤ 2300 and > 2200 cfs	net inflow	2100 cfs
	≤ 2200 and ≥ 600 cfs	net inflow	(net inflow minus 100 cfs) or 550 cfs, whichever is greater
	< 600 cfs	net inflow	net inflow minus 50 cfs
<u>Transitional Flow Periods</u>  December 1 – January 31  May 1 – May 31	> 1500 cfs	1500 cfs	1300 cfs
	≤ 1500 and > 1400 cfs	net inflow	1300 cfs
	≤ 1400 and ≥ 600 cfs	net inflow	(net inflow minus 100 cfs) or 550 cfs, whichever is greater
	< 600 cfs	net inflow	net inflow minus 50 cfs
<u>Low Flow Period</u>  June 1 – November 30	> 1000 cfs	1000 cfs	900 cfs
	≤ 1000 and ≥ 600 cfs	net inflow	(net inflow minus 100 cfs) or 550 cfs, whichever is greater
	< 600 cfs	net inflow	net inflow minus 50 cfs

**Table 4.** Proposed minimum flows releases downstream of the Parr Shoals Dam.

The proposal includes target minimum PHP outflows and compliance minimum PHP outflows; flows may be released at the compliance minimum PHP outflow for a defined period each day without triggering a non-compliance event. The proposal also includes an adaptive management component anticipated to last the first five years of the new license, when DESC’s ability to meet target minimum PHP outflows will be evaluated and refined each year through consultation with an advisory committee comprised of signatories to the CRSA and/or representatives from NOAA Fisheries, US Fish & Wildlife Service, US Forest Service, South Carolina State Historic Preservation Office, DHEC, and SC Department of Natural Resources.

*DHEC will include this AMP as an enforceable special condition of the WQC to enhance water quality and protect classified uses.*

Enhancements to the West Channel Downstream of Parr Shoals Dam AMP (Exhibit E-4 of FLA, Appendix A-10 of CRSA)

Early in the relicensing process, stakeholders identified the west channel area of the Broad River downstream of the Parr Shoals Dam as an area of concern. The Broad River immediately downstream of the Parr Shoals Dam is naturally divided by Hampton Island, creating an eastern and western channel along the two sides of the island, which is approximately 1.25 miles long. While this stretch of the Broad River is not included within the PHP Boundary, PHP operations certainly influence this area. The PHP powerhouse is located on the eastern bank of the river and during drier weather conditions, the west channel does not receive a consistent flow of water, except for small amounts of leakage from the dam. Stakeholders expressed concern about low DO levels in this area of the Broad River during the warmer summer and fall months.

Study plans were developed in consultation with the WQTWC to gather data on the water quality in this area, to determine the influence of Powerhouse releases on water levels in this area, and to determine how discrete releases through spillway gates (specifically gates 1 and 2 at the western end of the dam) affect water quality in the West Channel. Overall, water quality in the West Channel seemed to be most impacted during the later summer months, when flows are typically lower, temperatures are warmer, and vegetation growth rates are higher. The studies also determined that water levels in the West Channel were strongly influenced by flows from the powerhouse and indicated that portions of the tailrace flows from the East Channel do enter the West Channel.

Based on findings from the studies, the WQTWC developed a framework for an AMP to address improvement of water quality in the West Channel during the new license term. The overall goal of the AMP is to enhance aquatic habitat in the West Channel through increased year-round flows to the area. More specifically the stakeholders expressed the desire to achieve the following outcomes: to improve water quality year-round (specifically to meet State standards for DO and to improve DO levels in the West Channel during summer/fall periods), to provide a more natural water temperature profile, and to improve water depth and velocity. Stakeholders agreed that achieving these outcomes should result in attaining the overall goal of enhancing aquatic habitat.

The WQTWC identified several measures to be implemented under the AMP during the term of the new license.

- 1) The AMP Review Committee (AMPRC), which may consist of CRSA signatories and resource and regulatory agencies including DHEC, will determine an approximate target flow that it believes will adequately maintain DO levels in the West Channel based on data collected in the above-referenced studies as well as the IFIM study conducted during the relicensing process.
- 2) Monitoring, based on a plan agreed to by the AMPRC, will be conducted after implementation of proposed instantaneous minimum flows (which will replace existing requirements for daily average minimum flows) to determine the extent of the benefits to aquatic habitat in the West Channel.
- 3) If the AMPRC determines that new instantaneous minimum flows will not provide a sufficient flow into the West Channel to maintain DO levels, the next step will be to physically modifying existing channel(s) leading into the West Channel (removing material, and lowering ground elevations so more water can pass). This step would be contingent upon obtaining necessary regulatory approvals and would be conducted in two phases in years two and four of the AMP.

4) If inflows to Parr Reservoir decrease to a point that outflows from the dam do not provide any flows to the West Channel, DESC will investigate the use of spillway gates to provide periodic flow pulses to "refresh" the West Channel during periods when DO levels are expected to fall below acceptable levels. During low inflow periods, DESC will discuss and plan the use of pulses with the AMPRC to make sure that all downstream resources are considered and releases are distributed in a balanced manner between the East and West Channels, since the East Channel has a very diverse and healthy existing aquatic community.

Stakeholders agreed that if the above four measures didn't bring about the desired improvements then no further actions would be required on the part of DESC under the AMP.

During each year of the AMP, monitoring will be conducted from May 15 to September 30.

DO, temperature, and enough stream flow measurements will be taken in a given monitoring period to develop a stage-discharge relationship for the West Channel during the sampling period

The AMPRC will compare the West Channel flow estimates with the IFIM data collected in the West Channel during relicensing studies to evaluate weighted usable area (WUA) for various species identified for the West Channel. The objective of this comparison is not to reach a specific WUA value, but to determine any improvements from increased flows in the West Channel.

At the end of five years, the AMPRC will provide final recommendations to FERC on extension or completion of the AMP. If the AMP is completed, then final compliance criteria will be proposed by the AMP RC for use during the remainder of the license.

*DHEC will include this AMP as an enforceable special condition of the WQC to improve water quality and enhance aquatic habitat.*

#### Erosion Monitoring Plan (Exhibit E-3 of FLA, Appendix A-15 of CRSA)

Fluctuations in water levels in both reservoirs due to pump-storage operation of the Fairfield Development contribute to localized shoreline erosion and siltation in PHP waters. DESC currently monitors the shorelines of Parr and Monticello reservoirs regularly for signs of erosion, reporting findings annually to the FERC in the Dam Safety, Surveillance, and Monitoring Report. For the FLA, DESC developed a formal Erosion Monitoring Plan for the two reservoirs that will be implemented upon issuance of a new license. DESC currently monitors and will continue to monitor the extent of shoreline erosion at Parr Reservoir annually and Monticello Reservoir biannually. The Erosion Monitoring Plan sets forth and defines survey methods, the erosion repair procedure, and a monitoring schedule as well as documentation and reporting standards. The plan calls for monitoring at the same frequency with action triggered whenever an identified erosion area is found to be encroaching on the PHP boundary, PHP infrastructure, or significant natural or cultural resources. The proposed erosion repair steps are as follows:

- 1) Verification: take measurements or install reference pins and quantitatively evaluate rate and severity of active erosion.
- 2) Plan: DESC management determines extent of repairs, develop plans for repair, and acquires cost estimates.
- 3) Notification: DESC notifies FERC of intent to repair.
- 4) Budget: DESC budgets money and time to perform work.
- 5) Permit: DESC determines whether permits are required and prepares applications, coordinating access with landowners if there is no DESC or public access to gain entry to the site.
- 6) Repair: DESC mobilizes workforce, material, and equipment to make repairs with dam-safety personnel monitoring work.
- 7) Prepare: DESC prepares close out report and notifies all necessary agencies of project completion.

*DHEC will include this Plan as an enforceable special condition of the WQC to protect water quality and*

classified uses.

Flow Fluctuations Downstream of Parr Shoals Dam AMP (Exhibit E-5 of FLA, Appendix A-2 of CRSA)

Stakeholders were concerned about PHP operation-related pulses of flow downstream of the Parr Shoals Dam, which are variable in magnitude and duration. DESC analyzed USGS flow records to identify instances when PHP outflows differed substantially from estimated inflows to understand the frequency and magnitude of these downstream PHP effects. The analysis also included data from the Saluda River that indicated some of the downstream effects in the Congaree River could be attributed to its contributions.

Flow Variance	Percent Occurrence
2,000 cfs	20.0%
3,000 cfs	11.5%
5,000 cfs	4.7%
10,000 cfs	0.9%

**Table 5.** Frequency and magnitude of flow variance due to PHP operations during target months.\*

\* From Exhibit E-5 of FLA; based on estimated inflows (developed with data from the Carlisle, Tyger, and Enoree gages) compared to outflows (represented by data from the Alston gage just below Hampton Island) for the period January-May, 2010-2015.

Stakeholders were concerned that these operation-related downstream flow fluctuations could adversely impact spawning and migration behavior and outcomes for several fish species in the Broad and Congaree Rivers downstream from the PHP during the January through May timeframe including Shortnose Sturgeon, American Shad, Striped Bass, and Robust Redhorse. Stakeholders further identified two operational practices that contribute to the downstream flow fluctuations.

1) First, existing operations include daily or weekly “reservoir inventory management releases” via the Parr Shoals Dam crest gates. When inflow to Parr Reservoir is greater than the flows that the Parr Powerhouse can pass, the reservoir level slowly rises during the week and water (or inventory) is then released by lowering crest gates. Existing inventory management practices result in large, short duration pulses being released downstream.

2) Second, some or all of the spillway gates are sometimes lowered and left in the lowered position for several days to spill excess inflow, which increases the influence of Fairfield operations on downstream flows due to water spilling over the lowered gates as Parr Reservoir rises and falls during pumped storage operations between the two reservoirs.

Eventually models were developed, refined, and validated to simulate inflows to the Parr Reservoir and understand the downstream flow effects from operations and inventory management practices at Parr. The area modeled included the Congaree gage at Columbia to provide information about the persistence and attenuation of the pulses over this distance. This information was used to develop an adaptive management plan (AMP) to reduce the frequency, duration, and magnitude of flow fluctuations downstream of Parr Shoals Dam that are due to PHP operations and to allow DESC to manage reservoir inventory more proactively.

The AMP has two main goals associated with the two operational practices described above.

1) The first goal of the AMP is to reduce general year-round downstream flow fluctuations. Achieving this goal would benefit the aquatic resources in the Broad River downstream of Parr Shoals Dam by reducing large unnatural (due to operations) daily fluctuations by some amount and by stabilizing wetted habitat.

DESC will develop guidelines for system control and plant operators for modified year-round inventory management practices to reduce downstream flow fluctuations during all months. DESC has also proposed to install a remote controlled camera to provide 24/7 information on conditions in the reservoir. Along with the camera, DESC is proposing to make necessary modifications to allow remote operation of crest gates one and two on the far west side of the Parr Shoals Dam. These gates were identified for remote operation capability as releases from this side of the dam were found to be most effective for enhancing flows in the west channel downstream of the dam (discussed further below under the heading "AMP for Enhancements to the West Channel downstream of Parr Shoals Dam"). Information provided by the cameras would allow remote 24/7 operation of crest gates as opposed to the current operational practice of only making gate adjustments during daytime hours when plant operators are present. DESC is also proposing to investigate the feasibility of controlling the operation of the automated crest gates using a Programmable Logic Controller that could allow more refined operation of the crest gates and a more constant/less variable outflow during spilling events.

2) The second goal of the AMP is to stabilize flows during two 14-day spawning periods:

a) for 14 days during the last two weeks of March (March 15 through March 31) to provide flow stabilization for Shortnose Sturgeon in the Congaree River; and

b) for two 7-day blocks during April 1 through May 10 to provide flow stabilization for numerous species including Striped Bass, American Shad, and Robust Redhorse.

Achieving this goal could potentially improve spawning conditions for all of these species.

DESC will attempt to match inflow and outflow during these periods. DESC will staff the Parr facility 24 hours/day during these periods to manipulate crest gates to more closely track Parr reservoir level and maintain a more constant discharge. The AMPRC consisting of CRSA signatories, and resource and regulatory agencies including DHEC and SCDNR will assess how closely DESC matched outflows to inflows during spring stabilization periods, and will evaluate whether the stabilization goals were met year-round and/or seasonally at annual meetings. Wetted usable area data from the Instream Flow Incremental Methodology (IFIM) study could be used to quantify and evaluate improvements. The committee will develop compliance criteria that will consider safety, emergencies, plant maintenance, and high-flow events.

*While DESC did not propose this portion of the CRSA and FLA as relevant to WQC by including it in the WQC request and supporting material, DHEC agrees with State resource agency comments (summarized below) that this AMP is important for minimizing impacts and improving aquatic habitat conditions and will include this AMP as an enforceable special condition of the WQC. See also Section VI. Conclusions on Water Quality and Classified Uses.*

Note additionally that over time, the equipment at the Parr Development has become less efficient at controlling PHP flows. As set forth in the "Implementation Plan for Upgrade/Replacement of Generators at Parr Shoals Development" included in Exhibit E-2 of the FLA and Appendix A-12 of the CRSA, DESC is proposing to modify or replace generators at the Parr Development during the new license if it is determined that these changes are mechanically and economically feasible. These changes would increase hydraulic capacity through the powerhouse and assist in regulating reservoir inventory, reducing the frequency of spillage at Parr Shoals Dam.

**B. Fill**

**1. Is fill required?**

Yes

**No, proceed to Section II. C.**

**2. Is the fill temporary?**

Yes

No

**C. Excavation**

**1. Is excavation required?**

Yes

**No, proceed to Section II. D.**

**2. Is spoil site adequately sized for amount of material?**

Yes, see Section VI for specific detail

No

**D. Other Direct Impacts to Aquatic Resources**

**1. Are there any other direct impacts to aquatic resources?**

Yes

mechanically cleared wetlands

flooded/impounded wetlands

**No**

**E. Project Modification**

**1. Was the project modified from the original public notice?**

Yes

**No**

**F. Compensatory Mitigation**

**1. Is compensation required by the DHEC?**

Yes

No

**N/A**

**G. Remediation**

**1. Is remediation required?**

Yes

No

**N/A**

**H. Nonpoint Source Concerns**

**1. Are water quality impacts from nonpoint sources expected?**

**Yes**, fluctuations in reservoir levels due to operation of the Fairfield Development can contribute to shoreline erosion in both reservoirs.

No

Temporary

**2. Has the applicant addressed nonpoint source concerns?**

- Yes**, DESC developed a formal Erosion Monitoring Plan for the two reservoirs (September 2017, in Exhibit E-3 of FLA) that will be implemented upon issuance of a New License.
- No
- N/A

**3. Are any enforceable nonpoint controls required by the DHEC?**

- Yes**, water quality impacts from nonpoint sources will be minimized and should not contravene the water quality standards or existing and classified uses of the involved waterbody, if the applicant adheres to the conditions in Section VIII of this staff assessment during operation of the PHP.
- No

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**III. Environmental Assessment**

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**A. Water Dependency**

**1. Is the proposed activity water dependent?**

- Yes**
- No

**B. Feasible Alternatives**

**1. Are there feasible alternatives to the proposed activity?**

- Yes
- No**, the PHP is an existing FERC-licensed hydroelectric project (FERC 1894) with a currently effective license that expires June 30, 2020. The only changes proposed in the application for a new license are measures that were developed through a collaborative stakeholder process and that are intended to reduce impacts to environmental resources and protect and enhance terrestrial and aquatic resources within the PHP boundary and area of influence.

**C. Water Quality Assessment**

**1. Numeric Standards Contraventions?**

- Yes
- No**
- Temporary

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**IV. Public Comments Received and Summary of Comments**

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**A. American Rivers (AR)**

**Date: October 9, 2019**

**Does not object to project provided applicant adheres to recommended conditions, See discussion in Section VI, Conclusions.**

- Hold in abeyance.
- Objects to the proposed project, see discussion in Section VI, Conclusions.
- No objection.
- Has elected to not conduct an investigation nor provide any comments.

AR explained that they are a river and clean water advocacy group whose members, supporters, and volunteers use and enjoy the Broad, Congaree, and Enoree Rivers in the PHP vicinity, as well as the two PHP reservoirs for their ecological, recreational, and aesthetic values. AR explained that their interests include the protection, enhancement, and restoration of designated uses, the physical, chemical, and

biological components of water quality, and other public trust values of the waters affected by the PHP. AR stated that they have an ongoing interest in whether or not the PHP receives Water Quality Certification and the conditions that may be included. AR also reported that they have been an active participant in the relicensing process since September of 2012 and are a signatory of the CRSA.

AR stated the belief that certification conditions may include minimum flow releases for protection of designated uses, citing the PUD No. 1 of Jefferson County v. Washington Dept. of Ecology Supreme Court decision, and specifically mentioning minimum flows with regards to fisheries (aquatic life use). AR also expressed the belief that certification must assure a proposed activity is consistent with antidegradation policies that protect existing uses. AR also explained their view that the purpose of the water quality certification program, and indeed all water quality standards, is to protect the designated uses of the State's waters, concluding that the ultimate test of DHEC's regulatory efforts is protection of designated uses, not simply satisfaction of numeric or chemical criteria. AR emphasized this by further stating that the criteria are the means to an end.

AR then recommended terms of the CRSA and FLA for inclusion in any water quality certification for the PHP to ensure compliance with water quality standards, protection of designated uses, and compliance with antidegradation rules, including:

- 1) minimum flows to support aquatic life;
- 2) minimum flows of 1,000 cfs to support primary and secondary contact recreation uses;
- 3) adaptive management measures to restore flow to the West Channel and reduce downstream flow fluctuations;
- 4) a Habitat Enhancement Program to mitigate ongoing impacts from pump storage operations;
- 5) fulfilling the terms of the Santee Basin Accord in order to meet aquatic life uses through restoration of diadromous fish including monitoring for American eel;
- 6) enhancing DO in the PHP discharge to meet or exceed standards and fully support existing and classified uses by means of turbine venting, etc.; and,
- 7) monitoring and adaptive management measures for rare, threatened, and endangered species including freshwater mussels.

#### **B. South Carolina Department of Natural Resources (SCDNR)**

**Date: October 21, 2019 (SCDNR requested and received an extension of time to comment)**

**(x) Does not object to project provided the applicant adheres to the conditions in Section VIII.**

( ) Hold in abeyance.

( ) Objects to the proposed project, see discussion in Section VI, Conclusions.

( ) No objection.

( ) Has elected to not conduct an investigation nor provide any comments.

The SCDNR noted that DESC's application addresses several water-resource issues of interest and importance to the SCDNR. The SCDNR explained that their role under State law is to act as the principal advocate and steward for natural resources in the State. They further explained that this role includes responsibility for formulating comprehensive policies for water resources through a State Water Plan to address issues affecting water supply, water quality, navigation, hydroelectric power, outdoor recreation, fish and wildlife needs, and other water resource interests. The SCDNR also explained that the agency is additionally charged by State law with statewide responsibilities for regulating watercraft operation and associated recreation on State waters, conducting geological surveys and mapping, promoting soil and water conservation, managing invasive aquatic plants, mitigating flooding, planning and coordinating drought response, and implementing the State scenic rivers program.

The SCDNR stated that their objectives for the PHP include the protection, enhancement, and restoration of natural resources and associated values. The SCDNR then went on to detail their interests specifically related to water resources affected by the PHP, including:

- 1) ensuring recognition of the importance of PHP waters and the need to manage them to achieve

- public benefits;
- 2) maintaining and/or enhancing water quality in the Broad River and PHP reservoirs to meet State Water Quality Standards and support Classified Uses;
  - 3) ensuring the implementation of appropriate instream flows consistent with the State Water Plan to protect water quality, provide for reasonable navigation, protect fish and wildlife resources, and meet present and future water supply demands (municipal, industrial, and agricultural) ;
  - 4) protecting and enhancing fish and wildlife habitats and populations;
  - 5) protecting and enhancing populations of rare, threatened, and endangered species; and,
  - 6) protecting and enhancing public opportunities for fishing, hunting, wildlife viewing, boating, and other outdoor recreation activities.

The SCDNR noted that they participated in the collaborative stakeholder process coordinated by DESC, which culminated in the SCDNR supporting and becoming a signatory to the CRSA, and the provisions of the CRSA being subsequently incorporated into proposed license articles in the FLA submitted by DESC to the FERC on June 28, 2018. The SCDNR then noted that DESC's WQC application included a description of four "measures taken to avoid or minimize impacts to water resources of the Project area." The SCDNR also noted that the four measures correspond to four plans included in both the CRSA and FLA:

- 1) the Parr Shoals Dam Turbine Venting Plan;
- 2) the Enhancements to the West Channel Downstream of Parr Shoals Dam Adaptive Management Plan (AMP);
- 3) the Erosion Monitoring Plan; and,
- 4) the Minimum Flows Downstream of Parr Shoals Dam AMP.

The SCDNR stated that they agree with and are supportive of the four plans presented in the DESC application for WQC. They also noted an additional plan of importance to water resources that is also contained in the CRSA and FLA: the Flow Fluctuations Downstream of Parr Shoals Dam AMP. The SCDNR said that this plan addresses goals of reducing downstream flow fluctuations caused by PHP operations for the purposes of benefiting aquatic resources in the Broad and Congaree Rivers by stabilizing wetted habitat, reducing large daily fluctuations by some amount, and potentially improving spawning conditions for several species of fish, including anadromous American shad, striped bass and the Congaree River population of shortnose sturgeon. The SCDNR said the AMP will address two types of flow fluctuation reductions: stabilization of flows during the spring fish spawning season and general, year-round reductions of flow fluctuations. The SCDNR went on to say that this AMP is of high priority and importance for reducing impacts to water resources that provide habitats for rare, sensitive and valued fish species and other aquatic resources in the river reaches downstream of the Project. and recommended DHEC consider this AMP for inclusion in the measures recognized and required for the WQC.

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**V. Consistency with the Coastal Zone Management Program, R. 48-39-10 *et seq.***

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**Did staff of the Office of Ocean and Coastal Resource Management (OCRM) find the project consistent with the S.C. Coastal Zone Management Program (CZMP)?**

- Yes  
 No  
 N/A

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## VI. Conclusions on Water Quality and Classified Uses

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When evaluating DESC's request for WQC, the DHEC followed procedures for implementing State Water Quality Certification regulations pursuant to Section 401 of the Federal Clean Water Act (33 U.S.C. 1341), and the requirements of South Carolina's Water Quality Certification Regulation (R.61-101, et. seq., 1976 S.C. Code of Laws, as amended).

The SCDNR noted that DESC's WQC application included a description of four "measures taken to avoid or minimize impacts to water resources of the Project area." The SCDNR also noted that the four measures correspond to four plans included in both the CRSA and FLA:

- 1) the Parr Shoals Dam Turbine Venting Plan;
- 2) the Enhancements to the West Channel Downstream of Parr Shoals Dam Adaptive Management Plan (AMP);
- 3) the Erosion Monitoring Plan; and,
- 4) the Minimum Flows Downstream of Parr Shoals Dam AMP.

The SCDNR stated that they agree with and are supportive of the four plans presented in the DESC application for WQC. *DHEC agrees with the SCDNR that these plans are important to water resources affected by the PHP and DHEC stated previously that these portions of the CRSA and FLA will be included as enforceable special conditions of the WQC.*

The SCDNR also noted the "Flow Fluctuations Downstream of Parr Shoals Dam AMP" as an additional plan of importance to water resources that is contained in the FLA and CRSA, but is not included as an avoidance or minimization measure in the WQC application. The SCDNR said that this plan addresses goals of reducing downstream flow fluctuations caused by PHP operations for the purposes of benefiting aquatic resources in the Broad and Congaree Rivers by stabilizing wetted habitat, reducing large daily fluctuations by some amount, and potentially improving spawning conditions for several species of fish, including anadromous American shad, striped bass and the Congaree River population of shortnose sturgeon. The SCDNR said the AMP will address two types of flow fluctuation reductions: stabilization of flows during the spring fish spawning season and general, year-round reductions of flow fluctuations.

The SCDNR concluded their comment letter to DHEC by stating that this AMP is of high priority and importance for reducing impacts to water resources that provide habitats for rare, sensitive and valued fish species and other aquatic resources in the river reaches downstream of the PHP and recommended DHEC consider this AMP for inclusion with the other measures recognized and required for the WQC. *DHEC agrees with the SCDNR and will also include this Plan as an enforceable special condition of the WQC to minimize impacts and improve aquatic habitat conditions.*

AR stated the belief that water quality certification conditions may include minimum flow releases for protection of designated uses, citing the PUD No. 1 of Jefferson County v. Washington Dept. of Ecology Supreme Court decision. *DHEC agrees with AR and stated previously that the WQC will include the Minimum Flows Downstream of the Parr Shoals Dam AMP from the CRSA and FLA as an enforceable special condition to protect designated uses.*

AR recommended additional terms from the CRSA and FLA for inclusion in any water quality certification for the PHP to ensure compliance with water quality standards, protect designated uses, and comply with antidegradation rules. AR recommended adaptive management measures to restore flow to the West Channel, adaptive management measures to reduce downstream flow fluctuations, and provisions to enhance DO in the PHP discharge. *DHEC agrees and stated previously that these CRSA and FLA*

*provisions will be included as enforceable special conditions of the WQC.*

AR recommended minimum flows of 1,000 cfs to support primary and secondary contact recreation uses. Note though that this recommendation is not a part of nor is it consistent with the Minimum Flows Downstream of the Parr Shoals Dam AMP in the CRA and FLA, which for example allows flows less than 1,000 cfs when inflows are less than 1,000 cfs. *Because of inconsistency with the Minimum Flows Downstream of Parr Shoals Dam Adaptive Management Plan, DHEC does not agree with AR and cannot so condition the WQC.*

AR recommended a number of other provisions from the CRSA and FLA for inclusion in the WQC including the Habitat Enhancement Program to mitigate ongoing impacts from pump storage operations; requiring DESC to fulfill the terms of the Santee Basin Accord in order to meet aquatic life uses through restoration of diadromous fish including monitoring for American eel; and, monitoring and adaptive management measures for rare, threatened, and endangered species including freshwater mussels. *Because DESC proposed license articles in the FLA that correspond to these portions of the CRSA, DHEC disagrees with AR and does not find it necessary to include these portions of the CRSA and FLA in the WQC.*

There will be no adverse water quality impacts from the proposed activity provided the applicant adheres to the conditions in Section VIII. DHEC has reasonable assurance that the water quality standards of Regulation 61-68 will not be contravened as a result of the proposed activity. The proposed activity will result in no significant degradation to the aquatic ecosystem or remove existing and classified uses of the Broad River, and Parr and Monticello Reservoirs, and is in compliance with the above regulations provided the applicant adheres to the conditions in Section VIII of this staff assessment. The above assessment also ensures that the proper sequencing of avoidance, minimization, and appropriate compensation for unavoidable impacts has been demonstrated. Information about the technical aspects of this application is available from Rusty Wenerick, the project manager, by calling (803) 898-4266 or by e-mailing [weneriwr@dhec.sc.gov](mailto:weneriwr@dhec.sc.gov).

DHEC reserves the right to impose additional conditions on this WQC to respond to unforeseen, specific problems that might arise and to take any enforcement action necessary to ensure compliance with State water quality standards.

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## **VII. Staff Recommendation**

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### **Issue 401 Water Quality Certification with conditions.**

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## **VIII. Conditions to be Placed on Water Quality Certification When Issued**

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1. Dominion Energy South Carolina, Inc. must operate the Parr Hydroelectric Project (FERC 1894) in accordance with the following plans from the Comprehensive Relicensing Settlement Agreement (CRSA), including adaptive management provisions:
  - a. Flow Fluctuations Downstream of Parr Shoals Dam Adaptive Management Plan (CRSA Appendix A-2)
  - b. Minimum Flows Downstream of Parr Shoals Dam Adaptive Management Plan (CRSA Appendix A-3)

- c. Enhancements to the West Channel Downstream of Parr Shoals Dam Adaptive Management Plan (CRSA Appendix A-10)
  - d. Parr Shoals Dam Turbine Venting Plan (CRSA Appendix A-11)
  - e. Erosion Monitoring Plan (CRSA Appendix A-15)
2. Dominion Energy South Carolina, Inc. must take all necessary measures during Parr Hydroelectric Project operation and maintenance to prevent fuel, oil, tar, trash, debris and other pollutants from entering the adjacent waters or wetlands.

Prepared by: Michelle Rowland Date: 4/20/20

Reviewed & Approved by: Keith Woods for Date: 4/20/2020